This file was created by scanning the printed publication.
Errors identified by the software have been corrected;
however, some errors may remain.

United States
Department of
Agriculture

Forest Service

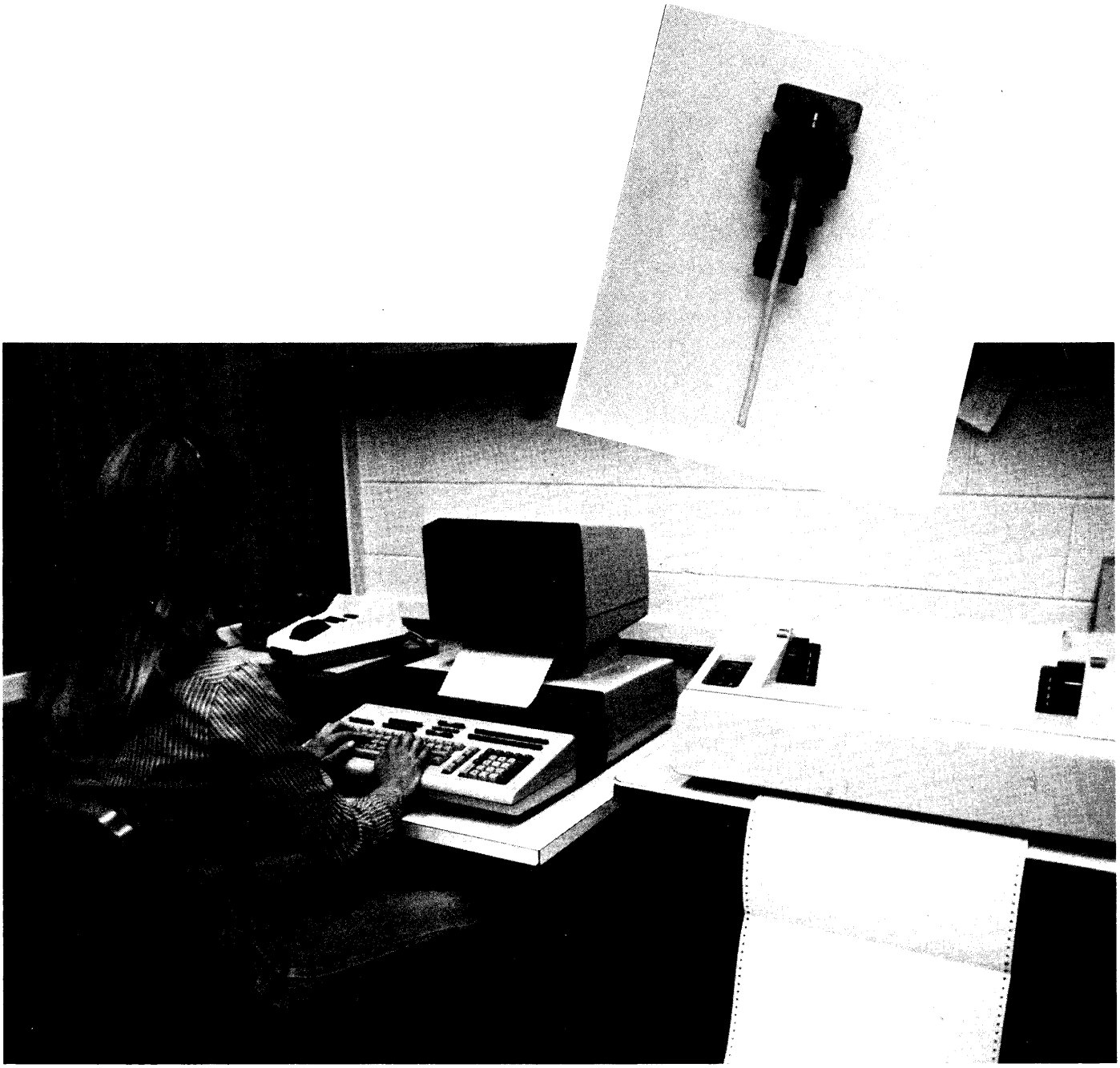
**Intermountain
Forest and Range
Experiment Station
Ogden, UT. 84401**

Research Paper
INT-293

July 1982

A Calibration Model for Screen-caged Peltier Thermocouple Psychrometers

Ray W. Brown and Dale L. Bartos



THE AUTHORS

RAY W. BROWN is a plant physiologist on the Mined-Land Reclamation research project at the Forestry Sciences Laboratory in Logan, Utah. He joined the staff of the Intermountain Station in 1965. He holds a B.S. degree in forestry and an M.S. degree in range ecology from the University of Montana, and a Ph.D. in plant physiology from Utah State University. His main research responsibilities include plant water relations and mined-land revegetation in alpine and other high-elevation life-zones.

DALE L. BARTOS is a range scientist with the aspen ecology research work unit at Logan, Utah. He joined the Intermountain Station in 1972. Bartos holds B.S. and M.S. degrees from Fort Hays Kansas State University, and a Ph.D. degree in range science from Colorado State University. His principal interests include researching and modeling the dynamics of the aspen ecosystem.

ACKNOWLEDGMENTS

We extend a very special note of appreciation to Chester E. Jensen, mathematical statistician, for his tireless assistance, guidance, and encouragement throughout the entire study. Although Chet's efforts were particularly helpful during the model development phase of the research, he also provided expert assistance during both the planning stage and the manuscript review stage. Also, thanks are given to Ross D. Parry, group leader of computer science, for his assistance in preparing the FORTRAN program in appendix I and the tabular printouts in appendix II.

To J. M. Collins, forestry technician, we extend thanks for assistance with the data collection and the hundreds of hours involved in "setting up psychrometer runs," the cleaning, drying, and reassembling of calibration chambers, water baths, and other apparatus used. We also appreciate the assistance of Bryan D. Williams, forestry technician, in programing the Hewlett-Packard 9845-B computer.

The use of trade, firm, or corporation names in this publication is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by the U.S. Department of Agriculture of any product or service to the exclusion of others that may be suitable.

RESEARCH SUMMARY

Calibration is one of the most important steps in using thermocouple psychrometers for estimating water potential. Unfortunately, the calibration process has numerous problems, including: (1) the logistics of calibrating large numbers of psychrometers; (2) applying isothermal calibration data to unstable thermal environments; (3) projecting limited calibration data to extended ranges of temperature and water potential; and (4) visually interpolating and extrapolating data from hand-drawn curves. A mathematical model of psychrometer calibration was developed that should alleviate most of these problems and enhance calibration accuracy. The model applies to a water potential range of 0 to about -80 bars, a temperature range of 0° to 40° C (32° to 104° F) and to Peltier cooling times of from 15 to 60 sec. In addition, the model includes a correction for the effects of temperature gradients on psychrometer performance as reflected by zero-offsets ranging from -60 to +60 microvolts. Within the limits established, this model is applicable to screen-caged psychrometers constructed with 0.0025-cm (0.001-inch) diameter chromel-constantan thermocouples that employ a Peltier cooling current of 5 ma. Techniques of psychrometer calibration and cleaning are discussed together with the details of the model, its application, and limitations.

CONTENTS

United States
Department of
Agriculture

Forest Service

**Intermountain
Forest and Range
Experiment Station
Ogden, UT. 84401**

Research Paper
INT-293

July 1982

A Calibration Model for Screen-caged Peltier Thermocouple Psychrometers

Ray W. Brown and Dale L. Bartos

INTRODUCTION

Thermocouple psychrometers are useful instruments for measuring the water potential of soils, plant tissues, and other media in the laboratory and the field. Unfortunately, they must be carefully calibrated under elaborately controlled conditions to insure accurate data. The calibration process involves establishing the relationship between microvolt output and known water potentials over a range of temperatures. These relationships are usually represented, for each psychrometer, as sets of hand-drawn curves that form the basis for estimating water potential from known microvolt and temperature data. However, calibration is time consuming, expensive, and subject to multiple errors when many psychrometers are used.

Calibration errors are commonly associated with using improper techniques, applying laboratory data to unstable thermal environments, and interpolating data from hand-drawn curves. Because the reliability and accuracy of a thermocouple psychrometer are defined by the quality of its calibration, it is essential that one use proper techniques tempered with stringent adherence to detail and procedure (Brown 1970; Meyn and White 1972; Rawlins 1966; Slavik 1974; Wiebe and others 1971). In addition, it is usually recommended that each psychrometer be calibrated individually because common methods of construction often result in some variability among units that may affect their calibration characteristics (Wiebe and others 1971). However, in recent years the field use of thermocouple psychrometers in large numbers has become a common research method. This seriously complicates the logistical procedures of calibration when attempting to include the entire range of variables likely to be encountered under field conditions for dozens, or perhaps hundreds, of psychrometers.

Serious problems arise when attempting to relate laboratory calibrations made under isothermal conditions to field data collected in unstable thermal environments. Although the errors caused by temperature gradients have long been recognized (Rawlins and Dalton 1967), the normal practice has been to ignore them. Not until Wiebe and others (1977) and Wiebe and Brown (1979) quantified the errors caused by temperature gradients could suggestions be made of how to avoid them, or otherwise minimize their effects. They defined the magnitudes of temperature gradient errors and identified various flaws in psychrometer design that aggravate them. Michel (1979) subsequently studied temperature gradient effects on psychrometer calibration over narrow ranges of microvolts and temperatures.

Four primary variables can be identified as influencing estimates of water potential with thermocouple psychrometers: (1) the microvolt output of the psychrometer; (2) the equilibrium temperature of the sample and the psychrometer; (3) the Peltier cooling current and length of cooling time; and (4) the influence of temperature gradients on psychrometer output. Although psychrometers may differ slightly in their calibration characteristics, generally they all have highly predictable responses to these variables within certain limits (Brown 1970; Meyn and White 1972; Michel 1979; Rawlins 1966; Wiebe and others 1971). Also, calibration characteristics of psychrometers remain rather stable if the thermocouple is kept clean and its geometric position remains unaltered. For example, Brown and Johnston (1976) found that calibration outputs of psychrometers changed only 1.2 percent after 40 months of continuous field exposure.

This strong predictability of response to the four primary variables, together with the long-term stability of calibration characteristics, suggests that mathematical modeling may be useful in circumventing some of the problems associated with psychrometer calibration. A model would provide the interactive form and internal scales for the relations involved, and would express the average performance of the population of psychrometers used in its development. Also, a model would ideally be

applicable to psychrometers of other populations that are constructed with similar materials and techniques. Gross adjustment of the model using a small number of well-controlled calibration measurements would suffice to make the model applicable to any new psychrometer or group of psychrometers. The limits of accuracy would be established by the range of variability among the psychrometers, and could be predicted by model verification. If these limits are acceptable, the model could prove to be highly useful for establishing the calibration characteristics of large numbers of psychrometers with a minimum of time, expense, and possible error due to interpretation of hand-fitted and drawn relationships. Further, using the assumption that the unique characteristics of each psychrometer can be identified with only one or a few calibration points, their responses over the entire range of the four primary variables could be predicted within prescribed limits of error using the model. Estimates of water potential with from one to any number of psychrometers could then be automated by computer programing methods. Although at first glance it may appear that some level of accuracy may be sacrificed by this method, most errors associated with manual data manipulation would be eliminated.

The potential value of psychrometer calibration modeling has long been recognized (Rawlins 1972; Van Haveren and Brown 1972). Unfortunately, only the efforts of Meyn and White (1972) have been documented in detail. Their model was based on the performance of only eight psychrometers, and related microvolt output to a narrow range of water potentials (0 to about -46 bars) over a restricted temperature span, 8° to 25° C (46.4° to 77° F). In addition, their model was valid for only one Peltier cooling time under isothermal conditions. Michel (1979) attempted to predict the effects of temperature gradients on psychrometer estimates of water potential, but only studied narrow ranges of these two variables between 20° and 30° C (68° to 86° F).

The model developed here is designed to predict estimated potentials over the range of environmental conditions most likely to be encountered in the field. Generally, the model predicts water potentials over the range of sensitivity of chromel-constantan Peltier psychrometers, or from 0 to about -80 bars. Also, it applies to an ambient temperature range of 0° to 40° C (32° to 104° F) for Peltier cooling times of 15 to 60 sec, and for temperature gradient conditions that create about ±1° C (±1.8° F) temperature difference between the sensing and reference junctions of the psychrometer (zero-offset of ±60 microvolts). In addition, the predictive model was used to evaluate the following hypotheses:

1. The microvolt response of any given psychrometer (of similar design criteria to those used here) to water potential, temperature, Peltier cooling time, and temperature gradients can be modeled and predicted to within at least the limits of error normally expected with hand-drawn calibration curves.

2. The normal limits of error encountered in calibration can be reduced by adjusting the model over the range of appropriate variables as a function of a few calibration points for any individual psychrometer of similar design.

3. The time and expense normally devoted to hand calibration can be significantly reduced by modeling calibration.

4. Large quantities of either field or laboratory data can be analyzed more quickly and with fewer errors using the model-concept than with conventional methods.

Recent technology advances in electronic instruments permit the use of such a model in microprocessor circuitry with field-operated meters and data storage and retrieval systems. This capacity can significantly reduce the amount of data processing required, and permits nearly instantaneous evaluation of data outputs.

REVIEW OF THEORY CONCEPTS

The development of a model for thermocouple psychrometer calibration depends, in part, upon an understanding of the basic concepts of these instruments. In addition, it is essential to recognize the role of the different variables that affect the performance of psychrometers.

Thermocouple Psychrometers

The theory of how thermocouple psychrometers operate has been described in detail (Spanner 1951; Rawlins 1966; Dalton and Rawlins 1968; Peck 1968, 1969; Brown 1970; Wiebe and others 1971; Brown and Van Haveren 1972; Scotter 1972; and Slavik 1974). Basically, psychrometers are used to infer the water potential of soils, plant tissues, and other media from measurements of equilibrium vapor pressure. Instruments have been designed for use in closed systems within a sealed chamber and for *in situ* use in the field.

Although a variety of design features have been developed, all Peltier thermocouple psychrometers now used have the same basic ingredients. They consist of a thermocouple constructed of 0.00254 - cm (0.001-inch) diameter chromel and constantan wires welded to form a sensing junction. A short distance back from the sensing junction these wires are each attached to separate copper lead wires of large diameter, forming the reference junctions of the psychrometer. The sensing junction and two reference junctions form the essential constituents of a thermocouple psychrometer.

The primary differences among types of psychrometers are the design and material used to construct the protective housing around the thermocouple. Usually the choice of material and the design of the housing are determined by the intended use of the psychrometer, although there are some exceptions. Materials used include ceramic, stainless steel screen, and solid stainless steel or Teflon tubing with a screen end window. The various advantages and disadvantages of these have been discussed (Wiebe and Brown 1979; Wiebe and others 1971; Wiebe, Brown, and Barker 1977; Brown and Van Haveren 1972; Brown 1970).

Measurements of Water Potential

Prior to measuring water potential, the psychrometer is suspended in a closed system containing soil, plant tissue, or other media. Vapor pressure equilibrium is reached when the water potential of the medium and the vapor pressure of the air around it are in dynamic equilibrium. Under isothermal conditions the temperatures of the medium, the air, and the psychrometer are all equal.

When these conditions are achieved, water potential measurements are made using the Peltier effect. A small electrical current (about 5 ma) is passed through the psychrometer circuit from the constantan to the chromel side of the thermocouple for a brief time (usually about 15 sec). This current causes the sensing junction to cool slightly below ambient temperature (the maximum efficiency of chromel-constantan thermocouples is about 0.6° C [1.08° F] below ambient temperature). If the thermocouple is cooled below the dew-point of the atmosphere surrounding it, water vapor in the air will condense on the sensing junction. Following a specified cooling time the current is terminated, and the condensed water on the junction immediately begins to evaporate back into the surrounding atmosphere. During this phase the thermocouple is again cooled, but now as a function of the rate of evaporation, which is a function of the vapor pressure of the atmosphere and hence of the water potential of the medium. In this manner the Peltier effect allows a thermocouple psychrometer to be used as a wet-and-dry bulb instrument.

If the atmosphere adjacent to the thermocouple is at the saturated vapor pressure, the ambient temperature and the dew-point temperature will be identical, and thus water will not evaporate from the sensing junction. This situation corresponds to saturation or a 0 bar water potential, and will be detected as a 0 microvolt output on the meter. However, if a vapor pressure deficit exists in the surrounding atmosphere, evaporative cooling of the wet sensing junction will occur at a rate directly related to the magnitude of the deficit. This corresponds to a drier situation than saturation, and will be detected as a microvolt output from the thermocouple. Thus, the drier the water potential of the medium, the greater will be the microvolt output from the psychrometer. If the water potential is drier than about -85 bars, however, the dew-point temperature will likely be more than 0.6° C (1.08° F) below the ambient temperature. At this point and beyond, the efficiency of the Peltier effect is no longer great enough to condense sufficient water on the sensing junction to achieve stable readings. This represents the approximate lower limit of sensitivity for chromel-constantan thermocouple psychrometers.

General Calibration Procedures

Thermocouple psychrometers can be calibrated by suspending the instrument in a sealed chamber containing a water vapor source of known water potential at a constant temperature (Barrs 1968; Brown 1970; Brown and Van Haveren 1972; Campbell 1972; Meyn and White 1972; Rawlins 1966, 1972; Slavik 1974; Wiebe and others 1971). Normally an electrolyte solution such as NaCl or KCl of known molality is used as a vapor source. The relationship between water potential and solution concentration at various temperatures is available from standard tables (Lang 1967; Wiebe and others 1971: Brown and Van Haveren 1972)

A piece of filter paper saturated with the solution is sealed with the psychrometer in the chamber. Calibration is usually performed in a water bath under isothermal conditions because both psychrometer output and water potential are temperature-dependent variables. Psychrometer outputs in microvolts are then plotted against water potential in bars for several different temperatures to yield a family of curves. Since the relationship between psychrometer output and water potential is not linear throughout the entire range, several different salt solutions are used for each of several temperatures.

The importance of careful and precise calibration technique has been stressed (Rawlins and Dalton 1967; Brown 1970; Wiebe and others 1971; Meyn and White 1972). Everything known about psychrometer responses is based on calibration. Electrolyte solutions must be prepared with great care, and all materials used including the psychrometers, chambers, filter paper, and other accessories must be thoroughly and rigorously cleaned. In addition, care must be exercised in maintaining precise temperature control to minimize the effects of temperature gradients and to accurately establish the relationship between psychrometer output and temperature.

The Role of Temperature Gradients

Temperature gradients are a natural phenomenon (Wiebe and others 1977). Although thermocouple psychrometers are designed and calibrated for use under isothermal conditions, *in situ* applications in the field invariably lead to problems associated with temperature gradients. Thermal instability in a system leads to, among other phenomena, the movement of water vapor from warmer to cooler regions. Essentially, temperature gradients cause errors in estimates of water potential by disrupting the thermal stability between the sensing junction of the psychrometer and the evaporating sample surface, or between the sensing and reference junctions (Rawlins and Dalton 1967; Wiebe and others 1977; Wiebe and Brown 1979; Michel 1979).

Wiebe and Brown (1979) analyzed differences in temperature between the sample and the psychrometer and showed that temperature gradients may cause several types of errors: (1) if the average sample surface and the sensing junction temperatures differ, their vapor pressures will be identical but their relative vapor pressures will differ; (2) water may condense at, or evaporate from, the surface being measured by the psychrometer depending upon the direction of heat movement; and (3) water may become trapped within solid chambers consisting of "end-window" type designs. They concluded

that these errors can be minimized with proper psychrometer design criteria: (1) concentric geometry with the sensing junction located in the middle or toward the distal end of a cylindrical or spherical sample surface; (2) use of single-junction thermocouples that permit detection of thermal gradients; (3) use of materials with low heat conductivity; and (4) miniaturization of components consistent with stability, ruggedness, and ease of construction.

Among the commercially available designs that currently meet these criteria are the ceramic cup and screen-caged units of Wescor and the stainless steel screen-caged units of J. R. D. Merrill. Although these units minimize errors due to temperature differences that may occur between the psychrometer and the sample, such errors may still occur.

The null-output in microvolts of a psychrometer under true isothermal conditions prior to Peltier cooling will be zero. This indicates that the net microvoltage outputs of both the reference and the sensing junctions counterbalance each other, a phenomenon referred to as the Seebeck effect (Van Haveren and Brown 1972). However, when a temperature gradient exists within the psychrometer (the temperatures of the reference junctions and sensing junctions are not equal), the null-output will either be positive or negative depending upon the direction of heat movement. This null-output in microvolts has been termed the "zero-offset" (for instance, the microvolts of offset from zero) by Wiebe and others (1977), Wiebe and Brown (1979), and Michel (1979) and is used to detect the presence and magnitude of temperature gradients.

The output generated by chromel-constantan thermocouples is about 60 microvolts per degree (33.3 microvolts per degree Fahrenheit) in the temperature range of 0° to 70° C (32° to 104° F) (Omega Engineering, Inc. 1976). Thus, an offset from zero of +60 microvolts would indicate that the sensing junction was about 1° C (1.8° F) cooler than the reference junctions, and conversely, a -60 microvolt offset indicates the sensing junction is 1° C (1.8° F) warmer. Although the precise magnitude of a temperature gradient may not always be known, its relative magnitude and direction can be calculated by knowing the offset from zero (Michel 1979) and the distance between the sensing and reference junctions. Generally, positive offsets result in water potential estimates that are too dry (microvolt outputs are too high), whereas negative offsets yield readings that are too wet (microvolt outputs are too low).

METHODS AND PROCEDURES

The influences of the four primary variables on psychrometer performance incorporated in the model were investigated using two different calibration procedures. Isothermal calibration was used to determine the effects on psychrometer output of (1) water potential, (2) equilibrium temperature, and (3) Peltier cooling time. The fourth variable, temperature gradients, was assessed by nonisothermal calibration methods.

Isothermal Calibration

The methods of isothermal calibration used in this study follow the general procedures discussed above with a few modifications. A total of 24 screen-caged single-junction thermocouple psychrometers (fig. 1) were used that had been selected at random from a total population of 270 units (Brown and Collins 1980). These units are identical to those constructed by various commercial companies (J. R. D. Merrill, EMCO, and Wescor) in all respects affecting psychrometers operation and function. Some unique design features were added, which have since been adopted by these companies, but they do not affect the basic characteristics of chromel-constantan instruments. Therefore, it is anticipated that the data collected in this study are representative of similar screen-caged psychrometers employing a protective housing that provides a 360° evaporative surface concentric to the sample surface.

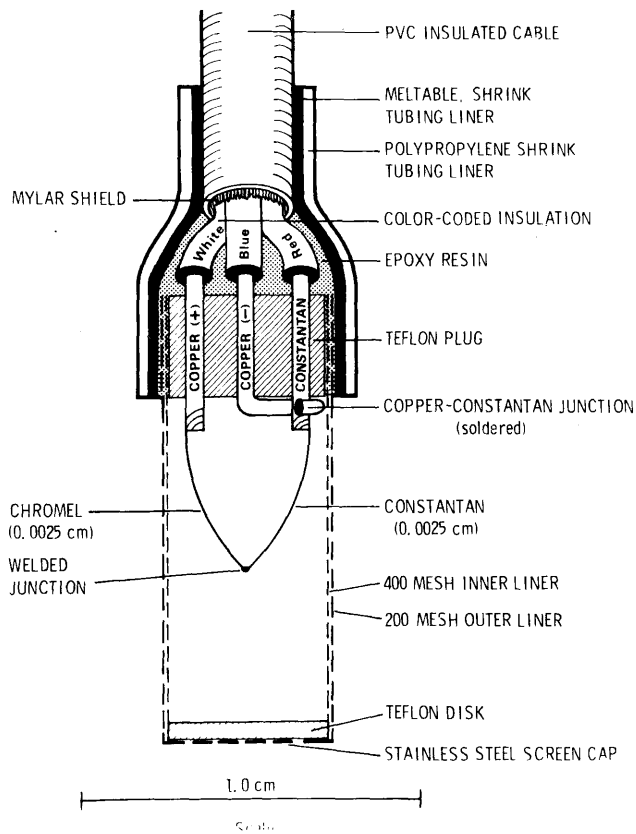


Figure 1.—Screen-caged single-junction Peltier thermocouple psychrometer used to develop the calibration model (after Brown and Collins 1980).

The same 24 psychrometers were used throughout this phase of the study. Each psychrometer was sealed in a stainless steel chamber identical to those described by Brown and Collins (1980) and illustrated in figure 2. With the lower cap removed, the entire sidewall of the chamber around the psychrometer was lined with a Whatman No. 1 filter paper strip previously cut to size. The filter paper was then saturated with a NaCl solution dispensed from a drop-bottle, with the excess poured off and discarded. Then the lower cap was immediately replaced over the chamber and sealed.

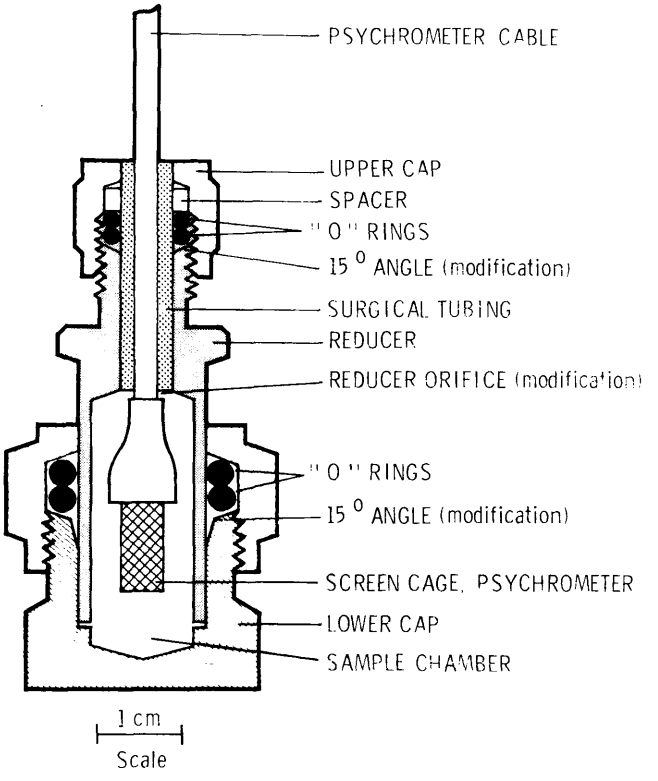


Figure 2.—Stainless steel calibration chamber with sealed psychrometer in place (after Brown and Collins 1980).

A summary of the NaCl molalities and temperatures used in this study appears in table 1, together with the water potentials of the solutions. Each solution was prepared separately with reagent grade NaCl (see Brown and Van Haveren 1972, pages 302-308 for detailed procedures). The 0 molality solution consisted of distilled-deionized water.

A Forma Scientific refrigerated water bath (model 2324) was used to maintain constant temperature control within limits of ±0.01° C (0.018° F). We used a modified top on the bath that provided a rubber seal around both the lead wires of the psychrometers and the rim of the reservoir to reduce the effects of evaporative cooling on bath temperature. The temperature stability within the bath was monitored regularly using four separate measuring systems: (1) two National Bureau of Standards calibrated mercury-in-glass thermometers to the nearest 0.01° C (0.018° F); (2) a thermistor and electronic digital thermometer; (3) a differential copper-constantan thermocouple with a 5-cm (2-inch) span between junctions; and (4) the copper-constantan thermocouple circuit in each of the 24 psychrometers. The bath demonstrated excellent stability at all temperatures under continuous use, and the differential thermocouple never indicated a greater temperature difference than 0.0025° C (0.0045° F) between its junctions.

Table 1.—Summary of water potentials in bars for NaCl molalities and temperatures used in calibration (after Lang 1967)

NaCl molality	Temperature				
	0° C	7.5° C	15° C	25° C	35° C
	— — — — *Water potential, bars* — — — —				
0	0.0	0.0	0.0	0.0	0.0
0.2	-8.36	-8.60	-8.84	-9.15	-9.46
0.5	-20.70	-21.36	-22.00	-22.81	-23.62
0.7	-29.01	-29.98	-30.91	-32.10	-33.28
1.0	-41.69	-43.18	-44.59	-46.40	-48.15
1.5	-63.59	-66.06	-68.37	-71.34	-74.11
1.7	-72.60	-75.50	-78.20	-81.70	-84.90
1.8	-77.30	-80.35	-83.30	-87.00	-90.40
1.9	-81.90	-85.30	-88.40	-92.40	-96.00
2.0	-86.70	-90.25	-93.60	-97.80	-101.60

After the 24 psychrometers were sealed within their chambers they were immersed in the bath. About a 35-cm (14-inch) section of lead wire above the calibration chamber was also submerged into the circulating water to reduce the effects of heat conduction along the wires. Temperature equilibration between the water bath and the chambers was usually achieved within 30 min, but vapor pressure equilibrium within the chambers usually required from 2 to 6 hours. Temperature equilibrium was detected as a 0 microvolt offset on the microvoltmeter (Wiebe and others 1977; Wiebe and Brown 1979), and vapor pressure equilibrium was assumed when two reproducible water potential outputs were read 1 hour apart. The 0 (distilled-deionized water) and 0.2 molal solutions required longer equilibration times, whereas the more concentrated solutions required shorter times. Also, in general, vapor pressure equilibration was slower at cool temperatures and faster at warm temperatures.

In an effort to reduce variability, all 24 psychrometers were calibrated simultaneously with the same solution. The microvolt outputs of each psychrometer were measured with an SB-Systems 600 meter to the nearest 0.1 μV, and temperature was recorded to the nearest 0.1° C (0.18° F). Questionable readings were checked only

after 30 min reequilibration time. The psychrometer outputs were recorded beginning with the 0° C (32° F) temperature first, and then followed successively with each next higher temperature up to 35° C (95° F). We found it convenient to immerse the set of psychrometers in the 0° C (32° F) bath late in the afternoon and allow them to equilibrate overnight. After the readings were recorded the next morning, the bath temperature was reset at 7.5° C (45.5° F). The data at this temperature were then recorded when vapor pressure equilibrium had been reached, and the process was repeated for each successive temperature. Using this procedure, from 3 to 5 days were required to collect the calibration data for each solution.

Chances of water vapor condensation within the chambers were reduced somewhat by sequentially increasing the temperature after each set of readings. However, the first set of readings of 0° C (32° F) may have been affected by water condensation, which would in part explain the much longer equilibration process at this temperature. Once condensate forms within the chamber, reevaporation of the liquid drops and the establishment of vapor pressure equilibration are severely slowed.

All psychrometers and calibration chamber components were thoroughly cleaned and dried each time the NaCl solutions were changed. Each component was sprayed with electronic tuner cleaner (LPS Instant Cleaner, LPS Research Labs., Inc., Los Angeles, CA 90025) to remove grease and other contaminants. Then all components were washed vigorously with distilled-deionized water. A squeeze-bottle with a narrow-neck spout was used to force water into the screen-cage of the psychrometers to remove all traces of tuner cleaner, salt solution, or other contaminants. The components were blown dry with filtered compressed air at 60 psi, and then completely dried at 80° C (176° F) in a forced-draft oven overnight. After the components had cooled to room temperature, maintained between 20° and 25° C (68° to 77° F) the rubber o-ring seals were treated with a thin coat of Dow Corning silicone grease to facilitate proper sealing and movement of parts, and then reassembled.

With the lead wires connected to the meter, psychrometer outputs in microvolts as a function of water potential and temperature were measured with Peltier cooling times of 15, 30, and 60 sec. For our psychrometers we used the optimum Peltier cooling current, which had been previously determined to be 5 ma. Generally the optimum current for chromel-constantan thermocouples of this type is between 3.5 and 5 ma (Merrill and Rawlins 1972). In this manner, data were assembled for inclusion in the model to describe the influence of the first three primary variables on psychrometer performance.

Nonisothermal Calibration

The objective of this phase of the study was to assess the effects of temperature gradients on psychrometer response to known potential and temperature conditions. Six psychrometers of the original 24 were randomly selected and imbedded in a sand column saturated with one of the NaCl solutions. We originally had attempted to use nine psychrometers, but the logistics of the technique proved to be too complex to permit accurate assessment of each instrument in unstable thermal environments. The sand column was contained in a plexiglass tube 11.4 cm in diameter by 35.6 cm length (4.5 inches by 14 inches) fitted with sealable stainless steel plates at both ends

The sand used in the column was a No. 3 grit that had been washed to remove salts and other foreign matter and then dried. The sand was presaturated with an NaCl solution and then allowed to drain while in a sealed plastic bag to reduce evaporation. This moistened sand was lightly packed in the plexiglass tube until it was nearly half full, and then the psychrometers were positioned half way between the two end plates of the column and perpendicular to them. Three of the psychrometers were placed with their sensing junctions facing up and the other three facing down (180 degrees in the other direciton, but parallel to each other). Opposing placement of the psychrometers provided nearly equal, but opposite zero-offsets, when a temperature gradient passed through the system. The psychrometers were positioned about 1 cm (0.39 inch) apart, and moist sand was lightly packed around them to hold them in place. A 30-cm (12-inch) section of lead wire of each psychrometer was coiled at the same location, but away from the zone of immediate influence on the psychrometers, to minimize the effects of heat conduction along the wires. The remainder of the tube was then filled, but care was taken to pack the sand lightly around the psychrometers to insure intimate contact with them. The lead wires of the psychrometers extended up through the sand column and exited the plexiglass tube near the top. The top plate was sealed in place with self-tapping screws, and RTV silicone rubber was used to insure a watertight seal.

The entire tube was submerged in the water bath and allowed to reach temperature and vapor pressure equilibrium. Usually about 3 hours were required to reach temperature equilibrium within the large mass of sand, but between 24 and 48 hours were required to achieve vapor pressure equilibrium. Under these conditions, the zero-offset was first verified at 0 microvolts, and then the water potential and temperature data were recorded. These data served to verify psychrometer consistency between the isothermal and nonisothermal calibration methods. In virtually all cases the same outputs were recorded for given water potentials and temperatures in both experiments. The same NaCl solutions (up to 1.5 m NaCl), temperature range, and Peltier cooling times were used in both the isothermal and nonisothermal experiments.

To achieve nonisothermal conditions around the psychrometers, the sand column was elevated to different levels part way out of the water bath. It was found that, with care, the thermal stability in the sand column could be disrupted and a new temperature gradient induced while maintaining a fairly stable ambient temperature around the psychrometers. The difference in temperature between the water bath and the laboratory room was thus used as the source of temperature gradients in the sand column. By adjusting the level of the column in the water, and by tilting it to various angles, virtually any magnitude of temperature gradient could be achieved. With these kinds of manipulations, reasonably constant temperature gradients could be induced, as indicated by the zero-offset output from the psychrometers. Both positive and negative zero-offsets of large magnitude were easily achieved. As discussed by Michel (1979), positive zero-offsets were generally indicated when the sensing junction was cooler than the reference junctions, and negative offsets when the sensing junction was warmer than the reference junctions, which is the reverse of how Wiebe and others (1977) reported their zero-offset observations.

Wiebe and others (1977) explained that the magnitude of the zero-offset only provides an estimate of the magnitude of temperature gradients. They showed that calculated values of temperature gradients based on the thermocouple thermal constant (60 microvolts per degree) and the dimensions of the thermocouple can vary slightly from measured temperature gradients. They suggested that the sensing and reference junctions likely respond to the "average" temperature of the psychrometer cavity. This explanation is quite plausible since the two reference junctions may be at different temperatures while the sensing junction may be at yet another temperature. Thus, the direction of heat movement within the psychrometer cavity can influence the magnitude of the zero-offset microvoltage with virtually infinite variations.

Therefore, we did not measure the actual temperature gradients within the sand column with separate thermocouples since such data are of little or no value for developing a predictive model, and since the opportunity to do so under field conditions is rarely available (except where two or more psychrometers are stacked in the soil). Rather, we relied on the assumption that, for given water potentials and ambient temperatures, each level of zero-offset would yield an error of consistent magnitude. Our preliminary studies to verify this, together with the final analyses of the data, showed that the assumption was correct. However, of even greater importance is the fact that zero-offsets and associated estimates of water potential could be repeatedly reproduced for each set of temperature and NaCl molality conditions. Michel (1979) similarly found that zero-offsets affect water potentials in a predictable manner, and concluded that they can be used to correct the estimates of water potential made under thermal gradients. Our data and experience suggest that zero-offsets alone are of little value as direct measures of temperature gradients, as originally suggested by Wiebe and others (1977), but are essential for adjusting microvolt outputs to correct estimates of water potential directly affected by the temperature gradient.

An attempt was made to allow the system to achieve a stable thermal gradient before data were collected, but the time required to reach stability varied with different temperature conditions. Usually an hour or more was required to achieve stable temperature gradients for each new position of the sand column in the water bath. When a desired level of temperature gradient (or, more correctly, zero-offset) was reached, the zero-offset, water potential estimate in microvolts, and the ambient temperature for each psychrometer were recorded. Prior field experience suggested that most observed zero-offsets commonly occur within the range of about -60 to +60 microvolts. These extremes of zero-offset were therefore selected as the limits for the predictive model, although occasional field observations may stray well beyond these limits.

RESULTS AND DISCUSSION

Psychrometer Responses

The psychrometer calibration data collected under isothermal conditions are summarized in table 2 and figure 3 a, b, and c. Generally these data show that the 24 psychrometers used here display the same calibration characteristics as those of different design and manufacture (Brown 1970; Meyn and White 1972; Wiebe and others 1971). The mean microvolt outputs increase with longer Peltier cooling times and with increasing temperatures. Outputs increase from 0 microvolt at 0 molality (0 bar water potential) to a maximum near 1.8 molal (about -75 to -90 bars, depending upon temperature), and then decrease sharply beyond this point. Thermocouple psychrometers with similar design features as those used here are most sensitive in the range of 0 to about -80 bars, and sensitivity increases with temperature. At water potentials drier than about -80 bars their sensitivity declines rapidly, and the variability among psychrometers increases substantially. Beyond the region of maximum microvolt output, the variability among psychrometers is so great that it is of little or no predictive interest. Therefore, only the water potential region of maximum sensitivity (0 to about -80 bars) was included in the predictive calibration model. The 1.9 and 2.0 molal data in table 2 are only included here to illustrate the rapid decline in psychrometer output at these dry water potentials.

It is interesting to note the low microvolt outputs for the 0 molal (0 bar) solution. Other workers have frequently reported small positive outputs of about 0.2 to 0.5 microvolt at 0 bar water potential, presumably due to water absorption on chamber walls or heating of the reference junctions during Peltier cooling (Meyn and White 1972; Wiebe and others 1971). We found that the theoretical output of 0 microvolt could be achieved routinely if we adhered to scrupulous cleaning procedures and long equilibration times of 15 to 20 hours.

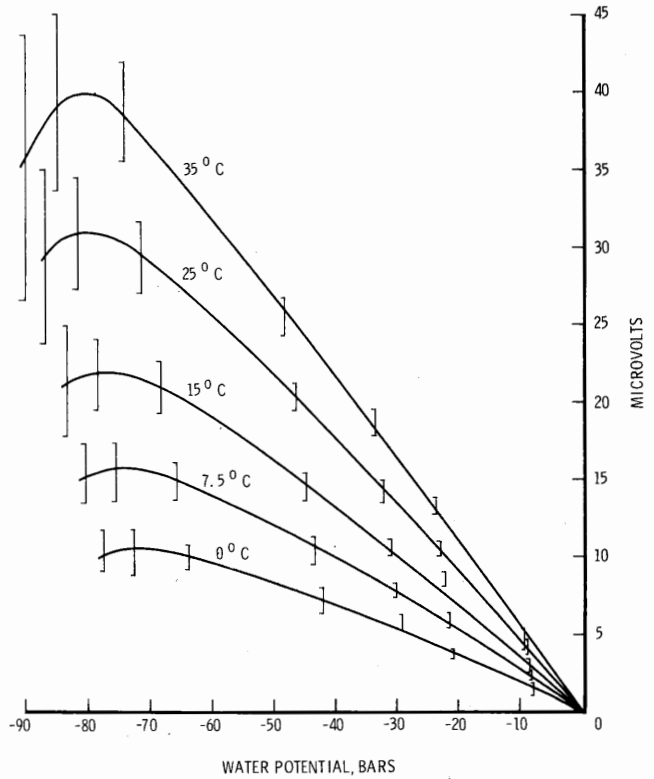


Figure 3a.—Calibration curves for isothermal conditions with 15-sec cool time. Standard deviation shown for each set of data.

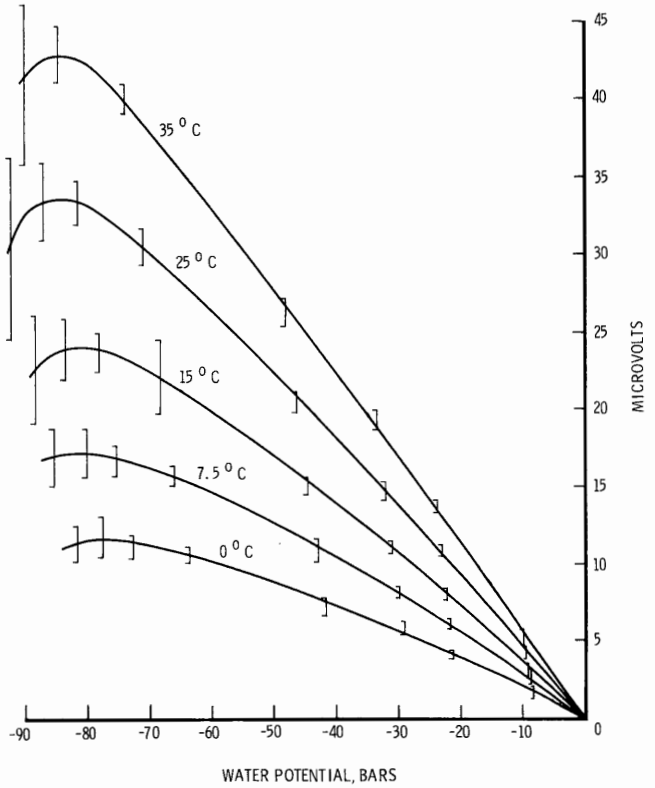


Figure 3b.—Calibration curves for isothermal conditions with 30-sec cool time. Standard deviation shown for each set of data.

Table 2.—Summary of isothermal calibration data for each NaCl molality, temperature (°C), and Peltier cooling time (seconds). Values shown are in microvolts. The upper value in each row is the mean ($\bar{x}$) for the 24 psychrometers, and the lower value is the standard deviation (sd)

NaCl molality		Temperature and cooling time (seconds)														
		0 °C			7.5 °C			15 °C			25 °C			35 °C		
		15	30	60	15	30	60	15	30	60	15	30	60	15	30	60
0	($\bar{x}$)	0.00	0.00	0.10	0.00	0.00	0.10	0.10	0.10	0.10	0.00	0.00	0.10	0.00	0.10	0.10
	(sd)	.00	.00	.00	.00	.00	.10	.00	.00	.10	.00	.00	.10	.00	.00	.10
0.2	($\bar{x}$)	1.38	1.64	1.82	2.26	2.47	2.61	2.87	3.05	3.28	4.02	4.15	4.47	4.75	5.04	5.33
	(sd)	.40	.38	.37	.41	.40	.37	.44	.40	.40	.58	.48	.45	.73	.54	.50
0.5	($\bar{x}$)	3.71	3.95	4.17	5.97	6.10	6.41	7.65	7.95	8.27	10.51	10.79	11.12	13.25	13.68	14.03
	(sd)	.30	.24	.24	.35	.30	.27	.39	.31	.21	.45	.35	.26	.46	.35	.22
0.7	($\bar{x}$)	5.63	5.75	5.85	7.78	8.12	8.40	10.62	11.02	11.33	14.23	14.64	15.04	18.71	19.34	19.73
	(sd)	.41	.40	.42	.47	.35	.31	.52	.38	.30	.73	.55	.44	.63	.57	.41
1.0	($\bar{x}$)	7.04	7.21	7.55	10.32	10.67	11.10	14.46	14.92	15.35	20.35	20.88	21.62	25.97	26.16	27.23
	(sd)	.70	.60	.53	.96	.65	.48	.93	.59	.48	.96	.65	.56	.91	.90	.52
1.5	($\bar{x}$)	9.91	10.45	10.96	14.82	15.51	16.14	20.91	22.04	22.30	29.37	30.42	31.33	38.68	39.95	40.79
	(sd)	.70	.61	.53	.96	.81	.75	1.12	2.39	.92	1.45	1.20	1.17	1.20	.98	.97
1.7	($\bar{x}$)	10.16	11.11	11.81	15.38	16.60	17.50	21.73	23.68	24.81	30.80	33.37	34.94	39.30	42.91	44.94
	(sd)	.77	.78	.74	1.20	1.04	.92	1.69	1.30	1.08	2.30	1.43	1.25	3.23	1.83	1.35
1.8	($\bar{x}$)	10.39	11.56	12.63	15.30	17.13	18.50	21.27	23.88	25.46	29.17	33.40	35.73	34.98	40.93	44.96
	(sd)	1.54	1.27	1.05	1.99	1.62	1.34	2.51	1.87	1.41	3.72	2.62	1.76	5.79	5.20	3.64
1.9	($\bar{x}$)	9.52	11.17	12.40	14.45	16.78	18.32	18.96	22.45	24.93	25.29	30.29	33.89	28.67	35.57	40.45
	(sd)	1.33	1.18	.95	1.91	1.85	1.80	3.56	3.63	3.31	5.63	5.96	5.76	8.56	9.90	10.44
2.0	($\bar{x}$)	7.26	9.34	10.75	10.81	12.97	15.76	14.19	17.53	20.40	16.00	19.80	23.16	17.78	20.60	24.62
	(sd)	2.51	2.46	2.66	3.77	4.32	4.71	6.22	6.85	7.31	9.86	11.36	12.47	13.32	14.97	16.54

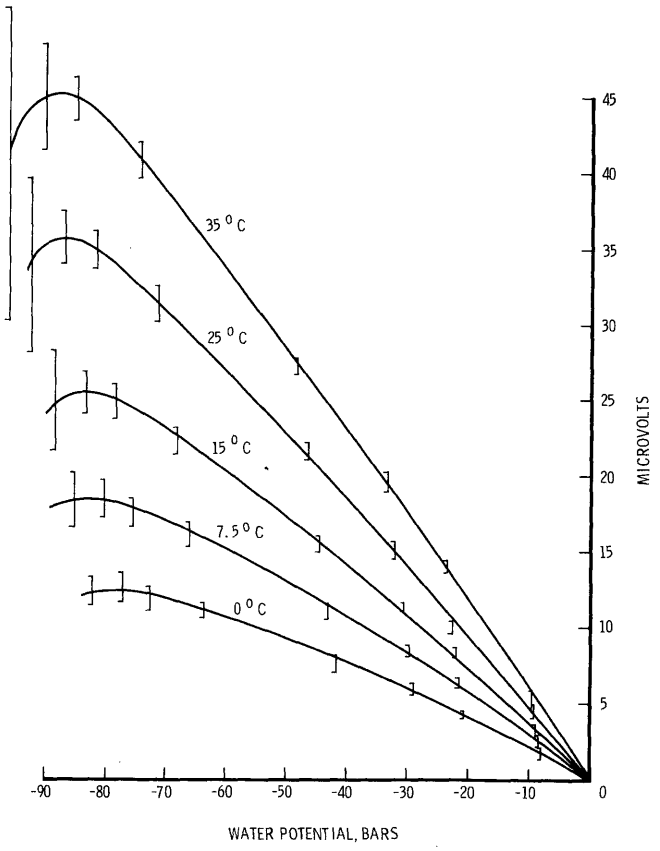


Figure 3c.—Calibration curves for isothermal conditions with 60-sec cool time. Standard deviation shown for each set of data.

The standard deviations (sd) in table 2, and illustrated in figure 3, indicate both the variability among the 24 psychrometers and the ranges of water potentials and temperatures over which they display their greatest consistency. Generally the psychrometers were most variable at the extreme water potentials and at the cooler temperatures studied. However, in most cases the standard deviations were 10 percent or less of the mean outputs at water potentials ranging from about -10 to -80 bars throughout the temperature range studied. Also, longer Peltier cooling times resulted in less variability.

The relationships between psychrometer output and zero-offset obtained from nonisothermal calibration were established for each temperature regime, NaCl solution (up to 1.5 m), and Peltier cool time. An example of one such relationship for the six psychrometers used is illustrated in figure 4 for 25° C (77° F) at 0.5 m NaCl using 15-sec Peltier cool time. As was typical for all such relationships, the outputs of the six psychrometers used in the nonisothermal calibration at an offset of 0 microvolts were within the limits of ±1 sd of the mean output of all 24 psychrometers calibrated under the same conditions shown in table 2. The example in figure 4 illustrates that under positive zero-offset conditions, psychrometer outputs tend to be higher than under isothermal conditions. But, under negative zero-offset conditions, outputs tend to be lower than those under isothermal conditions (Wiebe and others 1977; Michel 1979). This relationship is strongly linear for all conditions studied with r^2 values ranging between 0.82 and 0.99 (table 3). The intercepts (b), slopes (a), and r^2 values of the psychrometer output versus zero-offset relationship for other water potentials and temperatures at 15-sec cool time are shown in table 3. Similar data were also collected for the 30- and 60-sec

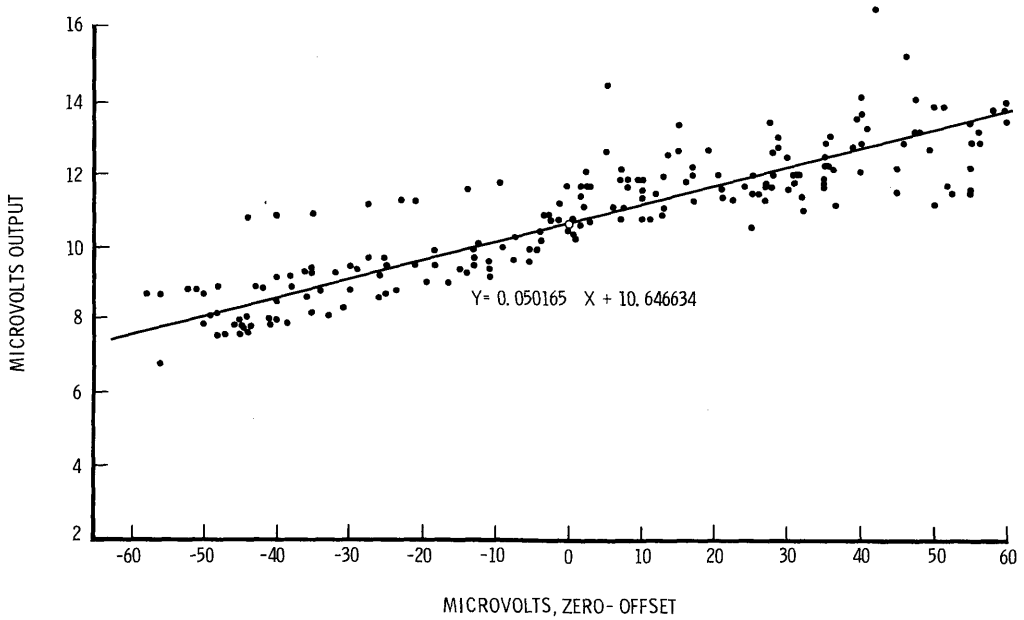


Figure 4.—Relationship between psychrometer output in microvolts and zero-offset at 25° C for 0.5 m NaCl solution and 15-sec cool time.

cool times, but the level of sampling was not as intensive.

The data in table 3 clearly show a strong effect of water potential on slope over the entire range of conditions sampled. Except at 0 bar water potential, the slopes increased with increasing temperature and decreasing water potential. Michel (1979) found this effect of temperature but found no effect of water potential. Michel (1979) studied narrower ranges of water potential (-5to-20 bars), temperatures (20° to 30° C [68° to 86° F]), and zero-offsets (-5 to +8 microvolts), and it is highly possible that the effects of water potential were masked by the variability among his observations. This leads to the conclusion that psychrometer output errors are the same at different water potentials. By selecting similarly narrow ranges within our own data (see fig. 4, between-5 and +8 microvolts of zero-offset), we were able to calculate slope values that resemble those presented by Michel (1979). It is apparent that a clearer and more accurate assessment of psychrometer response is possible when broader ranges of conditions are studied. As a result, his suggestion that each microvolt of zero-offset is accompanied by an error of 1.75 bars water potential, although accurate for his instruments, does not apply to psychrometers similar to those used here. It is now evident that a fixed level of error is not consistent with how screen-caged thermocouple psychrometers like those used in this study respond to these variables.

The magnitude of errors in psychrometer output caused by zero-offset (temperature gradients) is affected by both temperature and water potential. The effect of temperature is illustrated in figure 5, wherein the slopes of the curves relating output and zero-offset (table 3) were used to construct the relationship between psychrometer error and zero-offset. In this illustration, the data for the 0.5 m NaCl solution and the 15-sec cool time are displayed at temperatures ranging from 0° to 40° C (32° to 104° F). The y-axis represents the error in microvolts of psychrometer output for the range of zero-offsets and temperatures studied, and shows that psychrometer outputs are too high when positive zero-offset conditions

Table 3.—Intercepts (b), slopes (a), and r^2 values for psychrometer microvolt output vs. zero-offset for 15-second cool time

Temperature, °C		NaCl molal solution			
		0	0.5	1.0	1.5
0	b	0.018	3.944	7.191	9.884
	a	.011	.014	.029	.038
	r^2	.905	.899	.886	.884
7.5	b	.009	5.963	10.892	15.000
	a	.001	.029	.047	.065
	r^2	.891	.980	.887	.936
15	b	.101	7.919	14.865	20.717
	a	.010	.038	.069	.094
	r^2	.839	.893	.919	.989
25	b	.106	10.647	20.426	29.318
	a	.001	.050	.108	.141
	r^2	.950	.821	.862	.961
35	b	.100	13.441	26.195	38.208
	a	.013	.069	.133	.197
	r^2	.936	.896	.969	.897

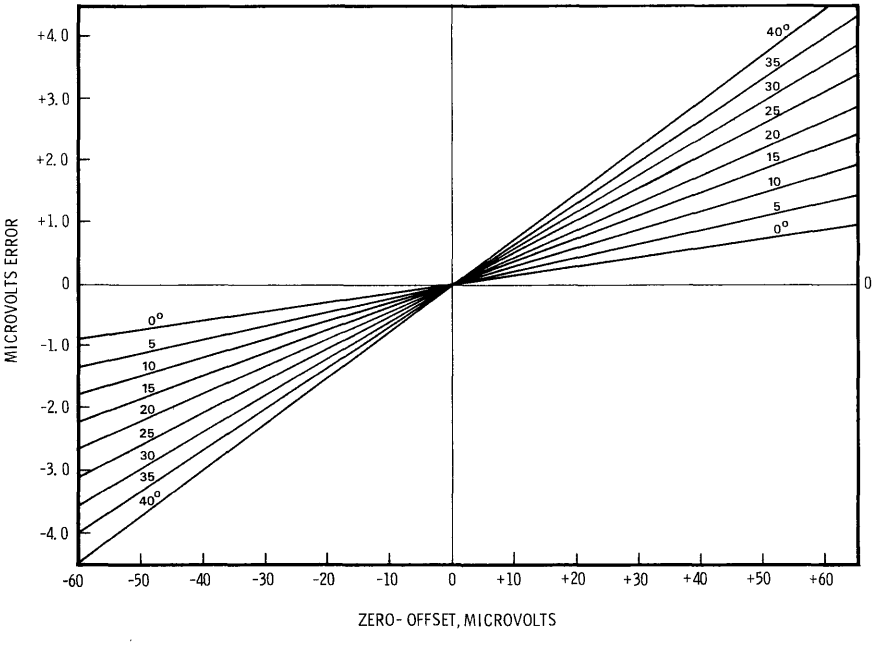


Figure 5.—Relationship between psychrometer error in microvolts and zero-offset for 0.5 m NaCl and 15-sec cool time for temperatures ranging between 0° and 40° C.

prevail, and are too low when negative zero-offset conditions prevail. Also, the size of the error is magnified as the temperature increases from 0° to 40° C (32° to 104° F), and as the zero-offset deviates further from 0 microvolts.

An example of the effect of temperature gradients (expressed as zero-offset) and water potential on psychrometer output is shown in table 4 for 25° C (77° F) and 15-sec cool time. The number of observations (n) shown for each zero-offset from 0 to ±60 microvolts represents only a small sample of all the observations made at other temperature gradients under these conditions. The mean psychrometer outputs in microvolts ($\bar{x}$) and their corresponding standard deviations (sd) illustrate, for this range of water potentials (0 to -71.3 bars), the general response and the range of variability that psychrometers display under temperature gradient conditions. Under isothermal conditions (0 zero-offset), the data are very similar to those shown in table 2 for the same conditions. Of considerable interest is the apparent lack of psychrometer response to temperature gradients at 0 bar water potential. This same effect was noted at the other temperature regimes studied, indicating that psychrometers are relatively insensitive to temperature gradients (between ±60 microvolts) under saturated conditions. Apparently vapor pressure differences within the psychrometer cavity are insufficient to cause a psychrometer response to temperature gradients under saturated conditions. However, as the water potential declines, psychrometer output progressively deviates from the expected isothermal output as zero-offset increases or decreases from 0 microvolt (the slope data in table 3 also show the same effect). The same basic relationships were also observed for all other temperatures and cooling times studied. The magnitudes of deviation in psychrometer output from isothermal calibration values tend to be greater at warmer temperatures and under longer Peltier cooling times, and are smaller at cooler temperatures and short cooling times.

The effect of temperature gradients (zero-offset) on psychrometer output is highly complex, and yet bears some rather subtle characteristics. Figure 6 illustrates the 0 to ±60 microvolt zero-offset data from table 4, and shows just how large an error zero-offset can cause in estimates of water potential with thermocouple

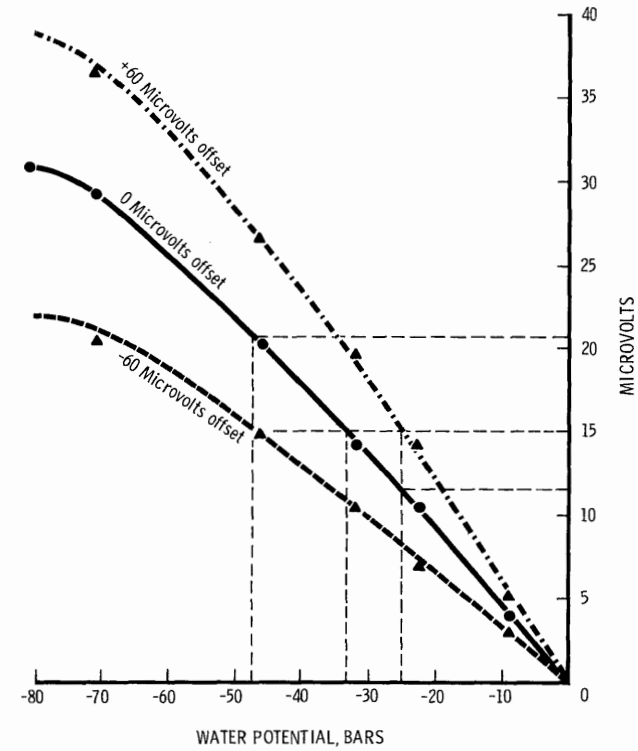


Figure 6.—Effect of zero-offset at +60, 0, and -60 microvolts on psychrometer output at 25° C and 15-sec cool time.

Table 4.—Effect of zero-offset and water potential on psychrometer output at 25°C with 15-second Peltier cool time. Number of observations (n), mean psychrometer output in microvolts ($\bar{x}$), and one standard deviation (sd) are shown

Zero-offset	Water potential, bars											
	0 (0 m NaCl)			−22.8 (0.5 m NaCl)			−46.4 (1.0 m NaCl)			−71.3 (1.5 m NaCl)		
	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd	n	$\bar{x}$	sd
0	21	0.1	0.1	20	10.4	0.3	20	20.5	0.5	15	29.2	0.5
−5	6	.1	.1	9	10.0	.2	9	19.7	.4	9	28.0	.6
+5	6	.1	.1	9	10.6	.1	9	20.9	.4	9	29.3	.6
−15	9	.2	.1	6	9.8	.3	6	18.3	.6	6	27.0	.7
+15	9	.1	.1	6	11.4	.3	6	21.5	.6	6	30.6	.8
−30	9	.1	.1	6	8.8	.4	6	17.1	.5	8	24.7	1.3
+30	9	.1	.1	6	11.9	.6	6	23.5	.7	8	33.6	1.1
−60	10	.2	.1	15	6.9	.5	12	14.9	.9	12	20.5	1.4
+60	10	.1	.1	15	14.3	.7	12	26.7	1.4	12	36.5	1.6

psychrometers. In its simplest form a reading of 15 microvolts under isothermal conditions (for the example in fig. 6) would indicate a water potential of about -33 bars. However, if a temperature gradient resulting in a zero-offset of +60 microvolts existed, the actual water potential for that reading would only be-25 bars. Had the zero-offset been ignored (which is a common practice), an error of 8 bars in the estimate would have resulted. On the other hand, if a-60 microvolt zero-offset occurred, the actual water potential would have been -47.5 bars, resulting in an error of about 14.5 bars if the correction were not made. The subtlety here is that for a given water potential, temperature, zero-offset, and cooling time, only one unique microvolt output is possible (within certain limits and assuming no condensation has occurred within the psychrometer). For instance, if the water potential was-25 bars in the example of figure 6, an output of 15 microvolts could only occur if a zero-offset of +60 microvolts also occurred simultaneously. Had there been no zero-offset (isothermal conditions), the psychrometer output could have only been about 11.5 microvolts (± some acceptable level of error). Conversely, if the medium was at-47.5 bars, the psychrometer output could only be about 20.6 microvolts if the offset was 0, or 15 microvolts if it was -60.

The progressively diverging zero-offset curves away from the isothermal calibration curve were not entirely anticipated. This relationship is particularly noticeable at the extreme zero-offsets such as those illustrated in figure 6. Of particular interest is the similarity of zero-offset curves to isothermal curves of other temperatures relative to 25° C (77° F). For example, the +60 and -60 microvolt zero-offset curves bear a striking similarity to the 35° and 15° C (95° and 59° F) temperature curves, respectively, shown in figure 3a. Although a comparison of their relative slopes (for instance,-0.284 at 15° C [59° F] and -0.289 and -60 microvolts, and -0.482 at 35° C [95° F] and -0.511 at +60 microvolts) shows they are not identical, their similarity suggests a possible relationship. Under a positive zero-offset, when the sensing junction is cooler than the reference junctions, psychrometer sensitivity (microvolts/bar) is enhanced somewhat as if temperature had been increased. But, under negative zero-offsets, sensitivity is depressed in a similar manner as if temperature had been decreased.

The validity of a predictive model for thermocouple psychrometers is based on the assumption that the relationships among temperature, water potential, cooling time, and temperature gradients are all reproducible for any given similar psychrometer, and that the variability among units is acceptably small. The data, such as those illustrated in figures 3, 4, 5, and 6, and those shown in tables 2. 3, and 4 appear to meet these criteria. Large numbers of observations made with numerous psychrometers, together with their relatively small standard deviations, indicate these relationships are all highly predictable.

The Predictive Model

The relationships between psychrometer outputs in microvolts and water potentials in bars form the basis of the predictive model. The data in table 2 and illustrated in figure 3a, b, and c, define the approximate limits of the isothermal portion of the model. Generally, the model is applicable within the temperature range of 0° to 40° C (32° to 104° F) for water potentials ranging from 0 to about -80 bars. The effects of both Peltier cooling time between 15 and 60 sec (for a 5-ma current), and zero-offset between-60 and +60 microvolts are also incorporated. Appropriate power functions and e-transforms were fitted to the data by least squares methods (Jensen and Homeyer 1970; 1971; Jensen 1973, 1976, 1979). The resulting model had an r^2 of 0.99 and performs acceptably throughout the required range of imposed conditions.

The overall modeling rationale was one of expressing microvolts (MV) as a calibrated function of water potential in bars (WP), temperature in degrees centigrade (Temp), and length of Peltier cooling time (Sec). The resulting function was then solved for WP, the final item of predictive interest.

For each of the 15 temperature and cooling time combinations, the curves of microvolts over water

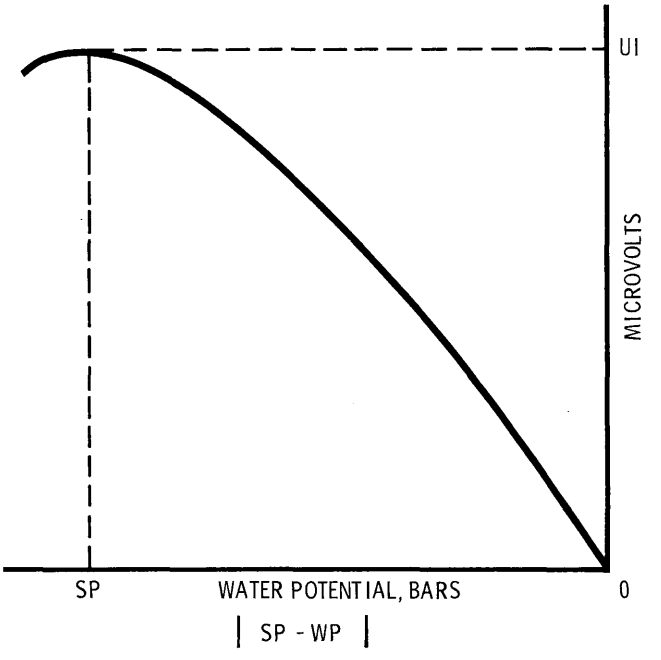


Figure 7.—Generalized relationship between microvolt output and water potential showing the relative positions of the curve peak (SP) and the scaled difference (UI) in microvolts at peak height.

potential were clearly defined by the array of observation means. All 15 trends were smoothed manually (fig. 3a, b, and c) and the entire relationship was described mathematically. Each curve over water potential was of the composite form: height of the peak (upper intercept, UI), minus a relatively flat power function ($1.18 \leq N \leq 1.36$) of the absolute difference between the point in water potential at which the curve peaked (SP) and some specified WP (for example, $|SP - WP|^N$) (fig. 7); scaled to the difference between UI and zero (= UI), for example $(UI/|SP|^N) * |SP - WP|^N$, or in total,

$$MV = UI - (UI/|SP|^N) * |SP - WP|^N \quad (1)$$

The inputs N, UI, and SP in equation 1 were found to vary over both temperature and time. For example, N varied sigmoidally over temperature (fig. 8) as follows:

$$N = 1.18 + 0.185 \left[\frac{e^{-\left|\frac{(40\text{-Temp})}{40} - 1\right|^M} - e^{-\left(\frac{1}{1-I}\right)^M}}{1 - e^{-\left(\frac{1}{1-I}\right)^M}} \right] \quad (2)$$

where the inflection point (I) varied as a power function over time, so that

$$I = 0.45 + 0.000333(Sec) + (1.9846 \times 10^{-19}) * (Sec)^{10}, \quad (3)$$

and M varied as a sigmoid over time,

$$M = 2.5 + e^{-\left|\frac{(60\text{-Sec})}{60} - 1\right|^{3.0}} \quad (4)$$

UI varied as a flat power function over temperature, such that

$$UI = INT_1 + 0.017288 * YP_1 * (Temp)^{1.1} \quad (5)$$

where INT_1 and YP_1 change over time;

$$INT_1 = 12.1 - 0.003475\ (60\text{-Sec})^{1.63} \quad (6)$$

and

$$YP_1 = 39.2 - 0.0004346\ (60\text{-Sec})^{2.45} \quad (7)$$

The point in the range of WP at which the curves peak (SP) varied as a flat power function of temperature, where

$$SP = INT_2 - YP_2 * 0.00017185\ (40\text{-Temp})^{2.35} \quad (8)$$

where INT_2 and YP_2 changed over time so that;

$$INT_2 = 88 - 0.0002579\ (60\text{-Sec})^{2.7} \quad (9)$$

and

$$YP_2 = 8.4 + 2.734 \times 10^{-7}\ (60\text{-Sec})^{3.97} \quad (10)$$

The model to this point is applicable only under isothermal conditions. Where temperature gradients exist, microvolt readings are either increased or decreased from those with no gradient, depending upon the extent of the gradient and its direction. A measure of difference and direction is available in zero-offset microvolts (OMV), quantified in figure 5 as to its effect on the microvolt reading. Note that the effect changes with the average temperature of the medium. For convenience, this effect is called zero-offset error (ZOE) and is described mathematically from figure 5 as:

$$ZOE = 0.015\ (OMV) + 0.001471\ (TEMP)\ (OMV) \quad (11)$$

Correction of ZOE to that for cooling times other than 15 sec is provided by the ratio

$$(MVS/MV_{15}) * ZOE,$$

where MVS is the MV for whatever temperature and cooling time is specified, and MV_{15} is the MV at the same temperature and at the 15-sec cooling time. Both MVS and MV_{15} were collected at WP = -22.5 bars. A water potential of -22.5 bars is a compromise between the extremes of the entire water potential range studied, and represents the point at which the zero-offset effects were studied in the laboratory. Since the effects of zero-offset on psychrometer output are linearly related to changes in temperature, they are proportional at any water potential and temperature to an arbitrarily fixed point, here set at -22.5 bars.

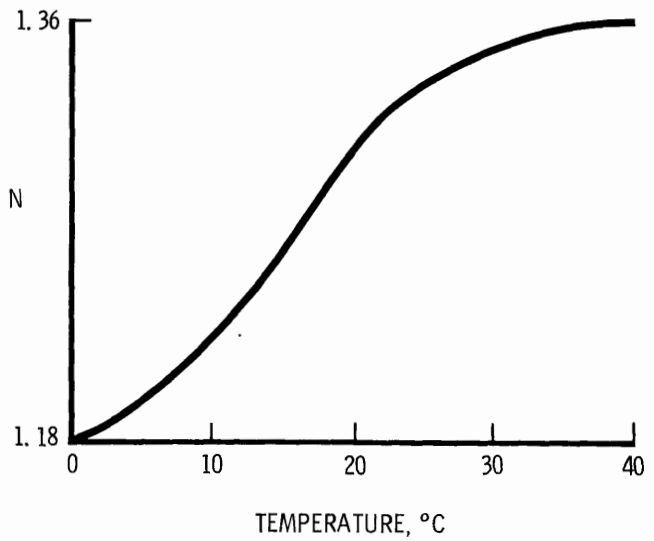


Figure 8.—Sigmoid relationship between N and temperature for 0° to 40° C.

The isothermal MV in equation 1 is then multiplied by the ratio 1/C to arrive at MV corrected for ZOE, where

$$C = \frac{MVS + \left(\frac{MVS}{MV_{15}}\right) * ZOE}{MVS} \quad (12)$$

and where C now provides a proportional correction to MV for any combination of WP, Temp, or Sec. Note that when ZOE is negative, C will be less than 1.0, and MV in MV/C becomes larger to compensate for the negative errors (fig. 5). When ZOE is positive, C will be greater than 1.0 and MV in MV/C becomes smaller to compensate the positive errors.

Finally, having multiplied the left side of equation 1 by 1/C to arrive at MV/C, we solved the resulting equation for observed microvolts (applicable under either isothermal or nonisothermal conditions),

$$MV = UI * C - \left(\frac{UI * C}{|SP|^N}\right) * |SP - WP|^N \quad (13)$$

where,

$$|SP - WP|^N = \frac{[(UI * C) - MV]}{\left(\frac{UI * C}{|SP|^N}\right)} \quad (14)$$

thus, the predicted water potential $(\widehat{WP})$ can be solved as

$$\widehat{WP} = \left\{\left[\frac{|SP|^N * ((UI * C) - MV)}{UI * C}\right]^{\frac{1}{N}} + SP\right\} * (-1) \quad (15)$$

within the limits $SP \leq \widehat{WP} \leq 0$.

The following parameters must be supplied to predict water potential with the model:

MV = microvolts psychrometer output,
OMV = zero-offset (-60 to +60 MV),
Temp = temperature (0° to 40° C), and
Sec = seconds cooling time (15 to 60 sec).

A program of the predictive model in FORTRAN and BASIC is presented in appendix I, together with a list of programing steps. We have successfully used the Monroe Model 1880, the Hewlett-Packard 9845B desk-top computer, and the Amdahl 470 V/6-II to predict water potentials over the entire range of the model. A limited computer printout of predicted water potentials is presented in appendix II for cooling times of 15, 30, and 60 seconds and for the temperature range of 0° to 40° C (32° to 104° F), with psychrometer output in microvolts for zero-offsets ranging from -60 to +60 microvolts.

The model is represented in three-dimensional form in figure 9 for the 60-sec cool time only. The relationships among the various factors are represented as surfaces for the extreme limits of zero-offset (from -60 to + 60 microvolts). Shorter cooling times would slightly lower the slopes of each surface, but the total effect is too small to illustrate effectively at the scale shown. This illustration shows the limits of the data in appendix II as well as the relative shapes of the surfaces for the conditions represented by the model.

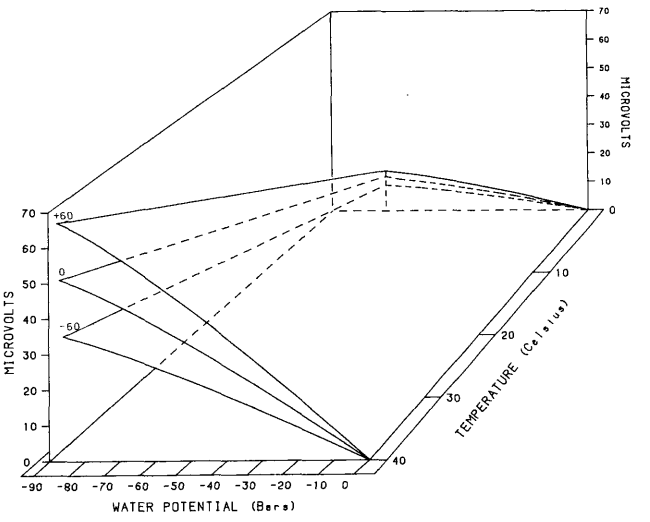


Figure 9.—Three-dimensional representation of model characteristics showing the relationships among water potential, microvolt output, temperature, and zero-offset for 60-sec cool time. Shorter cooling times are not shown because of their relatively small effect.

Model Verification

The general form and internal scales of the various relationships used in the model are presumed to apply to any individual or group of psychrometers similar to those used here. Uncorrected estimates of water potential by the model have been found quite reasonable, even for psychrometers not previously used. In fact, the isothermal portion of the model (under conditions of 0 zero-offset) appears to estimate water potentials quite adequately for virtually all designs of chromel-constantan psychrometers, including screen-caged, ceramic cup, and Teflon or stainless steel end-window types. However, the nonisothermal portions of the model (used when zero-offsets occur) may be more applicable for screen-caged units.

Nevertheless, the model contains some bias peculiar to the group of psychrometers used in its development, and to the process of hand-fitting the curves to the data points. It is expected that the predictability of the model would be strengthened if the bias were eliminated or reduced by employing a correction coefficient that would adjust for the unique characteristics of the specific psychrometer or group of psychrometers to be used in a

given application. A ratio of the actual water potential (or sum of actual water potentials where a group of psychrometers is used) to that estimated by the model provides a convenient correction coefficient. Thus,

$$B = \frac{\Sigma WP}{\widehat{\Sigma WP}} \quad (16)$$

where B is the correction coefficient, ΣWP is the sum of actual water potentials (of NaCl solutions used in calibration), and $\widehat{\Sigma WP}$ is the sum of estimated water potentials by the model for the microvolt outputs of the psychrometers being used. Model bias is then adjusted for that particular data set by

$$WP_{adj} = B * \widehat{WP} \quad (17)$$

where WP_{adj} is the adjusted water potential in bars. When B = 1.0, the model estimate of water potential is identical to the actual value; but when B is less than 1.0, the model is estimating a drier water potential; and when B is greater than 1.0, it is estimating a wetter water potential. The adjustment is accomplished by multiplying the estimated water potential by B (equation 17).

Theoretically, psychrometers of uniform physical and chemical structure would all respond to water potentials and temperatures identically, and hence could be modeled more accurately. Unfortunately, psychrometers are not all identical; each has its own unique characteristics. Therefore, it is probably unrealistic to expect that the water potential of any psychrometer can be predicted with great accuracy throughout its entire range of sensitivity, regardless of the correction coefficient used. However, it is expected that model adjustments like those shown in equation 17, made either for each individual or for an entire group of psychrometers, will provide readily acceptable levels of accuracy (at least within the limits normally obtained from hand-drawn calibration curves).

The relative conformity of water potentials estimated by the model with those of the NaCl solutions (actual) used in calibration was assessed in two stages: (1) for the isothermal data of the original 24 psychrometers, and (2) for both the isothermal and nonisothermal data from a different set of psychrometers not previously used. The ability of the model to estimate water potentials from thermocouple psychrometer outputs over the ranges of temperature, zero-offset, and cool-time durations specified was determined.

Verification of the Isothermal Model

Comparisons of the actual and estimated water potentials under isothermal conditions over the temperature and water potential ranges studied are provided in table 5a, b, and c for the 15-, 30-, and 60-sec cool time durations, respectively. Actual water potentials are those of the NaCl solutions, and the estimated water potentials are those predicted by the model from the mean microvolt outputs shown in table 2. The adjusted estimates of water potential were calculated for each cooling time duration for all temperatures and NaCl solutions between 0.2 and 1.7 molal. The correction coefficient from equation 16 was calculated as the ratio of the sum of all actual water potentials to the sum of all estimated water potentials for each cooling time.

Separate correction coefficients (B values) could have been calculated for each NaCl solution and temperature, which would likely have reduced or eliminated the difference between the actual and adjusted estimates. However, this would be impractical for most applications since psychrometers are rarely used exclusively for a given set of water potential and temperature conditions. Under most situations it is not known beforehand what conditions a psychrometer will encounter; hence the correction coefficient for a specified cooling time duration is more practical.

The departures between the actual and estimated water potentials in table 5a, b, and c represent bias in the model (for example, variability among the 24 psychrometers used to develop the isothermal model, imprecise hand fitting of curves to the data, and any errors that may have occurred in calibration or other procedures). The adjusted estimate effectively reduces (and in some cases nearly eliminates) the departure from the actual water potential for the particular set of psychrometers used. However, a new adjusted estimate may be required for another group of instruments to minimize such departures. Had the data throughout the tables been calculated for any one psychrometer only, the departures between actual and adjusted estimates would have all been relatively small. Although model bias can be minimized substantially in some cases by adjusting the data for each individual psychrometer, it may be more practical to treat an entire population together in cases where large numbers of units are required. In such instances the departures between the actual and estimated water potential can be minimized by carefully selecting psychrometers with similar calibration characteristics.

The differences between the actual water potentials and those estimated by the model in table 5a, b, and c were entirely expected as a result of the hand-fitting procedures used. It is particularly reassuring, however, that the model estimates can be adjusted with such precision. The sums listed below of the actual, estimated, and adjusted estimates of water potential for each cooling time from the tables illustrate how equations 16 and 17 can be used to adjust the model output for a group of psychrometers.

	Table 5a (15 sec)	Table 5b (30 sec)	Table 5c (60 sec)
Σ actual	1270.56	1270.56	1270.56
Σ estimated	1236.23	1276.48	1284.11
Σ act./ Σ est.	1.02777	0.99536	0.98945
Σ adj. est.	1270.50	1270.50	1270.54
Departure (Σ act. -Σ adj. est.)	0.06	0.06	0.02

The ratio of the sum of the actual to the sum of the estimated water potentials is the correction coefficient used to compute the adjusted estimated water potential for each cooling time. The departures between the actual and the adjusted estimates represent rounding-off errors in the computations. Note that the corrections required are relatively small; the largest is only 2.77 percent (for the 15-sec cool time).

Table 5a.—Actual water potentials (bars) of NaCl solutions with 15-second cool time, estimated water potentials by the model, the adjusted-estimate of water potential, and the ratio of the actual to the adjusted-estimate for isothermal conditions

NaCl molality	Water potential	Temperature				
		0 °C	7.5 °C	15 °C	25 °C	35 °C
	actual	8.36	8.60	8.84	9.15	9.46
0.2	estimated	7.06	8.01	7.77	8.62	8.16
	adj. est.	7.26	8.26	7.99	8.92	8.39
	ratio	1.152	1.041	1.106	1.026	1.128
	actual	20.70	21.36	22.00	22.81	23.62
.5	estimated	19.68	21.99	21.38	23.04	23.21
	adj. est.	20.23	22.60	21.97	23.68	23.70
	ratio	1.023	.945	1.001	.963	.997
	actual	29.01	29.98	30.91	32.10	33.28
.7	estimated	31.00	29.30	30.38	31.68	33.26
	adj. est.	31.86	30.11	31.22	32.57	34.18
	ratio	.911	.996	.990	.986	.974
	actual	41.69	43.18	44.59	46.40	48.15
1.0	estimated	40.12	40.37	42.94	46.72	47.28
	adj. est.	41.24	41.99	44.74	47.85	47.44
	ratio	1.011	1.028	.997	.970	1.015
	actual	63.59	66.06	68.37	71.34	74.11
1.5	estimated	63.74	64.91	69.22	73.00	75.91
	adj. est.	65.51	66.71	72.79	74.66	78.02
	ratio	.971	.990	.939	.956	.950
	actual	72.60	75.50	78.20	81.70	84.90
1.7	estimated	—*	—*	—*	—*	—*
	adj. est.	—	—	—	—	—
	ratio	—	—	—	—	—

*Beyond the range of the model.

Table 5b.—Actual water potentials (bars) of NaCl solutions with 30-second cool time, estimated water potentials by the model, the adjusted-estimate of water potential, and the ratio of the actual to the adjusted-estimate for isothermal conditions

NaCl molality	Water potential	Temperature				
		0 °C	7.5 °C	15 °C	25 °C	35 °C
	actual	8.36	8.60	8.84	9.15	9.46
0.2	estimated	8.41	8.71	8.19	8.68	8.44
	adj. est.	8.37	8.67	8.15	8.64	8.40
	ratio	0.999	.992	1.106	1.059	1.126
	actual	20.70	21.36	22.00	22.81	23.62
.5	estimated	20.96	22.25	21.98	23.06	23.33
	adj. est.	20.86	22.15	21.88	22.95	23.22
	ratio	.992	.964	1.005	.994	1.017
	actual	29.01	29.98	30.91	32.10	33.28
.7	estimated	31.49	30.28	31.13	31.74	33.44
	adj. est.	31.34	30.14	30.98	31.59	33.28
	ratio	.926	.995	.998	1.016	1.000
	actual	41.69	43.18	44.59	46.40	48.15
1.0	estimated	40.74	41.14	43.53	46.56	46.16
	adj. est.	40.55	40.95	43.33	46.34	45.94
	ratio	1.028	1.054	1.029	1.001	1.048
	actual	63.59	66.06	68.37	71.34	74.11
1.5	estimated	66.17	66.09	70.83	72.64	75.14
	adj. est.	65.86	65.78	70.50	72.30	74.79
	ratio	.966	1.004	.970	.987	.991
	actual	72.60	75.50	78.20	81.70	84.90
1.7	estimated	74.44	73.95	80.17	83.68	83.17
	adj. est.	74.09	73.60	79.79	83.29	82.78
	ratio	.980	1.026	.980	.981	1.026

Table 5c.—Actual water potentials (bars) of NaCl solutions with 60-second cool time, estimated water potentials by the model, the adjusted-estimate of water potential, and the ratio of the actual to the adjusted-estimate for isothermal conditions.

NaCl molality	Water potential	Temperature				
		0 °C	7.5 °C	15 °C	25 °C	35 °C
	actual	8.36	8.60	8.84	9.15	9.46
0.2	estimated	8.96	8.97	8.83	9.32	8.72
	adj. est.	8.87	8.87	8.74	9.22	8.63
	ratio	.943	.969	1.011	.992	1.096
	actual	20.70	21.36	22.00	22.81	23.63
.5	estimated	21.19	22.76	22.81	23.61	23.36
	adj. est.	20.97	22.52	22.57	23.36	23.11
	ratio	.987	.948	.975	.976	1.022
	actual	29.01	29.98	30.91	32.10	33.28
.7	estimated	30.54	30.42	31.79	32.32	33.27
	adj. est.	30.22	30.10	31.45	31.98	32.92
	ratio	.960	.996	.983	1.004	1.011
	actual	41.69	43.18	44.59	46.40	48.15
1.0	estimated	40.72	41.49	44.27	47.59	46.85
	adj. est.	40.29	41.54	43.80	47.09	46.35
	ratio	1.035	1.039	1.018	.985	1.039
	actual	63.59	66.06	68.37	71.34	74.11
1.5	estimated	65.50	65.93	69.00	72.80	74.16
	adj. est.	64.81	65.23	68.26	72.03	73.37
	ratio	.981	1.013	1.002	.990	1.010
	actual	72.60	75.50	78.20	81.70	84.90
1.7	estimated	74.48	74.70	80.73	84.59	84.49
	adj. est.	73.69	73.91	79.87	83.69	83.59
	ratio	.985	1.022	.979	.976	1.016

In general, the data in table 5a, b, and c show that the greatest proportional bias in the isothermal model occurs at the highest water potentials (0.2 m NaCl) for all temperatures between 0° to 35° C (32° to 95° F). Other than at 0.2 m NaCl, there appears to be no consistent effect of water potential, or of temperature, on the difference between the actual and the adjusted estimate of water potential. The departure between these two quantities generally is less as cooling time duration increases from 15 sec to 60 sec, but the relationship is not always consistent for every set of conditions. However, these data do show that favorable adjustments of the estimated water potentials can be made by use of the suggested correction coefficient, and that such adjustments will reduce model bias in estimating water potential of a population of psychrometers.

Verification of the Entire Model

The performance of the model and the relative effectiveness of the correction coefficients for adjusting estimated water potentials were evaluated to verify the applicability of the model. Eight randomly selected psychrometers that had not previously been used were calibrated over the same ranges of conditions for which the model was developed. The model was then used to generate estimated water potentials for each set of conditions based on the microvolt outputs from these psychrometers. Table 6a, b, and c shows the values for actual, estimated, and adjusted-estimated water potentials for each temperature, NaCl molality zero-offset (+60, 0, -60 microvolts), and cooling time duration. Correction coefficients were computed from equation 16 for each cooling time and were then used to calculate the adjusted-estimate of water potential using equation 17, similar to the procedures described above.

The sums of the actual, estimated, and adjusted estimates of water potential, together with the correction coefficients and departures for table 6a, b, and c are listed below.

	Table 6a (15 sec)	Table 6b (30 sec)	Table 6c (60 sec)
Σ actual	1270.56	1270.56	1270.56
Σ estimated	1237.38	1281.04	1288.59
Σ act./Σ est.	1.02681	.99182	.98601
Σ adj. est.	1270.56	1270.58	1270.55
Departure (Σ act.−Σ adj. est.)	.00	−.02	.01

Note that only the data for 0 zero-offset was used to compute the correction coefficients in each table in order to test the adjustment procedure at the extreme zero-offsets. Under normal circumstances, most users would calibrate their psychrometers for isothermal conditions only, and would rely on model adjustment with the correction coefficient to remedy any model bias where zero-offsets occur. This, for example, results in reasonably small departures between the actual and adjusted estimates of water potential in table 6. However, even smaller departures should result on the average, when the ratio applied is based on all the data in the tables, including +60 and -60 microvolts. Such computations are shown below to demonstrate the slightly smaller ratios.

	Table 6a (15 sec)	Table 6b (30 sec)	Table 6c (60 sec)
Σ actual	3258.38	3811.68	3663.58
Σ estimated	3218.31	3806.98	3676.11
Σ act./Σ est.	1.01245	1.00123	.99659
Σ adj. est.	3258.38	3811.66	3663.57
Departure (Σ act.−Σ adj. est.)	.00	−.02	−.01

It is somewhat questionable, however, for a user to go through the elaborate calibration under nonisothermal conditions, particularly in view of the relatively small errors that would result from isothermal calibration alone.

The data in table 6 show, in general, that the greatest bias in the model occurs at the extremes of the water potential ranges studies (0.2 m and 1.7 m NaCl). The adjusted-estimates of water potential are usually within ±5 percent of the actual values, even for the extreme ends of the water potential and zero-offset ranges studied. However, the isothermal data are generally predicted more precisely than either zero-offset extreme. The largest departure of the adjusted-estimate from the actual water potential is 9.26 bars, and occurs for the +60 microvolt zero-offset at 60-sec cool time, 35° C (95° F) and 1.7 m NaCl (table 6c). Overall the -60 microvolt zero-offset data tend to depart most from the actual water potential (the largest departure here is in table 6a, for the 15-sec cool time at 15° C (59° F) for the 0.2 m NaCl solution). Because of bias, the model tends to predict lower water potentials than the actual values at the extreme zero-offsets, and yields adjusted estimates that are also slightly lower. Illustrating this point is the majority of lower adjusted estimate values than actual ones in table 6a for the +60 and -60 microvolt zero-offset data.

Although overall trends in the data for each cooling time duration are probably most meaningful, inconsistencies for any one data set are abundant in table 6. For example, in table 6a (15-sec cooling time duration), the 1.5 m NaCl solution at 7.5° C (45.7° F) data show that the two extreme zero-offset water potentials were predicted more precisely than the 0 zero-offset water potential, even though the reverse appears to be the general rule for the data set as a whole. These readily apparent anomalies reflect the variability among psychrometers when calibrated in groups where the data are averaged. Because this variability is retained, even after adjustment with the correction coefficient, adjusted estimates of water potential can be expected to differ from actual values. This effect tends to suggest that psychrometers should be treated as individuals rather than averaged in large groups. However, the intended application and desired level of precision required should form the basis for that decision. If the level of precision achieved in table 6 is sufficient for the given application, then that method of calibration should be used. The time and expense of converting raw microvolt data are greatly reduced when psychrometers can be calibrated and treated in groups.

The variability among psychrometers and model bias is lessened as the cooling time duration is increased from 15 sec to 60 sec (table 6a, b, c). Adjusted estimates of water potential for isothermal data tend to lie within ±3 percent of the actual values regardless of cooling time duration. However, the zero-offset data show a relatively strong effect of increased cooling time duration wherein water potentials are generally underestimated at 15 sec (table 6a) and only slightly overestimated at 60 sec (table 6c). In general, 30-sec cooling time duration (table 6b) appears to provide the best estimates of water potential in terms of departure between the actual and adjusted estimates.

The data in table 6 show that the model adequately (within ±1 sd) predicts water potentials of psychrometers that were not used in its development. Further, these data show that the correction coefficient from equation 16 provides a simple and relatively accurate method of adjusting the model estimates for any given data set. Estimates of water potential under isothermal conditions appear to be quite accurate for either large groups (table 5) or small groups (table 6) of psychrometers. Water potential estimates for nonisothermal conditions, although perhaps not as accurate as those for isothermal conditions, appear to be adequate when a longer cooling time is employed. Although only data for the extreme zero-offset conditions are displayed (+60 and -60 microvolts), these represent the maximum expected departures from actual water potentials, and hence the "worst possible" case. On the other hand, zero-offset data closer to 0 microvolt tend to deviate less, and thus are less variable than those at +60 and -60 microvolts.

Table 6a.—Actual water potentials (bars) of NaCl solutions with 15-second cool time, estimated water potentials by the model, the adjusted-estimate of water potential, and the ratio of the actual to the adjusted-estimate for + 60, 0, and − 60 microvolt of zero-offset for eight new psychrometers

NaCl molality	Water potential	Temperature 0 °C +60	0	−60	7.5 °C +60	0	−60	15 °C +60	0	−60	25 °C +60	0	−60	35 °C +60	0	−60
	actual	8.36	8.36	8.36	8.60	8.60	8.60	8.84	8.84	8.84	9.15	9.15	9.15	9.46	9.46	9.46
0.2	estimated	8.75	7.51	8.16	9.05	8.58	8.84	9.58	8.49	9.78	9.14	8.73	9.38	9.45	8.48	8.97
	adj. est.	8.94	7.67	8.34	9.25	8.77	9.03	9.79	8.69	10.00	9.34	8.92	9.59	9.66	8.67	9.17
	ratio	.935	1.090	1.002	0.930	.981	.952	.903	1.017	.884	.980	1.026	.954	.979	1.091	1.032
	actual	20.70	20.70	20.70	21.36	21.36	21.36	22.00	22.00	22.00	22.81	22.81	22.81	23.62	23.62	23.62
.5	estimated	19.89	19.63	21.01	22.15	22.50	21.95	23.08	21.77	22.28	22.36	22.79	21.63	22.85	22.99	22.84
	adj. est.	20.33	20.06	21.47	22.63	22.99	22.43	23.59	22.24	22.77	22.85	23.29	22.11	23.35	23.50	23.34
	ratio	1.018	1.032	.964	.944	.929	.952	.933	.989	.966	.998	.979	1.032	1.012	1.005	1.022
	actual	29.01	29.01	29.01	29.98	29.98	29.98	30.91	30.91	30.91	32.10	32.10	32.10	33.28	33.28	33.28
.7	estimated	29.64	30.00	30.02	29.39	29.80	30.80	31.46	30.63	32.21	32.44	32.00	33.81	32.81	32.77	32.97
	adj. est.	30.30	30.66	30.68	30.04	30.46	31.47	32.15	31.31	32.92	33.15	32.71	34.55	33.53	33.49	33.70
	ratio	.957	.946	.946	.998	.984	.953	.961	.987	.939	.968	.981	.929	.993	0.994	.988
	actual	41.69	41.69	41.69	43.18	43.18	43.18	44.59	44.59	44.59	46.40	46.40	46.40	48.15	48.15	48.15
1.0	estimated	43.28	40.76	44.26	42.12	39.98	46.32	45.77	43.53	43.66	47.04	46.85	45.82	47.39	47.34	46.37
	adj. est.	44.23	41.66	45.23	43.05	40.86	47.34	46.78	44.49	44.62	48.07	47.88	46.82	48.43	48.38	47.39
	ratio	.943	1.001	.922	1.003	1.057	.912	.953	1.002	.999	.965	.969	.991	.994	0.995	1.016
	actual	63.59	63.59	63.59	66.06	66.06	66.06	68.37	68.37	68.37	71.34	71.34	71.34	74.11	74.11	74.11
1.5	estimated	63.03	64.92	62.89	64.66	65.40	64.68	69.16	67.18	70.63	70.96	72.57	70.54	70.13	74.63	73.21
	adj. est.	64.42	66.35	64.27	66.08	66.84	66.10	70.68	68.66	72.18	72.52	74.17	72.09	71.67	76.27	74.82
	ratio	.987	.958	0.989	1.000	.988	.999	.967	.996	.947	.984	.962	.990	1.034	0.972	.991
	actual	72.60	72.60	72.60	75.50	75.50	75.50	78.20	78.20	78.20	81.70	81.70	81.70	84.90	84.90	84.90
1.7	estimated	66.49	69.10	—*	—*	68.49	—*	76.72	73.76	—*	79.11	77.93	—*	—*	78.27	—*
	adj. est.	67.95	70.62	—	—	69.99	—	78.41	75.38	—	80.85	79.64	—	—	79.99	—
	ratio	1.068	1.028	—	—	1.079	—	.997	1.037	—	1.011	1.026	—	—	1.061	—

*Beyond the range of the model.

Table 6b.—Actual water potentials (bars) of NaCl solutions with 30-second cool time, estimated water potentials by the model, the adjusted-estimate of water potential, and the ratio of the actual to the adjusted-estimate for + 60, 0, and − 60 microvolt of zero-offset for eight new psychrometers

NaCl molality	Water potential	Temperature 0 °C +60	0	−60	7.5 °C +60	0	−60	15 °C +60	0	−60	25 °C +60	0	−60	35 °C +60	0	−60
	actual	8.36	8.36	8.36	8.60	8.60	8.60	8.84	8.84	8.84	9.15	9.15	9.15	9.46	9.46	9.46
0.2	estimated	8.63	8.03	8.49	8.99	9.00	8.53	9.82	8.24	9.94	9.54	8.79	9.31	9.41	8.63	9.96
	adj. est.	8.51	7.92	8.38	8.87	8.88	8.42	9.69	8.13	9.82	9.42	8.68	9.19	9.28	8.51	9.83
	ratio	.982	1.056	.998	.970	.968	1.021	.912	1.087	.900	.971	1.054	.996	1.019	1.112	.962
	actual	20.70	20.70	20.70	21.36	21.36	21.36	22.00	22.00	22.00	22.81	22.81	22.81	23.62	23.62	23.62
.5	estimated	20.52	21.24	22.14	21.03	22.38	20.49	23.16	22.20	22.06	23.66	23.14	24.36	23.23	23.28	22.47
	adj. est.	20.25	20.97	21.85	20.76	22.09	20.23	22.86	21.92	21.78	23.35	22.84	24.04	22.93	22.98	22.18
	ratio	1.022	.987	.947	1.029	.967	1.056	.962	1.004	1.010	.977	.999	.949	1.030	1.028	1.065
	actual	29.01	29.01	29.01	29.98	29.98	29.98	30.91	30.91	30.91	32.10	32.10	32.10	33.28	33.28	33.28
.7	estimated	28.86	29.78	30.57	31.93	30.75	31.35	30.95	31.37	29.16	33.22	32.11	32.03	32.91	33.25	35.48
	adj. est.	28.49	29.40	30.18	31.52	30.35	30.95	30.55	30.97	28.79	32.79	31.70	31.62	32.48	32.82	35.00
	ratio	1.018	.987	.961	.951	.988	.969	1.012	.998	1.074	.979	1.013	1.015	1.025	1.014	.951
	actual	41.69	41.69	41.69	43.18	43.18	43.18	44.59	44.59	44.59	46.40	46.40	46.40	48.15	48.15	48.15
1.0	estimated	41.28	42.28	44.47	42.75	41.51	43.99	46.76	43.72	45.98	44.50	46.86	46.52	48.39	48.83	46.85
	adj. est.	40.75	41.74	43.90	42.20	40.97	43.43	46.16	43.16	45.39	43.93	46.26	45.92	47.77	48.20	46.25
	ratio	1.023	.999	.950	1.023	1.054	.994	.966	1.033	.982	1.056	1.003	1.010	1.008	.999	1.041
	actual	63.59	63.59	63.59	66.06	66.06	66.06	68.37	68.37	68.37	71.34	71.34	71.34	74.11	74.11	74.11
1.5	estimated	65.04	64.67	63.22	66.80	67.59	68.48	67.08	71.37	70.95	70.30	72.66	71.17	71.44	75.52	70.50
	adj. est.	64.20	63.84	62.41	65.94	66.72	67.60	66.22	70.46	70.04	69.40	71.73	70.26	70.53	74.55	69.60
	ratio	.990	.996	1.019	1.002	.990	.977	1.032	.970	.976	1.028	.995	1.015	1.051	.994	1.065
	actual	72.60	72.60	72.60	75.50	75.50	75.50	78.20	78.20	78.20	81.70	81.70	81.70	84.90	84.90	84.90
1.7	estimated	67.15	69.97	73.76	69.38	76.76	72.42	77.59	80.55	76.65	78.11	83.09	79.92	81.71	83.47	80.58
	adj. est.	66.29	69.07	72.82	68.49	75.78	71.49	76.60	79.51	75.66	77.11	82.03	78.90	80.66	82.40	79.55
	ratio	1.095	1.051	.997	1.102	.996	1.056	1.021	.984	1.034	1.060	.996	1.035	1.053	1.030	1.067

Table 6c.—Actual water potentials (bars) of NaCl solutions with 60-second cool time, estimated water potentials by the model, the adjusted-estimate of water potential, and the ratio of the actual to the adjusted-estimate for + 60, 0, and − 60 microvolt of zero-offset for eight new psychrometers

NaCl molality	Water potential	Temperature														
		0 °C			7.5 °C			15 °C			25 °C			35 °C		
		+60	0	−60	+60	0	−60	+60	0	−60	+60	0	−60	+60	0	−60
	actual	8.36	8.36	8.36	8.60	8.60	8.60	8.84	8.84	8.84	9.15	9.15	9.15	9.46	9.46	9.46
0.2	estimated	8.51	9.36	8.77	9.88	9.22	8.78	8.64	9.22	9.41	7.92	8.86	8.51	9.88	8.67	10.14
	adj. est.	8.35	9.19	8.61	9.70	9.05	8.62	8.48	9.05	9.23	7.77	8.70	8.35	9.70	8.51	9.95
	ratio	1.001	.910	.971	.887	.950	.998	1.042	.977	.958	1.178	1.052	1.096	.975	1.112	.951
	actual	20.70	20.70	20.70	21.36	21.36	21.36	22.00	22.00	22.00	22.81	22.81	22.81	23.62	23.62	23.62
.5	estimated	20.77	21.22	21.35	21.61	23.01	22.08	23.12	22.83	22.89	23.19	23.68	22.96	22.99	23.48	24.41
	adj. est.	20.38	20.83	20.95	21.21	22.58	21.67	22.69	22.41	22.47	22.76	23.24	22.53	22.56	23.04	23.96
	ratio	1.016	.994	.988	1.007	.946	.986	.970	.982	.979	1.002	0.981	1.012	1.047	1.025	.986
	actual	29.01	29.01	29.01	29.98	29.98	29.98	30.91	30.91	30.91	32.10	32.10	32.10	33.28	33.28	33.28
.7	estimated	29.83	30.40	31.31	30.27	29.94	30.35	32.34	32.08	27.72	32.43	33.36	33.97	32.26	33.75	32.99
	adj. est.	29.27	29.83	30.73	29.17	29.38	29.79	31.74	31.49	27.20	31.82	32.74	33.34	31.66	33.12	32.38
	ratio	.991	.973	.944	1.009	1.020	1.006	.974	.982	1.136	1.009	.980	.963	1.051	1.005	1.028
	actual	41.69	41.69	41.69	43.18	43.18	43.18	44.59	44.59	44.59	46.40	46.40	46.40	48.15	48.15	48.15
1.0	estimated	41.76	41.51	44.51	43.85	41.93	44.07	45.52	44.18	46.31	45.72	47.63	45.78	47.45	46.98	53.35
	adj. est.	40.99	40.74	43.68	43.03	41.15	43.25	44.67	43.36	45.45	44.87	46.74	44.92	46.57	46.11	52.35
	ratio	1.017	1.023	.954	1.003	1.049	.998	.998	1.028	.981	1.034	.993	1.033	1.034	1.044	.920
	actual	63.59	63.59	63.59	66.06	66.06	66.06	68.37	68.37	68.37	71.34	71.34	71.34	74.11	74.11	74.11
1.5	estimated	63.82	65.06	64.77	68.04	65.99	65.87	68.16	69.28	72.13	72.51	72.28	71.37	70.86	74.63	73.06
	adj. est.	62.63	63.85	63.57	66.77	64.77	64.64	66.89	67.99	70.78	71.16	70.94	70.04	69.54	73.24	71.70
	ratio	1.015	.996	1.000	.989	1.020	1.022	1.022	1.006	.966	1.003	1.006	1.019	1.066	1.012	1.034
	actual	72.60	72.60	72.60	75.50	75.50	75.50	78.20	78.20	78.20	81.70	81.70	81.70	84.90	84.90	84.90
1.7	estimated	69.39	74.30	—*	—*	76.52	74.51	78.13	80.07	78.92	77.90	84.19	80.38	73.39	84.96	76.71
	adj. est.	68.10	72.92	—	—	75.10	73.12	76.68	78.58	77.45	76.45	82.63	78.88	72.02	83.38	75.28
	ratio	1.006	.996	—	—	1.005	1.033	1.020	.995	1.010	1.069	.989	1.036	1.179	1.018	1.128

*Beyond the range of the model.

GUIDES FOR USERS

The following suggestions are provided to assist users in application of the calibration model when using screen-caged thermocouple psychrometers similar to those described here. We do not recommend application of the model to other psychrometer designs (such as ceramic cup and end-window designs) under irregular thermal environments until further research can verify their responses to temperature gradients. However, the model does apply to these and any other chromel-constantan psychrometer under the following restrictions:

1. Used under isothermal conditions only,
2. Constructed of 0.0025-cm (0.001-inch) diameter wire with welded junction,
3. Peltier-cooling mode is used with 5 ma current,
4. True temperature and vapor pressure equilibrium is achieved, and
5. Used within the limits of temperature, cooling time duration, and water potential ranges pertinent to the model.

The assumption is that the user has access to computer facilities that will allow the model equations to be programed (appendix I). If this is not possible, the tables in appendix II could be used, but this is far more difficult, time consuming, and subject to interpolation error.

Calibration

1. It is recommended that each individual psychrometer be calibrated under isothermal conditions at three different water potentials and at one temperature within the range of anticipated need. For most general applications the 0.5, 1.0, and 1.5 m NaCl solutions should be used at 25 ° C (77 ° F). Only one temperature is required since psychrometer response to this variable is far more predictable than to water potential. However, other solutions and temperatures can be used if the anticipated conditions for use are specifically known. In any case, three calibration solutions representing the near-extremes and middle range of water potentials are recommended. Outputs should be recorded to the nearest 0.1 microvolt. It is further recommended that

calibration *not* be attempted under nonisothermal conditions to achieve zero-offset data points. This is an extremely complex process that may lead to more confusion than is warranted. The model adequately predicts water potentials under these conditions.

2. For most general applications it is recommended that the 30-sec cool time duration be used throughout. Shorter cooling times may be justified in those cases where length of time between readings is crucial, but generally less precise estimates of water potential will result and the variability among psychrometers will likely be greater. Longer cooling times, up to 60 sec, generally do not appear to offer any strong advantages over the 30-sec cooling times, and also may unnecessarily prolong the length of time between readings. This is an important logistical problem when attempting to read large numbers of psychrometers during a specified time.

3. Although calibration should ideally be conducted under carefully controlled temperatures in a water bath, suitable conditions can be achieved in a well-insulated water reservoir. For example, large picnic jugs, vacuum bottles, or insulated ice chests have all been used successfully with normal precautions to minimize rapid temperature fluctuations. Water temperature can be adjusted to that of the external environment to lessen the possibilities of temperature gradients.

Model Application

1. For the most accurate estimates of water potential, each psychrometer should be calibrated and its microvolt data be converted to water potential separately. Compute the ratio of actual to estimated water potential (equation 16) for each psychrometer. For example, the sum of the water potentials of the three NaCl solutions used divided by the sum of the water potentials predicted by the model for the microvolt outputs of that psychrometer provides the correction coefficient.

2. Each psychrometer is now assigned a unique correction coefficient (or B value). Model estimates of water potential, whether obtained from the computer program (appendix I) or the tables (appendix II), made from data collected with that psychrometer are multiplied by this correction coefficient to obtain the adjusted estimate of water potential (equation 17). If the computer program is used, attention is called to step 61 in the BASIC program and step 8 in the FORTRAN program (where B = 1.0 presently), which must be changed to the new correction coefficient. Also, insert the appropriate cooling time in seconds in step 9 of the FORTRAN program (where sec = 15, presently).

3. For applications requiring large numbers of psychrometers, a single correction coefficient may be computed for the entire group. The principal advantage in this technique is that considerable time can be conserved during computation of data. The main disadvantage is that some loss in precision of water potential estimates results due to the variability in microvolt output characteristics among the psychrometers used. If this procedure is used, discard all psychrometers with calibration data that display a greater variability than ±1 sd from the mean of the entire population.

4. Occasionally a particular psychrometer may be more sensitive at low water potentials than those used to develop the model. In such cases its microvolt output may exceed the range of the model, and its water potential may not be calculated. This is most likely to occur at low water potentials near the lower limits of the model (about -75 to -85 bars). In such cases, which are anticipated to be very few, the data will have to be excluded from computation by the model and computed by hand from standard calibration curves.

Data Acquisition

1. For general laboratory use, psychrometers should be kept as clean and free of contaminants as possible to insure accurate data. The ultimate acquisition of reliable data depends more upon the user than the model. Precautionary measures to be followed are discussed in Brown and Van Haveren (1972), Brown (1970), and Wiebe and others (1971).

2. During field use, efforts must be made to minimize temperature gradients. For *in situ* measurements of soil water potential, psychrometers should be buried in a horizontal position (Wiebe and others 1977; Wiebe and Brown 1979). The time when they are read during the day should be selected, if possible, to minimize temperature gradients. Season of the year may also affect the time of day selected. Samples collected and read in the field must also be protected from temperature gradients and other influences that may affect data. The meter or data gathering instrument must be shaded from direct solar insolution.

3. Raw microvolt data, together with recorded temperatures, zero-offsets, and the appropriate cooling time duration are required for each computation of water potential by the model. The model estimate of water potential is then multiplied by the appropriate correction coefficient to obtain the adjusted estimate of water potential. If desired, water potentials expressed in bars by the model may be converted to the international term of MPa (mega Pascals) by multiplying bars times 0.1.

CONCLUSIONS

The outputs of Peltier thermocouple psychrometers are quite predictable at different cooling times, temperatures, temperature gradients, and water potentials. Responses to water potential are probably the weakest link in a modeling effort because of the variability among psychrometers in terms of construction techniques and the configuration of their components. Some of the contributing variables are the precise chemistry of the welded sensing junction, the length of chromel and constantan lead wires of the thermocouple, the geometric position of the sensing junction, and the freedom with which water vapor can be exchanged between the evaporating source and the psychrometer cavity. However, psychrometer responses to temperature, temperature gradients (within limits of unit size and materials used in construction), and cool times are all virtually fixed with far fewer possibilities for variation.

Generally, the model predicts water potentials most precisely for isothermal conditions at the longer cool times (30 to 60 sec). The greatest bias occurs at the extreme water potentials, particularly near the lower limits of psychrometer sensitivity (about -80 bars), with the 15-sec cool time. Also, generally model bias is greater near the extreme zero-offsets (approaching ± 60 microvolts), although this is relatively small. Based on these limitations, it is recommended that psychrometers be calibrated at several water potentials under isothermal conditions at some intermediate temperature and cool time before use. Those units displaying a greater variability than ± 1 sd from the mean of the entire population should be discarded.

Absolute precision of water potential measurements with thermocouple psychrometers is probably not possible except under unusual circumstance. However, the model is designed to predict water potential precisely as described by psychrometer calibration data. Thus, it is more the care taken by the user during calibration and use of psychrometers that determines the precision of water potential values than it is the ability of the model to predict them. Hand-drawn calibration curves, as generally developed at present, do not provide the same levels of sensitivity and consistency for estimating water potentials as the model given here for the smoothed interactive effects of the four independent variables involved. Extensive calibration trials and data points for each psychrometer over a range of numerous temperatures and water potentials provide little or no assurance that water potential data will be any more accurate than that computed by the methods suggested.

Comparisons of water potential estimates made by both the model and hand-drawn calibration curves suggest some advantages of the model. The model will consistently calculate water potentials for the entire range of conditions specified, and will do so for whatever level of fractional input is desired. Hand-drawn curves, on the other hand, yield water potential data that are subject to numerous additional errors. The physical process of plotting data points, fitting curves, and then interpreting data from them is contingent upon extreme care tempered with abundant quantities of expensive time. The very best hand-drawn curves yield only an approximate water potential, even if a set of curves is drawn for each individual psychrometer. We found that, not only can two different technicians read the same graph differently, but the same technician may make widely varying interpretations from the same graph at different times. One of the most common errors was interpreting data from the wrong graph—and, very often even these were read incorrectly. Thus, the magnitude of the error in data interpreted from hand-drawn curves was most often greater than that associated with the model.

Since there is no simple factor that can be applied to water potential data to correct it for temperature gradients, the number of calibration curves that would be needed for each psychrometer to cover all specified conditions is beyond the limits of practicality. The magnitude of the effort just to interpret large numbers of observations from hand-drawn curves is overwhelming. Whether a study involves a few data points from one psychrometer, or numerous data points from hundreds of psychrometers, use of the calibration model promises to reduce the time and magnitude of the errors normally inherent in this kind of research.

Based on the performance and verification of the predictive model, the hypotheses originally posed are all accepted. The responses of any given psychrometer of similar construction to those used here can be predicted for the conditions specified to at least within the limits of error normally expected with hand-drawn curves. The normal limits of error of predicted water potentials can be narrowed by adjusting the model based on only one or a few calibration points. The time and expense normally devoted to calibration can be significantly reduced with the assurance that normal limits of error are not jeopardized. Also, large quantities of either field or laboratory data can be analyzed more quickly and with fewer errors using the model than with conventional methods.

PUBLICATIONS CITED

Barrs, H. D.
1968. Determination of water deficits in plant tissues. *In* Water deficits and plant growth, vol. I. Development, control, and measurement. p. 236-368. T. T. Kozlowski, ed.

Brown, R. W.
1970. Measurement of water potential with thermocouple psychrometers: construction and applications. USDA For. Serv. Res. Pap. INT-80, 27 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.

Brown, R. W., and J. M. Collins.
1980. A screen-caged thermocouple psychrometer and calibration chamber for measurements of plant and soil water potential. Agron. J. 72:851-854.

Brown, R. W., and R. S. Johnston.
1976. Extended field use of screen-covered thermocouple psychrometers. Agron. J. 68:995-996.

Brown, R. W., and B. P. Van Haveren, eds.
1972. Psychrometry in water relations. 342 p. Utah Agric. Exp. Stn., Utah State Univ., Logan.

Campbell, E. C.
1972. Vapor sink and thermal gradient effects on psychrometer calibration. *In* Psychrometry in water relations research. p. 94-97. R. W. Brown and B. P. Van Haveren, eds. Utah Agric. Exp. Stn., Utah State Univ., Logan.

Dalton, F. N., and S. L. Rawlins.
1968. Design criteria for Peltier-effect thermocouple psychrometers. Soil Sci. 105:12-17.

Jensen, C. E.
1973. Matchacurve - 3: multiple-component and multidimensional mathematical models for natural resource studies. USDA For. Serv. Res. Pap. INT-146, 42 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.

Jensen, C. E.
1976. Matchacurve - 4: segmented mathematical descriptors for asymmetric curve forms. USDA For. Serv. Res. Pap. INT-182, 16 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.

Jensen, C. E.
1979. e^{-k}, a function for the modeler. USDA For. Serv. Res. Pap. INT-240, 9 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.

Jensen, C. E., and J. W. Homeyer.
1970. Matchacurve - 1 for algebraic transform to describe sigmoid- or bell-shaped curves. 22 p. USDA For. Serv. Intermt. For. and Range Exp. Stn., Ogden, Utah.

Jensen, C. E., and J. W. Homeyer.
1971. Matchacurve - 2 for algebraic transforms to describe curves of the class X^n. USDA For. Serv. Res. Pap. INT-106, 39 p. Intermt. For. and Range Exp. Stn., Ogden, Utah.

Lang, A. R. G.
1967. Osmotic coefficients and water potentials of sodium chloride solutions from 0 to 40° C. Aust. J. Chem. 20:2017-2023.

Merrill, S. D., and S. L. Rawlins.
1972. Field measurement of soil water potential with thermocouple psychrometers. Soil Sci. 113:102-109.

Meyn, R. L., and R. S. White.
1972. Calibration of thermocouple psychrometers: a suggested procedure for development of a reliable predictive model. *In* Psychrometry in water relations research. p. 56-64. R. W. Brown and B. P. Van Haveren, eds. Utah Agric. Exp. Stn., Utah State Univ., Logan.

Michel, B. E.
1979. Correction of thermal gradient errors in stem thermocouple hygrometers. Plant Physiol. 63:221-224.

Omega Engineering, Inc.
1976. Temperature measurement handbook. p. A-11. Stamford, Conn.

Peck, A. J.
1968. Theory of the Spanner psychrometer 1. The thermocouple. Agric. Meteorol. 5:433-447.

Peck, A. J.
1969. Theory of the Spanner psychrometer 2. Sample effects and equilibration. Agric. Meteorol. 6:111-124.

Rawlins, S. L.
1966. Theory for thermocouple psychrometers used to measure water potential in soil and plant samples. Agric. Meteorol. 3:293-310.

Rawlins, S. L.
1972. Theory of thermocouple psychrometers for measuring plant and soil water potential. *In* Psychrometry in water relations research. p. 43-50. R. W. Brown and B. P. Van Haveren, eds. Utah Agric. Exp. Stn., Utah State Univ., Logan.

Rawlins, S. L., and F. N. Dalton.
1967. Psychrometric measurement of soil water potential without precise temperature control. Soil Sci. Soc. Am. Proc. 31:297-301.

Scotter, D. R.
1972. The theoretical and experimental behaviour of a Spanner psychrometer. Agric. Meteorol. 10:125-136.

Slavik, B.
1974. Methods of studying plant water relations. 449 p. Springer - Verlag, Berlin.

Spanner, D. C.
1951. The Peltier effect and its use in the measurement of suction pressure. J. Exp. Bot. 2:145-168.

Van Haveren, B. P., and R. W. Brown.
1972. The properties and behavior of water in the soil-plant-atmosphere continuum. *In* Psychrometry in water relations research. p. 1-27. R. W. Brown and B. P. Van Haveren, eds. Utah Agric. Exp. Stn., Utah State Univ., Logan.

Wiebe, H. H., and R. W. Brown.
1979. Temperature gradient effects on in situ hygrometer measurements of soil water potential. II. Water movement. Agron. J. 71:397-401.

Wiebe, H. H., R. W. Brown, and J. Barker.
1977. Temperature gradient effects on in situ hygrometer measurements of water potential. Agron. J. 69:933-939.
Wiebe, H. H., G. S. Campbell, W. H. Gardner, S. L. Rawlins, J. W. Cary, and R. W. Brown.
1971. Measurement of plant and soil water status. Utah Agric. Stn. Bull. 484, 71 p.

APPENDIX I

COMPUTER PROGRAM IN BASIC AND FORTRAN

Computer programs of the predictive calibration model; (A) in BASIC and (B) in FORTRAN. Text and related computer acronyms are defined in C for the FORTRAN program.

APPENDIX I A

Enhanced BASIC program for Hewlett-Packard 9845-B

```
10     REM     RAY BROWNS WATER POTENTIAL EQUATION
20     OPTION BASE 1
30     ON ERROR GOTO 440
40     INPUT "INPUT THE NUMBER OF SETS OF OBSERVATIONS-THEN PRESS CONT.",Z  !TOTA
L SETS OF FOUR NUMBERS TO BE USED
50     B=1
60     FOR J=1 TO Z
70        INPUT "INPUT MV,ZERO OFFSET,TEMP.,SECONDS,-THEN PRESS CONT.",Mv,Omv,T,S
ec
80        Yp1=39.2-.0004346*(60-Sec)^2.45  !YP'
90        Int=12.1-.003475*(60-Sec)^1.63
100       Yp=Int+.017288*Yp1*T^1.1
110       Yp15=12.1-.003475*(60-15)^1.63+(39.2-.0004346*(60-15)^2.45)*.017288*T^1
.1  !YP SOLVED AT 15 SECONDS
120       Yp2=8.4+2.734E-7*(60-Sec)^3.97
130       Ui=88-2.579E-4*(60-Sec)^2.7
140       Xp=-(Ui-Yp2*.00017185*(40-T)^2.35)
150       Xp15=-(88-2.579E-4*(60-15)^2.7-(8.4+2.734E-7*(60-15)^3.97)*.00017185*(4
0-T)^2.35)  !XP SOLVED AT 15 SECONDS
160       Ii=.45+3.33E-4*Sec+1.9846E-19*Sec^10
170       Ia=.45+3.33E-4*15+1.9846E-19*15^10  !IiSOLVED FOR USE WITH N15
180       Ni=2.5+EXP(-(ABS((60-Sec)/60-1)/.405)^3)
190       Na=2.5+EXP(-(ABS((60-15)/60-1)/.405)^3)  !Ni SOLVED FOR USE WITH N15
200       N=1.18+.185*((EXP(-ABS(((40-T)/40-1)/(1-Ii))^Ni)-EXP(-(1/(1-Ii))^Ni))/(
1-EXP(-(1/(1-Ii))^Ni)))
210       N15=1.18+.185*((EXP(-ABS(((40-T)/40-1)/(1-Ia))^Na)-EXP(-(1/(1-Ia))^Na))
/(1-EXP(-(1/(1-Ia))^Na)))  !N SOLVED AT 15 SECONDS
220       C1=Yp-Yp/ABS(Xp)^N*ABS(Xp--22.5)^N  ! NUMERATOR FOR SOLVING C
230       C2=Yp15-Yp15/ABS(Xp15)^N15*ABS(Xp15--22.5)^N15  ! DENOMINATOR FOR C
240       C3=C1/C2*(.015*Omv+.001471*T*Omv)
260       C=(C3+C1)/C1
270       Wp=(ABS(Xp)^N*(Yp*C*B-Mv)/(Yp*C*B))^(1/N)+Xp
280       GOSUB Print
290       NEXT J
300    PRINTER IS 16
310    PRINT "THIS PROGRAM IS FINISHED TO RESTART PRESS RUN"
320    END
330 Print:  ! PRINTING ROUTINE
340    PRINTER IS 7,1,WIDTH(120)
350    PRINT USING 360;"***",J,"***"
360    IMAGE 16X3A,2D,3A
370    PRINT USING 390;"1.","MICROVOLTS=",Mv,"MICROVOLTS","2.","ZERO OFFSET=",Omv
,"MICROVOLTS","3.","TEMPERATURE=",T,"CENT.","4.","COOL TIME=",Sec,"SECONDS"
380    PRINT USING 390;"5.","WATER POTENTIAL=",Wp,"BARS"
390    IMAGE 2A4X,15A4X,M2D.2D4X,12A/
400    PRINT
410    PRINT
420    IF J MOD 8=0 THEN PRINT PAGE
430    RETURN
440    PRINTER IS 7,1,WIDTH(120)
450    PRINT USING 460;"***",J,"***"
460    IMAGE 16X3A,2D,3A
470    PRINT
480    PRINT "ERROR HAS OCCURED, YOU HAVE EXCEEDED THE PEAK."
490    PRINT
500    PRINT "****YOUR INPUT WAS****"
510    PRINT
520    PRINT USING 530;"1.","MICROVOLTS=",Mv,"MICROVOLTS","2.","ZERO OFFSET=",Omv
,"MICROVOLTS","3.","TEMPERATURE=",T,"CENT.","4.","COOLTIME=",Sec,"SECONDS"
530    IMAGE 2A4X,15A4X,M2D.2D4X,12A/
540    PRINT
550    PRINT
560    IF J MOD 8=0 THEN PRINT PAGE
570    GOTO 290
```

APPENDIX I B

FORTRAN IV Program for water potential

```
(Place system cards here)
 1.          DIMENSION TEMPX(5),OMVX(13),LTRS(16),WPS(13)
 2.          REAL MV,MS,M15,IS,I15,LNS,LN15,NS,N15,MVS,MV15
 3.          DATA IBLNK/' '/,WPS/13*0./,
 4.         *LTRS/'M','I','C','R','O','V','O','L','T',
 5.         *'R','E','A','D','I','N','G'/,
 6.         *TEMPX/0.,7.5,15.,25.,35./,
 7.         *OMVX/-60.,-50.,-40.,-30.,-20.,-10.,0.,10.,20.,30.,40.,50.,60./
 8.          B = 1.
 9.          SEC = 15
10.          WPK = -22.5
11.          IPAGE = 0
12.          DO 99 J=1,5
13.          LNN = 1
14.          TEMP = TEMPX(J)
15.          IPAGE = IPAGE + 1
16.          PRINT 101,IPAGE,SEC, TEMPX(J)
17.          PRINT 102
18.          PRINT 103
19.          PRINT 104
20.          PRINT 103
21.          PRINT 105
22.          DO 99 K=1,70
23.          NWPS= 0
24.          MV = K
25.          DO 15 L=1,13
26.          OMV = OMVX(L)
27.          M15=3.2904052
28.          MS=2.5+EXP(-(ABS(((60-SEC)/60-1)/.405)**3))
29.          IS=.45+.000333*SEC+1.9846E-19*SEC**10
30.          I15=.4549951
31.          LNS=EXP(-(ABS(((40-TEMP)/40-1)/(1-IS))**MS))
32.          LN15=EXP(-(ABS(((40-TEMP)/40-1)/(1-I15))**M15))
33.          RNS=EXP(-((1/(1-IS))**MS))
34.          RN15=EXP(-((1/(1-I15))**M15))
35.          DS=1-RNS
36.          D15=1-RN15
37.          NS=((LNS-RNS)/DS)*.185+1.18
38.          N15=((LN15-RN15)/D15)*.185+1.18
39.          $1AS=12.1-.003475*(60-SEC)**1.63
40.          $1A15=10.3793553
41.          $1YS=39.2-.0004346*(60-SEC)**2.45
42.          $1Y15=34.3195442
43.          UIS=$1AS+.017288*$1YS*TEMP**1.1
44.          UI15=$1A15+.017288*$1Y15*TEMP**1.1
45.          $2AS=88-.0002579*(60-SEC)**2.7
46.          $2A15=80.4988970
47.          $2YS=8.4+2.734E-07*(60-SEC)**3.97
48.          $2Y15=9.4001202
49.          SPS=($2AS-$2YS*.00017185*(40-TEMP)**2.35)*(-1)
50.          SP15=($2A15-$2Y15*.00017185*(40-TEMP)**2.35)*(-1)
51.          ZDE=(.015*OMV+.001471*OMV*TEMP)
52.          MVS=(UIS-(UIS/(ABS(SPS)**NS))*(ABS(SPS-WPK)**NS))
```

Appendix I B (con.)

```
      MV15=(UI15-(UI15/(ABS(SP15)**N15))*(ABS(SP15-WPK)**N15))
      C=(MVS+(MVS/MV15)*ZOE)/MVS
      R=UIS*C
      IF(MV.GT.R)GO TO 10
      WP=((((ABS(SPS)**NS)*(UIS*C-MV))/(UIS*C))**(1/NS)+SPS)*B
      WP = WP*(-1.)
      GO TO 12
10    WP = 0.
12    IF (WP.EQ. 0.) GO TO 15
      NWPS = NWPS + 1
      WPS(NWPS)=WP
15    CONTINUE
17    DO 18 II=6,78,6
      IF (LNN .EQ. II) GO TO 19
18    CONTINUE
      GO TO 20
19    PRINT 103
      LNN = LNN + 1
20    LABL = 0
      DO 21 II=25,57,2
      LABL = LABL + 1
      IF (II .EQ. LNN) GO TO 22
21    CONTINUE
      IHD1 = IBLNK
      GO TO 60
22    GO TO (25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57),LABL
25    IHD1 = LTRS(1)
      GO TO 60
27    IHD1 = LTRS(2)
      GO TO 60
29    IHD1 = LTRS(3)
      GO TO 60
31    IHD1 = LTRS(4)
      GO TO 60
33    IHD1 = LTRS(5)
      GO TO 60
35    IHD1 = LTRS(6)
      GO TO 60
37    IHD1 = LTRS(7)
      GO TO 60
39    IHD1 = LTRS(8)
      GO TO 60
41    IHD1 = LTRS(9)
      GO TO 60
43    IHD1 = IBLNK
      GO TO 60
45    IHD1 = LTRS(10)
      GO TO 60
47    IHD1 = LTRS(11)
      GO TO 60
49    IHD1 = LTRS(12)
      GO TO 60
51    IHD1 = LTRS(13)
      GO TO 60
53    IHD1 = LTRS(14)
```

```
      GO TO 60
   55 IHD1 = LTRS(15)
      GO TO 60
   57 IHD1 = LTRS(16)
   60 IHD2 = K
      IF (NWPS.NE.0) GO TO 62
      PRINT 107,IHD1,IHD2
      GO TO 78
   62 GO TO (63,64,65,66,67,68,69,70,71,72,73,74,75),NWPS
   63 PRINT 110,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   64 PRINT 111 ,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   65 PRINT 112,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   66 PRINT 113,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   67 PRINT 114,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   68 PRINT 115,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   69 PRINT 116,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   70 PRINT 117,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   71 PRINT 118,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   72 PRINT 119,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   73 PRINT 120,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   74 PRINT 121,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
      GO TO 78
   75 PRINT 122,IHD1,IHD2,(WPS(JJ),JJ=1,NWPS)
   78 LNN = LNN + 1
      DO 80 MM=1,NWPS
   80 WPS(MM) = 0.
   99 CONTINUE
  100 STOP
  101 FORMAT ('1',55X,'PREDICTED WATER POTENTIAL',33X,I3/'0',28X,
     *'COOLING TIME IN SECONDS ---------- ',F5.1/
     *' ',28X,'PSYCHROMETER TEMPERATURE, CENTIGRADE --- ',F5.1/' ')
  102 FORMAT ('0',53X,'OFFSET FROM ZERO IN MICROVOLTS')
  103 FORMAT (' ',28X,5('-----+'),'----- * ----- * ',5('-----+'),
     *'-----')
  104 FORMAT (' ',28X,'  -60   -50   -40   -30   -20   -10      0      +
     *10   +20   +30   +40   +50   +60')
  105 FORMAT (' ',53X,'WATER POTENTIAL, NEGATIVE BARS'/' ')
  110 FORMAT (' ',19X,A1,2X,I2,81X,F4.1)
  111 FORMAT (' ',19X,A1,2X,I2,73X,2(2X,F4.1))
  112 FORMAT (' ',19X,A1,2X,I2,67X,3(2X,F4.1))
  113 FORMAT (' ',19X,A1,2X,I2,61X,4(2X,F4.1))
  114 FORMAT (' ',19X,A1,2X,I2,55X,5(2X,F4.1))
  115 FORMAT (' ',19X,A1,2X,I2,49X,6(2X,F4.1))
  116 FORMAT (' ',19X,A1,2X,I2,43X,F4.1,2X,6(2X,F4.1))
```

Appendix I B (con.)

```
163.      117  FORMAT (' ',19X,A1,2X,I2,35X,F4.1,4X,F4.1,2X,6(2X,F4.1))
164.      118  FORMAT (' ',19X,A1,2X,I2,27X,2(2X,F4.1),4X,F4.1,2X,6(2X,F4.1))
165.      119  FORMAT (' ',19X,A1,2X,I2,21X,3(2X,F4.1),4X,F4.1,2X,6(2X,F4.1))
166.      120  FORMAT (' ',19X,A1,2X,I2,15X,4(2X,F4.1),4X,F4.1,2X,6(2X,F4.1))
167.      121  FORMAT (' ',19X,A1,2X,I2,9X,5(2X,F4.1),4X,F4.1,2X,6(2X,F4.1))
168.      122  FORMAT (' ',19X,A1,2X,I2,3X,6(2X,F4.1),4X,F4.1,2X,6(2X,F4.1))
169.      107  FORMAT (' ',19X,A1,2X,I2)
170.     C         LIMITS OF APPLICATION:
171.     C             14< SEC < 61
172.     C             -1 < TEMP, DEGREE CEN < 41
173.     C             MV < OR EQUAL TO VIS*B*C
174.     C            -61 < OMV < 61
175.           DEBUG SUBCHK
176.           END
```

Note that statements 1 through 176 comprise the program necessary to table output on any computer. Only systems cards and minor programming conventions peculiar to the computer to be used, need be altered.

APPENDIX I C

Text variable	Related computer variables and explanation	
SEC.	SEC:	microvolt observation, time in seconds
TEMP	TEMP:	temperature in degrees centigrade, in soil medium
MV	MV:	actual microvolt reading
	MVS:	estimated microvolt reading for variable seconds
	MV15:	estimated microvolt reading for 15 sec
WP	WP:	estimated water potential for MV period of observation
UI	UIS:	upper intercept for estimated MV curves, variable seconds
	UI15:	as above, for 15 sec
SP	SPS:	water potential at which the curve of estimated MV peaks, for variable seconds
	SP15:	as above, for 15 sec
N	NS:	power of the WP-effect for variable seconds
	N15:	as above, for 15 sec
M	MS:	power of the sigmoid describing N, variable seconds
	M15:	as above, for 15 sec
I	IS:	inflection point of the sigmoid describing N, variable seconds
	I15:	as above, for 15 sec
-	LNS:	left numerator of the sigmoid describing N, variable seconds
-	LN15	as above, for 15 sec
-	RNS:	right numerator of the sigmoid describing N, variable seconds
-	RN15:	as above, for 15 sec
-	DS:	denominator of the sigmoid describing N, variable seconds
-	D15:	as above, for 15 sec
INT1	$1AS:	intercept for UIS descriptor, at variable sec
	$A15:	intercept for UI15 descriptor, at 15 sec
YP1	$1YS:	scaling height of TEMP-effect in UIS, at variable seconds
	$1Y15:	scaling height of TEMP-effect in UI15, at 15 sec
INT2	$2AS;	intercept for SPS descriptor, at variable seconds
	$2A15:	intercept for SP15 descriptor, at 15 sec
YP2	$2YS:	scaling height of TEMP-effect in SPS, at variable seconds
	$2Y15:	scaling height of TEMP-effect in SP15, at 15 sec
BIAS	ZOE:	zero offset effect
OMV	OMV:	offset microvolts due to temperature differential at thermocouple points
-	WPK:	= WP of-22.5, a constant
C	C:	correction in MV estimate due to OMV
B	B:	least squares fitting coefficient for the MV model
-	R:	UIS*B*C

APPENDIX II

COMPUTER PRINTOUT OF MODEL

Computer printout of predicted water potentials in bars for the temperature range of 0° to 40° C (32° to 104° F), microvolt output, cool time in sec, and zero-offset in 10-microvolt intervals from -60 to +60 microvolts. All water potential values are unadjusted.

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 0.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	6.5	6.2	5.9	5.7	5.5	5.3	5.1	4.9	4.7	4.6	4.4	4.3	4.2
2	13.2	12.6	12.1	11.6	11.1	10.7	10.3	10.0	9.6	9.3	9.0	8.7	8.5
3	20.3	19.3	18.5	17.7	17.0	16.3	15.7	15.2	14.6	14.1	13.7	13.2	12.8
4	27.7	26.4	25.2	24.1	23.1	22.2	21.3	20.5	19.8	19.1	18.5	17.9	17.4
5	35.6	33.9	32.3	30.8	29.5	28.3	27.2	26.1	25.2	24.3	23.5	22.7	22.0
6	44.3	41.9	39.8	38.0	36.3	34.7	33.3	32.0	30.8	29.7	28.7	27.7	26.8
7	54.1	50.9	48.2	45.7	43.6	41.6	39.8	38.2	36.7	35.4	34.1	32.9	31.8
8	67.2	61.8	57.8	54.5	51.7	49.2	46.9	44.9	43.1	41.4	39.9	38.4	37.1
9				65.8	61.4	57.9	54.9	52.3	50.0	47.9	46.0	44.3	42.7
10						70.7	64.8	61.0	57.9	55.2	52.8	50.7	48.7
11									68.5	64.0	60.7	57.9	55.4
12												67.2	63.4
13													
14													
15													
16													
17													
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 1.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	6.3	6.0	5.7	5.5	5.2	5.0	4.8	4.7	4.5	4.4	4.2	4.1	3.9
2	12.8	12.2	11.6	11.1	10.6	10.2	9.8	9.5	9.1	8.8	8.5	8.2	8.0
3	19.5	18.6	17.7	16.9	16.2	15.6	14.9	14.4	13.9	13.4	12.9	12.5	12.1
4	26.6	25.3	24.1	23.0	22.0	21.1	20.2	19.5	18.8	18.1	17.5	16.9	16.4
5	34.2	32.4	30.8	29.4	28.0	26.9	25.8	24.8	23.8	23.0	22.2	21.4	20.7
6	42.3	40.0	37.9	36.1	34.4	32.9	31.5	30.3	29.1	28.0	27.0	26.1	25.2
7	51.4	48.4	45.7	43.3	41.2	39.3	37.6	36.0	34.6	33.3	32.1	30.9	29.9
8	62.5	58.0	54.4	51.3	48.6	46.3	44.1	42.2	40.4	38.8	37.4	36.0	34.7
9			65.4	60.8	57.1	54.0	51.3	48.9	46.7	44.8	43.0	41.4	39.9
10					68.3	63.3	59.5	56.4	53.6	51.2	49.0	47.1	45.3
11								65.7	61.7	58.5	55.8	53.3	51.2
12										68.1	63.8	60.6	57.8
13												71.0	65.9

MICROVOLT READING

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 2.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	6.0	5.7	5.4	5.2	5.0	4.8	4.6	4.4	4.3	4.1	4.0	3.8	3.7
2	12.2	11.6	11.0	10.6	10.1	9.7	9.3	8.9	8.6	8.3	8.0	7.8	7.5
3	18.6	17.7	16.9	16.1	15.4	14.7	14.1	13.6	13.1	12.6	12.2	11.8	11.4
4	25.4	24.1	22.9	21.8	20.8	20.0	19.1	18.4	17.7	17.0	16.4	15.9	15.4
5	32.5	30.8	29.2	27.8	26.5	25.4	24.3	23.3	22.4	21.6	20.8	20.1	19.4
6	40.1	37.9	35.9	34.1	32.5	31.0	29.7	28.5	27.4	26.3	25.4	24.5	23.6
7	48.5	45.6	43.1	40.8	38.8	37.0	35.3	33.8	32.5	31.2	30.1	29.0	28.0
8	58.2	54.2	50.9	48.1	45.6	43.3	41.3	39.5	37.9	36.3	34.9	33.7	32.5
9		65.0	60.1	56.3	53.1	50.3	47.8	45.6	43.6	41.7	40.1	38.6	37.2
10				66.7	61.9	58.1	54.9	52.2	49.7	47.5	45.5	43.7	42.1
11						68.4	63.4	59.7	56.6	53.9	51.5	49.3	47.3
12								70.0	64.9	61.2	58.1	55.4	53.0
13											66.2	62.5	59.4
14													67.5
15													
16													
17													
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 3.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	5.7	5.4	5.2	4.9	4.7	4.5	4.4	4.2	4.0	3.9	3.8	3.6	3.5
2	11.6	11.1	10.5	10.0	9.6	9.2	8.8	8.5	8.2	7.9	7.6	7.3	7.1
3	17.8	16.9	16.0	15.3	14.6	14.0	13.4	12.9	12.4	11.9	11.5	11.1	10.7
4	24.2	22.9	21.7	20.7	19.7	18.9	18.1	17.4	16.7	16.1	15.5	15.0	14.5
5	30.9	29.2	27.7	26.3	25.1	24.0	23.0	22.0	21.2	20.4	19.6	18.9	18.3
6	38.0	35.9	33.9	32.2	30.7	29.3	28.0	26.8	25.8	24.8	23.9	23.0	22.2
7	45.8	43.0	40.6	38.5	36.5	34.8	33.3	31.8	30.5	29.3	28.2	27.2	26.2
8	54.4	50.9	47.8	45.1	42.8	40.7	38.8	37.1	35.5	34.1	32.8	31.5	30.4
9	65.1	59.9	55.9	52.5	49.5	47.0	44.7	42.6	40.7	39.0	37.5	36.1	34.7
10			65.9	61.0	57.1	53.9	51.0	48.5	46.3	44.3	42.5	40.8	39.3
11					66.6	61.9	58.2	55.1	52.4	49.9	47.8	45.8	44.0
12							67.2	62.7	59.2	56.1	53.5	51.2	49.1
13									67.7	63.4	60.0	57.1	54.5
14											68.2	64.0	60.7
15													68.6
16													
17													
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 4.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	5.5	5.2	4.9	4.7	4.5	4.3	4.1	4.0	3.8	3.7	3.6	3.4	3.3
2	11.1	10.5	10.0	9.5	9.1	8.7	8.4	8.0	7.7	7.4	7.2	6.9	6.7
3	17.0	16.1	15.2	14.5	13.9	13.2	12.7	12.2	11.7	11.3	10.9	10.5	10.1
4	23.0	21.8	20.7	19.6	18.7	17.9	17.1	16.4	15.8	15.2	14.6	14.1	13.7
5	29.4	27.7	26.3	25.0	23.8	22.7	21.7	20.8	20.0	19.2	18.5	17.9	17.2
6	36.1	34.0	32.2	30.5	29.0	27.7	26.5	25.3	24.3	23.4	22.5	21.7	20.9
7	43.3	40.7	38.4	36.3	34.5	32.9	31.4	30.0	28.8	27.6	26.6	25.6	24.7
8	51.2	47.9	45.0	42.5	40.3	38.3	36.5	34.9	33.4	32.0	30.8	29.6	28.6
9	60.3	55.9	52.3	49.2	46.5	44.1	41.9	40.0	38.2	36.6	35.2	33.8	32.6
10		65.8	60.7	56.6	53.2	50.3	47.7	45.4	43.3	41.5	39.8	38.2	36.8
11				65.6	61.0	57.2	54.0	51.2	48.8	46.6	44.6	42.8	41.1
12					71.9	65.5	61.2	57.7	54.7	52.1	49.7	47.6	45.7
13							71.0	65.4	61.4	58.1	55.3	52.8	50.5
14									70.4	65.3	61.6	58.5	55.8
15											69.8	65.3	61.8
16													69.4
17													
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 5.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	5.2	5.0	4.7	4.5	4.3	4.1	3.9	3.8	3.6	3.5	3.4	3.3	3.1
	2	10.6	10.1	9.6	9.1	8.7	8.3	7.9	7.6	7.3	7.1	6.8	6.6	6.3
	3	16.2	15.3	14.5	13.8	13.2	12.6	12.1	11.6	11.1	10.7	10.3	9.9	9.6
	4	22.0	20.8	19.7	18.7	17.8	17.0	16.3	15.6	15.0	14.4	13.9	13.4	12.9
	5	28.0	26.4	25.0	23.7	22.6	21.5	20.6	19.7	18.9	18.2	17.5	16.9	16.3
	6	34.3	32.3	30.5	28.9	27.5	26.2	25.0	24.0	23.0	22.1	21.3	20.5	19.8
	7	41.0	38.5	36.3	34.4	32.6	31.1	29.7	28.4	27.2	26.1	25.1	24.2	23.3
	8	48.3	45.2	42.5	40.1	38.0	36.2	34.5	32.9	31.5	30.2	29.0	28.0	26.9
	9	56.4	52.5	49.1	46.3	43.7	41.5	39.5	37.7	36.0	34.5	33.1	31.9	30.7
	10	66.4	60.9	56.5	52.9	49.9	47.2	44.8	42.6	40.7	39.0	37.4	35.9	34.6
	11		73.2	65.4	60.5	56.6	53.3	50.5	47.9	45.7	43.6	41.8	40.1	38.6
	12				70.7	64.6	60.3	56.7	53.7	51.0	48.6	46.5	44.5	42.7
	13						69.1	64.0	60.1	56.8	54.0	51.4	49.2	47.1
	14								68.0	63.5	59.9	56.9	54.2	51.8
	15									73.4	67.1	63.0	59.8	56.9
	16											71.3	66.3	62.7
	17													70.0
	18													
	19													
	20													
M	21													
	22													
I	23													
	24													
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 6.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	5.0	4.8	4.5	4.3	4.1	3.9	3.7	3.6	3.5	3.3	3.2	3.1	3.0
2	10.2	9.6	9.1	8.7	8.3	7.9	7.6	7.3	7.0	6.7	6.5	6.2	6.0
3	15.5	14.6	13.9	13.2	12.6	12.0	11.5	11.0	10.6	10.2	9.8	9.4	9.1
4	21.0	19.8	18.8	17.8	17.0	16.2	15.5	14.8	14.2	13.7	13.2	12.7	12.3
5	26.7	25.2	23.8	22.6	21.5	20.5	19.6	18.7	18.0	17.3	16.6	16.0	15.5
6	32.7	30.7	29.0	27.5	26.1	24.9	23.8	22.8	21.8	21.0	20.2	19.4	18.7
7	39.0	36.6	34.5	32.6	31.0	29.5	28.1	26.9	25.8	24.7	23.8	22.9	22.1
8	45.7	42.8	40.3	38.0	36.0	34.2	32.6	31.2	29.8	28.6	27.5	26.4	25.5
9	53.1	49.5	46.4	43.7	41.3	39.2	37.3	35.6	34.0	32.6	31.3	30.1	29.0
10	61.6	56.9	53.1	49.8	47.0	44.4	42.2	40.2	38.4	36.8	35.3	33.9	32.6
11		65.9	60.7	56.5	53.0	50.1	47.4	45.1	43.0	41.1	39.4	37.8	36.3
12			70.6	64.4	59.9	56.2	53.0	50.3	47.8	45.6	43.6	41.8	40.2
13					68.3	63.2	59.2	55.9	53.0	50.4	48.2	46.1	44.2
14						73.4	66.7	62.3	58.7	55.7	53.0	50.6	48.5
15								70.5	65.3	61.5	58.3	55.5	53.0
16										68.6	64.3	60.8	57.9
17											72.6	67.2	63.4
18													70.4
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 7.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.8	4.6	4.3	4.1	3.9	3.7	3.6	3.4	3.3	3.2	3.1	3.0	2.9
2	9.8	9.2	8.7	8.3	7.9	7.6	7.2	6.9	6.7	6.4	6.2	5.9	5.7
3	14.8	14.0	13.3	12.6	12.0	11.5	11.0	10.5	10.1	9.7	9.3	9.0	8.7
4	20.1	18.9	17.9	17.0	16.2	15.4	14.8	14.1	13.6	13.0	12.5	12.1	11.7
5	25.5	24.0	22.7	21.5	20.5	19.5	18.6	17.8	17.1	16.4	15.8	15.2	14.7
6	31.2	29.3	27.7	26.2	24.9	23.7	22.6	21.7	20.8	19.9	19.2	18.4	17.8
7	37.1	34.8	32.8	31.1	29.5	28.0	26.7	25.6	24.5	23.5	22.6	21.7	20.9
8	43.4	40.7	38.2	36.1	34.2	32.5	31.0	29.6	28.3	27.1	26.1	25.1	24.2
9	50.2	46.9	44.0	41.4	39.2	37.2	35.4	33.7	32.3	30.9	29.7	28.5	27.5
10	57.8	53.6	50.1	47.0	44.4	42.0	39.9	38.1	36.4	34.8	33.4	32.1	30.9
11	67.1	61.3	56.8	53.1	50.0	47.2	44.8	42.6	40.6	38.8	37.2	35.7	34.3
12		71.5	64.7	59.9	56.0	52.7	49.9	47.3	45.1	43.0	41.2	39.5	37.9
13				68.3	63.0	58.8	55.4	52.4	49.8	47.4	45.3	43.4	41.7
14					72.3	66.0	61.6	57.9	54.8	52.1	49.7	47.5	45.6
15							69.2	64.3	60.4	57.2	54.4	51.9	49.6
16								73.0	67.0	62.9	59.5	56.6	54.0
17										70.0	65.4	61.8	58.7
18											73.7	67.9	64.0
19													70.6
20													
21													
22													
23													
24													
25													
26													
27													
28													
29													
30													
31													
32													
33													
34													
35													
36													
37													
38													
39													
40													
41													
42													
43													
44													
45													
46													
47													
48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

MICROVOLT READING

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 8.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

MOISTURE		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	4.6	4.4	4.1	3.9	3.8	3.6	3.4	3.3	3.2	3.0	2.9	2.8	2.7
	2	9.4	8.9	8.4	8.0	7.6	7.2	6.9	6.6	6.4	6.1	5.9	5.7	5.5
	3	14.2	13.4	12.7	12.1	11.5	11.0	10.5	10.0	9.6	9.2	8.9	8.6	8.3
	4	19.3	18.2	17.2	16.3	15.5	14.8	14.1	13.5	12.9	12.4	12.0	11.5	11.1
	5	24.4	23.0	21.7	20.6	19.6	18.6	17.8	17.0	16.3	15.7	15.1	14.5	14.0
	6	29.8	28.0	26.5	25.0	23.8	22.6	21.6	20.7	19.8	19.0	18.3	17.6	16.9
	7	35.5	33.3	31.3	29.6	28.1	26.7	25.5	24.4	23.3	22.4	21.5	20.7	19.9
	8	41.4	38.7	36.4	34.4	32.6	31.0	29.5	28.2	26.9	25.8	24.8	23.9	23.0
	9	47.7	44.5	41.8	39.4	37.3	35.3	33.6	32.1	30.7	29.4	28.2	27.1	26.1
	10	54.6	50.8	47.5	44.6	42.1	39.9	37.9	36.1	34.5	33.0	31.7	30.4	29.3
	11	62.6	57.6	53.6	50.2	47.3	44.7	42.4	40.3	38.5	36.8	35.3	33.9	32.6
	12	73.7	65.7	60.5	56.3	52.8	49.8	47.1	44.8	42.6	40.7	39.0	37.4	35.9
	13			68.9	63.2	58.9	55.3	52.1	49.4	47.0	44.8	42.8	41.0	39.4
	14				72.5	66.0	61.4	57.6	54.4	51.6	49.1	46.9	44.8	43.0
	15						68.7	63.8	59.8	56.5	53.7	51.1	48.8	46.8
	16							71.7	66.2	62.0	58.6	55.6	53.0	50.7
	17									68.6	64.2	60.6	57.6	54.9
	18										71.2	66.3	62.6	59.4
	19											74.7	68.5	64.5
	20													70.8
M	21													
	22													
I	23													
	24													
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 9.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	4.5	4.2	4.0	3.8	3.6	3.4	3.3	3.2	3.0	2.9	2.8	2.7	2.6
	2	9.0	8.5	8.1	7.6	7.3	6.9	6.6	6.4	6.1	5.9	5.6	5.4	5.2
	3	13.7	12.9	12.2	11.6	11.0	10.5	10.0	9.6	9.2	8.9	8.5	8.2	7.9
	4	18.5	17.4	16.5	15.6	14.8	14.1	13.5	12.9	12.4	11.9	11.4	11.0	10.6
	5	23.5	22.1	20.8	19.7	18.8	17.9	17.0	16.3	15.6	15.0	14.4	13.9	13.4
	6	28.6	26.9	25.3	24.0	22.8	21.7	20.7	19.7	18.9	18.1	17.4	16.8	16.2
	7	33.9	31.8	30.0	28.3	26.9	25.6	24.4	23.3	22.3	21.4	20.5	19.7	19.0
	8	39.5	37.0	34.8	32.9	31.1	29.6	28.2	26.9	25.7	24.7	23.7	22.8	21.9
	9	45.5	42.5	39.9	37.6	35.5	33.7	32.1	30.6	29.2	28.0	26.9	25.8	24.9
	10	51.9	48.3	45.2	42.5	40.1	38.0	36.1	34.4	32.9	31.5	30.2	29.0	27.9
	11	59.0	54.5	50.8	47.7	44.9	42.5	40.3	38.4	36.6	35.0	33.6	32.2	31.0
	12	67.4	61.6	57.0	53.2	50.0	47.2	44.7	42.5	40.5	38.7	37.0	35.5	34.2
	13		70.4	64.1	59.4	55.5	52.2	49.3	46.8	44.5	42.5	40.6	39.0	37.4
	14			73.8	66.5	61.6	57.6	54.3	51.3	48.8	46.5	44.4	42.5	40.8
	15					68.9	63.7	59.6	56.2	53.2	50.6	48.3	46.2	44.2
	16						71.5	65.8	61.6	58.1	55.1	52.4	50.0	47.9
	17							74.6	67.9	63.5	59.9	56.8	54.1	51.7
	18									70.0	65.3	61.6	58.5	55.7
	19										72.3	67.1	63.3	60.1
	20												69.0	64.9
M	21													70.8
	22													
I	23													
	24													
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 10.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	4.3	4.1	3.8	3.6	3.5	3.3	3.2	3.0	2.9	2.8	2.7	2.6	2.5
	2	8.7	8.2	7.8	7.4	7.0	6.7	6.4	6.1	5.9	5.6	5.4	5.2	5.0
	3	13.2	12.4	11.8	11.1	10.6	10.1	9.6	9.2	8.8	8.5	8.2	7.9	7.6
	4	17.8	16.8	15.8	15.0	14.3	13.6	13.0	12.4	11.9	11.4	11.0	10.6	10.2
	5	22.6	21.2	20.0	19.0	18.0	17.1	16.3	15.6	15.0	14.4	13.8	13.3	12.8
	6	27.5	25.8	24.3	23.0	21.8	20.8	19.8	18.9	18.1	17.4	16.7	16.1	15.5
	7	32.6	30.6	28.8	27.2	25.8	24.5	23.3	22.3	21.3	20.5	19.6	18.9	18.2
	8	37.9	35.5	33.4	31.5	29.8	28.3	27.0	25.7	24.6	23.6	22.6	21.8	21.0
	9	43.5	40.6	38.1	35.9	34.0	32.2	30.7	29.2	28.0	26.8	25.7	24.7	23.8
	10	49.4	46.0	43.1	40.6	38.3	36.3	34.5	32.9	31.4	30.1	28.8	27.7	26.6
	11	55.9	51.8	48.4	45.4	42.8	40.5	38.4	36.6	34.9	33.4	32.0	30.7	29.6
	12	63.3	58.2	54.0	50.6	47.5	44.9	42.6	40.5	38.6	36.9	35.3	33.9	32.6
	13	73.0	65.5	60.3	56.1	52.6	49.5	46.9	44.5	42.3	40.4	38.7	37.1	35.6
	14			67.7	62.3	58.0	54.5	51.4	48.7	46.3	44.1	42.2	40.4	38.8
	15				69.8	64.2	59.9	56.2	53.1	50.4	48.0	45.8	43.8	42.0
	16					72.0	66.0	61.6	57.9	54.8	52.0	49.6	47.4	45.4
	17						74.5	67.8	63.2	59.5	56.4	53.6	51.1	48.9
	18								69.5	64.8	61.0	57.8	55.0	52.6
	19									71.3	66.3	62.5	59.3	56.4
	20										73.2	67.9	63.9	60.6
M	21												69.3	65.3
	22													70.9
I	23													
	24													
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 11.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.2	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.7	2.6	2.5	2.4
2	8.4	7.9	7.5	7.1	6.7	6.4	6.1	5.9	5.6	5.4	5.2	5.0	4.8
3	12.8	12.0	11.3	10.7	10.2	9.7	9.3	8.9	8.5	8.2	7.9	7.6	7.3
4	17.2	16.2	15.3	14.5	13.7	13.1	12.5	11.9	11.4	11.0	10.5	10.1	9.8
5	21.8	20.5	19.3	18.3	17.3	16.5	15.7	15.0	14.4	13.8	13.3	12.8	12.3
6	26.5	24.9	23.4	22.1	21.0	20.0	19.0	18.2	17.4	16.7	16.0	15.4	14.9
7	31.3	29.4	27.7	26.1	24.8	23.5	22.4	21.4	20.5	19.6	18.8	18.1	17.5
8	36.4	34.1	32.0	30.2	28.6	27.2	25.9	24.7	23.6	22.6	21.7	20.9	20.1
9	41.7	39.0	36.6	34.4	32.6	30.9	29.4	28.0	26.8	25.7	24.6	23.7	22.8
10	47.3	44.1	41.3	38.8	36.7	34.8	33.0	31.5	30.1	28.8	27.6	26.5	25.5
11	53.3	49.5	46.2	43.4	40.9	38.7	36.8	35.0	33.4	32.0	30.6	29.4	28.3
12	59.9	55.3	51.5	48.2	45.4	42.9	40.6	38.7	36.9	35.2	33.7	32.4	31.1
13	67.7	61.8	57.2	53.3	50.0	47.2	44.7	42.4	40.4	38.6	36.9	35.4	34.0
14		69.6	63.5	58.9	55.0	51.7	48.9	46.4	44.1	42.1	40.2	38.5	37.0
15			71.4	65.1	60.5	56.6	53.3	50.5	47.9	45.7	43.6	41.7	40.0
16				73.3	66.7	62.0	58.1	54.8	52.0	49.4	47.1	45.1	43.2
17					75.6	68.2	63.4	59.5	56.2	53.4	50.8	48.5	46.4
18							69.6	64.7	60.9	57.5	54.7	52.1	49.8
19								71.1	66.0	62.1	58.8	55.9	53.4
20									72.5	67.3	63.3	60.0	57.1
M 21										74.1	68.5	64.5	61.1
22												69.7	65.6
I 23													70.8
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 12.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.0	3.8	3.6	3.4	3.2	3.1	2.9	2.8	2.7	2.6	2.5	2.4	2.3
2	8.1	7.7	7.2	6.9	6.5	6.2	5.9	5.7	5.4	5.2	5.0	4.8	4.7
3	12.3	11.6	11.0	10.4	9.9	9.4	9.0	8.6	8.2	7.9	7.6	7.3	7.0
4	16.6	15.6	14.8	14.0	13.2	12.6	12.0	11.5	11.0	10.6	10.1	9.8	9.4
5	21.0	19.8	18.6	17.6	16.7	15.9	15.1	14.5	13.9	13.3	12.8	12.3	11.8
6	25.6	24.0	22.6	21.3	20.2	19.2	18.3	17.5	16.8	16.1	15.4	14.8	14.3
7	30.2	28.3	26.7	25.2	23.8	22.6	21.6	20.6	19.7	18.9	18.1	17.4	16.8
8	35.1	32.8	30.8	29.1	27.5	26.1	24.9	23.7	22.7	21.7	20.9	20.1	19.3
9	40.1	37.5	35.2	33.1	31.3	29.7	28.3	26.9	25.7	24.6	23.6	22.7	21.9
10	45.4	42.3	39.6	37.3	35.2	33.4	31.7	30.2	28.9	27.6	26.5	25.4	24.5
11	51.0	47.4	44.3	41.6	39.2	37.1	35.3	33.6	32.0	30.7	29.4	28.2	27.1
12	57.1	52.8	49.2	46.1	43.4	41.1	38.9	37.0	35.3	33.8	32.3	31.0	29.8
13	63.9	58.7	54.5	50.9	47.8	45.1	42.7	40.6	38.7	36.9	35.4	33.9	32.6
14	72.6	65.4	60.2	56.0	52.4	49.4	46.7	44.3	42.1	40.2	38.5	36.9	35.4
15		74.2	66.7	61.5	57.4	53.9	50.8	48.1	45.7	43.6	41.7	39.9	38.3
16			76.1	68.0	62.8	58.7	55.2	52.1	49.5	47.1	44.9	43.0	41.2
17					69.2	64.0	59.9	56.4	53.4	50.7	48.4	46.2	44.3
18						70.3	65.1	61.0	57.6	54.6	51.9	49.6	47.4
19							71.4	66.2	62.1	58.7	55.7	53.0	50.7
20								72.5	67.2	63.1	59.7	56.7	54.1
M 21									73.6	68.1	64.0	60.7	57.7
22										74.8	69.0	65.0	61.6
I 23											76.3	69.9	65.8
24													70.8
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 13.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.9	3.7	3.5	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4	2.3	2.2
2	7.9	7.4	7.0	6.6	6.3	6.0	5.7	5.5	5.2	5.0	4.8	4.7	4.5
3	12.0	11.3	10.6	10.0	9.5	9.1	8.7	8.3	7.9	7.6	7.3	7.0	6.8
4	16.1	15.1	14.3	13.5	12.8	12.2	11.6	11.1	10.6	10.2	9.8	9.4	9.1
5	20.4	19.1	18.0	17.0	16.1	15.3	14.6	14.0	13.4	12.8	12.3	11.8	11.4
6	24.7	23.2	21.8	20.6	19.5	18.6	17.7	16.9	16.2	15.5	14.9	14.3	13.8
7	29.2	27.4	25.7	24.3	23.0	21.8	20.8	19.9	19.0	18.2	17.5	16.8	16.2
8	33.9	31.7	29.8	28.1	26.5	25.2	24.0	22.9	21.9	20.9	20.1	19.3	18.6
9	38.7	36.1	33.9	31.9	30.2	28.6	27.2	25.9	24.8	23.7	22.8	21.9	21.0
10	43.7	40.7	38.1	35.9	33.9	32.1	30.5	29.1	27.8	26.6	25.5	24.5	23.5
11	49.0	45.5	42.6	40.0	37.7	35.7	33.9	32.3	30.8	29.5	28.2	27.1	26.1
12	54.6	50.6	47.2	44.3	41.7	39.4	37.4	35.6	33.9	32.4	31.1	29.8	28.6
13	60.8	56.1	52.1	48.7	45.8	43.3	41.0	39.0	37.1	35.5	33.9	32.6	31.3
14	68.0	62.0	57.3	53.5	50.1	47.3	44.7	42.4	40.4	38.6	36.9	35.4	33.9
15		69.0	63.1	58.5	54.7	51.4	48.6	46.0	43.8	41.7	39.9	38.2	36.7
16			69.9	64.1	59.6	55.9	52.6	49.8	47.3	45.0	43.0	41.2	39.5
17				70.8	65.1	60.6	56.9	53.7	50.9	48.4	46.2	44.2	42.3
18					71.6	65.9	61.6	57.9	54.8	52.0	49.5	47.3	45.3
19						72.4	66.7	62.4	58.8	55.7	53.0	50.5	48.3
20							73.1	67.5	63.2	59.7	56.6	53.9	51.5
M 21								73.9	68.2	64.0	60.5	57.5	54.8
22									74.6	68.9	64.7	61.3	58.3
I 23										75.4	69.5	65.4	62.0
24											76.2	70.1	66.0
C 25													70.7
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 14.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	3.8	3.6	3.4	3.2	3.0	2.9	2.8	2.6	2.5	2.4	2.3	2.2	2.2
	2	7.7	7.2	6.8	6.4	6.1	5.8	5.5	5.3	5.1	4.9	4.7	4.5	4.3
	3	11.6	10.9	10.3	9.7	9.2	8.8	8.4	8.0	7.7	7.4	7.1	6.8	6.5
	4	15.7	14.7	13.8	13.1	12.4	11.8	11.2	10.7	10.3	9.9	9.5	9.1	8.8
	5	19.8	18.5	17.5	16.5	15.6	14.9	14.2	13.5	12.9	12.4	11.9	11.4	11.0
	6	24.0	22.5	21.1	20.0	18.9	18.0	17.1	16.3	15.6	15.0	14.4	13.8	13.3
	7	28.3	26.5	24.9	23.5	22.2	21.1	20.1	19.2	18.3	17.6	16.9	16.2	15.6
	8	32.8	30.6	28.8	27.1	25.7	24.3	23.2	22.1	21.1	20.2	19.4	18.6	17.9
	9	37.4	34.9	32.7	30.8	29.1	27.6	26.3	25.0	23.9	22.9	22.0	21.1	20.3
	10	42.2	39.3	36.8	34.6	32.7	31.0	29.4	28.0	26.8	25.6	24.6	23.6	22.7
	11	47.2	43.9	41.0	38.6	36.4	34.4	32.7	31.1	29.7	28.4	27.2	26.1	25.1
	12	52.5	48.7	45.4	42.6	40.1	38.0	36.0	34.3	32.7	31.2	29.9	28.7	27.6
	13	58.2	53.8	50.0	46.8	44.1	41.6	39.4	37.5	35.7	34.1	32.7	31.3	30.1
	14	64.6	59.2	54.9	51.3	48.1	45.4	42.9	40.8	38.8	37.1	35.5	34.0	32.6
	15	72.3	65.3	60.2	55.9	52.4	49.3	46.6	44.2	42.0	40.1	38.3	36.7	35.2
	16		72.8	66.0	61.0	56.9	53.4	50.4	47.7	45.3	43.2	41.3	39.5	37.9
	17			73.3	66.7	61.8	57.8	54.4	51.4	48.8	46.4	44.3	42.4	40.6
	18				73.7	67.2	62.5	58.6	55.2	52.3	49.7	47.4	45.3	43.4
	19					74.1	67.8	63.1	59.3	56.0	53.2	50.6	48.3	46.3
	20						74.5	68.3	63.7	60.0	56.8	54.0	51.5	49.2
M	21							74.8	68.7	64.3	60.7	57.5	54.7	52.3
	22								75.2	69.2	64.8	61.3	58.2	55.4
I	23									75.5	69.6	65.3	61.8	58.8
	24										75.8	69.9	65.8	62.3
C	25											76.2	70.3	66.2
R	26												76.5	70.6
	27													76.9
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 15.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.7	3.5	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.1
	2	7.5	7.0	6.6	6.3	5.9	5.7	5.4	5.1	4.9	4.7	4.5	4.4	4.2
	3	11.3	10.6	10.0	9.5	9.0	8.5	8.1	7.8	7.4	7.1	6.8	6.6	6.3
	4	15.2	14.3	13.5	12.7	12.0	11.4	10.9	10.4	10.0	9.5	9.2	8.8	8.5
	5	19.2	18.0	17.0	16.0	15.2	14.4	13.7	13.1	12.5	12.0	11.5	11.1	10.7
	6	23.3	21.8	20.5	19.4	18.3	17.4	16.6	15.8	15.1	14.5	13.9	13.4	12.9
	7	27.5	25.7	24.2	22.8	21.6	20.5	19.5	18.6	17.7	17.0	16.3	15.7	15.1
	8	31.8	29.7	27.9	26.3	24.8	23.6	22.4	21.4	20.4	19.5	18.7	18.0	17.3
	9	36.2	33.8	31.7	29.8	28.2	26.7	25.4	24.2	23.1	22.1	21.2	20.4	19.6
	10	40.8	38.0	35.6	33.5	31.6	30.0	28.5	27.1	25.9	24.8	23.7	22.8	21.9
	11	45.6	42.4	39.6	37.3	35.1	33.3	31.6	30.1	28.7	27.4	26.3	25.2	24.2
	12	50.6	46.9	43.8	41.1	38.7	36.6	34.8	33.1	31.5	30.1	28.9	27.7	26.6
	13	55.9	51.7	48.2	45.1	42.5	40.1	38.0	36.1	34.4	32.9	31.5	30.2	29.0
	14	61.7	56.8	52.8	49.3	46.3	43.7	41.4	39.3	37.4	35.7	34.2	32.8	31.5
	15	68.3	62.3	57.6	53.7	50.3	47.4	44.8	42.5	40.5	38.6	36.9	35.4	33.9
	16		68.6	62.9	58.3	54.5	51.2	48.4	45.8	43.6	41.5	39.7	38.0	36.5
	17			68.9	63.4	59.0	55.3	52.1	49.3	46.8	44.6	42.6	40.7	39.1
	18				69.1	63.8	59.6	56.0	52.9	50.1	47.7	45.5	43.5	41.7
	19					69.3	64.3	60.1	56.7	53.6	50.9	48.5	46.4	44.4
	20					77.1	69.5	64.6	60.6	57.3	54.3	51.7	49.3	47.2
M	21						76.9	69.7	65.0	61.1	57.8	54.9	52.3	50.0
	22							76.7	69.9	65.3	61.6	58.3	55.5	53.0
I	23								76.5	70.0	65.6	62.0	58.8	56.0
	24									76.3	70.2	65.9	62.3	59.3
C	25										76.2	70.3	66.1	62.7
R	26											76.1	70.4	66.4
	27												76.0	70.5
O	28													75.9
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 16.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	3.6	3.4	3.2	3.0	2.9	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0
	2	7.3	6.9	6.5	6.1	5.8	5.5	5.2	5.0	4.8	4.6	4.4	4.2	4.1
	3	11.0	10.4	9.7	9.2	8.7	8.3	7.9	7.5	7.2	6.9	6.6	6.4	6.2
	4	14.8	13.9	13.1	12.4	11.7	11.1	10.6	10.1	9.7	9.3	8.9	8.6	8.2
	5	18.7	17.5	16.5	15.6	14.7	14.0	13.3	12.7	12.2	11.6	11.2	10.7	10.3
	6	22.7	21.2	20.0	18.8	17.8	16.9	16.1	15.3	14.7	14.0	13.5	13.0	12.5
	7	26.7	25.0	23.5	22.1	20.9	19.9	18.9	18.0	17.2	16.5	15.8	15.2	14.6
	8	30.9	28.8	27.1	25.5	24.1	22.9	21.7	20.7	19.8	18.9	18.2	17.4	16.8
	9	35.1	32.8	30.7	28.9	27.3	25.9	24.6	23.5	22.4	21.4	20.5	19.7	19.0
	10	39.6	36.9	34.5	32.5	30.6	29.0	27.6	26.2	25.1	24.0	23.0	22.0	21.2
	11	44.1	41.0	38.4	36.1	34.0	32.2	30.6	29.1	27.7	26.5	25.4	24.4	23.5
	12	48.9	45.4	42.4	39.8	37.5	35.4	33.6	32.0	30.5	29.1	27.9	26.8	25.7
	13	53.9	49.9	46.5	43.6	41.0	38.8	36.7	34.9	33.3	31.8	30.4	29.2	28.0
	14	59.3	54.7	50.8	47.5	44.7	42.2	39.9	37.9	36.1	34.5	33.0	31.6	30.4
	15	65.2	59.8	55.4	51.7	48.5	45.7	43.2	41.0	39.0	37.2	35.6	34.1	32.8
	16	72.3	65.4	60.2	56.0	52.4	49.3	46.6	44.2	42.0	40.1	38.3	36.7	35.2
	17		72.0	65.6	60.6	56.6	53.1	50.1	47.4	45.1	42.9	41.0	39.2	37.6
	18			71.8	65.7	61.0	57.1	53.7	50.8	48.2	45.9	43.8	41.9	40.1
	19				71.6	65.8	61.3	57.6	54.3	51.5	48.9	46.6	44.6	42.7
	20					71.4	65.9	61.6	58.0	54.8	52.1	49.6	47.4	45.3
M	21						71.2	66.1	61.9	58.4	55.3	52.6	50.2	48.0
	22							71.1	66.1	62.2	58.8	55.8	53.2	50.8
I	23								71.0	66.2	62.4	59.1	56.2	53.6
	24									70.8	66.3	62.6	59.4	56.6
C	25									77.1	70.7	66.4	62.8	59.7
R	26										76.5	70.6	66.5	63.0
	27											76.0	70.5	66.5
O	28												75.6	70.4
	29													75.3
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 17.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	3.5	3.3	3.1	3.0	2.8	2.7	2.5	2.4	2.3	2.2	2.1	2.1	2.0
	2	7.1	6.7	6.3	5.9	5.6	5.4	5.1	4.9	4.7	4.5	4.3	4.1	4.0
	3	10.8	10.1	9.5	9.0	8.5	8.1	7.7	7.3	7.0	6.7	6.5	6.2	6.0
	4	14.5	13.6	12.8	12.0	11.4	10.8	10.3	9.8	9.4	9.0	8.6	8.3	8.0
	5	18.3	17.1	16.1	15.2	14.3	13.6	13.0	12.4	11.8	11.3	10.9	10.4	10.0
	6	22.1	20.7	19.4	18.3	17.3	16.4	15.6	14.9	14.3	13.6	13.1	12.6	12.1
	7	26.0	24.3	22.8	21.5	20.4	19.3	18.4	17.5	16.7	16.0	15.3	14.7	14.2
	8	30.1	28.1	26.3	24.8	23.4	22.2	21.1	20.1	19.2	18.4	17.6	16.9	16.3
	9	34.2	31.9	29.9	28.1	26.6	25.2	23.9	22.8	21.7	20.8	19.9	19.1	18.4
	10	38.4	35.8	33.5	31.5	29.7	28.2	26.7	25.5	24.3	23.2	22.3	21.4	20.5
	11	42.8	39.8	37.2	35.0	33.0	31.2	29.6	28.2	26.9	25.7	24.6	23.6	22.7
	12	47.4	44.0	41.1	38.5	36.3	34.3	32.6	31.0	29.5	28.2	27.0	25.9	24.9
	13	52.1	48.3	45.0	42.2	39.7	37.5	35.6	33.8	32.2	30.8	29.5	28.2	27.1
	14	57.2	52.8	49.1	46.0	43.2	40.8	38.6	36.7	35.0	33.4	31.9	30.6	29.4
	15	62.6	57.6	53.4	49.9	46.8	44.1	41.8	39.6	37.7	36.0	34.4	33.0	31.7
	16	68.8	62.7	58.0	54.0	50.6	47.6	45.0	42.7	40.6	38.7	37.0	35.4	34.0
	17	77.0	68.5	62.8	58.3	54.5	51.2	48.3	45.8	43.5	41.4	39.6	37.9	36.3
	18		75.8	68.2	62.9	58.6	54.9	51.7	48.9	46.5	44.2	42.2	40.4	38.7
	19			74.8	68.0	62.9	58.8	55.3	52.2	49.5	47.1	45.0	43.0	41.2
	20				74.1	67.8	63.0	59.1	55.7	52.7	50.1	47.7	45.6	43.7
M	21					73.4	67.6	63.0	59.3	56.0	53.1	50.6	48.3	46.2
	22						72.9	67.4	63.1	59.5	56.3	53.6	51.1	48.8
I	23							72.4	67.2	63.1	59.7	56.6	53.9	51.5
	24								71.9	67.1	63.2	59.8	56.9	54.3
C	25									71.6	67.0	63.2	60.0	57.1
R	26									77.8	71.2	66.8	63.2	60.1
	27										76.7	70.9	66.7	63.3
O	28											75.9	70.6	66.6
	29												75.3	70.3
V	30													74.7
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 18.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	3.5	3.3	3.1	2.9	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.9
	2	7.0	6.5	6.2	5.8	5.5	5.2	5.0	4.7	4.5	4.3	4.2	4.0	3.9
	3	10.5	9.9	9.3	8.8	8.3	7.9	7.5	7.1	6.8	6.5	6.3	6.0	5.8
	4	14.2	13.3	12.5	11.8	11.1	10.6	10.0	9.6	9.2	8.8	8.4	8.1	7.8
	5	17.9	16.7	15.7	14.8	14.0	13.3	12.6	12.0	11.5	11.0	10.6	10.1	9.8
	6	21.6	20.2	19.0	17.9	16.9	16.0	15.2	14.5	13.9	13.3	12.7	12.2	11.8
	7	25.4	23.7	22.3	21.0	19.8	18.8	17.9	17.0	16.3	15.6	14.9	14.3	13.8
	8	29.3	27.4	25.7	24.1	22.8	21.6	20.5	19.6	18.7	17.9	17.1	16.4	15.8
	9	33.3	31.1	29.1	27.4	25.8	24.5	23.2	22.1	21.1	20.2	19.4	18.6	17.9
	10	37.4	34.8	32.6	30.7	28.9	27.4	26.0	24.7	23.6	22.6	21.6	20.8	19.9
	11	41.6	38.7	36.2	34.0	32.1	30.3	28.8	27.4	26.1	25.0	23.9	22.9	22.0
	12	46.0	42.7	39.9	37.4	35.3	33.3	31.6	30.1	28.7	27.4	26.2	25.2	24.2
	13	50.6	46.9	43.7	40.9	38.5	36.4	34.5	32.8	31.2	29.8	28.6	27.4	26.3
	14	55.3	51.1	47.6	44.6	41.9	39.5	37.4	35.6	33.9	32.3	30.9	29.7	28.5
	15	60.4	55.6	51.7	48.3	45.3	42.7	40.4	38.4	36.5	34.9	33.4	32.0	30.7
	16	66.0	60.4	55.9	52.1	48.9	46.0	43.5	41.3	39.3	37.5	35.8	34.3	32.9
	17	72.4	65.6	60.4	56.2	52.6	49.4	46.7	44.2	42.1	40.1	38.3	36.7	35.2
	18		71.6	65.3	60.4	56.4	52.9	49.9	47.3	44.9	42.8	40.8	39.1	37.5
	19			70.8	65.0	60.5	56.6	53.3	50.4	47.8	45.5	43.4	41.5	39.8
	20				70.2	64.8	60.5	56.8	53.6	50.8	48.3	46.1	44.0	42.2
M	21				76.7	69.6	64.6	60.5	57.0	53.9	51.2	48.8	46.6	44.6
	22					75.5	69.1	64.4	60.5	57.1	54.2	51.6	49.2	47.1
I	23						74.5	68.7	64.2	60.5	57.3	54.4	51.9	49.6
	24							73.6	68.3	64.0	60.5	57.4	54.6	52.2
C	25								72.9	67.9	63.9	60.5	57.5	54.9
R	26									72.2	67.6	63.8	60.5	57.6
	27										71.6	67.3	63.6	60.5
O	28										76.8	71.1	67.0	63.5
	29											75.8	70.7	66.7
V	30												75.0	70.2
O	31													74.3
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 19.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.4	3.2	3.0	2.8	2.7	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.9
	2	6.8	6.4	6.0	5.7	5.4	5.1	4.9	4.6	4.4	4.2	4.1	3.9	3.8
	3	10.3	9.7	9.1	8.6	8.1	7.7	7.3	7.0	6.7	6.4	6.1	5.9	5.7
	4	13.9	13.0	12.2	11.5	10.9	10.3	9.8	9.3	8.9	8.5	8.2	7.9	7.6
	5	17.5	16.3	15.3	14.4	13.7	12.9	12.3	11.7	11.2	10.7	10.3	9.9	9.5
	6	21.1	19.7	18.5	17.4	16.5	15.6	14.8	14.1	13.5	12.9	12.4	11.9	11.4
	7	24.8	23.2	21.7	20.5	19.3	18.3	17.4	16.6	15.8	15.1	14.5	13.9	13.4
	8	28.6	26.7	25.0	23.5	22.2	21.1	20.0	19.1	18.2	17.4	16.7	16.0	15.4
	9	32.5	30.3	28.4	26.7	25.2	23.8	22.6	21.5	20.6	19.7	18.8	18.1	17.4
	10	36.5	34.0	31.8	29.9	28.2	26.7	25.3	24.1	23.0	21.9	21.0	20.2	19.4
	11	40.6	37.7	35.3	33.1	31.2	29.5	28.0	26.6	25.4	24.3	23.2	22.3	21.4
	12	44.8	41.6	38.8	36.4	34.3	32.4	30.7	29.2	27.9	26.6	25.5	24.4	23.5
	13	49.1	45.5	42.5	39.8	37.4	35.4	33.5	31.9	30.4	29.0	27.7	26.6	25.5
	14	53.7	49.6	46.2	43.3	40.7	38.4	36.4	34.5	32.9	31.4	30.0	28.8	27.6
	15	58.4	53.9	50.1	46.8	44.0	41.5	39.2	37.3	35.5	33.8	32.4	31.0	29.8
	16	63.6	58.4	54.1	50.5	47.4	44.6	42.2	40.0	38.1	36.3	34.7	33.3	31.9
	17	69.3	63.2	58.3	54.3	50.9	47.9	45.2	42.9	40.7	38.8	37.1	35.5	34.1
	18	76.4	68.5	62.8	58.3	54.5	51.2	48.3	45.7	43.5	41.4	39.5	37.8	36.3
	19		74.7	67.7	62.5	58.3	54.6	51.5	48.7	46.2	44.0	42.0	40.2	38.5
	20			73.4	67.1	62.3	58.2	54.8	51.8	49.1	46.7	44.5	42.6	40.8
M	21				72.3	66.6	62.0	58.2	54.9	52.0	49.4	47.1	45.0	43.1
	22					71.4	66.1	61.8	58.2	55.0	52.2	49.7	47.5	45.5
I	23					77.7	70.6	65.6	61.6	58.2	55.1	52.5	50.0	47.9
	24						76.0	69.8	65.3	61.4	58.1	55.2	52.6	50.3
C	25							74.7	69.2	64.9	61.3	58.1	55.3	52.8
R	26								73.7	68.6	64.6	61.1	58.1	55.4
	27									72.8	68.1	64.3	61.0	58.1
O	28										72.0	67.6	64.0	60.9
	29										76.9	71.3	67.2	63.8
V	30											75.7	70.7	66.8
O	31												74.8	70.2
	32													73.9
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 20.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.3	3.1	2.9	2.8	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.8
	2	6.7	6.3	5.9	5.6	5.3	5.0	4.7	4.5	4.3	4.1	4.0	3.8	3.7
	3	10.1	9.5	8.9	8.4	7.9	7.5	7.1	6.8	6.5	6.2	6.0	5.7	5.5
	4	13.6	12.7	11.9	11.2	10.6	10.1	9.6	9.1	8.7	8.3	8.0	7.7	7.4
	5	17.1	16.0	15.0	14.1	13.3	12.6	12.0	11.4	10.9	10.5	10.0	9.6	9.3
	6	20.7	19.3	18.1	17.0	16.1	15.2	14.5	13.8	13.2	12.6	12.1	11.6	11.2
	7	24.3	22.7	21.2	20.0	18.9	17.9	17.0	16.2	15.4	14.8	14.1	13.6	13.1
	8	28.0	26.1	24.4	23.0	21.7	20.5	19.5	18.6	17.7	16.9	16.2	15.6	15.0
	9	31.8	29.6	27.7	26.0	24.6	23.2	22.1	21.0	20.0	19.1	18.3	17.6	16.9
	10	35.6	33.1	31.0	29.1	27.5	26.0	24.6	23.4	22.4	21.4	20.5	19.6	18.9
	11	39.6	36.8	34.4	32.3	30.4	28.7	27.3	25.9	24.7	23.6	22.6	21.7	20.8
	12	43.6	40.5	37.8	35.5	33.4	31.6	29.9	28.4	27.1	25.9	24.8	23.8	22.8
	13	47.8	44.3	41.3	38.7	36.4	34.4	32.6	31.0	29.5	28.2	27.0	25.9	24.8
	14	52.1	48.2	44.9	42.1	39.5	37.3	35.3	33.6	32.0	30.5	29.2	28.0	26.9
	15	56.7	52.3	48.6	45.5	42.7	40.3	38.1	36.2	34.5	32.9	31.4	30.1	28.9
	16	61.5	56.6	52.5	49.0	46.0	43.3	41.0	38.9	37.0	35.3	33.7	32.3	31.0
	17	66.7	61.1	56.5	52.6	49.3	46.4	43.9	41.6	39.5	37.7	36.0	34.5	33.1
	18	72.6	65.9	60.7	56.4	52.8	49.6	46.8	44.4	42.1	40.2	38.4	36.7	35.2
	19		71.3	65.2	60.4	56.3	52.9	49.9	47.2	44.8	42.7	40.7	39.0	37.3
	20			70.1	64.6	60.1	56.3	53.0	50.1	47.5	45.2	43.1	41.3	39.5
M	21			76.1	69.1	64.0	59.8	56.2	53.1	50.3	47.8	45.6	43.6	41.7
	22				74.4	68.3	63.5	59.6	56.1	53.2	50.5	48.1	46.0	44.0
I	23					73.1	67.5	63.1	59.3	56.1	53.2	50.7	48.4	46.3
	24						71.9	66.8	62.7	59.1	56.1	53.3	50.8	48.6
C	25						77.6	70.9	66.2	62.3	59.0	56.0	53.4	51.0
R	26							75.8	70.1	65.7	62.0	58.8	56.0	53.4
	27								74.5	69.3	65.2	61.7	58.7	55.9
O	28									73.4	68.6	64.8	61.4	58.5
	29										72.4	68.0	64.4	61.2
V	30										77.0	71.5	67.4	64.0
O	31											75.6	70.8	66.9
	32												74.5	70.1
L	33													73.6
	34													78.1
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 21.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
								WATER POTENTIAL, NEGATIVE BARS						
	1	3.3	3.1	2.9	2.7	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.9	1.8
	2	6.6	6.2	5.8	5.4	5.1	4.9	4.6	4.4	4.2	4.0	3.9	3.7	3.6
	3	9.9	9.3	8.7	8.2	7.8	7.3	7.0	6.7	6.4	6.1	5.8	5.6	5.4
	4	13.3	12.4	11.7	11.0	10.4	9.8	9.4	8.9	8.5	8.1	7.8	7.5	7.2
	5	16.8	15.6	14.7	13.8	13.0	12.4	11.7	11.2	10.7	10.2	9.8	9.4	9.0
	6	20.3	18.9	17.7	16.7	15.7	14.9	14.2	13.5	12.9	12.3	11.8	11.3	10.9
	7	23.8	22.2	20.8	19.5	18.4	17.5	16.6	15.8	15.1	14.4	13.8	13.2	12.7
	8	27.4	25.5	23.9	22.5	21.2	20.1	19.0	18.1	17.3	16.5	15.8	15.2	14.6
	9	31.1	28.9	27.1	25.4	24.0	22.7	21.5	20.5	19.5	18.7	17.9	17.2	16.5
	10	34.8	32.4	30.3	28.4	26.8	25.3	24.0	22.9	21.8	20.8	19.9	19.1	18.4
	11	38.6	35.9	33.5	31.5	29.7	28.0	26.6	25.3	24.1	23.0	22.0	21.1	20.3
	12	42.6	39.5	36.9	34.6	32.6	30.8	29.2	27.7	26.4	25.2	24.1	23.1	22.2
	13	46.6	43.2	40.3	37.7	35.5	33.5	31.8	30.2	28.7	27.4	26.3	25.2	24.2
	14	50.7	47.0	43.7	40.9	38.5	36.3	34.4	32.7	31.1	29.7	28.4	27.2	26.1
	15	55.1	50.9	47.3	44.2	41.6	39.2	37.1	35.2	33.5	32.0	30.6	29.3	28.1
	16	59.6	54.9	51.0	47.6	44.7	42.1	39.8	37.8	35.9	34.3	32.8	31.4	30.1
	17	64.5	59.2	54.8	51.1	47.9	45.1	42.6	40.4	38.4	36.6	35.0	33.5	32.1
	18	69.8	63.6	58.8	54.7	51.2	48.1	45.4	43.1	40.9	39.0	37.2	35.7	34.2
	19	76.2	68.5	62.9	58.4	54.6	51.3	48.3	45.8	43.5	41.4	39.5	37.8	36.3
	20		74.1	67.4	62.3	58.1	54.5	51.3	48.5	46.1	43.9	41.9	40.0	38.4
M	21			72.4	66.5	61.8	57.8	54.4	51.4	48.7	46.4	44.2	42.3	40.5
	22				71.1	65.7	61.3	57.5	54.3	51.4	48.9	46.6	44.5	42.6
I	23				76.6	69.9	64.9	60.8	57.3	54.2	51.5	49.1	46.8	44.8
	24					74.7	68.9	64.3	60.4	57.1	54.2	51.5	49.2	47.1
C	25						73.2	68.0	63.7	60.1	56.9	54.1	51.6	49.3
R	26							72.0	67.2	63.2	59.7	56.7	54.1	51.6
	27							76.8	70.9	66.4	62.7	59.4	56.6	54.0
O	28								75.2	69.9	65.8	62.3	59.2	56.4
	29									73.9	69.1	65.2	61.9	58.9
V	30										72.7	68.3	64.7	61.5
O	31										77.1	71.7	67.6	64.2
	32											75.6	70.8	67.0
L	33												74.3	70.0
	34													73.3
T	35													77.2
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 22.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.2	3.0	2.8	2.7	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7
	2	6.5	6.0	5.7	5.3	5.0	4.8	4.5	4.3	4.1	4.0	3.8	3.6	3.5
	3	9.8	9.1	8.5	8.0	7.6	7.2	6.8	6.5	6.2	5.9	5.7	5.5	5.3
	4	13.1	12.2	11.4	10.8	10.2	9.6	9.1	8.7	8.3	8.0	7.6	7.3	7.0
	5	16.4	15.3	14.4	13.5	12.8	12.1	11.5	10.9	10.4	10.0	9.6	9.2	8.8
	6	19.9	18.5	17.3	16.3	15.4	14.6	13.8	13.2	12.6	12.0	11.5	11.0	10.6
	7	23.3	21.7	20.3	19.1	18.0	17.1	16.2	15.4	14.7	14.1	13.5	12.9	12.4
	8	26.8	25.0	23.4	22.0	20.7	19.6	18.6	17.7	16.9	16.1	15.4	14.8	14.2
	9	30.4	28.3	26.5	24.8	23.4	22.2	21.0	20.0	19.1	18.2	17.4	16.7	16.1
	10	34.0	31.7	29.6	27.8	26.2	24.7	23.5	22.3	21.3	20.3	19.5	18.7	17.9
	11	37.8	35.1	32.8	30.7	28.9	27.4	25.9	24.7	23.5	22.4	21.5	20.6	19.8
	12	41.6	38.6	36.0	33.7	31.8	30.0	28.4	27.0	25.7	24.6	23.5	22.5	21.7
	13	45.5	42.1	39.3	36.8	34.6	32.7	31.0	29.4	28.0	26.7	25.6	24.5	23.5
	14	49.5	45.8	42.6	39.9	37.5	35.4	33.5	31.8	30.3	28.9	27.7	26.5	25.4
	15	53.6	49.5	46.1	43.1	40.5	38.2	36.1	34.3	32.6	31.1	29.8	28.5	27.4
	16	57.9	53.4	49.6	46.3	43.5	41.0	38.8	36.8	35.0	33.4	31.9	30.5	29.3
	17	62.5	57.4	53.2	49.7	46.6	43.9	41.4	39.3	37.4	35.6	34.0	32.6	31.3
	18	67.4	61.7	57.0	53.1	49.7	46.8	44.2	41.9	39.8	37.9	36.2	34.7	33.2
	19	72.9	66.1	60.9	56.6	52.9	49.8	47.0	44.5	42.2	40.2	38.4	36.8	35.2
	20		71.1	65.1	60.3	56.3	52.8	49.8	47.1	44.7	42.6	40.7	38.9	37.3
M	21		77.0	69.6	64.2	59.7	56.0	52.7	49.8	47.3	45.0	42.9	41.0	39.3
	22			74.7	68.3	63.4	59.3	55.7	52.6	49.9	47.4	45.2	43.2	41.4
I	23				72.9	67.2	62.7	58.8	55.5	52.5	49.9	47.6	45.4	43.5
	24					71.4	66.3	62.0	58.4	55.2	52.4	49.9	47.7	45.6
C	25					76.3	70.1	65.4	61.5	58.0	55.0	52.4	50.0	47.8
R	26						74.5	69.0	64.6	60.9	57.7	54.9	52.3	50.0
	27							72.9	68.0	63.9	60.5	57.4	54.7	52.2
O	28							77.8	71.6	67.1	63.3	60.0	57.1	54.5
	29								75.8	70.5	66.3	62.8	59.6	56.9
V	30									74.3	69.5	65.6	62.2	59.3
O	31										73.0	68.6	64.9	61.8
	32										77.1	71.8	67.8	64.3
L	33											75.5	70.8	67.0
	34												74.1	69.9
T	35												78.3	73.0
	36													76.6
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 23.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	3.2	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8	1.8	1.7
	2	6.4	5.9	5.6	5.2	4.9	4.7	4.4	4.2	4.0	3.9	3.7	3.6	3.4
	3	9.6	8.9	8.4	7.9	7.4	7.0	6.7	6.4	6.1	5.8	5.6	5.3	5.1
	4	12.8	12.0	11.2	10.5	10.0	9.4	8.9	8.5	8.1	7.8	7.4	7.1	6.9
	5	16.1	15.0	14.1	13.2	12.5	11.8	11.2	10.7	10.2	9.7	9.3	9.0	8.6
	6	19.5	18.1	17.0	16.0	15.1	14.3	13.5	12.9	12.3	11.7	11.2	10.8	10.4
	7	22.9	21.3	19.9	18.7	17.6	16.7	15.8	15.1	14.4	13.7	13.2	12.6	12.1
	8	26.3	24.5	22.9	21.5	20.3	19.2	18.2	17.3	16.5	15.8	15.1	14.5	13.9
	9	29.8	27.7	25.9	24.3	22.9	21.7	20.5	19.5	18.6	17.8	17.0	16.3	15.7
	10	33.3	31.0	28.9	27.1	25.6	24.2	22.9	21.8	20.8	19.8	19.0	18.2	17.5
	11	36.9	34.3	32.0	30.0	28.3	26.7	25.3	24.1	22.9	21.9	21.0	20.1	19.3
	12	40.6	37.7	35.2	33.0	31.0	29.3	27.7	26.4	25.1	24.0	22.9	22.0	21.1
	13	44.4	41.1	38.3	35.9	33.8	31.9	30.2	28.7	27.3	26.1	24.9	23.9	22.9
	14	48.3	44.7	41.6	38.9	36.6	34.5	32.7	31.0	29.6	28.2	27.0	25.8	24.8
	15	52.2	48.3	44.9	42.0	39.5	37.2	35.2	33.4	31.8	30.3	29.0	27.8	26.7
	16	56.4	52.0	48.3	45.1	42.4	39.9	37.8	35.8	34.1	32.5	31.1	29.8	28.5
	17	60.7	55.8	51.8	48.3	45.3	42.7	40.4	38.3	36.4	34.7	33.1	31.7	30.4
	18	65.3	59.8	55.4	51.6	48.4	45.5	43.0	40.7	38.7	36.9	35.3	33.7	32.4
	19	70.2	64.1	59.1	55.0	51.5	48.4	45.7	43.3	41.1	39.1	37.4	35.8	34.3
	20	76.0	68.6	63.0	58.5	54.6	51.3	48.4	45.8	43.5	41.4	39.5	37.8	36.2
M	21		73.6	67.2	62.1	57.9	54.3	51.2	48.4	45.9	43.7	41.7	39.9	38.2
	22			71.7	66.0	61.3	57.4	54.0	51.1	48.4	46.1	43.9	42.0	40.2
I	23			77.0	70.1	64.9	60.6	57.0	53.8	51.0	48.4	46.2	44.1	42.2
	24				74.7	68.7	64.0	60.0	56.6	53.5	50.9	48.4	46.3	44.3
C	25					72.9	67.5	63.1	59.4	56.2	53.3	50.8	48.5	46.4
R	26					77.9	71.3	66.4	62.4	58.9	55.9	53.1	50.7	48.5
	27						75.6	70.0	65.5	61.7	58.5	55.6	53.0	50.6
O	28							73.8	68.8	64.7	61.1	58.0	55.3	52.8
	29							78.8	72.3	67.7	63.9	60.6	57.7	55.0
V	30								76.4	71.0	66.8	63.2	60.1	57.3
O	31									74.7	69.9	66.0	62.6	59.6
	32										73.2	68.9	65.2	62.0
L	33										77.1	71.9	67.9	64.5
	34											75.4	70.8	67.1
T	35												74.0	69.8
	36												77.7	72.7
	37													76.0
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 24.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.1	2.9	2.7	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.7
	2	6.2	5.8	5.4	5.1	4.8	4.6	4.4	4.1	4.0	3.8	3.6	3.5	3.3
	3	9.4	8.8	8.2	7.7	7.3	6.9	6.5	6.2	5.9	5.7	5.4	5.2	5.0
	4	12.6	11.7	11.0	10.3	9.7	9.2	8.8	8.3	8.0	7.6	7.3	7.0	6.7
	5	15.8	14.7	13.8	13.0	12.2	11.6	11.0	10.5	10.0	9.5	9.1	8.8	8.4
	6	19.1	17.8	16.6	15.6	14.7	13.9	13.2	12.6	12.0	11.5	11.0	10.5	10.1
	7	22.4	20.9	19.5	18.3	17.3	16.3	15.5	14.7	14.0	13.4	12.9	12.3	11.8
	8	25.8	24.0	22.4	21.0	19.8	18.7	17.8	16.9	16.1	15.4	14.7	14.1	13.6
	9	29.2	27.1	25.3	23.8	22.4	21.2	20.1	19.1	18.2	17.4	16.6	15.9	15.3
	10	32.6	30.3	28.3	26.5	25.0	23.6	22.4	21.3	20.3	19.4	18.5	17.8	17.1
	11	36.1	33.5	31.3	29.3	27.6	26.1	24.7	23.5	22.4	21.4	20.5	19.6	18.8
	12	39.7	36.8	34.4	32.2	30.3	28.6	27.1	25.7	24.5	23.4	22.4	21.5	20.6
	13	43.4	40.2	37.5	35.1	33.0	31.1	29.5	28.0	26.7	25.4	24.3	23.3	22.4
	14	47.1	43.6	40.6	38.0	35.7	33.7	31.9	30.3	28.8	27.5	26.3	25.2	24.2
	15	50.9	47.1	43.8	41.0	38.5	36.3	34.3	32.6	31.0	29.6	28.3	27.1	26.0
	16	54.9	50.7	47.1	44.0	41.3	38.9	36.8	34.9	33.2	31.7	30.3	29.0	27.8
	17	59.0	54.4	50.4	47.1	44.2	41.6	39.3	37.3	35.5	33.8	32.3	30.9	29.7
	18	63.3	58.2	53.9	50.2	47.1	44.3	41.9	39.7	37.7	35.9	34.3	32.9	31.5
	19	67.9	62.2	57.4	53.5	50.1	47.1	44.4	42.1	40.0	38.1	36.4	34.8	33.4
	20	73.0	66.4	61.1	56.8	53.1	49.9	47.1	44.6	42.3	40.3	38.5	36.8	35.3
M	21		70.9	65.0	60.2	56.2	52.8	49.7	47.1	44.7	42.5	40.6	38.8	37.2
	22		76.1	69.1	63.8	59.5	55.7	52.5	49.6	47.1	44.8	42.7	40.8	39.1
I	23			73.7	67.6	62.8	58.8	55.3	52.2	49.5	47.1	44.9	42.9	41.1
	24				71.7	66.3	61.9	58.1	54.9	52.0	49.4	47.1	45.0	43.0
C	25				76.5	70.1	65.2	61.1	57.6	54.5	51.8	49.3	47.1	45.0
R	26					74.2	68.7	64.2	60.4	57.1	54.2	51.5	49.2	47.1
	27						72.4	67.4	63.3	59.7	56.6	53.9	51.4	49.1
O	28						76.7	70.9	66.3	62.5	59.2	56.2	53.6	51.2
	29							74.7	69.5	65.3	61.8	58.6	55.8	53.3
V	30								73.0	68.3	64.4	61.1	58.1	55.5
O	31								76.9	71.5	67.3	63.6	60.5	57.7
	32									75.0	70.2	66.3	62.9	59.9
L	33										73.4	69.1	65.4	62.3
	34										77.1	72.0	68.1	64.6
T	35											75.3	70.8	67.1
	36												73.8	69.7
	37												77.3	72.5
R	38													75.6
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 25.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.0	2.8	2.7	2.5	2.4	2.2	2.1	2.0	1.9	1.8	1.8	1.7	1.6
	2	6.1	5.7	5.3	5.0	4.7	4.5	4.3	4.1	3.9	3.7	3.5	3.4	3.3
	3	9.2	8.6	8.0	7.6	7.1	6.8	6.4	6.1	5.8	5.6	5.3	5.1	4.9
	4	12.4	11.5	10.8	10.1	9.5	9.0	8.6	8.2	7.8	7.4	7.1	6.8	6.6
	5	15.5	14.5	13.5	12.7	12.0	11.3	10.7	10.2	9.8	9.3	8.9	8.6	8.2
	6	18.7	17.4	16.3	15.3	14.4	13.6	12.9	12.3	11.7	11.2	10.7	10.3	9.9
	7	22.0	20.4	19.1	17.9	16.9	16.0	15.2	14.4	13.7	13.1	12.6	12.0	11.6
	8	25.2	23.5	21.9	20.6	19.4	18.3	17.4	16.5	15.7	15.0	14.4	13.8	13.3
	9	28.6	26.5	24.8	23.3	21.9	20.7	19.6	18.6	17.8	17.0	16.2	15.6	15.0
	10	31.9	29.7	27.7	26.0	24.4	23.1	21.9	20.8	19.8	18.9	18.1	17.3	16.7
	11	35.3	32.8	30.6	28.7	27.0	25.5	24.2	23.0	21.9	20.9	20.0	19.1	18.4
	12	38.8	36.0	33.6	31.5	29.6	27.9	26.5	25.1	23.9	22.8	21.9	20.9	20.1
	13	42.4	39.3	36.6	34.3	32.2	30.4	28.8	27.3	26.0	24.8	23.7	22.8	21.8
	14	46.0	42.6	39.6	37.1	34.9	32.9	31.1	29.6	28.1	26.8	25.7	24.6	23.6
	15	49.7	46.0	42.8	40.0	37.6	35.4	33.5	31.8	30.3	28.9	27.6	26.4	25.3
	16	53.5	49.4	45.9	42.9	40.3	38.0	35.9	34.1	32.4	30.9	29.5	28.3	27.1
	17	57.5	53.0	49.2	45.9	43.1	40.6	38.3	36.4	34.6	33.0	31.5	30.1	28.9
	18	61.6	56.6	52.5	48.9	45.9	43.2	40.8	38.7	36.8	35.0	33.5	32.0	30.7
	19	65.9	60.4	55.9	52.0	48.7	45.8	43.3	41.0	39.0	37.1	35.5	33.9	32.5
	20	70.5	64.4	59.4	55.2	51.7	48.6	45.8	43.4	41.2	39.2	37.5	35.8	34.4
M	21	75.8	68.6	63.0	58.5	54.7	51.3	48.4	45.8	43.5	41.4	39.5	37.8	36.2
	22		73.2	66.9	61.9	57.7	54.2	51.0	48.3	45.8	43.6	41.6	39.7	38.1
I	23		78.9	71.0	65.5	60.9	57.1	53.7	50.7	48.1	45.8	43.6	41.7	40.0
	24			75.7	69.2	64.2	60.0	56.4	53.3	50.5	48.0	45.8	43.7	41.9
C	25				73.3	67.7	63.1	59.2	55.9	52.9	50.3	47.9	45.7	43.8
R	26				78.2	71.4	66.3	62.1	58.5	55.4	52.6	50.1	47.8	45.7
	27					75.5	69.7	65.2	61.3	57.9	54.9	52.3	49.9	47.7
O	28						73.4	68.3	64.1	60.5	57.3	54.5	52.0	49.7
	29						77.8	71.7	67.1	63.2	59.8	56.8	54.1	51.7
V	30							75.4	70.2	65.9	62.3	59.2	56.3	53.8
O	31								73.5	68.8	64.9	61.6	58.6	55.9
	32								77.4	71.9	67.7	64.0	60.9	58.0
L	33									75.3	70.5	66.6	63.2	60.2
	34										73.6	69.3	65.6	62.5
T	35										77.1	72.1	68.2	64.8
	36											75.2	70.8	67.2
	37											79.1	73.7	69.7
R	38												76.9	72.3
	39													75.2
E	40													78.7
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 26.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.0	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.7	1.6
2	6.0	5.6	5.2	4.9	4.6	4.4	4.2	4.0	3.8	3.6	3.5	3.3	3.2
3	9.1	8.4	7.9	7.4	7.0	6.6	6.3	6.0	5.7	5.4	5.2	5.0	4.8
4	12.1	11.3	10.6	9.9	9.3	8.8	8.4	8.0	7.6	7.3	7.0	6.7	6.4
5	15.2	14.2	13.2	12.4	11.7	11.1	10.5	10.0	9.5	9.1	8.7	8.4	8.0
6	18.4	17.1	16.0	15.0	14.1	13.4	12.7	12.0	11.5	11.0	10.5	10.1	9.7
7	21.5	20.0	18.7	17.5	16.5	15.6	14.8	14.1	13.4	12.8	12.3	11.8	11.3
8	24.7	23.0	21.5	20.1	19.0	17.9	17.0	16.2	15.4	14.7	14.1	13.5	12.9
9	28.0	26.0	24.3	22.8	21.4	20.2	19.2	18.2	17.4	16.6	15.9	15.2	14.6
10	31.3	29.0	27.1	25.4	23.9	22.6	21.4	20.3	19.4	18.5	17.7	16.9	16.3
11	34.6	32.1	29.9	28.1	26.4	24.9	23.6	22.4	21.4	20.4	19.5	18.7	17.9
12	38.0	35.2	32.8	30.7	28.9	27.3	25.9	24.6	23.4	22.3	21.3	20.4	19.6
13	41.4	38.4	35.8	33.5	31.5	29.7	28.1	26.7	25.4	24.2	23.2	22.2	21.3
14	44.9	41.6	38.7	36.2	34.1	32.1	30.4	28.9	27.5	26.2	25.0	24.0	23.0
15	48.5	44.9	41.7	39.0	36.7	34.6	32.7	31.0	29.5	28.2	26.9	25.8	24.7
16	52.2	48.2	44.8	41.9	39.3	37.0	35.0	33.2	31.6	30.1	28.8	27.6	26.5
17	56.0	51.6	47.9	44.8	42.0	39.6	37.4	35.5	33.7	32.1	30.7	29.4	28.2
18	59.9	55.1	51.1	47.7	44.7	42.1	39.8	37.7	35.8	34.2	32.6	31.2	29.9
19	64.0	58.8	54.4	50.7	47.5	44.7	42.2	40.0	38.0	36.2	34.6	33.1	31.7
20	68.3	62.5	57.8	53.7	50.3	47.3	44.6	42.3	40.2	38.2	36.5	34.9	33.5
M 21	73.1	66.4	61.2	56.9	53.2	50.0	47.1	44.6	42.3	40.3	38.5	36.8	35.3
22	78.9	70.7	64.9	60.1	56.1	52.7	49.6	47.0	44.6	42.4	40.5	38.7	37.1
I 23		75.4	68.7	63.5	59.1	55.4	52.2	49.4	46.8	44.5	42.5	40.6	38.9
24			72.8	67.0	62.3	58.3	54.8	51.8	49.1	46.7	44.5	42.5	40.7
C 25			77.6	70.7	65.5	61.2	57.5	54.3	51.4	48.9	46.6	44.5	42.6
R 26				74.8	68.9	64.2	60.3	56.8	53.8	51.1	48.7	46.5	44.5
27					72.6	67.4	63.1	59.4	56.2	53.3	50.8	48.5	46.4
O 28					76.7	70.7	66.1	62.1	58.7	55.6	52.9	50.5	48.3
29						74.4	69.1	64.9	61.2	58.0	55.1	52.6	50.2
V 30						78.8	72.4	67.7	63.8	60.4	57.4	54.7	52.2
O 31							76.1	70.8	66.5	62.8	59.6	56.8	54.2
32								74.0	69.3	65.4	62.0	59.0	56.3
L 33								77.8	72.3	68.0	64.4	61.2	58.3
34									75.6	70.8	66.9	63.5	60.5
T 35										73.8	69.5	65.8	62.6
36										77.1	72.2	68.3	64.9
37											75.2	70.8	67.2
R 38											78.7	73.5	69.6
39												76.6	72.1
E 40													74.8
A 41													78.0
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 27.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.9	2.7	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.8	1.7	1.6	1.6
	2	5.9	5.5	5.1	4.8	4.5	4.3	4.1	3.9	3.7	3.5	3.4	3.2	3.1
	3	8.9	8.3	7.7	7.3	6.8	6.5	6.1	5.8	5.6	5.3	5.1	4.9	4.7
	4	11.9	11.1	10.3	9.7	9.2	8.7	8.2	7.8	7.4	7.1	6.8	6.5	6.3
	5	14.9	13.9	13.0	12.2	11.5	10.9	10.3	9.8	9.3	8.9	8.5	8.2	7.9
	6	18.0	16.7	15.6	14.7	13.8	13.1	12.4	11.8	11.2	10.7	10.3	9.8	9.4
	7	21.1	19.6	18.3	17.2	16.2	15.3	14.5	13.8	13.1	12.5	12.0	11.5	11.0
	8	24.2	22.5	21.0	19.7	18.6	17.5	16.6	15.8	15.0	14.4	13.7	13.2	12.7
	9	27.4	25.4	23.7	22.3	20.9	19.8	18.8	17.8	17.0	16.2	15.5	14.9	14.3
	10	30.6	28.4	26.5	24.8	23.4	22.1	20.9	19.9	18.9	18.1	17.3	16.5	15.9
	11	33.8	31.4	29.3	27.4	25.8	24.4	23.1	21.9	20.9	19.9	19.0	18.3	17.5
	12	37.1	34.4	32.1	30.1	28.3	26.7	25.3	24.0	22.8	21.8	20.8	20.0	19.2
	13	40.5	37.5	34.9	32.7	30.7	29.0	27.5	26.1	24.8	23.7	22.6	21.7	20.8
	14	43.9	40.6	37.8	35.4	33.3	31.4	29.7	28.2	26.8	25.6	24.4	23.4	22.5
	15	47.4	43.8	40.8	38.1	35.8	33.7	31.9	30.3	28.8	27.5	26.3	25.2	24.1
	16	50.9	47.0	43.7	40.9	38.4	36.2	34.2	32.4	30.8	29.4	28.1	26.9	25.8
	17	54.6	50.3	46.8	43.7	41.0	38.6	36.5	34.6	32.9	31.4	30.0	28.7	27.5
	18	58.3	53.7	49.8	46.5	43.6	41.0	38.8	36.8	35.0	33.3	31.8	30.5	29.2
	19	62.2	57.2	53.0	49.4	46.3	43.5	41.1	39.0	37.0	35.3	33.7	32.2	30.9
	20	66.3	60.8	56.2	52.3	49.0	46.1	43.5	41.2	39.1	37.3	35.6	34.0	32.6
M	21	70.7	64.5	59.5	55.4	51.8	48.6	45.9	43.5	41.3	39.3	37.5	35.9	34.4
	22	75.5	68.4	63.0	58.4	54.6	51.3	48.3	45.7	43.4	41.3	39.4	37.7	36.1
I	23		72.7	66.6	61.6	57.5	53.9	50.8	48.1	45.6	43.4	41.4	39.6	37.9
	24		77.6	70.3	64.9	60.5	56.6	53.3	50.4	47.8	45.5	43.3	41.4	39.7
C	25			74.5	68.4	63.5	59.4	55.9	52.8	50.0	47.6	45.3	43.3	41.5
R	26				72.1	66.7	62.3	58.5	55.2	52.3	49.7	47.3	45.2	43.3
	27				76.2	70.1	65.3	61.2	57.7	54.6	51.9	49.4	47.2	45.1
O	28					73.7	68.4	64.0	60.2	57.0	54.1	51.5	49.1	47.0
	29					77.9	71.7	66.9	62.9	59.4	56.3	53.6	51.1	48.8
V	30						75.3	69.9	65.6	61.8	58.6	55.7	53.1	50.7
O	31							73.1	68.4	64.4	60.9	57.9	55.1	52.7
	32							76.7	71.3	67.0	63.3	60.1	57.2	54.6
L	33								74.5	69.7	65.8	62.4	59.3	56.6
	34								78.2	72.6	68.3	64.7	61.5	58.6
T	35									75.8	71.0	67.1	63.7	60.7
	36										73.9	69.6	66.0	62.8
	37										77.1	72.2	68.3	65.0
R	38											75.1	70.8	67.2
	39											78.4	73.4	69.5
E	40												76.3	71.9
A	41													74.5
	42													77.4
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 28.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.7	1.6	1.5
2	5.8	5.4	5.0	4.7	4.5	4.2	4.0	3.8	3.6	3.5	3.3	3.2	3.1
3	8.7	8.1	7.6	7.1	6.7	6.3	6.0	5.7	5.4	5.2	5.0	4.8	4.6
4	11.6	10.8	10.1	9.5	9.0	8.5	8.0	7.6	7.3	7.0	6.7	6.4	6.1
5	14.6	13.6	12.7	11.9	11.2	10.6	10.1	9.6	9.1	8.7	8.3	8.0	7.7
6	17.6	16.4	15.3	14.4	13.5	12.8	12.1	11.5	11.0	10.5	10.0	9.6	9.2
7	20.6	19.2	17.9	16.8	15.8	15.0	14.2	13.5	12.8	12.3	11.7	11.2	10.8
8	23.7	22.0	20.6	19.3	18.1	17.1	16.2	15.4	14.7	14.0	13.4	12.9	12.4
9	26.8	24.9	23.2	21.8	20.5	19.3	18.3	17.4	16.6	15.8	15.1	14.5	13.9
10	29.9	27.8	25.9	24.3	22.8	21.6	20.4	19.4	18.5	17.6	16.9	16.2	15.5
11	33.1	30.7	28.6	26.8	25.2	23.8	22.5	21.4	20.4	19.5	18.6	17.8	17.1
12	36.3	33.6	31.4	29.4	27.6	26.1	24.7	23.4	22.3	21.3	20.3	19.5	18.7
13	39.6	36.6	34.1	32.0	30.0	28.3	26.8	25.5	24.2	23.1	22.1	21.2	20.3
14	42.9	39.7	36.9	34.6	32.5	30.6	29.0	27.5	26.2	25.0	23.9	22.9	21.9
15	46.2	42.8	39.8	37.2	34.9	32.9	31.2	29.6	28.1	26.8	25.6	24.6	23.6
16	49.7	45.9	42.7	39.9	37.4	35.3	33.4	31.7	30.1	28.7	27.4	26.3	25.2
17	53.2	49.1	45.6	42.6	40.0	37.6	35.6	33.7	32.1	30.6	29.2	28.0	26.8
18	56.8	52.4	48.6	45.3	42.5	40.0	37.8	35.9	34.1	32.5	31.0	29.7	28.5
19	60.6	55.7	51.6	48.1	45.1	42.5	40.1	38.0	36.1	34.4	32.9	31.4	30.2
20	64.4	59.1	54.7	51.0	47.7	44.9	42.4	40.2	38.2	36.3	34.7	33.2	31.8
M 21	68.5	62.7	57.9	53.9	50.4	47.4	44.7	42.3	40.2	38.3	36.6	35.0	33.5
22	72.9	66.4	61.2	56.9	53.1	49.9	47.1	44.6	42.3	40.3	38.4	36.8	35.2
I 23	78.1	70.3	64.6	59.9	55.9	52.5	49.5	46.8	44.4	42.3	40.3	38.5	36.9
24		74.6	68.1	63.0	58.8	55.1	51.9	49.1	46.5	44.3	42.2	40.4	38.7
C 25			71.9	66.3	61.7	57.8	54.4	51.4	48.7	46.3	44.1	42.2	40.4
R 26			76.1	69.7	64.7	60.5	56.9	53.7	50.9	48.4	46.1	44.0	42.2
27				73.4	67.9	63.3	59.5	56.1	53.1	50.4	48.1	45.9	43.9
O 28				77.6	71.2	66.2	62.1	58.5	55.4	52.6	50.1	47.8	45.7
29					74.8	69.3	64.8	61.0	57.7	54.7	52.1	49.7	47.5
V 30					79.1	72.5	67.6	63.6	60.0	56.9	54.1	51.6	49.4
O 31						76.1	70.6	66.2	62.4	59.1	56.2	53.6	51.2
32							73.8	68.9	64.9	61.4	58.3	55.6	53.1
L 33							77.3	71.8	67.5	63.7	60.5	57.6	55.0
34								74.9	70.1	66.1	62.7	59.6	56.9
T 35								78.5	72.9	68.6	65.0	61.7	58.9
36									76.0	71.2	67.3	63.9	60.9
37										74.0	69.7	66.1	62.9
R 38										77.1	72.3	68.4	65.0
39											75.0	70.8	67.2
E 40											78.1	73.3	69.4
A 41												76.0	71.7
42												79.2	74.2
D 43													76.9
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 29.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.8	2.6	2.5	2.3	2.2	2.1	1.9	1.9	1.8	1.7	1.6	1.6	1.5
	2	5.7	5.3	4.9	4.6	4.4	4.1	3.9	3.7	3.5	3.4	3.2	3.1	3.0
	3	8.5	7.9	7.4	7.0	6.6	6.2	5.9	5.6	5.3	5.1	4.9	4.7	4.5
	4	11.4	10.6	9.9	9.3	8.8	8.3	7.9	7.5	7.1	6.8	6.5	6.2	6.0
	5	14.3	13.3	12.4	11.7	11.0	10.4	9.8	9.4	8.9	8.5	8.1	7.8	7.5
	6	17.2	16.0	15.0	14.0	13.2	12.5	11.8	11.3	10.7	10.2	9.8	9.4	9.0
	7	20.2	18.8	17.5	16.4	15.5	14.6	13.9	13.2	12.5	12.0	11.5	11.0	10.5
	8	23.2	21.5	20.1	18.8	17.7	16.8	15.9	15.1	14.4	13.7	13.1	12.6	12.1
	9	26.2	24.3	22.7	21.3	20.0	18.9	17.9	17.0	16.2	15.5	14.8	14.2	13.6
	10	29.3	27.2	25.3	23.7	22.3	21.1	20.0	19.0	18.1	17.2	16.5	15.8	15.2
	11	32.4	30.0	28.0	26.2	24.6	23.3	22.0	20.9	19.9	19.0	18.2	17.4	16.7
	12	35.5	32.9	30.6	28.7	27.0	25.5	24.1	22.9	21.8	20.8	19.9	19.0	18.3
	13	38.6	35.8	33.3	31.2	29.3	27.7	26.2	24.9	23.7	22.6	21.6	20.7	19.8
	14	41.9	38.8	36.1	33.8	31.7	29.9	28.3	26.9	25.6	24.4	23.3	22.3	21.4
	15	45.1	41.8	38.8	36.3	34.1	32.2	30.4	28.9	27.5	26.2	25.0	24.0	23.0
	16	48.5	44.8	41.6	38.9	36.5	34.4	32.6	30.9	29.4	28.0	26.8	25.6	24.6
	17	51.9	47.9	44.5	41.6	39.0	36.7	34.7	32.9	31.3	29.9	28.5	27.3	26.2
	18	55.4	51.0	47.4	44.2	41.5	39.1	36.9	35.0	33.3	31.7	30.3	29.0	27.8
	19	58.9	54.3	50.3	46.9	44.0	41.4	39.1	37.1	35.2	33.6	32.1	30.7	29.4
	20	62.7	57.6	53.3	49.7	46.5	43.8	41.3	39.2	37.2	35.5	33.8	32.4	31.0
M	21	66.5	61.0	56.4	52.5	49.1	46.2	43.6	41.3	39.2	37.3	35.6	34.1	32.7
	22	70.6	64.5	59.5	55.3	51.8	48.6	45.9	43.4	41.2	39.3	37.5	35.8	34.3
I	23	75.1	68.2	62.8	58.3	54.4	51.1	48.2	45.6	43.3	41.2	39.3	37.6	36.0
	24		72.1	66.1	61.3	57.2	53.6	50.5	47.8	45.3	43.1	41.1	39.3	37.7
C	25		76.5	69.6	64.4	60.0	56.2	52.9	50.0	47.4	45.1	43.0	41.1	39.4
R	26			73.4	67.6	62.8	58.8	55.3	52.3	49.5	47.1	44.9	42.9	41.1
	27			77.8	71.0	65.8	61.5	57.8	54.5	51.7	49.1	46.8	44.7	42.8
O	28				74.7	68.9	64.3	60.3	56.9	53.8	51.1	48.7	46.5	44.5
	29				79.0	72.2	67.1	62.9	59.3	56.1	53.2	50.7	48.4	46.3
V	30					75.8	70.1	65.6	61.7	58.3	55.3	52.6	50.2	48.0
O	31						73.3	68.3	64.2	60.6	57.4	54.6	52.1	49.8
	32						76.8	71.2	66.8	63.0	59.6	56.7	54.0	51.6
L	33							74.3	69.4	65.4	61.8	58.7	56.0	53.5
	34							77.8	72.3	67.9	64.1	60.8	57.9	55.3
T	35								75.3	70.5	66.5	63.0	59.9	57.2
	36								78.8	73.2	68.9	65.2	62.0	59.1
	37									76.2	71.4	67.5	64.1	61.0
R	38									79.9	74.1	69.8	66.2	63.0
	39										77.1	72.3	68.4	65.1
E	40											74.9	70.7	67.2
A	41											77.9	73.1	69.3
	42												75.7	71.6
D	43												78.7	73.9
	44													76.5
I	45													79.6
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 30.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.7	1.6	1.5	1.5
	2	5.5	5.2	4.8	4.5	4.3	4.0	3.8	3.6	3.5	3.3	3.2	3.0	2.9
	3	8.3	7.8	7.3	6.8	6.4	6.1	5.7	5.5	5.2	5.0	4.8	4.6	4.4
	4	11.2	10.4	9.7	9.1	8.6	8.1	7.7	7.3	7.0	6.6	6.4	6.1	5.9
	5	14.0	13.0	12.2	11.4	10.7	10.2	9.6	9.1	8.7	8.3	8.0	7.6	7.3
	6	16.9	15.7	14.6	13.7	12.9	12.2	11.6	11.0	10.5	10.0	9.6	9.2	8.8
	7	19.8	18.4	17.1	16.1	15.1	14.3	13.5	12.9	12.3	11.7	11.2	10.7	10.3
	8	22.7	21.1	19.7	18.4	17.3	16.4	15.5	14.7	14.0	13.4	12.8	12.3	11.8
	9	25.6	23.8	22.2	20.8	19.6	18.5	17.5	16.6	15.8	15.1	14.5	13.9	13.3
	10	28.6	26.5	24.8	23.2	21.8	20.6	19.5	18.5	17.6	16.8	16.1	15.4	14.8
	11	31.6	29.3	27.3	25.6	24.1	22.7	21.5	20.4	19.5	18.6	17.7	17.0	16.3
	12	34.7	32.1	29.9	28.0	26.4	24.9	23.5	22.4	21.3	20.3	19.4	18.6	17.8
	13	37.8	35.0	32.6	30.5	28.7	27.0	25.6	24.3	23.1	22.0	21.1	20.2	19.4
	14	40.9	37.8	35.2	33.0	31.0	29.2	27.6	26.2	25.0	23.8	22.8	21.8	20.9
	15	44.1	40.8	37.9	35.5	33.3	31.4	29.7	28.2	26.8	25.6	24.4	23.4	22.4
	16	47.3	43.7	40.6	38.0	35.7	33.6	31.8	30.2	28.7	27.3	26.1	25.0	24.0
	17	50.6	46.7	43.4	40.6	38.1	35.9	33.9	32.1	30.6	29.1	27.8	26.6	25.6
	18	54.0	49.8	46.2	43.1	40.5	38.1	36.0	34.1	32.5	30.9	29.6	28.3	27.1
	19	57.4	52.9	49.1	45.8	42.9	40.4	38.2	36.2	34.4	32.8	31.3	29.9	28.7
	20	61.0	56.1	51.9	48.4	45.4	42.7	40.3	38.2	36.3	34.6	33.0	31.6	30.3
M	21	64.6	59.3	54.9	51.1	47.9	45.0	42.5	40.3	38.2	36.4	34.8	33.3	31.9
	22	68.5	62.7	57.9	53.9	50.4	47.4	44.7	42.3	40.2	38.3	36.5	34.9	33.5
I	23	72.6	66.2	61.0	56.7	53.0	49.8	47.0	44.4	42.2	40.2	38.3	36.6	35.1
	24	77.3	69.9	64.2	59.6	55.6	52.2	49.2	46.6	44.2	42.0	40.1	38.3	36.7
C	25		73.8	67.6	62.5	58.3	54.7	51.5	48.7	46.2	44.0	41.9	40.1	38.4
R	26		78.4	71.1	65.6	61.1	57.2	53.8	50.9	48.2	45.9	43.7	41.8	40.0
	27			74.9	68.8	63.9	59.8	56.2	53.1	50.3	47.8	45.6	43.5	41.7
O	28			79.4	72.1	66.8	62.4	58.6	55.3	52.4	49.8	47.4	45.3	43.4
	29				75.8	69.9	65.1	61.1	57.6	54.5	51.8	49.3	47.1	45.1
V	30					73.1	67.9	63.6	59.9	56.7	53.8	51.2	48.9	46.8
O	31					76.7	70.9	66.3	62.3	58.9	55.9	53.2	50.7	48.5
	32						74.0	69.0	64.8	61.1	58.0	55.1	52.6	50.2
L	33						77.5	71.8	67.3	63.4	60.1	57.1	54.4	52.0
	34							74.9	69.9	65.8	62.2	59.1	56.3	53.8
T	35							78.3	72.7	68.2	64.5	61.2	58.2	55.6
	36								75.6	70.8	66.7	63.3	60.2	57.4
	37								79.1	73.4	69.1	65.4	62.2	59.3
R	38									76.3	71.6	67.6	64.2	61.2
	39									79.9	74.2	69.9	66.3	63.1
E	40										77.0	72.3	68.4	65.1
A	41											74.8	70.7	67.1
	42											77.7	73.0	69.2
D	43												75.5	71.4
	44												78.3	73.7
I	45													76.1
N	46													78.9
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 31.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.7	2.5	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4
	2	5.4	5.0	4.7	4.4	4.2	3.9	3.7	3.6	3.4	3.2	3.1	3.0	2.9
	3	8.2	7.6	7.1	6.7	6.3	5.9	5.6	5.3	5.1	4.9	4.7	4.5	4.3
	4	10.9	10.2	9.5	8.9	8.4	7.9	7.5	7.1	6.8	6.5	6.2	6.0	5.7
	5	13.7	12.7	11.9	11.2	10.5	9.9	9.4	8.9	8.5	8.1	7.8	7.5	7.2
	6	16.5	15.3	14.3	13.4	12.6	11.9	11.3	10.8	10.2	9.8	9.4	9.0	8.6
	7	19.3	18.0	16.8	15.7	14.8	14.0	13.2	12.6	12.0	11.4	10.9	10.5	10.1
	8	22.2	20.6	19.2	18.0	17.0	16.0	15.2	14.4	13.7	13.1	12.5	12.0	11.5
	9	25.1	23.3	21.7	20.3	19.1	18.1	17.1	16.2	15.5	14.8	14.1	13.5	13.0
	10	28.0	25.9	24.2	22.7	21.3	20.1	19.1	18.1	17.2	16.4	15.7	15.1	14.5
	11	30.9	28.6	26.7	25.0	23.5	22.2	21.0	20.0	19.0	18.1	17.3	16.6	15.9
	12	33.9	31.4	29.2	27.4	25.7	24.3	23.0	21.8	20.8	19.8	19.0	18.2	17.4
	13	36.9	34.2	31.8	29.8	28.0	26.4	25.0	23.7	22.6	21.5	20.6	19.7	18.9
	14	39.9	37.0	34.4	32.2	30.2	28.5	27.0	25.6	24.4	23.2	22.2	21.3	20.4
	15	43.0	39.8	37.0	34.6	32.5	30.7	29.0	27.5	26.2	25.0	23.9	22.8	21.9
	16	46.1	42.7	39.7	37.1	34.8	32.8	31.0	29.4	28.0	26.7	25.5	24.4	23.4
	17	49.3	45.6	42.4	39.6	37.1	35.0	33.1	31.4	29.8	28.4	27.2	26.0	25.0
	18	52.6	48.5	45.1	42.1	39.5	37.2	35.1	33.3	31.7	30.2	28.8	27.6	26.5
	19	55.9	51.5	47.8	44.6	41.8	39.4	37.2	35.3	33.5	32.0	30.5	29.2	28.0
	20	59.3	54.6	50.6	47.2	44.2	41.6	39.3	37.3	35.4	33.7	32.2	30.8	29.6
M	21	62.9	57.8	53.5	49.8	46.7	43.9	41.5	39.3	37.3	35.5	33.9	32.5	31.1
	22	66.5	61.0	56.4	52.5	49.1	46.2	43.6	41.3	39.2	37.3	35.6	34.1	32.7
I	23	70.4	64.3	59.4	55.2	51.6	48.5	45.8	43.3	41.1	39.2	37.4	35.7	34.2
	24	74.6	67.8	62.4	58.0	54.2	50.9	48.0	45.4	43.1	41.0	39.1	37.4	35.8
C	25	79.6	71.5	65.6	60.8	56.8	53.3	50.2	47.5	45.0	42.8	40.9	39.1	37.4
R	26		75.4	68.9	63.7	59.4	55.7	52.4	49.6	47.0	44.7	42.6	40.7	39.0
	27			72.4	66.7	62.1	58.2	54.7	51.7	49.0	46.6	44.4	42.4	40.6
O	28			76.2	69.9	64.9	60.7	57.0	53.9	51.0	48.5	46.2	44.2	42.3
	29				73.2	67.8	63.3	59.4	56.1	53.1	50.4	48.0	45.9	43.9
V	30				76.9	70.8	65.9	61.8	58.3	55.2	52.4	49.9	47.6	45.6
O	31					74.0	68.7	64.3	60.6	57.3	54.4	51.7	49.4	47.2
	32					77.6	71.6	66.9	62.9	59.4	56.4	53.6	51.2	48.9
L	33						74.7	69.5	65.3	61.6	58.4	55.5	53.0	50.6
	34						78.2	72.3	67.8	63.9	60.5	57.5	54.8	52.4
T	35							75.3	70.3	66.2	62.6	59.5	56.6	54.1
	36							78.8	73.0	68.6	64.8	61.5	58.5	55.9
	37								75.9	71.0	67.0	63.5	60.4	57.6
R	38								79.3	73.6	69.3	65.6	62.4	59.5
	39									76.5	71.7	67.8	64.3	61.3
E	40									79.9	74.2	70.0	66.4	63.2
A	41										77.0	72.3	68.5	65.1
	42											74.8	70.6	67.1
D	43											77.5	72.9	69.1
	44												75.3	71.2
I	45												77.9	73.4
N	46													75.7
	47													78.4
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 32.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.7	1.6	1.5	1.4	1.4
	2	5.3	4.9	4.6	4.3	4.1	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8
	3	8.0	7.4	6.9	6.5	6.1	5.8	5.5	5.2	5.0	4.8	4.5	4.4	4.2
	4	10.7	9.9	9.3	8.7	8.2	7.7	7.3	7.0	6.6	6.3	6.1	5.8	5.6
	5	13.4	12.5	11.6	10.9	10.3	9.7	9.2	8.7	8.3	8.0	7.6	7.3	7.0
	6	16.1	15.0	14.0	13.1	12.4	11.7	11.1	10.5	10.0	9.6	9.1	8.8	8.4
	7	18.9	17.5	16.4	15.4	14.5	13.7	12.9	12.3	11.7	11.2	10.7	10.2	9.8
	8	21.7	20.1	18.8	17.6	16.6	15.6	14.8	14.1	13.4	12.8	12.2	11.7	11.3
	9	24.5	22.7	21.2	19.9	18.7	17.6	16.7	15.9	15.1	14.4	13.8	13.2	12.7
	10	27.3	25.3	23.6	22.1	20.8	19.7	18.6	17.7	16.8	16.1	15.4	14.7	14.1
	11	30.2	28.0	26.1	24.4	23.0	21.7	20.5	19.5	18.6	17.7	16.9	16.2	15.6
	12	33.1	30.7	28.6	26.8	25.2	23.7	22.5	21.3	20.3	19.4	18.5	17.7	17.0
	13	36.0	33.4	31.1	29.1	27.3	25.8	24.4	23.2	22.0	21.0	20.1	19.3	18.5
	14	39.0	36.1	33.6	31.4	29.5	27.9	26.4	25.0	23.8	22.7	21.7	20.8	19.9
	15	42.0	38.8	36.1	33.8	31.8	29.9	28.3	26.9	25.6	24.4	23.3	22.3	21.4
	16	45.0	41.6	38.7	36.2	34.0	32.0	30.3	28.7	27.3	26.1	24.9	23.9	22.9
	17	48.1	44.4	41.3	38.6	36.2	34.2	32.3	30.6	29.1	27.8	26.5	25.4	24.4
	18	51.3	47.3	44.0	41.1	38.5	36.3	34.3	32.5	30.9	29.5	28.2	27.0	25.9
	19	54.5	50.2	46.6	43.5	40.8	38.4	36.3	34.4	32.7	31.2	29.8	28.5	27.3
	20	57.8	53.2	49.3	46.0	43.2	40.6	38.4	36.4	34.6	32.9	31.4	30.1	28.9
M	21	61.2	56.2	52.1	48.6	45.5	42.8	40.4	38.3	36.4	34.7	33.1	31.7	30.4
	22	64.7	59.3	54.9	51.2	47.9	45.0	42.5	40.3	38.3	36.4	34.8	33.3	31.9
I	23	68.3	62.5	57.8	53.8	50.3	47.3	44.6	42.2	40.1	38.2	36.5	34.9	33.4
	24	72.2	65.8	60.7	56.4	52.8	49.6	46.7	44.2	42.0	40.0	38.1	36.5	35.0
C	25	76.5	69.3	63.8	59.2	55.3	51.9	48.9	46.3	43.9	41.8	39.9	38.1	36.5
R	26		73.0	66.9	62.0	57.8	54.2	51.1	48.3	45.8	43.6	41.6	39.7	38.1
	27		77.0	70.2	64.8	60.4	56.6	53.3	50.4	47.8	45.4	43.3	41.4	39.6
O	28			73.6	67.8	63.1	59.0	55.5	52.5	49.7	47.3	45.1	43.0	41.2
	29			77.5	70.9	65.8	61.5	57.8	54.6	51.7	49.1	46.8	44.7	42.8
V	30				74.3	68.6	64.1	60.1	56.7	53.7	51.0	48.6	46.4	44.4
O	31				78.0	71.6	66.7	62.5	58.9	55.8	52.9	50.4	48.1	46.0
	32					74.8	69.4	65.0	61.2	57.8	54.9	52.2	49.8	47.7
L	33					78.4	72.2	67.5	63.4	59.9	56.8	54.1	51.6	49.3
	34						75.3	70.1	65.8	62.1	58.8	55.9	53.3	51.0
T	35						78.8	72.8	68.2	64.3	60.9	57.8	55.1	52.7
	36							75.8	70.7	66.5	62.9	59.8	56.9	54.4
	37							79.2	73.3	68.9	65.0	61.7	58.8	56.1
R	38								76.2	71.3	67.2	63.7	60.6	57.8
	39								79.5	73.8	69.5	65.8	62.5	59.6
E	40									76.6	71.8	67.9	64.4	61.4
A	41									79.9	74.3	70.0	66.4	63.2
	42										76.9	72.3	68.4	65.1
D	43											74.7	70.5	67.0
	44											77.3	72.7	69.0
I	45												75.0	71.0
N	46												77.6	73.2
	47													75.4
G	48													77.9
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 33.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.6	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.4
2	5.2	4.8	4.5	4.2	4.0	3.8	3.6	3.4	3.2	3.1	3.0	2.8	2.7
3	7.8	7.3	6.8	6.4	6.0	5.7	5.4	5.1	4.9	4.6	4.4	4.3	4.1
4	10.4	9.7	9.1	8.5	8.0	7.6	7.2	6.8	6.5	6.2	5.9	5.7	5.5
5	13.1	12.2	11.4	10.7	10.0	9.5	9.0	8.5	8.1	7.8	7.4	7.1	6.8
6	15.8	14.7	13.7	12.8	12.1	11.4	10.8	10.3	9.8	9.3	8.9	8.6	8.2
7	18.5	17.2	16.0	15.0	14.1	13.3	12.6	12.0	11.4	10.9	10.4	10.0	9.6
8	21.2	19.7	18.4	17.2	16.2	15.3	14.5	13.8	13.1	12.5	12.0	11.5	11.0
9	23.9	22.2	20.7	19.4	18.3	17.2	16.3	15.5	14.8	14.1	13.5	12.9	12.4
10	26.7	24.8	23.1	21.6	20.4	19.2	18.2	17.3	16.5	15.7	15.0	14.4	13.8
11	29.5	27.3	25.5	23.9	22.5	21.2	20.1	19.1	18.1	17.3	16.5	15.9	15.2
12	32.3	29.9	27.9	26.1	24.6	23.2	21.9	20.8	19.8	18.9	18.1	17.3	16.6
13	35.2	32.6	30.3	28.4	26.7	25.2	23.8	22.6	21.5	20.5	19.6	18.8	18.1
14	38.0	35.2	32.8	30.7	28.8	27.2	25.7	24.4	23.2	22.2	21.2	20.3	19.5
15	41.0	37.9	35.3	33.0	31.0	29.2	27.7	26.2	25.0	23.8	22.8	21.8	20.9
16	43.9	40.6	37.8	35.3	33.2	31.3	29.6	28.1	26.7	25.5	24.3	23.3	22.3
17	46.9	43.4	40.3	37.7	35.4	33.3	31.5	29.9	28.4	27.1	25.9	24.8	23.8
18	50.0	46.2	42.9	40.1	37.6	35.4	33.5	31.8	30.2	28.8	27.5	26.3	25.2
19	53.1	49.0	45.5	42.5	39.8	37.5	35.5	33.6	32.0	30.5	29.1	27.8	26.7
20	56.3	51.9	48.1	44.9	42.1	39.6	37.4	35.5	33.7	32.1	30.7	29.4	28.2
M 21	59.5	54.8	50.8	47.4	44.4	41.8	39.5	37.4	35.5	33.8	32.3	30.9	29.6
22	62.9	57.8	53.5	49.9	46.7	43.9	41.5	39.3	37.3	35.6	33.9	32.5	31.1
I 23	66.4	60.8	56.3	52.4	49.0	46.1	43.5	41.2	39.1	37.3	35.6	34.0	32.6
24	70.0	64.0	59.1	55.0	51.4	48.3	45.6	43.1	41.0	39.0	37.2	35.6	34.1
C 25	73.9	67.3	62.0	57.6	53.8	50.6	47.7	45.1	42.8	40.8	38.9	37.2	35.6
R 26	78.4	70.7	65.0	60.3	56.3	52.8	49.8	47.1	44.7	42.5	40.6	38.8	37.1
27		74.4	68.1	63.0	58.8	55.1	51.9	49.1	46.6	44.3	42.2	40.4	38.7
O 28		78.7	71.4	65.9	61.3	57.5	54.1	51.1	48.5	46.1	43.9	42.0	40.2
29			74.8	68.8	64.0	59.8	56.3	53.2	50.4	47.9	45.6	43.6	41.8
V 30			78.9	71.9	66.7	62.3	58.5	55.2	52.3	49.7	47.4	45.2	43.3
O 31				75.2	69.5	64.8	60.8	57.4	54.3	51.6	49.1	46.9	44.9
32				79.1	72.4	67.4	63.1	59.5	56.3	53.4	50.9	48.6	46.5
L 33					75.6	70.0	65.5	61.7	58.3	55.3	52.7	50.3	48.1
34					79.3	72.9	68.0	63.9	60.4	57.3	54.5	52.0	49.7
T 35						75.9	70.6	66.2	62.5	59.2	56.3	53.7	51.3
36						79.4	73.3	68.6	64.6	61.2	58.1	55.4	53.0
37							76.2	71.0	66.8	63.2	60.0	57.2	54.6
R 38							79.6	73.6	69.1	65.3	61.9	59.0	56.3
39								76.4	71.5	67.4	63.9	60.8	58.0
E 40								79.7	74.0	69.6	65.9	62.6	59.7
A 41									76.7	71.9	67.9	64.5	61.5
42									79.9	74.3	70.1	66.5	63.3
D 43										76.9	72.3	68.4	65.1
44										80.0	74.6	70.5	67.0
I 45											77.1	72.6	68.9
N 46											80.1	74.8	70.9
47												77.3	72.9
G 48												80.3	75.1
49													77.4
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 34.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.5	2.4	2.2	2.1	1.9	1.8	1.7	1.7	1.6	1.5	1.4	1.4	1.3
2	5.1	4.7	4.4	4.1	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.7
3	7.6	7.1	6.6	6.2	5.9	5.5	5.3	5.0	4.8	4.5	4.3	4.2	4.0
4	10.2	9.5	8.9	8.3	7.8	7.4	7.0	6.7	6.4	6.1	5.8	5.6	5.3
5	12.8	11.9	11.1	10.4	9.8	9.3	8.8	8.4	8.0	7.6	7.3	7.0	6.7
6	15.4	14.3	13.4	12.5	11.8	11.2	10.6	10.0	9.6	9.1	8.7	8.4	8.0
7	18.1	16.8	15.6	14.7	13.8	13.0	12.4	11.7	11.2	10.7	10.2	9.8	9.4
8	20.7	19.2	17.9	16.8	15.8	14.9	14.2	13.4	12.8	12.2	11.7	11.2	10.8
9	23.4	21.7	20.2	19.0	17.8	16.9	16.0	15.2	14.4	13.8	13.2	12.6	12.1
10	26.1	24.2	22.6	21.1	19.9	18.8	17.8	16.9	16.1	15.3	14.7	14.1	13.5
11	28.8	26.7	24.9	23.3	21.9	20.7	19.6	18.6	17.7	16.9	16.2	15.5	14.9
12	31.5	29.2	27.3	25.5	24.0	22.6	21.4	20.4	19.4	18.5	17.7	16.9	16.3
13	34.3	31.8	29.6	27.7	26.1	24.6	23.3	22.1	21.0	20.1	19.2	18.4	17.6
14	37.1	34.4	32.0	30.0	28.2	26.6	25.1	23.9	22.7	21.7	20.7	19.8	19.0
15	40.0	37.0	34.4	32.2	30.3	28.6	27.0	25.6	24.4	23.3	22.2	21.3	20.4
16	42.8	39.6	36.9	34.5	32.4	30.5	28.9	27.4	26.1	24.9	23.8	22.8	21.8
17	45.8	42.3	39.4	36.8	34.5	32.6	30.8	29.2	27.8	26.5	25.3	24.2	23.2
18	48.7	45.0	41.8	39.1	36.7	34.6	32.7	31.0	29.5	28.1	26.9	25.7	24.7
19	51.7	47.8	44.4	41.4	38.9	36.6	34.6	32.8	31.2	29.7	28.4	27.2	26.1
20	54.8	50.6	46.9	43.8	41.1	38.7	36.6	34.6	32.9	31.4	30.0	28.7	27.5
M 21	58.0	53.4	49.5	46.2	43.3	40.8	38.5	36.5	34.7	33.0	31.6	30.2	28.9
22	61.2	56.3	52.1	48.6	45.5	42.9	40.5	38.3	36.4	34.7	33.1	31.7	30.4
I 23	64.5	59.2	54.8	51.1	47.8	45.0	42.5	40.2	38.2	36.4	34.7	33.2	31.8
24	68.0	62.3	57.6	53.6	50.1	47.1	44.5	42.1	40.0	38.1	36.3	34.8	33.3
C 25	71.6	65.4	60.3	56.1	52.5	49.3	46.5	44.0	41.8	39.8	37.9	36.3	34.8
R 26	75.6	68.7	63.2	58.7	54.8	51.5	48.5	45.9	43.6	41.5	39.6	37.8	36.2
27		72.1	66.2	61.3	57.2	53.7	50.6	47.9	45.4	43.2	41.2	39.4	37.7
O 28		75.8	69.2	64.1	59.7	56.0	52.7	49.8	47.3	44.9	42.9	41.0	39.2
29			72.5	66.8	62.2	58.3	54.8	51.8	49.1	46.7	44.5	42.5	40.7
V 30			76.0	69.8	64.8	60.6	57.0	53.8	51.0	48.5	46.2	44.1	42.2
O 31				72.8	67.5	63.0	59.2	55.9	52.9	50.3	47.9	45.7	43.8
32				76.1	70.2	65.5	61.4	57.9	54.8	52.1	49.6	47.4	45.3
L 33				80.2	73.1	68.0	63.7	60.0	56.8	53.9	51.3	49.0	46.9
34					76.3	70.6	66.1	62.2	58.8	55.8	53.1	50.6	48.4
T 35					80.1	73.4	68.5	64.4	60.8	57.6	54.8	52.3	50.0
36						76.4	71.0	66.6	62.9	59.6	56.6	54.0	51.6
37						80.0	73.7	68.9	65.0	61.5	58.4	55.7	53.2
R 38							76.5	71.4	67.1	63.5	60.3	57.4	54.8
39							80.0	73.9	69.4	65.5	62.2	59.2	56.5
E 40								76.6	71.7	67.6	64.1	60.9	58.2
A 41								79.9	74.1	69.7	66.0	62.7	59.8
42									76.7	71.9	68.0	64.6	61.6
D 43									79.8	74.3	70.1	66.5	63.3
44										76.8	72.2	68.4	65.1
I 45										79.8	74.5	70.4	66.9
N 46											76.9	72.5	68.8
47											79.7	74.6	70.7
G 48												76.9	72.7
49												79.7	74.8
50													77.0
51													79.6
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 35.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.4	1.3
	2	5.0	4.6	4.3	4.0	3.8	3.6	3.4	3.2	3.1	3.0	2.8	2.7	2.6
	3	7.5	6.9	6.5	6.1	5.7	5.4	5.1	4.9	4.7	4.4	4.3	4.1	3.9
	4	10.0	9.3	8.7	8.1	7.7	7.2	6.9	6.5	6.2	5.9	5.7	5.4	5.2
	5	12.5	11.6	10.9	10.2	9.6	9.1	8.6	8.2	7.8	7.4	7.1	6.8	6.5
	6	15.1	14.0	13.1	12.3	11.5	10.9	10.3	9.8	9.4	8.9	8.5	8.2	7.9
	7	17.6	16.4	15.3	14.3	13.5	12.8	12.1	11.5	10.9	10.4	10.0	9.6	9.2
	8	20.2	18.8	17.5	16.4	15.5	14.6	13.8	13.1	12.5	12.0	11.4	11.0	10.5
	9	22.8	21.2	19.8	18.5	17.4	16.5	15.6	14.8	14.1	13.5	12.9	12.3	11.9
	10	25.5	23.6	22.0	20.7	19.4	18.3	17.4	16.5	15.7	15.0	14.3	13.7	13.2
	11	28.1	26.1	24.3	22.8	21.4	20.2	19.2	18.2	17.3	16.5	15.8	15.1	14.5
	12	30.8	28.6	26.6	24.9	23.4	22.1	21.0	19.9	18.9	18.1	17.3	16.6	15.9
	13	33.5	31.1	28.9	27.1	25.5	24.0	22.8	21.6	20.6	19.6	18.8	18.0	17.2
	14	36.2	33.6	31.3	29.3	27.5	26.0	24.6	23.3	22.2	21.2	20.2	19.4	18.6
	15	39.0	36.1	33.6	31.5	29.6	27.9	26.4	25.0	23.8	22.7	21.7	20.8	20.0
	16	41.8	38.7	36.0	33.7	31.6	29.8	28.2	26.8	25.5	24.3	23.2	22.2	21.3
	17	44.6	41.3	38.4	35.9	33.7	31.8	30.1	28.5	27.1	25.9	24.7	23.7	22.7
	18	47.5	43.9	40.8	38.2	35.8	33.8	31.9	30.3	28.8	27.5	26.2	25.1	24.1
	19	50.5	46.6	43.3	40.4	38.0	35.8	33.8	32.1	30.5	29.1	27.8	26.6	25.5
	20	53.4	49.3	45.8	42.7	40.1	37.8	35.7	33.8	32.2	30.7	29.3	28.0	26.9
M	21	56.5	52.0	48.3	45.1	42.3	39.8	37.6	35.6	33.9	32.3	30.8	29.5	28.3
	22	59.6	54.8	50.8	47.4	44.4	41.8	39.5	37.4	35.6	33.9	32.4	31.0	29.7
I	23	62.8	57.7	53.4	49.8	46.6	43.9	41.4	39.2	37.3	35.5	33.9	32.4	31.1
	24	66.1	60.6	56.1	52.2	48.9	46.0	43.4	41.1	39.0	37.2	35.5	33.9	32.5
C	25	69.5	63.6	58.8	54.7	51.1	48.1	45.3	42.9	40.8	38.8	37.0	35.4	34.0
R	26	73.2	66.7	61.5	57.2	53.4	50.2	47.3	44.8	42.5	40.5	38.6	36.9	35.4
	27	77.3	70.0	64.4	59.7	55.8	52.4	49.3	46.7	44.3	42.2	40.2	38.5	36.8
O	28		73.4	67.3	62.3	58.1	54.5	51.4	48.6	46.1	43.9	41.8	40.0	38.3
	29		77.2	70.3	65.0	60.6	56.8	53.4	50.5	47.9	45.6	43.4	41.5	39.8
V	30			73.6	67.8	63.0	59.0	55.5	52.5	49.7	47.3	45.1	43.1	41.2
O	31			77.1	70.6	65.6	61.3	57.7	54.4	51.6	49.0	46.7	44.6	42.7
	32				73.7	68.2	63.7	59.8	56.4	53.4	50.8	48.4	46.2	44.2
L	33				77.0	70.9	66.1	62.0	58.5	55.3	52.6	50.0	47.8	45.7
	34					73.8	68.6	64.3	60.5	57.3	54.3	51.7	49.4	47.2
T	35					77.0	71.2	66.6	62.6	59.2	56.2	53.4	51.0	48.8
	36						73.9	68.9	64.8	61.2	58.0	55.2	52.6	50.3
	37						76.9	71.4	67.0	63.2	59.9	56.9	54.3	51.9
R	38							74.0	69.3	65.3	61.8	58.7	55.9	53.4
	39							76.9	71.6	67.4	63.7	60.5	57.6	55.0
E	40							80.3	74.1	69.6	65.7	62.3	59.3	56.7
A	41								76.8	71.8	67.7	64.2	61.1	58.3
	42								80.0	74.2	69.8	66.1	62.8	59.9
D	43									76.8	72.0	68.1	64.6	61.6
	44									79.8	74.3	70.1	66.5	63.3
I	45										76.7	72.2	68.4	65.1
N	46										79.6	74.3	70.3	66.8
	47											76.7	72.3	68.6
G	48											79.4	74.4	70.5
	49												76.7	72.4
	50												79.2	74.5
	51													76.6
	52													79.1
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 36.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.3
2	4.9	4.5	4.2	4.0	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.7	2.5
3	7.3	6.8	6.3	5.9	5.6	5.3	5.0	4.8	4.5	4.3	4.2	4.0	3.8
4	9.8	9.1	8.5	8.0	7.5	7.1	6.7	6.4	6.1	5.8	5.6	5.3	5.1
5	12.2	11.4	10.6	10.0	9.4	8.9	8.4	8.0	7.6	7.3	7.0	6.7	6.4
6	14.7	13.7	12.8	12.0	11.3	10.7	10.1	9.6	9.1	8.7	8.4	8.0	7.7
7	17.2	16.0	14.9	14.0	13.2	12.5	11.8	11.2	10.7	10.2	9.8	9.4	9.0
8	19.8	18.4	17.1	16.1	15.1	14.3	13.5	12.9	12.2	11.7	11.2	10.7	10.3
9	22.3	20.7	19.3	18.1	17.1	16.1	15.3	14.5	13.8	13.2	12.6	12.1	11.6
10	24.9	23.1	21.5	20.2	19.0	17.9	17.0	16.1	15.4	14.7	14.0	13.4	12.9
11	27.5	25.5	23.8	22.3	20.9	19.8	18.7	17.8	16.9	16.2	15.5	14.8	14.2
12	30.1	27.9	26.0	24.4	22.9	21.6	20.5	19.4	18.5	17.7	16.9	16.2	15.5
13	32.7	30.3	28.3	26.5	24.9	23.5	22.2	21.1	20.1	19.2	18.3	17.6	16.9
14	35.4	32.8	30.5	28.6	26.9	25.4	24.0	22.8	21.7	20.7	19.8	18.9	18.2
15	38.1	35.3	32.8	30.7	28.9	27.2	25.8	24.5	23.3	22.2	21.2	20.3	19.5
16	40.8	37.8	35.2	32.9	30.9	29.1	27.6	26.2	24.9	23.7	22.7	21.7	20.9
17	43.6	40.3	37.5	35.1	32.9	31.1	29.4	27.9	26.5	25.3	24.2	23.1	22.2
18	46.4	42.9	39.9	37.3	35.0	33.0	31.2	29.6	28.1	26.8	25.6	24.5	23.5
19	49.2	45.5	42.3	39.5	37.1	34.9	33.0	31.3	29.8	28.4	27.1	26.0	24.9
20	52.1	48.1	44.7	41.7	39.1	36.9	34.9	33.0	31.4	29.9	28.6	27.4	26.3
M 21	55.0	50.7	47.1	44.0	41.2	38.8	36.7	34.8	33.1	31.5	30.1	28.8	27.6
22	58.0	53.5	49.6	46.3	43.4	40.8	38.6	36.6	34.7	33.1	31.6	30.2	29.0
I 23	61.1	56.2	52.1	48.6	45.5	42.8	40.4	38.3	36.4	34.7	33.1	31.7	30.4
24	64.3	59.0	54.7	50.9	47.7	44.8	42.3	40.1	38.1	36.3	34.6	33.1	31.8
C 25	67.6	61.9	57.3	53.3	49.9	46.9	44.3	41.9	39.8	37.9	36.2	34.6	33.2
R 26	71.0	64.9	59.9	55.7	52.1	49.0	46.2	43.7	41.5	39.5	37.7	36.1	34.6
27	74.7	68.0	62.6	58.2	54.4	51.1	48.1	45.6	43.2	41.2	39.3	37.5	36.0
O 28	79.0	71.2	65.4	60.7	56.7	53.2	50.1	47.4	45.0	42.8	40.8	39.0	37.4
29		74.6	68.3	63.3	59.0	55.3	52.1	49.3	46.7	44.5	42.4	40.5	38.8
V 30		78.6	71.3	65.9	61.4	57.5	54.1	51.2	48.5	46.1	44.0	42.0	40.3
O 31			74.6	68.6	63.8	59.7	56.2	53.1	50.3	47.8	45.6	43.6	41.7
32			78.2	71.5	66.3	62.0	58.3	55.0	52.1	49.5	47.2	45.1	43.2
L 33				74.5	68.9	64.3	60.4	57.0	53.9	51.3	48.8	46.6	44.6
34				77.9	71.6	66.7	62.5	59.0	55.8	53.0	50.5	48.2	46.1
T 35					74.5	69.1	64.8	61.0	57.7	54.8	52.1	49.7	47.6
36					77.6	71.7	67.0	63.1	59.6	56.5	53.8	51.3	49.1
37						74.4	69.4	65.2	61.5	58.3	55.5	52.9	50.6
R 38						77.4	71.8	67.3	63.5	60.2	57.2	54.5	52.1
39							74.4	69.6	65.5	62.0	58.9	56.2	53.7
E 40							77.2	71.9	67.6	63.9	60.7	57.8	55.2
A 41								74.3	69.7	65.9	62.5	59.5	56.8
42								77.0	72.0	67.9	64.3	61.2	58.4
D 43								80.2	74.3	69.9	66.2	62.9	60.0
44									76.8	72.0	68.1	64.7	61.6
I 45									79.7	74.3	70.1	66.5	63.3
N 46										76.6	72.1	68.3	65.0
47										79.4	74.2	70.2	66.7
G 48											76.5	72.2	68.5
49											79.1	74.2	70.3
50												76.4	72.2
51												78.8	74.2
52													76.3
53													78.6
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 37.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.4	2.2	2.1	1.9	1.8	1.7	1.6	1.6	1.5	1.4	1.4	1.3	1.2
	2	4.7	4.4	4.1	3.9	3.6	3.4	3.3	3.1	3.0	2.8	2.7	2.6	2.5
	3	7.1	6.6	6.2	5.8	5.5	5.2	4.9	4.7	4.4	4.2	4.1	3.9	3.7
	4	9.5	8.9	8.3	7.8	7.3	6.9	6.6	6.2	5.9	5.7	5.4	5.2	5.0
	5	12.0	11.1	10.4	9.7	9.2	8.7	8.2	7.8	7.4	7.1	6.8	6.5	6.3
	6	14.4	13.4	12.5	11.7	11.0	10.4	9.9	9.4	8.9	8.5	8.2	7.8	7.5
	7	16.9	15.7	14.6	13.7	12.9	12.2	11.6	11.0	10.5	10.0	9.5	9.2	8.8
	8	19.3	17.9	16.7	15.7	14.8	14.0	13.2	12.6	12.0	11.4	10.9	10.5	10.1
	9	21.8	20.2	18.9	17.7	16.7	15.7	14.9	14.2	13.5	12.9	12.3	11.8	11.3
	10	24.3	22.6	21.1	19.7	18.6	17.5	16.6	15.8	15.0	14.3	13.7	13.1	12.6
	11	26.8	24.9	23.2	21.8	20.5	19.3	18.3	17.4	16.6	15.8	15.1	14.5	13.9
	12	29.4	27.3	25.4	23.8	22.4	21.1	20.0	19.0	18.1	17.3	16.5	15.8	15.2
	13	32.0	29.6	27.6	25.9	24.3	23.0	21.7	20.6	19.6	18.7	17.9	17.2	16.5
	14	34.6	32.0	29.8	27.9	26.3	24.8	23.5	22.3	21.2	20.2	19.3	18.5	17.8
	15	37.2	34.4	32.1	30.0	28.2	26.6	25.2	23.9	22.8	21.7	20.8	19.9	19.1
	16	39.8	36.9	34.3	32.1	30.2	28.5	26.9	25.6	24.3	23.2	22.2	21.2	20.4
	17	42.5	39.3	36.6	34.3	32.2	30.3	28.7	27.2	25.9	24.7	23.6	22.6	21.7
	18	45.2	41.8	38.9	36.4	34.2	32.2	30.5	28.9	27.5	26.2	25.1	24.0	23.0
	19	48.0	44.4	41.2	38.6	36.2	34.1	32.3	30.6	29.1	27.7	26.5	25.4	24.3
	20	50.8	46.9	43.6	40.7	38.2	36.0	34.0	32.3	30.7	29.3	28.0	26.8	25.7
M	21	53.6	49.5	46.0	42.9	40.3	37.9	35.8	34.0	32.3	30.8	29.4	28.2	27.0
	22	56.6	52.1	48.4	45.1	42.3	39.9	37.7	35.7	33.9	32.3	30.9	29.6	28.3
I	23	59.5	54.8	50.8	47.4	44.4	41.8	39.5	37.4	35.6	33.9	32.4	31.0	29.7
	24	62.6	57.5	53.3	49.7	46.5	43.8	41.3	39.2	37.2	35.5	33.8	32.4	31.0
C	25	65.7	60.3	55.8	52.0	48.7	45.8	43.2	40.9	38.9	37.0	35.3	33.8	32.4
R	26	69.0	63.2	58.4	54.3	50.8	47.8	45.1	42.7	40.5	38.6	36.8	35.2	33.8
	27	72.5	66.1	61.0	56.7	53.0	49.8	47.0	44.5	42.2	40.2	38.4	36.7	35.1
O	28	76.2	69.2	63.7	59.1	55.2	51.9	48.9	46.3	43.9	41.8	39.9	38.1	36.5
	29		72.4	66.4	61.6	57.5	53.9	50.8	48.1	45.6	43.4	41.4	39.6	37.9
V	30		75.9	69.3	64.1	59.8	56.1	52.8	49.9	47.3	45.0	43.0	41.1	39.3
O	31		80.0	72.3	66.7	62.1	58.2	54.8	51.8	49.1	46.7	44.5	42.5	40.7
	32			75.6	69.4	64.5	60.4	56.8	53.6	50.8	48.3	46.1	44.0	42.1
L	33			79.3	72.3	67.0	62.6	58.8	55.5	52.6	50.0	47.7	45.5	43.6
	34				75.3	69.6	64.9	60.9	57.5	54.4	51.7	49.2	47.0	45.0
T	35				78.7	72.2	67.2	63.1	59.4	56.2	53.4	50.9	48.5	46.4
	36					75.1	69.7	65.2	61.4	58.1	55.1	52.5	50.1	47.9
	37					78.2	72.2	67.5	63.4	60.0	56.9	54.1	51.6	49.4
R	38						74.9	69.8	65.5	61.9	58.6	55.8	53.2	50.9
	39						77.8	72.1	67.6	63.8	60.4	57.5	54.8	52.4
E	40							74.7	69.8	65.8	62.3	59.2	56.4	53.9
A	41							77.4	72.1	67.8	64.1	60.9	58.0	55.4
	42								74.5	69.9	66.0	62.6	59.6	56.9
D	43								77.1	72.1	68.0	64.4	61.3	58.5
	44								80.3	74.4	70.0	66.3	63.0	60.1
I	45									76.8	72.1	68.1	64.7	61.7
N	46									79.7	74.2	70.0	66.5	63.3
	47										76.6	72.0	68.3	65.0
G	48										79.2	74.1	70.1	66.7
	49											76.3	72.0	68.4
	50											78.8	74.0	70.2
	51												76.1	72.0
	52												78.4	73.9
	53													75.9
	54													78.1
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 38.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.3	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.2
	2	4.6	4.3	4.0	3.8	3.6	3.4	3.2	3.0	2.9	2.8	2.6	2.5	2.4
	3	7.0	6.5	6.1	5.7	5.4	5.1	4.8	4.6	4.4	4.2	4.0	3.8	3.7
	4	9.3	8.7	8.1	7.6	7.2	6.8	6.4	6.1	5.8	5.6	5.3	5.1	4.9
	5	11.7	10.9	10.2	9.5	9.0	8.5	8.0	7.6	7.3	7.0	6.7	6.4	6.1
	6	14.1	13.1	12.2	11.5	10.8	10.2	9.7	9.2	8.8	8.4	8.0	7.7	7.4
	7	16.5	15.3	14.3	13.4	12.6	11.9	11.3	10.7	10.2	9.8	9.3	9.0	8.6
	8	18.9	17.5	16.4	15.4	14.5	13.7	12.9	12.3	11.7	11.2	10.7	10.3	9.8
	9	21.3	19.8	18.5	17.3	16.3	15.4	14.6	13.9	13.2	12.6	12.1	11.6	11.1
	10	23.8	22.1	20.6	19.3	18.2	17.1	16.2	15.4	14.7	14.0	13.4	12.9	12.3
	11	26.2	24.3	22.7	21.3	20.0	18.9	17.9	17.0	16.2	15.5	14.8	14.2	13.6
	12	28.7	26.6	24.8	23.3	21.9	20.7	19.6	18.6	17.7	16.9	16.2	15.5	14.9
	13	31.2	29.0	27.0	25.3	23.8	22.4	21.3	20.2	19.2	18.3	17.5	16.8	16.1
	14	33.8	31.3	29.2	27.3	25.7	24.2	22.9	21.8	20.7	19.8	18.9	18.1	17.4
	15	36.3	33.6	31.4	29.3	27.6	26.0	24.6	23.4	22.3	21.2	20.3	19.4	18.7
	16	38.9	36.0	33.6	31.4	29.5	27.8	26.3	25.0	23.8	22.7	21.7	20.8	19.9
	17	41.5	38.4	35.8	33.5	31.4	29.7	28.1	26.6	25.3	24.2	23.1	22.1	21.2
	18	44.2	40.9	38.0	35.6	33.4	31.5	29.8	28.3	26.9	25.6	24.5	23.5	22.5
	19	46.8	43.3	40.3	37.7	35.4	33.3	31.5	29.9	28.4	27.1	25.9	24.8	23.8
	20	49.6	45.8	42.6	39.8	37.3	35.2	33.3	31.6	30.0	28.6	27.3	26.2	25.1
M	21	52.3	48.3	44.9	41.9	39.3	37.1	35.0	33.2	31.6	30.1	28.8	27.5	26.4
	22	55.1	50.9	47.2	44.1	41.3	38.9	36.8	34.9	33.2	31.6	30.2	28.9	27.7
I	23	58.0	53.4	49.6	46.3	43.4	40.8	38.6	36.6	34.8	33.1	31.6	30.3	29.0
	24	61.0	56.1	52.0	48.5	45.4	42.8	40.4	38.3	36.4	34.6	33.1	31.7	30.4
C	25	64.0	58.8	54.4	50.7	47.5	44.7	42.2	40.0	38.0	36.2	34.5	33.0	31.7
R	26	67.1	61.5	56.9	53.0	49.6	46.6	44.0	41.7	39.6	37.7	36.0	34.4	33.0
	27	70.4	64.3	59.4	55.3	51.7	48.6	45.9	43.4	41.2	39.3	37.5	35.8	34.4
O	28	73.8	67.3	62.0	57.6	53.9	50.6	47.7	45.2	42.9	40.8	39.0	37.3	35.7
	29	77.7	70.3	64.7	60.0	56.1	52.6	49.6	46.9	44.6	42.4	40.5	38.7	37.1
V	30		73.5	67.4	62.5	58.3	54.7	51.5	48.7	46.2	44.0	42.0	40.1	38.4
O	31		77.0	70.3	65.0	60.5	56.8	53.4	50.5	47.9	45.6	43.5	41.5	39.8
	32			73.3	67.5	62.9	58.9	55.4	52.3	49.6	47.2	45.0	43.0	41.2
L	33			76.5	70.2	65.2	61.0	57.4	54.2	51.4	48.8	46.5	44.5	42.6
	34				73.0	67.7	63.2	59.4	56.1	53.1	50.5	48.1	45.9	44.0
T	35				76.0	70.2	65.5	61.4	57.9	54.9	52.1	49.6	47.4	45.4
	36				79.6	72.8	67.8	63.5	59.9	56.6	53.8	51.2	48.9	46.8
	37					75.6	70.1	65.7	61.8	58.5	55.5	52.8	50.4	48.2
R	38					78.8	72.6	67.8	63.8	60.3	57.2	54.4	51.9	49.6
	39						75.3	70.1	65.8	62.2	58.9	56.0	53.5	51.1
E	40						78.2	72.5	67.9	64.1	60.7	57.7	55.0	52.6
A	41							75.0	70.1	66.0	62.5	59.4	56.6	54.0
	42							77.7	72.3	68.0	64.3	61.1	58.2	55.5
D	43								74.7	70.1	66.2	62.8	59.8	57.1
	44								77.2	72.2	68.1	64.5	61.4	58.6
I	45								80.3	74.4	70.0	66.3	63.0	60.1
N	46									76.8	72.1	68.1	64.7	61.7
	47									79.6	74.2	70.0	66.4	63.3
G	48										76.5	72.0	68.2	64.9
	49										79.0	74.0	70.0	66.6
	50											76.1	71.9	68.2
	51											78.5	73.8	70.0
	52												75.8	71.8
	53												78.1	73.6
	54													75.6
	55													77.7
	56													80.2
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 39.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.3	2.1	2.0	1.8	1.7	1.6	1.6	1.5	1.4	1.4	1.3	1.2	1.2
	2	4.5	4.2	3.9	3.7	3.5	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4
	3	6.8	6.3	5.9	5.6	5.2	5.0	4.7	4.5	4.3	4.1	3.9	3.7	3.6
	4	9.1	8.5	7.9	7.4	7.0	6.6	6.3	6.0	5.7	5.4	5.2	5.0	4.8
	5	11.4	10.6	9.9	9.3	8.8	8.3	7.9	7.5	7.1	6.8	6.5	6.2	6.0
	6	13.8	12.8	11.9	11.2	10.6	10.0	9.5	9.0	8.6	8.2	7.8	7.5	7.2
	7	16.1	15.0	14.0	13.1	12.3	11.7	11.1	10.5	10.0	9.6	9.1	8.8	8.4
	8	18.5	17.2	16.0	15.0	14.1	13.4	12.7	12.0	11.5	10.9	10.5	10.0	9.6
	9	20.8	19.4	18.1	16.9	15.9	15.1	14.3	13.6	12.9	12.3	11.8	11.3	10.9
	10	23.2	21.6	20.1	18.9	17.8	16.8	15.9	15.1	14.4	13.7	13.1	12.6	12.1
	11	25.6	23.8	22.2	20.8	19.6	18.5	17.5	16.6	15.8	15.1	14.5	13.9	13.3
	12	28.1	26.0	24.3	22.8	21.4	20.2	19.1	18.2	17.3	16.5	15.8	15.1	14.5
	13	30.5	28.3	26.4	24.7	23.3	22.0	20.8	19.7	18.8	17.9	17.2	16.4	15.8
	14	33.0	30.6	28.5	26.7	25.1	23.7	22.4	21.3	20.3	19.4	18.5	17.7	17.0
	15	35.5	32.9	30.6	28.7	27.0	25.5	24.1	22.9	21.8	20.8	19.9	19.0	18.3
	16	38.0	35.2	32.8	30.7	28.9	27.2	25.8	24.5	23.3	22.2	21.2	20.3	19.5
	17	40.5	37.5	35.0	32.7	30.7	29.0	27.4	26.0	24.8	23.6	22.6	21.6	20.8
	18	43.1	39.9	37.1	34.7	32.6	30.8	29.1	27.6	26.3	25.1	24.0	23.0	22.0
	19	45.7	42.3	39.3	36.8	34.6	32.6	30.8	29.2	27.8	26.5	25.3	24.3	23.3
	20	48.4	44.7	41.6	38.9	36.5	34.4	32.5	30.9	29.3	28.0	26.7	25.6	24.6
M	21	51.1	47.2	43.8	40.9	38.4	36.2	34.2	32.5	30.9	29.4	28.1	26.9	25.8
	22	53.8	49.6	46.1	43.1	40.4	38.1	36.0	34.1	32.4	30.9	29.5	28.3	27.1
I	23	56.6	52.1	48.4	45.2	42.4	39.9	37.7	35.7	34.0	32.4	30.9	29.6	28.4
	24	59.4	54.7	50.7	47.3	44.4	41.8	39.5	37.4	35.5	33.9	32.3	31.0	29.7
C	25	62.3	57.3	53.1	49.5	46.4	43.7	41.2	39.1	37.1	35.4	33.8	32.3	31.0
R	26	65.3	60.0	55.5	51.7	48.4	45.6	43.0	40.7	38.7	36.9	35.2	33.7	32.3
	27	68.4	62.7	58.0	54.0	50.5	47.5	44.8	42.4	40.3	38.4	36.6	35.0	33.6
O	28	71.7	65.5	60.5	56.2	52.6	49.4	46.6	44.1	41.9	39.9	38.1	36.4	34.9
	29	75.2	68.4	63.0	58.5	54.7	51.4	48.5	45.9	43.5	41.4	39.5	37.8	36.2
V	30	79.2	71.4	65.6	60.9	56.9	53.4	50.3	47.6	45.2	43.0	41.0	39.2	37.6
O	31		74.6	68.3	63.3	59.0	55.4	52.2	49.3	46.8	44.5	42.5	40.6	38.9
	32		78.2	71.2	65.8	61.3	57.4	54.1	51.1	48.5	46.1	44.0	42.0	40.2
L	33			74.1	68.3	63.5	59.5	56.0	52.9	50.1	47.7	45.5	43.4	41.6
	34			77.4	70.9	65.9	61.6	57.9	54.7	51.8	49.3	47.0	44.9	43.0
T	35				73.7	68.3	63.8	59.9	56.5	53.5	50.9	48.5	46.3	44.3
	36				76.8	70.8	66.0	61.9	58.4	55.3	52.5	50.0	47.8	45.7
	37					73.4	68.2	64.0	60.3	57.0	54.1	51.6	49.2	47.1
R	38					76.2	70.6	66.1	62.2	58.8	55.8	53.1	50.7	48.5
	39					79.4	73.0	68.2	64.1	60.6	57.5	54.7	52.2	49.9
E	40						75.7	70.4	66.1	62.4	59.2	56.3	53.7	51.3
A	41						78.6	72.8	68.2	64.3	60.9	57.9	55.2	52.8
	42							75.2	70.3	66.2	62.7	59.5	56.7	54.2
D	43							77.9	72.5	68.2	64.5	61.2	58.3	55.7
	44								74.8	70.2	66.3	62.9	59.9	57.2
I	45								77.3	72.3	68.2	64.6	61.5	58.7
N	46								80.4	74.5	70.1	66.4	63.1	60.2
	47									76.8	72.1	68.1	64.7	61.7
G	48									79.5	74.1	70.0	66.4	63.3
	49										76.4	71.9	68.1	64.9
	50										78.8	73.9	69.9	66.5
	51											75.9	71.7	68.1
	52											78.2	73.6	69.8
	53												75.6	71.5
	54												77.7	73.3
	55												80.3	75.2
	56													77.3
	57													79.6
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 15.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 40.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.3	1.3	1.2	1.2
	2	4.4	4.1	3.9	3.6	3.4	3.2	3.1	2.9	2.8	2.7	2.5	2.4	2.3
	3	6.7	6.2	5.8	5.4	5.1	4.9	4.6	4.4	4.2	4.0	3.8	3.7	3.5
	4	8.9	8.3	7.8	7.3	6.9	6.5	6.1	5.8	5.6	5.3	5.1	4.9	4.7
	5	11.2	10.4	9.7	9.1	8.6	8.1	7.7	7.3	7.0	6.7	6.4	6.1	5.9
	6	13.5	12.5	11.7	11.0	10.3	9.8	9.3	8.8	8.4	8.0	7.7	7.3	7.1
	7	15.8	14.6	13.7	12.8	12.1	11.4	10.8	10.3	9.8	9.4	9.0	8.6	8.2
	8	18.1	16.8	15.7	14.7	13.8	13.1	12.4	11.8	11.2	10.7	10.2	9.8	9.4
	9	20.4	18.9	17.7	16.6	15.6	14.7	14.0	13.3	12.6	12.1	11.5	11.1	10.6
	10	22.7	21.1	19.7	18.5	17.4	16.4	15.5	14.8	14.1	13.4	12.8	12.3	11.8
	11	25.1	23.3	21.7	20.4	19.2	18.1	17.1	16.3	15.5	14.8	14.2	13.6	13.0
	12	27.4	25.5	23.8	22.3	20.9	19.8	18.7	17.8	16.9	16.2	15.5	14.8	14.2
	13	29.8	27.7	25.8	24.2	22.7	21.5	20.3	19.3	18.4	17.6	16.8	16.1	15.4
	14	32.2	29.9	27.9	26.1	24.6	23.2	22.0	20.8	19.8	18.9	18.1	17.4	16.7
	15	34.7	32.1	30.0	28.1	26.4	24.9	23.6	22.4	21.3	20.3	19.4	18.6	17.9
	16	37.1	34.4	32.1	30.0	28.2	26.6	25.2	23.9	22.8	21.7	20.8	19.9	19.1
	17	39.6	36.7	34.2	32.0	30.1	28.4	26.8	25.5	24.2	23.1	22.1	21.2	20.3
	18	42.1	39.0	36.3	34.0	31.9	30.1	28.5	27.0	25.7	24.5	23.5	22.5	21.5
	19	44.7	41.3	38.5	36.0	33.8	31.9	30.1	28.6	27.2	25.9	24.8	23.7	22.8
	20	47.2	43.7	40.6	38.0	35.7	33.6	31.8	30.2	28.7	27.4	26.2	25.0	24.0
M	21	49.8	46.1	42.8	40.0	37.6	35.4	33.5	31.8	30.2	28.8	27.5	26.3	25.3
	22	52.5	48.5	45.0	42.1	39.5	37.2	35.2	33.4	31.7	30.2	28.9	27.7	26.5
I	23	55.2	50.9	47.3	44.1	41.4	39.0	36.9	35.0	33.2	31.7	30.3	29.0	27.8
	24	57.9	53.4	49.5	46.2	43.4	40.8	38.6	36.6	34.8	33.1	31.6	30.3	29.0
C	25	60.7	55.9	51.8	48.4	45.3	42.7	40.3	38.2	36.3	34.6	33.0	31.6	30.3
R	26	63.6	58.5	54.2	50.5	47.3	44.5	42.0	39.8	37.8	36.1	34.4	32.9	31.6
	27	66.6	61.1	56.5	52.7	49.3	46.4	43.8	41.5	39.4	37.5	35.8	34.3	32.9
O	28	69.7	63.8	59.0	54.9	51.3	48.3	45.6	43.1	41.0	39.0	37.2	35.6	34.1
	29	73.0	66.6	61.4	57.1	53.4	50.2	47.3	44.8	42.5	40.5	38.7	37.0	35.4
V	30	76.5	69.4	63.9	59.4	55.5	52.1	49.1	46.5	44.1	42.0	40.1	38.3	36.7
O	31		72.5	66.5	61.7	57.6	54.1	50.9	48.2	45.7	43.5	41.5	39.7	38.0
	32		75.7	69.2	64.1	59.8	56.0	52.8	49.9	47.4	45.1	43.0	41.1	39.3
L	33		79.5	72.0	66.5	61.9	58.0	54.6	51.7	49.0	46.6	44.4	42.5	40.7
	34			75.0	69.0	64.2	60.1	56.5	53.4	50.6	48.1	45.9	43.9	42.0
T	35			78.4	71.6	66.5	62.2	58.4	55.2	52.3	49.7	47.4	45.3	43.3
	36				74.4	68.9	64.3	60.4	57.0	54.0	51.3	48.9	46.7	44.7
	37				77.4	71.3	66.5	62.4	58.8	55.7	52.9	50.4	48.1	46.0
R	38					73.9	68.7	64.4	60.7	57.4	54.5	51.9	49.5	47.4
	39					76.7	71.0	66.4	62.5	59.1	56.1	53.4	51.0	48.8
E	40					80.0	73.4	68.6	64.5	60.9	57.8	55.0	52.4	50.1
A	41						76.0	70.8	66.4	62.7	59.4	56.5	53.9	51.5
	42						79.0	73.0	68.4	64.5	61.1	58.1	55.4	52.9
D	43							75.5	70.5	66.4	62.9	59.7	56.9	54.4
	44							78.1	72.7	68.3	64.6	61.3	58.4	55.8
I	45								75.0	70.3	66.4	63.0	60.0	57.3
N	46								77.4	72.4	68.2	64.7	61.5	58.7
	47								80.5	74.5	70.1	66.4	63.1	60.2
G	48									76.8	72.1	68.1	64.7	61.7
	49									79.4	74.1	69.9	66.4	63.2
	50										76.2	71.8	68.1	64.8
	51										78.6	73.7	69.8	66.4
	52											75.8	71.5	68.0
	53											78.0	73.4	69.6
	54												75.3	71.3
	55												77.4	73.1
	56												79.8	74.9
	57													76.9
	58													79.1
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 0.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	6.5	6.2	5.9	5.7	5.5	5.3	5.1	4.9	4.7	4.6	4.4	4.3	4.2
2	13.2	12.6	12.1	11.6	11.1	10.7	10.3	9.9	9.6	9.3	9.0	8.7	8.5
3	20.2	19.3	18.4	17.7	16.9	16.3	15.7	15.1	14.6	14.1	13.7	13.2	12.8
4	27.5	26.2	25.1	24.0	23.0	22.1	21.2	20.5	19.7	19.1	18.4	17.9	17.3
5	35.3	33.6	32.0	30.6	29.3	28.1	27.0	26.0	25.1	24.2	23.4	22.6	21.9
6	43.6	41.4	39.4	37.5	35.9	34.4	33.0	31.8	30.6	29.5	28.5	27.5	26.7
7	52.8	49.9	47.3	45.0	42.9	41.1	39.4	37.8	36.4	35.0	33.8	32.7	31.6
8	63.5	59.5	56.1	53.2	50.6	48.2	46.1	44.2	42.5	40.9	39.4	38.0	36.7
9		72.0	66.7	62.5	59.1	56.1	53.5	51.1	49.0	47.0	45.3	43.6	42.1
10				76.3	69.7	65.4	61.8	58.8	56.1	53.7	51.6	49.6	47.8
11							72.7	68.0	64.3	61.3	58.5	56.1	54.0
12									76.4	70.6	66.7	63.5	60.8
13												73.2	69.0

14 15 16 17 18 19 20

M 21 22

I 23 24

C 25

R 26 27

O 28 29

V 30

O 31 32

L 33 34

T 35

36 37

R 38 39

E 40

A 41 42

D 43 44

I 45

N 46 47

G 48 49 50

51 52 53 54 55

56 57 58 59 60

61 62 63 64 65

66 67 68 69 70

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 1.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	6.3	6.0	5.7	5.5	5.2	5.0	4.8	4.7	4.5	4.3	4.2	4.1	3.9
2	12.7	12.1	11.6	11.1	10.6	10.2	9.8	9.4	9.1	8.8	8.5	8.2	8.0
3	19.4	18.5	17.6	16.9	16.1	15.5	14.9	14.3	13.8	13.3	12.9	12.5	12.1
4	26.4	25.1	23.9	22.9	21.9	21.0	20.1	19.4	18.7	18.0	17.4	16.8	16.3
5	33.8	32.1	30.5	29.1	27.8	26.7	25.6	24.6	23.7	22.8	22.0	21.3	20.6
6	41.7	39.4	37.5	35.7	34.1	32.6	31.2	30.0	28.8	27.8	26.8	25.9	25.0
7	50.2	47.4	44.9	42.6	40.6	38.8	37.1	35.6	34.2	32.9	31.7	30.6	29.6
8	60.0	56.2	53.0	50.2	47.7	45.4	43.4	41.6	39.9	38.3	36.9	35.6	34.4
9	72.7	66.7	62.2	58.6	55.4	52.6	50.1	47.9	45.8	44.0	42.3	40.7	39.3
10			75.0	68.7	64.3	60.6	57.5	54.7	52.3	50.1	48.0	46.2	44.5
11						70.6	66.1	62.5	59.4	56.6	54.2	52.0	50.0
12								72.3	67.7	64.1	61.1	58.4	56.0
13										74.0	69.3	65.7	62.6
14												75.8	70.7
15													
16													
17													
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 2.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

MICROVOLTS READING	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
1	6.0	5.7	5.4	5.2	5.0	4.8	4.6	4.4	4.2	4.1	4.0	3.8	3.7
2	12.1	11.5	11.0	10.5	10.1	9.6	9.3	8.9	8.6	8.3	8.0	7.7	7.5
3	18.5	17.6	16.8	16.0	15.3	14.7	14.1	13.5	13.0	12.6	12.1	11.7	11.3
4	25.2	23.9	22.7	21.7	20.7	19.8	19.0	18.3	17.6	16.9	16.4	15.8	15.3
5	32.1	30.4	28.9	27.5	26.3	25.2	24.1	23.2	22.3	21.4	20.7	20.0	19.3
6	39.5	37.4	35.4	33.7	32.1	30.7	29.4	28.2	27.1	26.1	25.1	24.3	23.5
7	47.5	44.7	42.3	40.2	38.2	36.5	34.9	33.4	32.1	30.9	29.7	28.7	27.7
8	56.3	52.8	49.7	47.1	44.7	42.6	40.7	38.9	37.3	35.9	34.5	33.3	32.1
9	66.7	61.9	58.0	54.6	51.7	49.1	46.8	44.7	42.8	41.1	39.5	38.0	36.6
10		74.0	67.8	63.2	59.4	56.2	53.4	50.9	48.6	46.6	44.7	43.0	41.4
11				74.7	68.7	64.3	60.7	57.6	54.9	52.4	50.2	48.2	46.4
12						75.4	69.5	65.3	61.8	58.8	56.2	53.8	51.7
13								76.0	70.3	66.2	62.8	59.9	57.4
14										76.5	70.9	67.0	63.7
15												77.1	71.5
16													
17													
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 3.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	5.7	5.4	5.2	4.9	4.7	4.5	4.3	4.2	4.0	3.9	3.7	3.6	3.5
2	11.6	11.0	10.5	10.0	9.5	9.1	8.8	8.4	8.1	7.8	7.5	7.3	7.1
3	17.6	16.7	15.9	15.2	14.5	13.9	13.3	12.8	12.3	11.9	11.4	11.0	10.7
4	23.9	22.7	21.6	20.5	19.6	18.7	18.0	17.2	16.6	16.0	15.4	14.9	14.4
5	30.5	28.9	27.4	26.1	24.9	23.8	22.8	21.8	21.0	20.2	19.5	18.8	18.2
6	37.5	35.4	33.5	31.8	30.3	28.9	27.7	26.6	25.5	24.5	23.6	22.8	22.0
7	44.8	42.2	39.9	37.9	36.0	34.3	32.8	31.4	30.2	29.0	27.9	26.9	26.0
8	52.9	49.6	46.8	44.2	42.0	40.0	38.2	36.5	35.0	33.6	32.3	31.2	30.1
9	62.0	57.8	54.2	51.1	48.4	46.0	43.8	41.8	40.1	38.4	36.9	35.5	34.3
10	73.9	67.4	62.6	58.7	55.3	52.4	49.8	47.5	45.4	43.5	41.7	40.1	38.6
11			73.4	67.5	63.1	59.4	56.3	53.5	51.0	48.8	46.7	44.9	43.2
12					73.0	67.7	63.5	60.1	57.1	54.4	52.1	49.9	47.9
13							72.6	67.8	63.9	60.7	57.8	55.3	53.0
14									72.3	67.8	64.2	61.2	58.4
15											72.1	67.9	64.5
16												77.7	71.9
17													
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 4.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	5.4	5.2	4.9	4.7	4.5	4.3	4.1	4.0	3.8	3.7	3.5	3.4	3.3
2	11.1	10.5	10.0	9.5	9.1	8.7	8.3	8.0	7.7	7.4	7.1	6.9	6.7
3	16.8	15.9	15.1	14.4	13.8	13.2	12.6	12.1	11.6	11.2	10.8	10.4	10.1
4	22.8	21.6	20.5	19.5	18.6	17.8	17.0	16.3	15.7	15.1	14.5	14.0	13.6
5	29.0	27.4	26.0	24.7	23.5	22.5	21.5	20.6	19.8	19.1	18.4	17.7	17.1
6	35.5	33.5	31.7	30.1	28.7	27.4	26.2	25.1	24.1	23.1	22.3	21.5	20.7
7	42.4	39.9	37.7	35.8	34.0	32.4	31.0	29.6	28.4	27.3	26.3	25.3	24.4
8	49.8	46.8	44.1	41.7	39.6	37.7	35.9	34.4	32.9	31.6	30.4	29.3	28.2
9	58.0	54.2	50.9	48.0	45.5	43.2	41.1	39.3	37.6	36.1	34.7	33.4	32.2
10	67.7	62.5	58.3	54.8	51.7	49.0	46.6	44.5	42.5	40.7	39.1	37.6	36.2
11		73.1	67.0	62.4	58.6	55.3	52.5	49.9	47.6	45.6	43.7	42.0	40.4
12				71.8	66.5	62.3	58.8	55.8	53.1	50.7	48.5	46.5	44.7
13					77.7	70.7	66.1	62.3	59.0	56.2	53.6	51.3	49.3
14							75.6	69.9	65.7	62.2	59.2	56.5	54.1
15									74.1	69.2	65.4	62.1	59.3
16											72.9	68.6	65.1
17												77.7	72.0
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 5.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	5.2	4.9	4.7	4.5	4.3	4.1	3.9	3.8	3.6	3.5	3.4	3.2	3.1
2	10.6	10.0	9.5	9.0	8.6	8.2	7.9	7.6	7.3	7.0	6.8	6.5	6.3
3	16.1	15.2	14.4	13.7	13.1	12.5	12.0	11.5	11.0	10.6	10.2	9.9	9.5
4	21.7	20.5	19.5	18.5	17.6	16.9	16.1	15.5	14.9	14.3	13.8	13.3	12.8
5	27.6	26.1	24.7	23.5	22.3	21.3	20.4	19.5	18.8	18.0	17.4	16.7	16.2
6	33.8	31.8	30.1	28.6	27.2	25.9	24.8	23.7	22.8	21.9	21.0	20.3	19.6
7	40.2	37.9	35.8	33.9	32.2	30.7	29.3	28.0	26.9	25.8	24.8	23.9	23.1
8	47.1	44.2	41.7	39.4	37.4	35.6	33.9	32.4	31.1	29.8	28.7	27.6	26.6
9	54.6	51.0	47.9	45.2	42.8	40.7	38.8	37.0	35.4	34.0	32.7	31.4	30.3
10	63.0	58.5	54.7	51.5	48.6	46.1	43.8	41.8	40.0	38.3	36.8	35.3	34.0
11	73.7	67.1	62.3	58.2	54.8	51.8	49.2	46.8	44.7	42.8	41.0	39.4	37.9
12			71.4	65.9	61.6	58.0	54.9	52.1	49.7	47.4	45.4	43.6	41.9
13				76.2	69.7	65.0	61.1	57.8	55.0	52.4	50.1	48.0	46.1
14						73.6	68.3	64.2	60.7	57.7	55.0	52.6	50.4
15							78.9	71.8	67.2	63.5	60.3	57.6	55.1
16									75.6	70.3	66.3	62.9	60.0
17											73.6	69.1	65.5
18												77.5	72.0
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													79.5
42													83.0
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 6.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
							WATER POTENTIAL, NEGATIVE BARS						
1	5.0	4.7	4.5	4.3	4.1	3.9	3.7	3.6	3.4	3.3	3.2	3.1	3.0
2	10.1	9.6	9.1	8.6	8.2	7.9	7.5	7.2	6.9	6.7	6.4	6.2	6.0
3	15.4	14.5	13.8	13.1	12.5	11.9	11.4	10.9	10.5	10.1	9.7	9.4	9.1
4	20.8	19.6	18.6	17.6	16.8	16.0	15.3	14.7	14.1	13.6	13.1	12.6	12.2
5	26.4	24.9	23.5	22.3	21.3	20.3	19.4	18.6	17.8	17.1	16.5	15.9	15.3
6	32.2	30.3	28.7	27.2	25.8	24.6	23.5	22.5	21.6	20.7	20.0	19.2	18.5
7	38.3	36.0	34.0	32.2	30.5	29.1	27.8	26.6	25.5	24.4	23.5	22.6	21.8
8	44.7	41.9	39.5	37.4	35.4	33.7	32.1	30.7	29.4	28.2	27.1	26.1	25.2
9	51.6	48.2	45.3	42.8	40.5	38.5	36.7	35.0	33.5	32.1	30.9	29.7	28.6
10	59.2	55.0	51.6	48.5	45.9	43.5	41.4	39.5	37.7	36.1	34.7	33.4	32.1
11	67.9	62.6	58.3	54.7	51.5	48.8	46.3	44.1	42.1	40.3	38.6	37.1	35.7
12		71.8	66.0	61.4	57.6	54.4	51.5	49.0	46.7	44.6	42.7	41.0	39.4
13			76.0	69.3	64.5	60.5	57.1	54.1	51.5	49.1	47.0	45.1	43.3
14					72.7	67.4	63.2	59.7	56.6	53.9	51.5	49.3	47.3
15						76.5	70.4	65.9	62.2	59.0	56.2	53.7	51.5
16								73.4	68.5	64.7	61.4	58.5	55.9
17									76.9	71.2	67.1	63.6	60.6
18											74.0	69.5	65.8
19												77.2	71.9

MICROVOLT RANGE

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 7.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.8	4.5	4.3	4.1	3.9	3.7	3.6	3.4	3.3	3.2	3.0	2.9	2.8
2	9.7	9.2	8.7	8.2	7.9	7.5	7.2	6.9	6.6	6.4	6.1	5.9	5.7
3	14.7	13.9	13.2	12.5	11.9	11.4	10.9	10.4	10.0	9.6	9.3	8.9	8.6
4	19.9	18.8	17.8	16.9	16.0	15.3	14.6	14.0	13.4	12.9	12.4	12.0	11.6
5	25.2	23.8	22.5	21.3	20.3	19.3	18.5	17.7	17.0	16.3	15.7	15.1	14.6
6	30.7	28.9	27.3	25.9	24.6	23.4	22.4	21.4	20.5	19.7	19.0	18.3	17.6
7	36.5	34.3	32.3	30.6	29.1	27.7	26.4	25.2	24.2	23.2	22.3	21.5	20.7
8	42.5	39.9	37.6	35.5	33.7	32.0	30.5	29.2	27.9	26.8	25.8	24.8	23.9
9	48.9	45.8	43.0	40.6	38.5	36.5	34.8	33.2	31.8	30.5	29.3	28.1	27.1
10	55.8	52.0	48.8	45.9	43.4	41.2	39.2	37.4	35.7	34.2	32.9	31.6	30.4
11	63.6	58.9	55.0	51.6	48.7	46.1	43.8	41.7	39.8	38.1	36.6	35.1	33.8
12	73.0	66.6	61.7	57.7	54.2	51.2	48.6	46.2	44.1	42.1	40.4	38.8	37.3
13		76.8	69.6	64.5	60.3	56.7	53.7	50.9	48.5	46.3	44.3	42.5	40.8
14				72.6	67.1	62.8	59.1	55.9	53.2	50.7	48.4	46.4	44.5
15					75.7	69.7	65.1	61.4	58.1	55.3	52.7	50.4	48.4
16						80.0	72.2	67.4	63.5	60.2	57.3	54.7	52.4
17								74.9	69.7	65.7	62.2	59.3	56.6
18									78.0	72.0	67.7	64.2	61.1
19											74.3	69.8	66.1
20												76.9	71.8

MOISTURE RELEASE CURVE

81

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 8.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.6	4.3	4.1	3.9	3.7	3.6	3.4	3.3	3.1	3.0	2.9	2.8	2.7
2	9.3	8.8	8.3	7.9	7.5	7.2	6.9	6.6	6.3	6.1	5.9	5.6	5.4
3	14.1	13.3	12.6	12.0	11.4	10.9	10.4	10.0	9.6	9.2	8.8	8.5	8.2
4	19.1	18.0	17.0	16.1	15.3	14.6	14.0	13.4	12.8	12.3	11.9	11.4	11.0
5	24.2	22.7	21.5	20.4	19.4	18.5	17.6	16.9	16.2	15.5	14.9	14.4	13.9
6	29.4	27.7	26.1	24.7	23.5	22.4	21.4	20.4	19.6	18.8	18.1	17.4	16.8
7	34.9	32.8	30.9	29.2	27.7	26.4	25.2	24.1	23.1	22.1	21.3	20.5	19.7
8	40.6	38.0	35.8	33.9	32.1	30.5	29.1	27.8	26.6	25.5	24.5	23.6	22.7
9	46.6	43.6	41.0	38.6	36.6	34.8	33.1	31.6	30.2	29.0	27.8	26.8	25.8
10	53.0	49.4	46.3	43.6	41.3	39.2	37.2	35.5	34.0	32.5	31.2	30.0	28.9
11	59.9	55.7	52.0	48.9	46.1	43.7	41.5	39.6	37.8	36.2	34.7	33.3	32.1
12	67.9	62.5	58.2	54.5	51.3	48.5	46.0	43.8	41.8	39.9	38.3	36.7	35.3
13	79.1	70.6	65.0	60.5	56.8	53.5	50.7	48.1	45.9	43.8	41.9	40.2	38.7
14			73.2	67.3	62.7	58.9	55.6	52.7	50.2	47.9	45.8	43.9	42.1
15				75.9	69.6	64.9	61.0	57.6	54.7	52.1	49.7	47.6	45.7
16					79.0	71.8	66.9	62.9	59.5	56.5	53.9	51.5	49.4
17							74.0	68.8	64.8	61.3	58.3	55.6	53.2
18								76.3	70.7	66.5	63.0	60.0	57.2
19									78.9	72.6	68.3	64.7	61.6
20											74.5	70.0	66.3
M 21												76.5	71.6
22													78.8
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 9.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.4	4.2	4.0	3.8	3.6	3.4	3.3	3.1	3.0	2.9	2.8	2.7	2.6
2	9.0	8.5	8.0	7.6	7.2	6.9	6.6	6.3	6.1	5.8	5.6	5.4	5.2
3	13.6	12.8	12.1	11.5	10.9	10.4	10.0	9.5	9.1	8.8	8.5	8.1	7.9
4	18.3	17.3	16.3	15.5	14.7	14.0	13.4	12.8	12.3	11.8	11.4	10.9	10.5
5	23.2	21.8	20.6	19.5	18.6	17.7	16.9	16.1	15.5	14.9	14.3	13.8	13.3
6	28.2	26.5	25.0	23.7	22.5	21.4	20.4	19.5	18.7	18.0	17.3	16.6	16.0
7	33.4	31.4	29.6	28.0	26.5	25.2	24.1	23.0	22.0	21.1	20.3	19.5	18.8
8	38.8	36.4	34.2	32.4	30.7	29.2	27.8	26.5	25.4	24.4	23.4	22.5	21.7
9	44.4	41.6	39.1	36.9	34.9	33.2	31.6	30.2	28.8	27.6	26.5	25.5	24.6
10	50.4	47.1	44.2	41.6	39.3	37.3	35.5	33.9	32.4	31.0	29.7	28.6	27.5
11	56.8	52.9	49.5	46.5	43.9	41.6	39.5	37.7	36.0	34.4	33.0	31.7	30.5
12	63.9	59.1	55.1	51.7	48.7	46.1	43.7	41.6	39.7	38.0	36.4	34.9	33.6
13	72.3	66.1	61.2	57.2	53.7	50.7	48.1	45.7	43.5	41.6	39.8	38.2	36.7
14		74.6	68.1	63.2	59.1	55.7	52.6	49.9	47.5	45.4	43.4	41.6	40.0
15			76.9	70.1	65.1	61.0	57.5	54.4	51.7	49.3	47.1	45.1	43.3
16				79.6	71.9	66.8	62.7	59.1	56.1	53.4	50.9	48.7	46.7
17						73.7	68.5	64.3	60.7	57.7	54.9	52.5	50.2
18							75.6	70.1	65.8	62.3	59.2	56.4	53.9
19								77.4	71.6	67.3	63.7	60.6	57.8
20									79.6	73.2	68.7	65.1	61.9
M 21											74.7	70.1	66.4
22												76.2	71.4
I 23													77.8
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 10.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	4.3	4.0	3.8	3.6	3.4	3.3	3.1	3.0	2.9	2.8	2.7	2.6	2.5
	2	8.6	8.1	7.7	7.3	7.0	6.6	6.3	6.1	5.8	5.6	5.4	5.2	5.0
	3	13.1	12.3	11.7	11.1	10.5	10.0	9.6	9.2	8.8	8.4	8.1	7.8	7.5
	4	17.7	16.6	15.7	14.9	14.1	13.5	12.9	12.3	11.8	11.3	10.9	10.5	10.1
	5	22.3	21.0	19.8	18.8	17.8	17.0	16.2	15.5	14.8	14.2	13.7	13.2	12.7
	6	27.1	25.5	24.0	22.7	21.6	20.5	19.6	18.7	17.9	17.2	16.5	15.9	15.3
	7	32.1	30.1	28.4	26.8	25.4	24.2	23.1	22.0	21.1	20.2	19.4	18.7	18.0
	8	37.2	34.9	32.8	31.0	29.4	27.9	26.6	25.4	24.3	23.3	22.4	21.5	20.7
	9	42.6	39.8	37.4	35.3	33.4	31.7	30.2	28.8	27.6	26.4	25.4	24.4	23.5
	10	48.2	45.0	42.2	39.8	37.6	35.7	33.9	32.4	30.9	29.6	28.4	27.3	26.3
	11	54.1	50.4	47.2	44.4	41.9	39.7	37.7	36.0	34.4	32.9	31.5	30.3	29.1
	12	60.6	56.2	52.4	49.2	46.4	43.9	41.7	39.7	37.9	36.2	34.7	33.3	32.1
	13	67.9	62.5	58.0	54.3	51.1	48.3	45.7	43.5	41.5	39.6	38.0	36.4	35.0
	14	77.1	69.6	64.2	59.8	56.0	52.8	50.0	47.5	45.2	43.2	41.3	39.6	38.1
	15		79.2	71.2	65.8	61.4	57.7	54.4	51.6	49.1	46.8	44.8	42.9	41.2
	16				72.7	67.2	62.9	59.2	55.9	53.1	50.6	48.3	46.2	44.4
	17					74.2	68.6	64.3	60.6	57.4	54.5	52.0	49.7	47.7
	18						75.6	70.0	65.6	61.9	58.7	55.9	53.3	51.1
	19							77.0	71.2	66.8	63.1	59.9	57.1	54.6
	20								78.5	72.4	68.0	64.3	61.1	58.3
M	21									80.2	73.6	69.1	65.4	62.3
	22											74.7	70.2	66.5
I	23												75.9	71.2
	24													77.0
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 11.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	4.1	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.7	2.6	2.5	2.4
	2	8.4	7.9	7.4	7.0	6.7	6.4	6.1	5.8	5.6	5.4	5.2	5.0	4.8
	3	12.6	11.9	11.2	10.7	10.1	9.6	9.2	8.8	8.4	8.1	7.8	7.5	7.2
	4	17.0	16.0	15.1	14.3	13.6	13.0	12.4	11.8	11.3	10.9	10.5	10.1	9.7
	5	21.5	20.2	19.1	18.1	17.2	16.3	15.6	14.9	14.3	13.7	13.2	12.7	12.2
	6	26.1	24.5	23.1	21.9	20.8	19.8	18.8	18.0	17.2	16.5	15.9	15.3	14.7
	7	30.9	29.0	27.3	25.8	24.5	23.2	22.2	21.2	20.3	19.4	18.7	17.9	17.3
	8	35.8	33.5	31.5	29.8	28.2	26.8	25.5	24.4	23.3	22.4	21.5	20.6	19.9
	9	40.9	38.2	35.9	33.9	32.1	30.5	29.0	27.7	26.4	25.3	24.3	23.4	22.5
	10	46.2	43.1	40.5	38.1	36.0	34.2	32.5	31.0	29.6	28.4	27.2	26.2	25.2
	11	51.8	48.2	45.2	42.5	40.1	38.0	36.1	34.4	32.9	31.5	30.2	29.0	27.9
	12	57.7	53.6	50.1	47.0	44.3	42.0	39.9	37.9	36.2	34.6	33.2	31.9	30.7
	13	64.3	59.4	55.3	51.8	48.7	46.1	43.7	41.6	39.6	37.9	36.3	34.8	33.5
	14	71.8	65.7	60.8	56.8	53.3	50.3	47.7	45.3	43.1	41.2	39.4	37.8	36.3
	15		73.1	67.0	62.2	58.2	54.8	51.8	49.1	46.8	44.6	42.7	40.9	39.3
	16			74.2	68.2	63.5	59.5	56.1	53.2	50.5	48.1	46.0	44.1	42.3
	17				75.3	69.3	64.6	60.7	57.4	54.4	51.8	49.4	47.3	45.4
	18					76.4	70.3	65.7	61.9	58.5	55.6	53.0	50.7	48.5
	19						77.4	71.3	66.7	62.9	59.6	56.7	54.1	51.8
	20							78.4	72.2	67.7	63.9	60.7	57.8	55.2
M	21								79.5	73.1	68.6	64.9	61.6	58.8
	22									80.6	74.0	69.5	65.7	62.5
I	23											74.8	70.3	66.6
	24												75.5	71.0
C	25													76.3
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 12.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	4.0	3.8	3.6	3.4	3.2	3.1	2.9	2.8	2.7	2.6	2.5	2.4	2.3
	2	8.1	7.6	7.2	6.8	6.5	6.2	5.9	5.6	5.4	5.2	5.0	4.8	4.6
	3	12.2	11.5	10.9	10.3	9.8	9.3	8.9	8.5	8.1	7.8	7.5	7.2	7.0
	4	16.5	15.5	14.6	13.8	13.1	12.5	11.9	11.4	10.9	10.5	10.1	9.7	9.3
	5	20.8	19.5	18.4	17.4	16.5	15.7	15.0	14.3	13.7	13.2	12.7	12.2	11.7
	6	25.2	23.7	22.3	21.1	20.0	19.0	18.1	17.3	16.6	15.9	15.3	14.7	14.2
	7	29.8	27.9	26.3	24.9	23.6	22.4	21.3	20.4	19.5	18.7	17.9	17.3	16.6
	8	34.5	32.3	30.4	28.7	27.2	25.8	24.6	23.4	22.4	21.5	20.6	19.8	19.1
	9	39.3	36.8	34.6	32.6	30.8	29.3	27.9	26.6	25.4	24.3	23.4	22.5	21.6
	10	44.4	41.4	38.9	36.6	34.6	32.8	31.2	29.8	28.5	27.2	26.1	25.1	24.2
	11	49.6	46.3	43.3	40.8	38.5	36.5	34.7	33.0	31.6	30.2	29.0	27.8	26.8
	12	55.2	51.3	48.0	45.1	42.5	40.2	38.2	36.4	34.7	33.2	31.8	30.6	29.4
	13	61.2	56.7	52.8	49.5	46.7	44.1	41.8	39.8	38.0	36.3	34.8	33.4	32.1
	14	67.9	62.4	58.0	54.2	51.0	48.1	45.6	43.3	41.3	39.4	37.8	36.2	34.8
	15	75.9	68.8	63.5	59.2	55.5	52.3	49.5	46.9	44.7	42.7	40.8	39.1	37.6
	16		76.6	69.7	64.5	60.3	56.6	53.5	50.7	48.2	46.0	43.9	42.1	40.4
	17			77.3	70.5	65.4	61.3	57.7	54.6	51.9	49.4	47.2	45.2	43.3
	18				77.9	71.2	66.3	62.2	58.7	55.7	52.9	50.5	48.3	46.3
	19					78.6	71.9	67.1	63.1	59.6	56.6	53.9	51.5	49.3
	20						79.1	72.6	67.8	63.9	60.5	57.5	54.9	52.5
M	21							79.7	73.2	68.5	64.6	61.3	58.4	55.8
	22								80.3	73.7	69.1	65.4	62.1	59.2
I	23									80.9	74.3	69.7	66.0	62.8
	24										81.7	74.8	70.3	66.6
C	25												75.2	70.8
R	26													75.7
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 13.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.9	3.7	3.5	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4	2.3	2.2
2	7.8	7.4	7.0	6.6	6.3	6.0	5.7	5.4	5.2	5.0	4.8	4.6	4.5
3	11.9	11.2	10.5	10.0	9.5	9.0	8.6	8.2	7.9	7.5	7.2	7.0	6.7
4	16.0	15.0	14.1	13.4	12.7	12.1	11.5	11.0	10.5	10.1	9.7	9.3	9.0
5	20.1	18.9	17.8	16.9	16.0	15.2	14.5	13.8	13.3	12.7	12.2	11.7	11.3
6	24.4	22.9	21.6	20.4	19.3	18.4	17.5	16.7	16.0	15.3	14.7	14.2	13.6
7	28.8	27.0	25.4	24.0	22.7	21.6	20.6	19.6	18.8	18.0	17.3	16.6	16.0
8	33.3	31.2	29.3	27.7	26.2	24.9	23.7	22.6	21.6	20.7	19.9	19.1	18.4
9	37.9	35.5	33.3	31.4	29.7	28.2	26.8	25.6	24.5	23.4	22.5	21.6	20.8
10	42.7	39.9	37.4	35.3	33.3	31.6	30.1	28.7	27.4	26.2	25.2	24.2	23.3
11	47.7	44.5	41.7	39.2	37.1	35.1	33.4	31.8	30.4	29.0	27.8	26.7	25.7
12	53.0	49.3	46.1	43.3	40.9	38.7	36.7	35.0	33.4	31.9	30.6	29.4	28.2
13	58.6	54.3	50.7	47.5	44.8	42.3	40.2	38.2	36.5	34.9	33.4	32.0	30.8
14	64.6	59.6	55.5	51.9	48.8	46.1	43.7	41.6	39.6	37.8	36.2	34.8	33.4
15	71.4	65.4	60.6	56.5	53.1	50.0	47.4	45.0	42.8	40.9	39.1	37.5	36.0
16	80.6	71.9	66.1	61.4	57.5	54.1	51.1	48.5	46.2	44.0	42.1	40.3	38.7
17		80.7	72.4	66.7	62.2	58.4	55.1	52.2	49.6	47.2	45.1	43.2	41.5
18			80.8	72.8	67.3	62.9	59.2	56.0	53.1	50.6	48.3	46.2	44.3
19				80.8	73.1	67.9	63.6	60.0	56.8	54.0	51.5	49.2	47.2
20					80.9	73.4	68.4	64.2	60.7	57.6	54.8	52.3	50.1
M 21						80.9	73.7	68.8	64.8	61.3	58.3	55.6	53.1
22							81.0	74.0	69.2	65.3	61.9	59.0	56.3
I 23								81.0	74.3	69.6	65.8	62.5	59.6
24									81.1	74.5	70.0	66.3	63.0
C 25										81.1	74.7	70.3	66.7
R 26											81.1	75.0	70.7
27												81.2	75.1
O 28													81.2
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 14.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	3.8	3.6	3.4	3.2	3.0	2.9	2.7	2.6	2.5	2.4	2.3	2.2	2.1
	2	7.6	7.2	6.8	6.4	6.1	5.8	5.5	5.3	5.0	4.8	4.6	4.5	4.3
	3	11.5	10.8	10.2	9.7	9.2	8.7	8.3	7.9	7.6	7.3	7.0	6.7	6.5
	4	15.5	14.6	13.7	13.0	12.3	11.7	11.1	10.6	10.2	9.8	9.4	9.0	8.7
	5	19.5	18.3	17.3	16.3	15.5	14.7	14.0	13.4	12.8	12.3	11.8	11.3	10.9
	6	23.7	22.2	20.9	19.7	18.7	17.8	16.9	16.2	15.5	14.8	14.2	13.7	13.2
	7	27.9	26.1	24.6	23.2	22.0	20.9	19.9	19.0	18.1	17.4	16.7	16.0	15.4
	8	32.2	30.2	28.4	26.7	25.3	24.0	22.9	21.8	20.9	20.0	19.2	18.4	17.7
	9	36.7	34.3	32.2	30.4	28.7	27.2	25.9	24.7	23.6	22.6	21.7	20.8	20.1
	10	41.3	38.5	36.2	34.1	32.2	30.5	29.0	27.6	26.4	25.3	24.2	23.3	22.4
	11	46.0	42.9	40.2	37.8	35.7	33.8	32.2	30.6	29.3	28.0	26.8	25.8	24.8
	12	51.0	47.5	44.4	41.7	39.4	37.3	35.4	33.7	32.1	30.7	29.5	28.3	27.2
	13	56.2	52.2	48.7	45.7	43.1	40.8	38.7	36.8	35.1	33.5	32.1	30.8	29.6
	14	61.8	57.2	53.2	49.9	46.9	44.3	42.0	40.0	38.1	36.4	34.8	33.4	32.1
	15	68.0	62.5	58.0	54.2	50.9	48.0	45.5	43.2	41.2	39.3	37.6	36.1	34.6
	16	75.1	68.3	63.1	58.7	55.1	51.9	49.1	46.6	44.3	42.3	40.4	38.7	37.2
	17		75.0	68.6	63.6	59.4	55.9	52.7	50.0	47.5	45.3	43.3	41.5	39.8
	18			75.0	68.9	64.1	60.0	56.6	53.6	50.9	48.4	46.3	44.3	42.5
	19				74.9	69.1	64.5	60.6	57.3	54.3	51.7	49.3	47.1	45.2
	20					74.9	69.3	64.9	61.1	57.9	55.0	52.4	50.1	48.0
M	21						74.8	69.5	65.3	61.6	58.4	55.6	53.1	50.8
	22							74.8	69.7	65.6	62.1	59.0	56.2	53.7
I	23								74.8	69.9	65.9	62.5	59.5	56.8
	24								81.7	74.8	70.1	66.2	62.9	59.9
C	25									81.2	74.7	70.2	66.5	63.2
R	26										80.8	74.7	70.3	66.7
	27											80.4	74.7	70.5
O	28												80.1	74.7
	29													79.8
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 15.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.7	3.5	3.3	3.1	2.9	2.8	2.7	2.5	2.4	2.3	2.2	2.2	2.1
	2	7.4	7.0	6.6	6.2	5.9	5.6	5.3	5.1	4.9	4.7	4.5	4.3	4.2
	3	11.2	10.5	9.9	9.4	8.9	8.5	8.1	7.7	7.4	7.1	6.8	6.5	6.3
	4	15.1	14.1	13.3	12.6	11.9	11.3	10.8	10.3	9.9	9.5	9.1	8.7	8.4
	5	19.0	17.8	16.8	15.8	15.0	14.3	13.6	13.0	12.4	11.9	11.4	11.0	10.6
	6	23.0	21.5	20.3	19.1	18.1	17.2	16.4	15.6	15.0	14.3	13.8	13.2	12.7
	7	27.1	25.4	23.8	22.5	21.3	20.2	19.2	18.4	17.5	16.8	16.1	15.5	14.9
	8	31.3	29.2	27.5	25.9	24.5	23.3	22.1	21.1	20.2	19.3	18.5	17.8	17.1
	9	35.6	33.2	31.2	29.4	27.8	26.4	25.1	23.9	22.8	21.9	21.0	20.1	19.4
	10	40.0	37.3	35.0	32.9	31.1	29.5	28.0	26.7	25.5	24.4	23.4	22.5	21.6
	11	44.5	41.5	38.9	36.6	34.5	32.7	31.1	29.6	28.2	27.0	25.9	24.9	23.9
	12	49.2	45.8	42.9	40.3	38.0	36.0	34.1	32.5	31.0	29.7	28.4	27.3	26.2
	13	54.2	50.3	47.0	44.1	41.6	39.3	37.3	35.5	33.8	32.3	31.0	29.7	28.6
	14	59.4	55.0	51.3	48.0	45.2	42.7	40.5	38.5	36.7	35.1	33.6	32.2	31.0
	15	65.0	59.9	55.7	52.1	49.0	46.2	43.8	41.6	39.6	37.9	36.2	34.7	33.4
	16	71.3	65.3	60.4	56.4	52.9	49.9	47.2	44.8	42.6	40.7	38.9	37.3	35.8
	17	79.0	71.1	65.5	60.9	57.0	53.6	50.7	48.0	45.7	43.6	41.7	39.9	38.3
	18		78.2	71.0	65.7	61.3	57.5	54.3	51.4	48.8	46.5	44.4	42.6	40.8
	19			77.6	70.9	65.8	61.6	58.0	54.9	52.1	49.6	47.3	45.3	43.4
	20				77.1	70.8	66.0	61.9	58.5	55.4	52.7	50.2	48.0	46.0
M	21					76.6	70.7	66.1	62.2	58.9	55.9	53.3	50.9	48.7
	22						76.2	70.6	66.2	62.5	59.3	56.4	53.8	51.5
I	23							75.8	70.6	66.4	62.8	59.6	56.8	54.3
	24								75.5	70.5	66.5	63.0	59.9	57.2
C	25								82.2	75.2	70.4	66.6	63.2	60.2
R	26									81.2	74.9	70.4	66.7	63.4
	27										80.5	74.6	70.3	66.7
O	28											79.8	74.4	70.3
	29												79.3	74.2
V	30													78.8
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 16.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.6	3.4	3.2	3.0	2.8	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0
	2	7.2	6.8	6.4	6.0	5.7	5.4	5.2	5.0	4.7	4.5	4.4	4.2	4.0
	3	10.9	10.2	9.7	9.1	8.6	8.2	7.8	7.5	7.1	6.9	6.6	6.3	6.1
	4	14.7	13.8	13.0	12.2	11.6	11.0	10.5	10.0	9.6	9.2	8.8	8.5	8.2
	5	18.5	17.3	16.3	15.4	14.6	13.8	13.2	12.6	12.0	11.5	11.1	10.6	10.2
	6	22.4	20.9	19.7	18.6	17.6	16.7	15.9	15.2	14.5	13.9	13.3	12.8	12.3
	7	26.3	24.6	23.1	21.8	20.7	19.6	18.7	17.8	17.0	16.3	15.6	15.0	14.5
	8	30.4	28.4	26.7	25.1	23.8	22.5	21.4	20.4	19.5	18.7	17.9	17.2	16.6
	9	34.5	32.2	30.2	28.5	26.9	25.5	24.3	23.1	22.1	21.2	20.3	19.5	18.7
	10	38.8	36.2	33.9	31.9	30.1	28.6	27.1	25.9	24.7	23.6	22.7	21.8	20.9
	11	43.1	40.2	37.6	35.4	33.4	31.6	30.1	28.6	27.3	26.1	25.0	24.0	23.1
	12	47.6	44.3	41.5	39.0	36.8	34.8	33.0	31.4	30.0	28.7	27.5	26.4	25.4
	13	52.3	48.6	45.4	42.6	40.2	38.0	36.0	34.3	32.7	31.3	29.9	28.7	27.6
	14	57.3	53.1	49.5	46.4	43.7	41.3	39.1	37.2	35.5	33.9	32.4	31.1	29.9
	15	62.5	57.7	53.7	50.3	47.3	44.6	42.3	40.2	38.3	36.5	35.0	33.5	32.2
	16	68.2	62.6	58.1	54.3	51.0	48.0	45.5	43.2	41.1	39.2	37.5	36.0	34.5
	17	74.6	68.0	62.8	58.5	54.8	51.6	48.8	46.3	44.0	42.0	40.1	38.5	36.9
	18		73.9	67.8	62.9	58.8	55.3	52.2	49.4	47.0	44.8	42.8	41.0	39.3
	19		81.9	73.4	67.6	63.0	59.1	55.7	52.7	50.1	47.7	45.5	43.6	41.8
	20			80.3	72.9	67.5	63.1	59.3	56.1	53.2	50.6	48.3	46.2	44.3
M	21				79.2	72.4	67.4	63.2	59.6	56.4	53.6	51.1	48.9	46.8
	22					78.2	72.0	67.2	63.3	59.8	56.8	54.1	51.6	49.4
I	23						77.4	71.7	67.1	63.3	60.0	57.1	54.5	52.1
	24							76.7	71.3	67.1	63.4	60.2	57.4	54.8
C	25								76.1	71.1	67.0	63.5	60.4	57.6
R	26								82.6	75.5	70.8	66.9	63.5	60.5
	27									81.2	75.0	70.5	66.8	63.6
O	28										80.2	74.6	70.3	66.7
	29											79.4	74.2	70.1
V	30												78.6	73.8
O	31													78.0
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 17.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.5	3.3	3.1	2.9	2.8	2.6	2.5	2.4	2.3	2.2	2.1	2.0	2.0
2	7.1	6.6	6.2	5.9	5.6	5.3	5.0	4.8	4.6	4.4	4.2	4.1	3.9
3	10.7	10.0	9.4	8.9	8.4	8.0	7.6	7.3	6.9	6.7	6.4	6.1	5.9
4	14.3	13.4	12.6	11.9	11.3	10.7	10.2	9.7	9.3	8.9	8.6	8.2	7.9
5	18.0	16.9	15.9	15.0	14.2	13.5	12.8	12.2	11.7	11.2	10.7	10.3	9.9
6	21.8	20.4	19.2	18.1	17.1	16.2	15.4	14.7	14.1	13.5	12.9	12.4	12.0
7	25.6	24.0	22.5	21.2	20.1	19.0	18.1	17.3	16.5	15.8	15.2	14.6	14.0
8	29.6	27.6	25.9	24.4	23.1	21.9	20.8	19.8	18.9	18.1	17.4	16.7	16.1
9	33.6	31.3	29.4	27.7	26.1	24.8	23.5	22.4	21.4	20.5	19.7	18.9	18.2
10	37.6	35.1	32.9	31.0	29.2	27.7	26.3	25.1	23.9	22.9	21.9	21.1	20.3
11	41.9	39.0	36.5	34.3	32.4	30.7	29.1	27.7	26.5	25.3	24.3	23.3	22.4
12	46.2	43.0	40.2	37.8	35.6	33.7	32.0	30.4	29.0	27.8	26.6	25.5	24.5
13	50.7	47.1	44.0	41.3	38.9	36.8	34.9	33.2	31.6	30.2	29.0	27.8	26.7
14	55.3	51.3	47.9	44.9	42.2	39.9	37.8	36.0	34.3	32.8	31.4	30.1	28.9
15	60.3	55.7	51.9	48.6	45.7	43.1	40.8	38.8	37.0	35.3	33.8	32.4	31.1
16	65.5	60.3	56.0	52.4	49.2	46.4	43.9	41.7	39.7	37.9	36.3	34.7	33.4
17	71.2	65.2	60.4	56.3	52.8	49.8	47.1	44.7	42.5	40.5	38.8	37.1	35.6
18	78.0	70.6	65.0	60.5	56.6	53.2	50.3	47.7	45.3	43.2	41.3	39.5	37.9
19		76.7	70.0	64.8	60.5	56.8	53.6	50.8	48.2	46.0	43.9	42.0	40.3
20			75.7	69.5	64.6	60.6	57.0	53.9	51.2	48.7	46.5	44.5	42.7
M 21				74.7	69.1	64.5	60.6	57.2	54.3	51.6	49.2	47.1	45.1
22				81.4	73.9	68.7	64.3	60.6	57.4	54.5	52.0	49.7	47.6
I 23					79.8	73.2	68.3	64.2	60.7	57.6	54.8	52.3	50.1
24						78.6	72.6	68.0	64.1	60.7	57.7	55.1	52.7
C 25							77.5	72.1	67.7	64.0	60.7	57.9	55.3
R 26								76.6	71.6	67.4	63.9	60.8	58.0
27								82.9	75.8	71.1	67.2	63.8	60.8
O 28									81.2	75.1	70.7	67.0	63.7
29										79.9	74.5	70.3	66.7
V 30											78.9	73.9	70.0
O 31												78.1	73.4
32													77.3
L 33													82.3
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 18.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
								WATER POTENTIAL, NEGATIVE BARS						
	1	3.4	3.2	3.0	2.9	2.7	2.6	2.4	2.3	2.2	2.1	2.1	2.0	1.9
	2	6.9	6.5	6.1	5.7	5.4	5.2	4.9	4.7	4.5	4.3	4.1	4.0	3.8
	3	10.4	9.8	9.2	8.7	8.2	7.8	7.4	7.1	6.8	6.5	6.2	6.0	5.7
	4	14.0	13.1	12.3	11.6	11.0	10.4	9.9	9.5	9.0	8.7	8.3	8.0	7.7
	5	17.6	16.5	15.5	14.6	13.8	13.1	12.5	11.9	11.3	10.9	10.4	10.0	9.6
	6	21.3	19.9	18.7	17.6	16.6	15.8	15.0	14.3	13.7	13.1	12.6	12.1	11.6
	7	25.0	23.4	21.9	20.7	19.5	18.5	17.6	16.8	16.0	15.3	14.7	14.1	13.6
	8	28.8	26.9	25.2	23.8	22.4	21.3	20.2	19.3	18.4	17.6	16.9	16.2	15.6
	9	32.7	30.5	28.6	26.9	25.4	24.1	22.9	21.8	20.8	19.9	19.1	18.3	17.6
	10	36.6	34.2	32.0	30.1	28.4	26.9	25.6	24.3	23.2	22.2	21.3	20.4	19.6
	11	40.7	37.9	35.5	33.3	31.5	29.8	28.3	26.9	25.7	24.6	23.5	22.6	21.7
	12	44.9	41.7	39.0	36.7	34.6	32.7	31.0	29.5	28.2	26.9	25.8	24.7	23.8
	13	49.2	45.7	42.7	40.0	37.7	35.7	33.8	32.2	30.7	29.3	28.1	26.9	25.9
	14	53.6	49.7	46.4	43.5	40.9	38.7	36.7	34.9	33.2	31.7	30.4	29.1	28.0
	15	58.3	53.9	50.2	47.0	44.2	41.8	39.6	37.6	35.8	34.2	32.7	31.4	30.1
	16	63.2	58.3	54.2	50.6	47.6	44.9	42.5	40.4	38.4	36.7	35.1	33.6	32.3
	17	68.4	62.9	58.3	54.4	51.0	48.1	45.5	43.2	41.1	39.2	37.5	35.9	34.5
	18	74.3	67.8	62.6	58.3	54.6	51.4	48.6	46.1	43.8	41.8	39.9	38.2	36.7
	19	81.8	73.2	67.2	62.4	58.3	54.8	51.7	49.0	46.6	44.4	42.4	40.6	38.9
	20		79.6	72.2	66.7	62.2	58.3	55.0	52.0	49.4	47.0	44.9	43.0	41.2
M	21			77.9	71.3	66.2	62.0	58.3	55.1	52.3	49.8	47.5	45.4	43.5
	22				76.6	70.6	65.8	61.8	58.3	55.3	52.5	50.1	47.9	45.9
I	23					75.4	69.9	65.4	61.6	58.3	55.4	52.8	50.4	48.3
	24					81.4	74.4	69.3	65.1	61.5	58.3	55.5	53.0	50.7
C	25						79.7	73.5	68.8	64.8	61.4	58.3	55.6	53.2
R	26							78.3	72.7	68.3	64.5	61.3	58.3	55.7
	27								77.1	72.0	67.8	64.3	61.1	58.3
O	28								83.1	76.1	71.4	67.4	64.0	61.0
	29									81.1	75.2	70.8	67.1	63.8
V	30										79.7	74.4	70.3	66.7
O	31											78.5	73.7	69.8
	32												77.5	73.1
L	33												82.5	76.6
	34													80.9
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 19.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.4	3.1	3.0	2.8	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.9
	2	6.7	6.3	5.9	5.6	5.3	5.0	4.8	4.6	4.4	4.2	4.0	3.9	3.7
	3	10.2	9.5	9.0	8.4	8.0	7.6	7.2	6.9	6.6	6.3	6.0	5.8	5.6
	4	13.7	12.8	12.0	11.3	10.7	10.2	9.7	9.2	8.8	8.4	8.1	7.8	7.5
	5	17.2	16.1	15.1	14.2	13.4	12.8	12.1	11.6	11.0	10.6	10.1	9.7	9.4
	6	20.8	19.4	18.2	17.2	16.2	15.4	14.6	13.9	13.3	12.7	12.2	11.7	11.3
	7	24.4	22.8	21.4	20.1	19.0	18.0	17.1	16.3	15.6	14.9	14.3	13.7	13.2
	8	28.1	26.2	24.6	23.1	21.9	20.7	19.7	18.7	17.9	17.1	16.4	15.8	15.1
	9	31.9	29.7	27.8	26.2	24.7	23.4	22.2	21.2	20.2	19.3	18.5	17.8	17.1
	10	35.7	33.3	31.1	29.3	27.6	26.2	24.8	23.6	22.6	21.6	20.7	19.8	19.1
	11	39.6	36.9	34.5	32.4	30.6	28.9	27.5	26.1	24.9	23.8	22.8	21.9	21.1
	12	43.6	40.6	37.9	35.6	33.6	31.8	30.1	28.7	27.3	26.1	25.0	24.0	23.1
	13	47.8	44.4	41.4	38.9	36.6	34.6	32.8	31.2	29.8	28.4	27.2	26.1	25.1
	14	52.0	48.3	45.0	42.2	39.7	37.5	35.6	33.8	32.2	30.8	29.5	28.2	27.1
	15	56.5	52.3	48.7	45.6	42.9	40.5	38.4	36.4	34.7	33.1	31.7	30.4	29.2
	16	61.1	56.4	52.5	49.1	46.1	43.5	41.2	39.1	37.2	35.5	34.0	32.6	31.3
	17	66.0	60.7	56.4	52.6	49.4	46.6	44.1	41.8	39.8	38.0	36.3	34.8	33.4
	18	71.3	65.3	60.4	56.3	52.8	49.7	47.0	44.6	42.4	40.4	38.6	37.0	35.5
	19	77.4	70.2	64.7	60.2	56.3	53.0	50.0	47.4	45.0	42.9	41.0	39.3	37.7
	20		75.7	69.3	64.2	59.9	56.3	53.1	50.3	47.7	45.5	43.4	41.6	39.8
M	21		82.8	74.3	68.4	63.7	59.7	56.3	53.2	50.5	48.1	45.9	43.9	42.1
	22			80.2	73.0	67.7	63.3	59.5	56.2	53.3	50.7	48.4	46.2	44.3
I	23				78.3	72.0	67.0	62.9	59.3	56.2	53.4	50.9	48.6	46.6
	24					76.8	71.1	66.5	62.6	59.2	56.2	53.5	51.1	48.9
C	25					83.1	75.5	70.2	65.9	62.3	59.0	56.2	53.6	51.3
R	26						80.7	74.3	69.5	65.5	62.0	58.9	56.2	53.7
	27							79.0	73.3	68.8	65.0	61.7	58.8	56.1
O	28								77.6	72.4	68.2	64.6	61.5	58.7
	29								83.2	76.4	71.6	67.7	64.3	61.3
V	30									81.1	75.3	70.9	67.2	63.9
O	31										79.5	74.3	70.2	66.7
	32											78.2	73.5	69.6
L	33											83.4	77.1	72.7
	34												81.4	76.1
T	35													79.9
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 20.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.3	3.1	2.9	2.7	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.9	1.8
2	6.6	6.2	5.8	5.5	5.2	4.9	4.7	4.5	4.3	4.1	3.9	3.8	3.6
3	10.0	9.3	8.8	8.2	7.8	7.4	7.0	6.7	6.4	6.1	5.9	5.7	5.4
4	13.4	12.5	11.7	11.0	10.4	9.9	9.4	9.0	8.6	8.2	7.9	7.6	7.3
5	16.8	15.7	14.7	13.9	13.1	12.4	11.8	11.3	10.8	10.3	9.9	9.5	9.1
6	20.3	19.0	17.8	16.7	15.8	15.0	14.2	13.6	13.0	12.4	11.9	11.4	11.0
7	23.8	22.2	20.9	19.6	18.5	17.6	16.7	15.9	15.2	14.5	13.9	13.4	12.8
8	27.4	25.6	24.0	22.6	21.3	20.2	19.2	18.2	17.4	16.7	16.0	15.3	14.7
9	31.1	29.0	27.1	25.5	24.1	22.8	21.7	20.6	19.7	18.8	18.0	17.3	16.6
10	34.8	32.4	30.3	28.5	26.9	25.5	24.2	23.0	21.9	21.0	20.1	19.3	18.5
11	38.6	35.9	33.6	31.6	29.8	28.2	26.7	25.4	24.2	23.2	22.2	21.3	20.5
12	42.5	39.5	36.9	34.7	32.7	30.9	29.3	27.9	26.6	25.4	24.3	23.3	22.4
13	46.5	43.2	40.3	37.8	35.6	33.7	31.9	30.3	28.9	27.6	26.4	25.4	24.4
14	50.6	46.9	43.8	41.0	38.6	36.5	34.6	32.8	31.3	29.9	28.6	27.4	26.3
15	54.8	50.8	47.3	44.3	41.6	39.3	37.2	35.4	33.7	32.2	30.8	29.5	28.3
16	59.2	54.7	50.9	47.6	44.7	42.2	40.0	37.9	36.1	34.5	33.0	31.6	30.3
17	63.8	58.8	54.6	51.0	47.9	45.2	42.7	40.6	38.6	36.8	35.2	33.7	32.4
18	68.8	63.1	58.5	54.6	51.2	48.2	45.6	43.2	41.1	39.2	37.5	35.9	34.4
19	74.2	67.7	62.5	58.2	54.5	51.3	48.4	45.9	43.6	41.6	39.7	38.0	36.5
20	80.6	72.6	66.7	62.0	57.9	54.4	51.4	48.6	46.2	44.0	42.0	40.2	38.6
M 21		78.2	71.3	65.9	61.5	57.7	54.4	51.5	48.9	46.5	44.4	42.5	40.7
22			76.3	70.1	65.2	61.0	57.5	54.3	51.5	49.0	46.8	44.7	42.9
I 23			82.6	74.7	69.1	64.5	60.7	57.3	54.3	51.6	49.2	47.0	45.0
24				80.0	73.3	68.2	64.0	60.3	57.1	54.2	51.7	49.4	47.3
C 25					78.1	72.1	67.4	63.4	60.0	56.9	54.2	51.7	49.5
R 26						76.4	71.1	66.7	63.0	59.7	56.8	54.2	51.8
27						81.7	75.1	70.2	66.1	62.5	59.4	56.6	54.1
O 28							79.6	73.9	69.3	65.5	62.1	59.2	56.5
29								78.0	72.8	68.6	65.0	61.8	59.0
V 30								83.3	76.6	71.8	67.9	64.5	61.5
O 31									81.0	75.3	71.0	67.3	64.0
32										79.3	74.3	70.2	66.7
L 33											77.9	73.3	69.5
34											82.3	76.7	72.4
T 35												80.5	75.6
36													79.1
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 21.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	3.2	3.0	2.8	2.7	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.8
	2	6.5	6.0	5.7	5.4	5.1	4.8	4.6	4.3	4.2	4.0	3.8	3.7	3.5
	3	9.8	9.1	8.6	8.1	7.6	7.2	6.9	6.5	6.2	6.0	5.7	5.5	5.3
	4	13.1	12.2	11.5	10.8	10.2	9.7	9.2	8.8	8.4	8.0	7.7	7.4	7.1
	5	16.4	15.4	14.4	13.6	12.8	12.1	11.5	11.0	10.5	10.0	9.6	9.2	8.9
	6	19.9	18.5	17.4	16.3	15.4	14.6	13.9	13.2	12.6	12.1	11.6	11.1	10.7
	7	23.3	21.7	20.4	19.2	18.1	17.1	16.3	15.5	14.8	14.1	13.5	13.0	12.5
	8	26.8	25.0	23.4	22.0	20.8	19.7	18.7	17.8	17.0	16.2	15.5	14.9	14.3
	9	30.4	28.3	26.5	24.9	23.5	22.2	21.1	20.1	19.2	18.3	17.5	16.8	16.2
	10	34.0	31.6	29.6	27.8	26.2	24.8	23.5	22.4	21.4	20.4	19.6	18.8	18.0
	11	37.7	35.0	32.8	30.8	29.0	27.4	26.0	24.7	23.6	22.5	21.6	20.7	19.9
	12	41.4	38.5	36.0	33.8	31.8	30.1	28.5	27.1	25.8	24.7	23.6	22.7	21.8
	13	45.3	42.0	39.2	36.8	34.7	32.8	31.0	29.5	28.1	26.9	25.7	24.6	23.7
	14	49.2	45.7	42.6	39.9	37.6	35.5	33.6	31.9	30.4	29.0	27.8	26.6	25.6
	15	53.3	49.4	46.0	43.1	40.5	38.2	36.2	34.4	32.7	31.3	29.9	28.7	27.5
	16	57.5	53.2	49.5	46.3	43.5	41.0	38.8	36.9	35.1	33.5	32.0	30.7	29.5
	17	61.9	57.1	53.0	49.6	46.5	43.9	41.5	39.4	37.5	35.7	34.2	32.7	31.4
	18	66.5	61.2	56.7	52.9	49.6	46.8	44.2	41.9	39.9	38.0	36.3	34.8	33.4
	19	71.5	65.4	60.5	56.4	52.8	49.7	47.0	44.5	42.3	40.3	38.5	36.9	35.4
	20	77.0	70.0	64.5	60.0	56.1	52.7	49.8	47.2	44.8	42.7	40.8	39.0	37.4
M	21		74.9	68.7	63.7	59.5	55.8	52.6	49.8	47.3	45.1	43.0	41.2	39.5
	22		80.8	73.2	67.6	62.9	59.0	55.6	52.6	49.9	47.5	45.3	43.3	41.5
I	23			78.3	71.7	66.6	62.3	58.6	55.4	52.5	49.9	47.6	45.5	43.6
	24				76.3	70.4	65.7	61.7	58.2	55.2	52.4	50.0	47.8	45.7
C	25				81.7	74.6	69.3	64.9	61.2	57.9	55.0	52.4	50.0	47.9
R	26					79.3	73.1	68.3	64.3	60.7	57.6	54.8	52.3	50.1
	27						77.4	71.9	67.4	63.6	60.3	57.3	54.7	52.3
O	28						82.6	75.8	70.8	66.6	63.1	59.9	57.1	54.6
	29							80.2	74.3	69.8	65.9	62.5	59.5	56.9
V	30								78.3	73.1	68.9	65.3	62.1	59.2
O	31								83.4	76.7	72.0	68.1	64.7	61.6
	32									80.9	75.4	71.0	67.3	64.1
L	33										79.1	74.2	70.1	66.7
	34											77.6	73.1	69.3
T	35											81.6	76.3	72.1
	36												79.8	75.1
	37													78.3
R	38													82.2
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 22.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.2	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.9	1.8	1.7
	2	6.3	5.9	5.6	5.2	4.9	4.7	4.5	4.2	4.1	3.9	3.7	3.6	3.4
	3	9.6	8.9	8.4	7.9	7.4	7.1	6.7	6.4	6.1	5.8	5.6	5.4	5.2
	4	12.8	12.0	11.2	10.6	10.0	9.4	9.0	8.5	8.2	7.8	7.5	7.2	6.9
	5	16.1	15.0	14.1	13.2	12.5	11.8	11.3	10.7	10.2	9.8	9.4	9.0	8.6
	6	19.4	18.1	17.0	16.0	15.1	14.3	13.6	12.9	12.3	11.8	11.3	10.8	10.4
	7	22.8	21.3	19.9	18.7	17.7	16.7	15.9	15.1	14.4	13.8	13.2	12.7	12.2
	8	26.2	24.4	22.9	21.5	20.3	19.2	18.2	17.3	16.5	15.8	15.1	14.5	14.0
	9	29.7	27.6	25.9	24.3	22.9	21.7	20.6	19.6	18.7	17.8	17.1	16.4	15.7
	10	33.2	30.9	28.9	27.1	25.6	24.2	22.9	21.8	20.8	19.9	19.0	18.3	17.5
	11	36.8	34.2	32.0	30.0	28.3	26.7	25.3	24.1	23.0	22.0	21.0	20.2	19.4
	12	40.4	37.6	35.1	32.9	31.0	29.3	27.8	26.4	25.2	24.0	23.0	22.1	21.2
	13	44.2	41.0	38.3	35.9	33.8	31.9	30.2	28.7	27.4	26.1	25.0	24.0	23.0
	14	48.0	44.5	41.5	38.9	36.6	34.5	32.7	31.1	29.6	28.3	27.0	25.9	24.9
	15	51.9	48.1	44.8	41.9	39.4	37.2	35.2	33.4	31.8	30.4	29.1	27.9	26.7
	16	55.9	51.7	48.1	45.0	42.3	39.9	37.8	35.8	34.1	32.6	31.1	29.8	28.6
	17	60.1	55.5	51.5	48.2	45.2	42.6	40.3	38.3	36.4	34.7	33.2	31.8	30.5
	18	64.5	59.3	55.1	51.4	48.2	45.4	42.9	40.7	38.7	36.9	35.3	33.8	32.4
	19	69.1	63.4	58.7	54.7	51.3	48.3	45.6	43.2	41.1	39.2	37.4	35.8	34.4
	20	74.1	67.6	62.4	58.1	54.4	51.2	48.3	45.8	43.5	41.4	39.6	37.9	36.3
M	21	79.8	72.2	66.4	61.6	57.6	54.1	51.1	48.3	45.9	43.7	41.7	39.9	38.3
	22		77.2	70.5	65.3	60.9	57.1	53.9	51.0	48.4	46.0	43.9	42.0	40.3
I	23		83.6	75.0	69.1	64.3	60.3	56.7	53.6	50.9	48.4	46.2	44.1	42.3
	24			80.2	73.2	67.9	63.5	59.7	56.4	53.4	50.8	48.4	46.3	44.3
C	25				77.8	71.7	66.8	62.7	59.2	56.0	53.2	50.7	48.5	46.4
R	26				83.5	75.8	70.3	65.9	62.0	58.7	55.7	53.1	50.7	48.5
	27					80.5	74.1	69.2	65.0	61.4	58.3	55.4	52.9	50.6
O	28						78.2	72.6	68.1	64.2	60.9	57.9	55.2	52.8
	29						83.5	76.4	71.3	67.2	63.5	60.4	57.5	54.9
V	30							80.7	74.8	70.2	66.3	62.9	59.9	57.2
O	31								78.6	73.4	69.2	65.5	62.3	59.5
	32								83.4	76.9	72.2	68.2	64.8	61.8
L	33									80.9	75.4	71.1	67.4	64.2
	34										78.9	74.1	70.1	66.6
T	35										83.4	77.3	72.9	69.2
	36											81.0	75.9	71.8
	37												79.2	74.7
R	38												83.3	77.7
	39													81.2
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 23.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.1	2.9	2.7	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.7
	2	6.2	5.8	5.4	5.1	4.8	4.6	4.4	4.1	4.0	3.8	3.6	3.5	3.3
	3	9.4	8.7	8.2	7.7	7.3	6.9	6.5	6.2	6.0	5.7	5.5	5.2	5.0
	4	12.6	11.7	11.0	10.3	9.7	9.2	8.8	8.3	8.0	7.6	7.3	7.0	6.7
	5	15.8	14.7	13.8	13.0	12.2	11.6	11.0	10.5	10.0	9.5	9.1	8.8	8.4
	6	19.0	17.7	16.6	15.6	14.7	13.9	13.2	12.6	12.0	11.5	11.0	10.6	10.1
	7	22.3	20.8	19.5	18.3	17.2	16.3	15.5	14.7	14.1	13.4	12.9	12.3	11.9
	8	25.7	23.9	22.3	21.0	19.8	18.7	17.8	16.9	16.1	15.4	14.7	14.1	13.6
	9	29.0	27.0	25.3	23.7	22.4	21.2	20.1	19.1	18.2	17.4	16.6	16.0	15.3
	10	32.5	30.2	28.2	26.5	25.0	23.6	22.4	21.3	20.3	19.4	18.5	17.8	17.1
	11	35.9	33.4	31.2	29.3	27.6	26.1	24.7	23.5	22.4	21.4	20.5	19.6	18.9
	12	39.5	36.7	34.2	32.1	30.2	28.6	27.1	25.7	24.5	23.4	22.4	21.5	20.6
	13	43.1	40.0	37.3	35.0	32.9	31.1	29.5	28.0	26.7	25.5	24.3	23.3	22.4
	14	46.8	43.4	40.4	37.9	35.6	33.6	31.9	30.3	28.8	27.5	26.3	25.2	24.2
	15	50.6	46.8	43.6	40.8	38.4	36.2	34.3	32.6	31.0	29.6	28.3	27.1	26.0
	16	54.4	50.3	46.8	43.8	41.2	38.8	36.8	34.9	33.2	31.7	30.3	29.0	27.8
	17	58.4	54.0	50.1	46.9	44.0	41.5	39.2	37.2	35.4	33.8	32.3	30.9	29.7
	18	62.6	57.7	53.5	50.0	46.9	44.2	41.8	39.6	37.7	35.9	34.3	32.9	31.5
	19	66.9	61.5	57.0	53.2	49.8	46.9	44.3	42.0	40.0	38.1	36.4	34.8	33.4
	20	71.6	65.5	60.6	56.4	52.8	49.7	46.9	44.5	42.3	40.3	38.5	36.8	35.3
M	21	76.7	69.7	64.3	59.8	55.9	52.5	49.6	46.9	44.6	42.5	40.5	38.8	37.2
	22	82.9	74.3	68.2	63.2	59.0	55.4	52.3	49.5	47.0	44.7	42.7	40.8	39.1
I	23		79.4	72.3	66.8	62.3	58.4	55.0	52.0	49.4	47.0	44.8	42.8	41.0
	24			76.8	70.6	65.6	61.4	57.8	54.6	51.8	49.3	47.0	44.9	43.0
C	25			82.1	74.7	69.1	64.6	60.7	57.3	54.3	51.6	49.2	47.0	45.0
R	26				79.2	72.8	67.9	63.7	60.0	56.8	54.0	51.4	49.1	47.0
	27					76.9	71.3	66.7	62.8	59.4	56.4	53.7	51.2	49.0
O	28					81.6	75.0	69.9	65.7	62.1	58.9	56.0	53.4	51.1
	29						79.0	73.3	68.7	64.8	61.4	58.4	55.6	53.2
V	30							77.0	71.9	67.6	64.0	60.8	57.9	55.3
O	31							81.1	75.2	70.6	66.7	63.2	60.2	57.5
	32								78.9	73.7	69.4	65.8	62.5	59.7
L	33								83.4	77.0	72.3	68.4	65.0	61.9
	34									80.8	75.4	71.1	67.5	64.2
T	35										78.8	74.0	70.0	66.6
	36										82.8	77.1	72.7	69.0
	37											80.5	75.6	71.6
R	38												78.7	74.3
	39												82.3	77.1
E	40													80.3
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 24.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.0	2.8	2.7	2.5	2.4	2.2	2.1	2.0	1.9	1.8	1.8	1.7	1.6
	2	6.1	5.7	5.3	5.0	4.7	4.5	4.3	4.0	3.9	3.7	3.5	3.4	3.3
	3	9.2	8.6	8.0	7.5	7.1	6.7	6.4	6.1	5.8	5.6	5.3	5.1	4.9
	4	12.3	11.5	10.7	10.1	9.5	9.0	8.6	8.1	7.8	7.4	7.1	6.8	6.6
	5	15.5	14.4	13.5	12.7	11.9	11.3	10.7	10.2	9.7	9.3	8.9	8.6	8.2
	6	18.6	17.4	16.2	15.3	14.4	13.6	12.9	12.3	11.7	11.2	10.7	10.3	9.9
	7	21.8	20.3	19.0	17.9	16.9	15.9	15.1	14.4	13.7	13.1	12.6	12.0	11.6
	8	25.1	23.4	21.8	20.5	19.3	18.3	17.3	16.5	15.7	15.0	14.4	13.8	13.3
	9	28.4	26.4	24.7	23.2	21.8	20.6	19.6	18.6	17.7	17.0	16.2	15.6	15.0
	10	31.7	29.5	27.6	25.9	24.4	23.0	21.8	20.8	19.8	18.9	18.1	17.3	16.7
	11	35.1	32.6	30.5	28.6	26.9	25.4	24.1	22.9	21.8	20.8	20.0	19.1	18.4
	12	38.6	35.8	33.4	31.3	29.5	27.9	26.4	25.1	23.9	22.8	21.8	20.9	20.1
	13	42.1	39.0	36.4	34.1	32.1	30.3	28.7	27.3	26.0	24.8	23.7	22.7	21.8
	14	45.7	42.3	39.4	36.9	34.7	32.8	31.1	29.5	28.1	26.8	25.6	24.6	23.6
	15	49.3	45.7	42.5	39.8	37.4	35.3	33.4	31.7	30.2	28.8	27.6	26.4	25.3
	16	53.0	49.1	45.6	42.7	40.1	37.8	35.8	34.0	32.3	30.8	29.5	28.2	27.1
	17	56.9	52.5	48.8	45.6	42.9	40.4	38.2	36.3	34.5	32.9	31.4	30.1	28.9
	18	60.9	56.1	52.1	48.6	45.6	43.0	40.6	38.6	36.7	35.0	33.4	32.0	30.7
	19	65.0	59.8	55.4	51.7	48.5	45.6	43.1	40.9	38.9	37.0	35.4	33.9	32.5
	20	69.3	63.6	58.8	54.8	51.3	48.3	45.6	43.2	41.1	39.2	37.4	35.8	34.3
M	21	74.0	67.6	62.4	58.0	54.3	51.0	48.2	45.6	43.3	41.3	39.4	37.7	36.2
	22	79.2	71.8	66.0	61.3	57.3	53.8	50.8	48.0	45.6	43.4	41.5	39.7	38.0
I	23		76.3	69.9	64.7	60.4	56.7	53.4	50.5	47.9	45.6	43.5	41.6	39.9
	24		81.6	74.0	68.3	63.6	59.6	56.1	53.0	50.3	47.8	45.6	43.6	41.8
C	25			78.5	72.0	66.9	62.5	58.8	55.6	52.7	50.1	47.7	45.6	43.7
R	26			84.3	76.0	70.3	65.6	61.6	58.2	55.1	52.3	49.9	47.6	45.6
	27				80.5	73.9	68.8	64.5	60.8	57.6	54.7	52.1	49.7	47.6
O	28					77.9	72.2	67.5	63.5	60.1	57.0	54.3	51.8	49.5
	29					82.6	75.8	70.6	66.4	62.7	59.4	56.5	53.9	51.5
V	30						79.7	73.9	69.3	65.3	61.9	58.8	56.1	53.6
O	31							77.5	72.3	68.1	64.4	61.1	58.2	55.6
	32							81.5	75.6	70.9	67.0	63.5	60.5	57.7
L	33								79.1	73.9	69.7	66.0	62.8	59.9
	34								83.4	77.1	72.5	68.5	65.1	62.0
T	35									80.7	75.4	71.1	67.5	64.3
	36										78.6	73.9	70.0	66.6
	37										82.3	76.8	72.6	68.9
R	38											80.1	75.3	71.3
	39											84.1	78.2	73.9
E	40												81.5	76.6
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	50													
	51													
	52													
	53													
	54													
	55													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 25.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.0	2.8	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.7	1.6
	2	6.0	5.6	5.2	4.9	4.6	4.4	4.2	4.0	3.8	3.6	3.5	3.3	3.2
	3	9.0	8.4	7.9	7.4	7.0	6.6	6.3	6.0	5.7	5.4	5.2	5.0	4.8
	4	12.1	11.2	10.5	9.9	9.3	8.8	8.4	8.0	7.6	7.3	6.9	6.7	6.4
	5	15.1	14.1	13.2	12.4	11.7	11.1	10.5	10.0	9.5	9.1	8.7	8.4	8.0
	6	18.2	17.0	15.9	14.9	14.1	13.3	12.6	12.0	11.4	10.9	10.5	10.0	9.7
	7	21.4	19.9	18.6	17.5	16.5	15.6	14.8	14.0	13.4	12.8	12.2	11.7	11.3
	8	24.6	22.9	21.4	20.1	18.9	17.9	16.9	16.1	15.4	14.7	14.0	13.5	12.9
	9	27.8	25.8	24.1	22.6	21.3	20.2	19.1	18.2	17.3	16.5	15.8	15.2	14.6
	10	31.0	28.8	26.9	25.3	23.8	22.5	21.3	20.3	19.3	18.4	17.6	16.9	16.2
	11	34.3	31.9	29.8	27.9	26.3	24.8	23.5	22.4	21.3	20.3	19.5	18.7	17.9
	12	37.7	35.0	32.6	30.6	28.8	27.2	25.8	24.5	23.3	22.3	21.3	20.4	19.6
	13	41.1	38.1	35.5	33.3	31.3	29.6	28.0	26.6	25.3	24.2	23.1	22.2	21.3
	14	44.6	41.3	38.5	36.0	33.9	32.0	30.3	28.8	27.4	26.1	25.0	23.9	23.0
	15	48.1	44.5	41.5	38.8	36.5	34.4	32.6	30.9	29.4	28.1	26.8	25.7	24.7
	16	51.7	47.8	44.5	41.6	39.1	36.9	34.9	33.1	31.5	30.0	28.7	27.5	26.4
	17	55.4	51.2	47.6	44.5	41.8	39.4	37.2	35.3	33.6	32.0	30.6	29.3	28.1
	18	59.2	54.6	50.7	47.4	44.4	41.9	39.6	37.5	35.7	34.0	32.5	31.1	29.9
	19	63.2	58.1	53.9	50.3	47.2	44.4	42.0	39.8	37.8	36.1	34.4	33.0	31.6
	20	67.3	61.8	57.2	53.3	50.0	47.0	44.4	42.1	40.0	38.1	36.4	34.8	33.4
M	21	71.6	65.5	60.6	56.4	52.8	49.6	46.9	44.4	42.2	40.2	38.3	36.7	35.2
	22	76.3	69.5	64.1	59.5	55.7	52.3	49.3	46.7	44.4	42.2	40.3	38.6	37.0
I	23	81.8	73.7	67.7	62.8	58.6	55.0	51.9	49.1	46.6	44.4	42.3	40.5	38.8
	24		78.3	71.5	66.1	61.6	57.8	54.5	51.5	48.9	46.5	44.3	42.4	40.6
C	25		84.0	75.5	69.6	64.8	60.6	57.1	53.9	51.1	48.6	46.4	44.3	42.5
R	26			80.1	73.3	68.0	63.6	59.8	56.4	53.5	50.8	48.4	46.3	44.3
	27				77.3	71.4	66.6	62.5	59.0	55.8	53.0	50.5	48.3	46.2
O	28				81.8	75.0	69.7	65.3	61.6	58.2	55.3	52.7	50.3	48.1
	29					78.9	73.0	68.2	64.2	60.7	57.6	54.8	52.3	50.0
V	30					83.6	76.5	71.3	67.0	63.2	59.9	57.0	54.4	52.0
O	31						80.4	74.5	69.8	65.8	62.3	59.2	56.4	53.9
	32							77.9	72.8	68.5	64.7	61.5	58.6	55.9
L	33							81.9	75.9	71.2	67.3	63.8	60.7	58.0
	34								79.3	74.1	69.9	66.2	62.9	60.0
T	35								83.4	77.2	72.6	68.6	65.2	62.2
	36									80.6	75.4	71.2	67.5	64.3
	37										78.5	73.8	69.9	66.5
R	38										81.9	76.6	72.4	68.8
	39											79.7	75.0	71.1
E	40											83.2	77.8	73.5
A	41												80.8	76.1
	42													78.9
D	43													82.0
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 26.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.9	2.7	2.5	2.4	2.3	2.1	2.0	1.9	1.8	1.8	1.7	1.6	1.6
	2	5.9	5.5	5.1	4.8	4.5	4.3	4.1	3.9	3.7	3.5	3.4	3.2	3.1
	3	8.8	8.2	7.7	7.2	6.8	6.4	6.1	5.8	5.5	5.3	5.1	4.9	4.7
	4	11.8	11.0	10.3	9.7	9.1	8.6	8.2	7.8	7.4	7.1	6.8	6.5	6.3
	5	14.8	13.8	12.9	12.1	11.4	10.8	10.2	9.7	9.3	8.9	8.5	8.2	7.8
	6	17.9	16.6	15.5	14.6	13.8	13.0	12.3	11.7	11.2	10.7	10.2	9.8	9.4
	7	20.9	19.5	18.2	17.1	16.1	15.2	14.4	13.7	13.1	12.5	12.0	11.5	11.0
	8	24.0	22.4	20.9	19.6	18.5	17.5	16.5	15.7	15.0	14.3	13.7	13.1	12.6
	9	27.2	25.3	23.6	22.1	20.8	19.7	18.7	17.7	16.9	16.1	15.5	14.8	14.2
	10	30.4	28.2	26.3	24.7	23.2	22.0	20.8	19.8	18.8	18.0	17.2	16.5	15.8
	11	33.6	31.2	29.1	27.3	25.7	24.2	23.0	21.8	20.8	19.8	19.0	18.2	17.5
	12	36.8	34.2	31.9	29.9	28.1	26.5	25.1	23.9	22.7	21.7	20.8	19.9	19.1
	13	40.2	37.2	34.7	32.5	30.6	28.9	27.3	26.0	24.7	23.6	22.6	21.6	20.7
	14	43.5	40.3	37.6	35.2	33.1	31.2	29.5	28.0	26.7	25.5	24.4	23.3	22.4
	15	46.9	43.5	40.5	37.9	35.6	33.6	31.8	30.2	28.7	27.4	26.2	25.1	24.1
	16	50.4	46.6	43.4	40.6	38.1	36.0	34.0	32.3	30.7	29.3	28.0	26.8	25.7
	17	54.0	49.9	46.4	43.4	40.7	38.4	36.3	34.4	32.7	31.2	29.8	28.6	27.4
	18	57.7	53.2	49.4	46.2	43.3	40.8	38.6	36.6	34.8	33.2	31.7	30.3	29.1
	19	61.5	56.6	52.5	49.0	46.0	43.3	40.9	38.8	36.9	35.1	33.6	32.1	30.8
	20	65.4	60.1	55.7	51.9	48.6	45.8	43.2	41.0	38.9	37.1	35.4	33.9	32.5
M	21	69.5	63.7	58.9	54.9	51.4	48.3	45.6	43.2	41.0	39.1	37.3	35.7	34.2
	22	73.8	67.4	62.2	57.9	54.1	50.9	48.0	45.5	43.2	41.1	39.2	37.5	36.0
I	23	78.6	71.3	65.7	61.0	57.0	53.5	50.5	47.7	45.3	43.2	41.2	39.4	37.7
	24		75.5	69.2	64.2	59.9	56.2	52.9	50.1	47.5	45.2	43.1	41.2	39.5
C	25		80.2	73.0	67.4	62.8	58.9	55.4	52.4	49.7	47.3	45.1	43.1	41.3
R	26			77.0	70.9	65.9	61.7	58.0	54.8	51.9	49.4	47.1	45.0	43.1
	27			81.6	74.5	69.1	64.5	60.6	57.2	54.2	51.5	49.1	46.9	44.9
O	28				78.4	72.4	67.5	63.3	59.7	56.5	53.7	51.1	48.8	46.7
	29				83.1	75.9	70.5	66.1	62.2	58.9	55.9	53.2	50.8	48.6
V	30					79.8	73.7	68.9	64.8	61.3	58.1	55.3	52.8	50.5
O	31						77.2	71.9	67.5	63.7	60.4	57.4	54.8	52.4
	32						81.0	75.0	70.3	66.2	62.7	59.6	56.8	54.3
L	33							78.4	73.1	68.8	65.1	61.8	58.9	56.2
	34							82.2	76.2	71.5	67.5	64.0	61.0	58.2
T	35								79.5	74.3	70.0	66.4	63.1	60.2
	36								83.4	77.3	72.6	68.7	65.3	62.2
	37									80.5	75.4	71.2	67.5	64.3
R	38										78.3	73.7	69.8	66.5
	39										81.6	76.4	72.2	68.6
E	40											79.3	74.7	70.9
A	41											82.6	77.4	73.2
	42												80.2	75.7
D	43												83.6	78.3
	44													81.1
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 27.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.9	2.7	2.5	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.6	1.5
	2	5.7	5.3	5.0	4.7	4.4	4.2	4.0	3.8	3.6	3.4	3.3	3.2	3.0
	3	8.6	8.0	7.5	7.1	6.7	6.3	6.0	5.7	5.4	5.2	5.0	4.8	4.6
	4	11.6	10.8	10.1	9.5	8.9	8.4	8.0	7.6	7.2	6.9	6.6	6.4	6.1
	5	14.5	13.5	12.6	11.9	11.2	10.6	10.0	9.5	9.1	8.7	8.3	8.0	7.6
	6	17.5	16.3	15.2	14.3	13.4	12.7	12.1	11.5	10.9	10.4	10.0	9.6	9.2
	7	20.5	19.1	17.8	16.7	15.7	14.9	14.1	13.4	12.8	12.2	11.7	11.2	10.8
	8	23.5	21.9	20.4	19.2	18.0	17.1	16.2	15.4	14.6	14.0	13.4	12.8	12.3
	9	26.6	24.7	23.1	21.6	20.4	19.2	18.2	17.3	16.5	15.8	15.1	14.5	13.9
	10	29.7	27.6	25.7	24.1	22.7	21.5	20.3	19.3	18.4	17.6	16.8	16.1	15.5
	11	32.8	30.5	28.4	26.6	25.1	23.7	22.4	21.3	20.3	19.4	18.5	17.8	17.0
	12	36.0	33.4	31.2	29.2	27.5	25.9	24.5	23.3	22.2	21.2	20.3	19.4	18.6
	13	39.2	36.4	33.9	31.7	29.9	28.2	26.7	25.3	24.1	23.0	22.0	21.1	20.2
	14	42.5	39.4	36.7	34.3	32.3	30.5	28.8	27.4	26.0	24.9	23.8	22.8	21.8
	15	45.8	42.4	39.5	37.0	34.7	32.8	31.0	29.4	28.0	26.7	25.5	24.4	23.5
	16	49.2	45.5	42.3	39.6	37.2	35.1	33.2	31.5	30.0	28.6	27.3	26.1	25.1
	17	52.7	48.7	45.2	42.3	39.7	37.4	35.4	33.6	31.9	30.4	29.1	27.9	26.7
	18	56.2	51.9	48.2	45.0	42.2	39.8	37.6	35.7	33.9	32.3	30.9	29.6	28.4
	19	59.8	55.1	51.2	47.8	44.8	42.2	39.9	37.8	35.9	34.2	32.7	31.3	30.0
	20	63.6	58.5	54.2	50.6	47.4	44.6	42.1	39.9	37.9	36.2	34.5	33.0	31.7
M	21	67.4	61.9	57.3	53.4	50.0	47.0	44.4	42.1	40.0	38.1	36.4	34.8	33.4
	22	71.5	65.5	60.5	56.3	52.7	49.5	46.7	44.3	42.0	40.0	38.2	36.6	35.0
I	23	75.9	69.2	63.8	59.3	55.4	52.1	49.1	46.5	44.1	42.0	40.1	38.3	36.7
	24	80.8	73.0	67.2	62.3	58.2	54.6	51.5	48.7	46.2	44.0	42.0	40.1	38.5
C	25		77.2	70.7	65.4	61.0	57.2	53.9	51.0	48.4	46.0	43.9	42.0	40.2
R	26		82.0	74.4	68.7	63.9	59.9	56.4	53.3	50.5	48.0	45.8	43.8	41.9
	27			78.4	72.1	66.9	62.6	58.9	55.6	52.7	50.1	47.8	45.6	43.7
O	28			83.2	75.6	70.0	65.4	61.4	58.0	54.9	52.2	49.7	47.5	45.5
	29				79.6	73.3	68.3	64.1	60.4	57.2	54.3	51.7	49.4	47.2
V	30				84.4	76.8	71.3	66.8	62.9	59.5	56.4	53.7	51.3	49.0
O	31					80.6	74.4	69.5	65.4	61.8	58.6	55.8	53.2	50.9
	32						77.8	72.4	68.0	64.2	60.8	57.8	55.1	52.7
L	33						81.5	75.5	70.7	66.6	63.1	59.9	57.1	54.6
	34							78.7	73.5	69.1	65.4	62.1	59.1	56.5
T	35							82.5	76.4	71.7	67.8	64.3	61.2	58.4
	36								79.6	74.5	70.2	66.5	63.3	60.3
	37								83.4	77.3	72.7	68.8	65.4	62.3
R	38									80.5	75.4	71.2	67.5	64.3
	39									84.3	78.2	73.6	69.8	66.4
E	40										81.3	76.2	72.1	68.5
A	41											78.9	74.5	70.7
	42											82.0	77.0	72.9
D	43												79.7	75.3
	44												82.7	77.7
I	45													80.4
N	46													83.5
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 28.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.8	2.6	2.4	2.3	2.2	2.0	1.9	1.8	1.8	1.7	1.6	1.5	1.5
	2	5.6	5.2	4.9	4.6	4.3	4.1	3.9	3.7	3.5	3.4	3.2	3.1	3.0
	3	8.5	7.9	7.4	6.9	6.5	6.2	5.8	5.6	5.3	5.1	4.8	4.6	4.5
	4	11.3	10.5	9.9	9.2	8.7	8.2	7.8	7.4	7.1	6.8	6.5	6.2	6.0
	5	14.2	13.2	12.4	11.6	10.9	10.3	9.8	9.3	8.9	8.5	8.1	7.8	7.5
	6	17.1	15.9	14.9	14.0	13.2	12.4	11.8	11.2	10.7	10.2	9.8	9.4	9.0
	7	20.1	18.6	17.4	16.3	15.4	14.5	13.8	13.1	12.5	11.9	11.4	10.9	10.5
	8	23.0	21.4	20.0	18.7	17.6	16.7	15.8	15.0	14.3	13.7	13.1	12.5	12.0
	9	26.0	24.2	22.6	21.2	19.9	18.8	17.8	16.9	16.1	15.4	14.7	14.1	13.6
	10	29.0	27.0	25.2	23.6	22.2	21.0	19.9	18.9	18.0	17.1	16.4	15.7	15.1
	11	32.1	29.8	27.8	26.0	24.5	23.1	21.9	20.8	19.8	18.9	18.1	17.3	16.6
	12	35.2	32.6	30.4	28.5	26.8	25.3	24.0	22.8	21.7	20.7	19.8	18.9	18.2
	13	38.3	35.5	33.1	31.0	29.2	27.5	26.0	24.7	23.5	22.5	21.5	20.6	19.7
	14	41.5	38.5	35.8	33.5	31.5	29.7	28.1	26.7	25.4	24.3	23.2	22.2	21.3
	15	44.7	41.4	38.6	36.1	33.9	32.0	30.2	28.7	27.3	26.1	24.9	23.9	22.9
	16	48.0	44.4	41.3	38.6	36.3	34.2	32.4	30.7	29.2	27.9	26.6	25.5	24.5
	17	51.4	47.5	44.1	41.2	38.7	36.5	34.5	32.7	31.1	29.7	28.4	27.2	26.1
	18	54.8	50.6	47.0	43.9	41.2	38.8	36.7	34.8	33.1	31.5	30.1	28.8	27.7
	19	58.3	53.7	49.9	46.6	43.7	41.1	38.9	36.8	35.0	33.4	31.9	30.5	29.3
	20	61.9	56.9	52.8	49.3	46.2	43.5	41.1	38.9	37.0	35.2	33.7	32.2	30.9
M	21	65.6	60.2	55.8	52.0	48.7	45.8	43.3	41.0	39.0	37.1	35.4	33.9	32.5
	22	69.4	63.6	58.9	54.8	51.3	48.2	45.5	43.1	41.0	39.0	37.2	35.6	34.2
I	23	73.5	67.2	62.0	57.7	53.9	50.7	47.8	45.3	43.0	40.9	39.1	37.4	35.8
	24	77.9	70.8	65.2	60.6	56.6	53.2	50.1	47.4	45.0	42.9	40.9	39.1	37.5
C	25	83.0	74.7	68.6	63.6	59.3	55.7	52.5	49.6	47.1	44.8	42.7	40.9	39.1
R	26		78.9	72.0	66.6	62.1	58.2	54.8	51.8	49.2	46.8	44.6	42.6	40.8
	27		83.9	75.7	69.8	65.0	60.8	57.2	54.1	51.3	48.8	46.5	44.4	42.5
O	28			79.8	73.2	67.9	63.5	59.7	56.4	53.4	50.8	48.4	46.2	44.2
	29			84.9	76.7	71.0	66.2	62.2	58.7	55.6	52.8	50.3	48.0	46.0
V	30				80.6	74.2	69.1	64.8	61.0	57.8	54.9	52.2	49.9	47.7
O	31					77.6	72.0	67.4	63.5	60.0	56.9	54.2	51.7	49.5
	32					81.3	75.1	70.1	65.9	62.3	59.1	56.2	53.6	51.2
L	33						78.4	72.9	68.5	64.6	61.2	58.2	55.5	53.0
	34						82.0	75.9	71.1	67.0	63.4	60.3	57.4	54.9
T	35							79.1	73.8	69.4	65.7	62.3	59.4	56.7
	36							82.7	76.7	72.0	68.0	64.5	61.4	58.6
	37								79.7	74.6	70.3	66.6	63.4	60.5
R	38								83.3	77.4	72.8	68.9	65.4	62.4
	39									80.4	75.3	71.2	67.5	64.3
E	40									83.9	78.0	73.5	69.7	66.3
A	41										81.0	76.0	71.9	68.4
	42										84.6	78.6	74.2	70.5
D	43											81.5	76.6	72.6
	44												79.2	74.9
I	45												82.0	77.2
N	46													79.7
	47													82.5
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 29.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.7	2.6	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.6	1.5	1.4
	2	5.5	5.1	4.8	4.5	4.2	4.0	3.8	3.6	3.4	3.3	3.2	3.0	2.9
	3	8.3	7.7	7.2	6.8	6.4	6.0	5.7	5.4	5.2	4.9	4.7	4.5	4.4
	4	11.1	10.3	9.6	9.0	8.5	8.1	7.6	7.3	6.9	6.6	6.3	6.1	5.8
	5	13.9	12.9	12.1	11.3	10.7	10.1	9.6	9.1	8.7	8.3	7.9	7.6	7.3
	6	16.8	15.6	14.6	13.7	12.9	12.2	11.5	10.9	10.4	10.0	9.5	9.1	8.8
	7	19.6	18.2	17.0	16.0	15.0	14.2	13.5	12.8	12.2	11.6	11.1	10.7	10.3
	8	22.5	20.9	19.5	18.3	17.2	16.3	15.4	14.7	14.0	13.3	12.8	12.2	11.7
	9	25.5	23.6	22.1	20.7	19.5	18.4	17.4	16.5	15.8	15.0	14.4	13.8	13.2
	10	28.4	26.4	24.6	23.0	21.7	20.5	19.4	18.4	17.5	16.7	16.0	15.4	14.7
	11	31.4	29.1	27.2	25.4	23.9	22.6	21.4	20.3	19.4	18.5	17.7	16.9	16.2
	12	34.4	31.9	29.7	27.9	26.2	24.7	23.4	22.2	21.2	20.2	19.3	18.5	17.8
	13	37.5	34.7	32.3	30.3	28.5	26.9	25.4	24.1	23.0	21.9	21.0	20.1	19.3
	14	40.5	37.6	35.0	32.7	30.8	29.0	27.5	26.1	24.8	23.7	22.6	21.7	20.8
	15	43.7	40.4	37.6	35.2	33.1	31.2	29.5	28.0	26.7	25.4	24.3	23.3	22.3
	16	46.9	43.3	40.3	37.7	35.4	33.4	31.6	30.0	28.5	27.2	26.0	24.9	23.9
	17	50.1	46.3	43.1	40.2	37.8	35.6	33.7	31.9	30.4	29.0	27.7	26.5	25.4
	18	53.4	49.3	45.8	42.8	40.2	37.8	35.8	33.9	32.3	30.8	29.4	28.1	27.0
	19	56.8	52.4	48.6	45.4	42.6	40.1	37.9	35.9	34.2	32.6	31.1	29.8	28.6
	20	60.2	55.5	51.5	48.0	45.0	42.4	40.0	38.0	36.1	34.4	32.8	31.4	30.1
M	21	63.8	58.7	54.4	50.7	47.5	44.7	42.2	40.0	38.0	36.2	34.6	33.1	31.7
	22	67.4	61.9	57.3	53.4	50.0	47.0	44.4	42.0	39.9	38.0	36.3	34.7	33.3
I	23	71.3	65.3	60.3	56.1	52.5	49.4	46.6	44.1	41.9	39.9	38.1	36.4	34.9
	24	75.3	68.7	63.4	58.9	55.1	51.8	48.8	46.2	43.9	41.8	39.9	38.1	36.5
C	25	79.8	72.4	66.6	61.8	57.7	54.2	51.1	48.3	45.9	43.6	41.6	39.8	38.1
R	26		76.2	69.9	64.7	60.4	56.6	53.4	50.5	47.9	45.5	43.4	41.5	39.8
	27		80.5	73.3	67.8	63.1	59.2	55.7	52.6	49.9	47.5	45.3	43.3	41.4
O	28			77.0	70.9	65.9	61.7	58.1	54.8	52.0	49.4	47.1	45.0	43.1
	29			81.0	74.2	68.8	64.3	60.5	57.1	54.1	51.4	49.0	46.8	44.8
V	30				77.7	71.8	67.0	62.9	59.3	56.2	53.4	50.8	48.5	46.4
O	31				81.6	74.9	69.8	65.4	61.6	58.3	55.4	52.7	50.3	48.1
	32					78.3	72.6	68.0	64.0	60.5	57.4	54.6	52.1	49.9
L	33					82.0	75.6	70.6	66.4	62.7	59.5	56.6	54.0	51.6
	34						78.9	73.4	68.9	65.0	61.6	58.5	55.8	53.3
T	35						82.5	76.3	71.4	67.3	63.7	60.5	57.7	55.1
	36							79.4	74.1	69.7	65.9	62.6	59.6	56.9
	37							82.9	76.9	72.1	68.1	64.6	61.5	58.7
R	38								79.8	74.7	70.4	66.7	63.5	60.6
	39								83.3	77.4	72.8	68.9	65.5	62.4
E	40									80.3	75.3	71.1	67.5	64.3
A	41									83.6	77.9	73.4	69.6	66.3
	42										80.7	75.8	71.8	68.3
D	43										84.0	78.3	74.0	70.3
	44											81.1	76.3	72.4
I	45											84.3	78.8	74.5
N	46												81.4	76.8
	47												84.6	79.1
G	48													81.7
	49													85.0
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 30.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.7	2.5	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4
	2	5.4	5.0	4.7	4.4	4.1	3.9	3.7	3.5	3.4	3.2	3.1	3.0	2.8
	3	8.1	7.5	7.1	6.6	6.2	5.9	5.6	5.3	5.1	4.8	4.6	4.4	4.3
	4	10.9	10.1	9.4	8.9	8.3	7.9	7.5	7.1	6.8	6.5	6.2	5.9	5.7
	5	13.6	12.7	11.8	11.1	10.4	9.9	9.4	8.9	8.5	8.1	7.7	7.4	7.1
	6	16.4	15.2	14.2	13.4	12.6	11.9	11.3	10.7	10.2	9.7	9.3	8.9	8.6
	7	19.2	17.8	16.7	15.6	14.7	13.9	13.2	12.5	11.9	11.4	10.9	10.4	10.0
	8	22.0	20.5	19.1	17.9	16.9	15.9	15.1	14.3	13.7	13.0	12.5	12.0	11.5
	9	24.9	23.1	21.6	20.2	19.0	18.0	17.0	16.2	15.4	14.7	14.1	13.5	12.9
	10	27.8	25.8	24.0	22.5	21.2	20.0	19.0	18.0	17.1	16.4	15.6	15.0	14.4
	11	30.7	28.5	26.5	24.9	23.4	22.1	20.9	19.9	18.9	18.0	17.3	16.5	15.9
	12	33.6	31.2	29.1	27.2	25.6	24.2	22.9	21.7	20.7	19.7	18.9	18.1	17.3
	13	36.6	33.9	31.6	29.6	27.8	26.2	24.8	23.6	22.4	21.4	20.5	19.6	18.8
	14	39.6	36.7	34.2	32.0	30.1	28.3	26.8	25.5	24.2	23.1	22.1	21.2	20.3
	15	42.6	39.5	36.8	34.4	32.3	30.5	28.8	27.4	26.0	24.8	23.7	22.7	21.8
	16	45.7	42.3	39.4	36.8	34.6	32.6	30.8	29.3	27.8	26.5	25.4	24.3	23.3
	17	48.9	45.2	42.0	39.3	36.9	34.8	32.9	31.2	29.7	28.3	27.0	25.9	24.8
	18	52.1	48.1	44.7	41.8	39.2	36.9	34.9	33.1	31.5	30.0	28.7	27.5	26.3
	19	55.3	51.1	47.4	44.3	41.5	39.1	37.0	35.1	33.3	31.8	30.4	29.1	27.9
	20	58.7	54.1	50.2	46.8	43.9	41.3	39.1	37.0	35.2	33.5	32.0	30.7	29.4
M	21	62.1	57.1	53.0	49.4	46.3	43.6	41.2	39.0	37.1	35.3	33.7	32.3	30.9
	22	65.6	60.3	55.8	52.0	48.7	45.8	43.3	41.0	38.9	37.1	35.4	33.9	32.5
I	23	69.2	63.5	58.7	54.7	51.2	48.1	45.4	43.0	40.8	38.9	37.1	35.5	34.0
	24	73.0	66.8	61.7	57.4	53.7	50.4	47.6	45.0	42.8	40.7	38.9	37.2	35.6
C	25	77.1	70.2	64.7	60.1	56.2	52.8	49.8	47.1	44.7	42.5	40.6	38.8	37.2
R	26	81.7	73.8	67.9	62.9	58.8	55.1	52.0	49.2	46.6	44.4	42.3	40.5	38.8
	27		77.7	71.1	65.8	61.4	57.6	54.2	51.3	48.6	46.2	44.1	42.2	40.4
O	28		82.0	74.5	68.8	64.1	60.0	56.5	53.4	50.6	48.1	45.9	43.8	42.0
	29			78.2	71.9	66.8	62.5	58.8	55.5	52.6	50.0	47.7	45.5	43.6
V	30			82.2	75.1	69.6	65.1	61.1	57.7	54.7	51.9	49.5	47.3	45.2
O	31				78.6	72.6	67.7	63.5	59.9	56.7	53.9	51.3	49.0	46.9
	32				82.5	75.7	70.4	66.0	62.2	58.8	55.8	53.2	50.8	48.6
L	33					79.0	73.2	68.5	64.5	61.0	57.8	55.0	52.5	50.2
	34					82.7	76.2	71.1	66.8	63.1	59.9	56.9	54.3	51.9
T	35						79.3	73.8	69.2	65.3	61.9	58.9	56.1	53.6
	36						82.9	76.6	71.7	67.6	64.0	60.8	57.9	55.4
	37							79.6	74.3	69.9	66.1	62.8	59.8	57.1
R	38							83.1	77.0	72.3	68.3	64.8	61.7	58.9
	39								79.9	74.8	70.5	66.8	63.6	60.7
E	40								83.2	77.4	72.8	68.9	65.5	62.5
A	41									80.2	75.2	71.1	67.5	64.3
	42									83.4	77.7	73.3	69.5	66.2
D	43										80.4	75.6	71.6	68.1
	44										83.5	78.0	73.8	70.1
I	45											80.6	76.0	72.1
N	46											83.6	78.3	74.2
	47												80.9	76.3
G	48												83.7	78.6
	49													81.0
	50													83.8
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 31.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.6	1.5	1.4	1.4
	2	5.3	4.9	4.6	4.3	4.1	3.8	3.6	3.5	3.3	3.1	3.0	2.9	2.8
	3	7.9	7.4	6.9	6.5	6.1	5.8	5.5	5.2	5.0	4.7	4.5	4.3	4.2
	4	10.6	9.9	9.2	8.7	8.2	7.7	7.3	6.9	6.6	6.3	6.0	5.8	5.6
	5	13.3	12.4	11.6	10.9	10.2	9.7	9.2	8.7	8.3	7.9	7.6	7.3	7.0
	6	16.0	14.9	13.9	13.1	12.3	11.6	11.0	10.5	10.0	9.5	9.1	8.7	8.4
	7	18.8	17.4	16.3	15.3	14.4	13.6	12.9	12.2	11.7	11.1	10.6	10.2	9.8
	8	21.5	20.0	18.7	17.5	16.5	15.6	14.7	14.0	13.3	12.7	12.2	11.7	11.2
	9	24.3	22.6	21.1	19.8	18.6	17.6	16.6	15.8	15.0	14.4	13.7	13.2	12.6
	10	27.1	25.2	23.5	22.0	20.7	19.6	18.5	17.6	16.8	16.0	15.3	14.7	14.1
	11	30.0	27.8	25.9	24.3	22.9	21.6	20.4	19.4	18.5	17.6	16.9	16.1	15.5
	12	32.8	30.5	28.4	26.6	25.0	23.6	22.3	21.2	20.2	19.3	18.4	17.7	16.9
	13	35.7	33.1	30.9	28.9	27.2	25.6	24.3	23.0	21.9	20.9	20.0	19.2	18.4
	14	38.7	35.8	33.4	31.2	29.4	27.7	26.2	24.9	23.7	22.6	21.6	20.7	19.8
	15	41.6	38.5	35.9	33.6	31.6	29.8	28.2	26.7	25.4	24.2	23.2	22.2	21.3
	16	44.6	41.3	38.4	35.9	33.8	31.8	30.1	28.6	27.2	25.9	24.8	23.7	22.8
	17	47.7	44.1	41.0	38.3	36.0	33.9	32.1	30.4	29.0	27.6	26.4	25.3	24.2
	18	50.8	46.9	43.6	40.8	38.3	36.0	34.1	32.3	30.7	29.3	28.0	26.8	25.7
	19	53.9	49.8	46.3	43.2	40.5	38.2	36.1	34.2	32.5	31.0	29.6	28.4	27.2
	20	57.2	52.7	48.9	45.7	42.8	40.3	38.1	36.1	34.3	32.7	31.3	29.9	28.7
M	21	60.4	55.7	51.6	48.2	45.2	42.5	40.2	38.1	36.2	34.5	32.9	31.5	30.2
	22	63.8	58.7	54.4	50.7	47.5	44.7	42.2	40.0	38.0	36.2	34.6	33.1	31.7
I	23	67.3	61.8	57.2	53.3	49.9	46.9	44.3	41.9	39.8	37.9	36.2	34.7	33.2
	24	70.9	65.0	60.0	55.9	52.3	49.1	46.4	43.9	41.7	39.7	37.9	36.3	34.7
C	25	74.7	68.2	63.0	58.5	54.7	51.4	48.5	45.9	43.6	41.5	39.6	37.9	36.3
R	26	78.8	71.6	66.0	61.2	57.2	53.7	50.6	47.9	45.5	43.3	41.3	39.5	37.8
	27	83.6	75.2	69.0	64.0	59.7	56.0	52.8	49.9	47.4	45.1	43.0	41.1	39.4
O	28		79.0	72.3	66.8	62.3	58.4	55.0	52.0	49.3	46.9	44.7	42.7	40.9
	29		83.5	75.6	69.8	64.9	60.8	57.2	54.1	51.3	48.7	46.5	44.4	42.5
V	30			79.2	72.8	67.6	63.3	59.5	56.2	53.2	50.6	48.2	46.1	44.1
O	31			83.4	76.0	70.4	65.8	61.8	58.3	55.2	52.5	50.0	47.7	45.7
	32				79.4	73.3	68.4	64.1	60.5	57.2	54.4	51.8	49.4	47.3
L	33				83.3	76.3	71.0	66.5	62.7	59.3	56.3	53.6	51.1	48.9
	34					79.6	73.8	69.0	64.9	61.4	58.2	55.4	52.9	50.6
T	35					83.3	76.6	71.5	67.2	63.5	60.2	57.3	54.6	52.2
	36						79.7	74.2	69.6	65.7	62.2	59.1	56.4	53.9
	37						83.2	76.9	72.0	67.9	64.2	61.0	58.2	55.6
R	38							79.9	74.5	70.1	66.3	63.0	60.0	57.3
	39							83.2	77.2	72.4	68.4	64.9	61.8	59.0
E	40								80.0	74.9	70.6	66.9	63.7	60.7
A	41								83.1	77.4	72.8	69.0	65.6	62.5
	42									80.1	75.2	71.1	67.5	64.3
D	43									83.1	77.6	73.2	69.5	66.1
	44										80.2	75.4	71.5	68.0
I	45										83.1	77.8	73.5	69.9
N	46											80.3	75.7	71.9
	47											83.0	78.0	73.9
G	48												80.3	75.9
	49												83.0	78.1
	50													80.4
	51													83.0
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 32.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.6	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.4
	2	5.2	4.8	4.5	4.2	4.0	3.8	3.6	3.4	3.2	3.1	2.9	2.8	2.7
	3	7.8	7.2	6.8	6.3	6.0	5.6	5.3	5.1	4.8	4.6	4.4	4.2	4.1
	4	10.4	9.7	9.0	8.5	8.0	7.5	7.1	6.8	6.5	6.2	5.9	5.7	5.4
	5	13.0	12.1	11.3	10.6	10.0	9.4	8.9	8.5	8.1	7.7	7.4	7.1	6.8
	6	15.7	14.6	13.6	12.8	12.0	11.4	10.8	10.2	9.7	9.3	8.9	8.5	8.2
	7	18.4	17.1	15.9	14.9	14.1	13.3	12.6	12.0	11.4	10.9	10.4	10.0	9.6
	8	21.1	19.6	18.3	17.1	16.1	15.2	14.4	13.7	13.0	12.5	11.9	11.4	11.0
	9	23.8	22.1	20.6	19.3	18.2	17.2	16.3	15.4	14.7	14.0	13.4	12.9	12.3
	10	26.5	24.6	23.0	21.5	20.2	19.1	18.1	17.2	16.4	15.6	14.9	14.3	13.7
	11	29.3	27.2	25.3	23.7	22.3	21.1	20.0	19.0	18.0	17.2	16.5	15.8	15.1
	12	32.1	29.8	27.7	26.0	24.4	23.1	21.8	20.7	19.7	18.8	18.0	17.2	16.6
	13	34.9	32.4	30.2	28.2	26.5	25.0	23.7	22.5	21.4	20.4	19.5	18.7	18.0
	14	37.8	35.0	32.6	30.5	28.7	27.0	25.6	24.3	23.1	22.1	21.1	20.2	19.4
	15	40.7	37.6	35.0	32.8	30.8	29.1	27.5	26.1	24.8	23.7	22.6	21.7	20.8
	16	43.6	40.3	37.5	35.1	33.0	31.1	29.4	27.9	26.6	25.3	24.2	23.2	22.2
	17	46.5	43.0	40.0	37.4	35.2	33.1	31.3	29.7	28.3	27.0	25.8	24.7	23.7
	18	49.5	45.8	42.6	39.8	37.3	35.2	33.3	31.6	30.0	28.6	27.3	26.2	25.1
	19	52.6	48.6	45.1	42.2	39.6	37.3	35.2	33.4	31.8	30.3	28.9	27.7	26.6
	20	55.7	51.4	47.7	44.6	41.8	39.4	37.2	35.3	33.5	32.0	30.5	29.2	28.0
M	21	58.9	54.3	50.3	47.0	44.0	41.5	39.2	37.1	35.3	33.6	32.1	30.7	29.5
	22	62.1	57.2	53.0	49.4	46.3	43.6	41.2	39.0	37.1	35.3	33.7	32.3	30.9
I	23	65.5	60.2	55.7	51.9	48.6	45.8	43.2	40.9	38.9	37.0	35.4	33.8	32.4
	24	68.9	63.2	58.5	54.4	51.0	47.9	45.2	42.8	40.7	38.7	37.0	35.4	33.9
C	25	72.5	66.3	61.3	57.0	53.3	50.1	47.3	44.8	42.5	40.5	38.6	36.9	35.4
R	26	76.3	69.6	64.2	59.6	55.7	52.3	49.4	46.7	44.3	42.2	40.3	38.5	36.9
	27	80.4	72.9	67.1	62.3	58.2	54.6	51.5	48.7	46.2	44.0	41.9	40.1	38.4
O	28		76.5	70.2	65.0	60.6	56.9	53.6	50.7	48.1	45.7	43.6	41.7	39.9
	29		80.3	73.3	67.8	63.2	59.2	55.7	52.7	50.0	47.5	45.3	43.3	41.5
V	30		85.1	76.7	70.7	65.8	61.6	57.9	54.7	51.9	49.3	47.0	44.9	43.0
O	31			80.3	73.7	68.4	64.0	60.1	56.8	53.8	51.1	48.7	46.5	44.6
	32			84.6	76.8	71.1	66.4	62.4	58.9	55.7	53.0	50.5	48.2	46.1
L	33				80.2	74.0	68.9	64.7	61.0	57.7	54.8	52.2	49.8	47.7
	34				84.2	76.9	71.5	67.0	63.1	59.7	56.7	54.0	51.5	49.3
T	35					80.1	74.2	69.4	65.3	61.8	58.6	55.8	53.2	50.9
	36					83.8	77.1	71.9	67.6	63.8	60.5	57.6	54.9	52.5
	37						80.1	74.5	69.9	65.9	62.5	59.4	56.6	54.1
R	38						83.5	77.2	72.3	68.1	64.5	61.2	58.4	55.8
	39							80.0	74.7	70.3	66.5	63.1	60.1	57.4
E	40							83.3	77.3	72.6	68.5	65.0	61.9	59.1
A	41								80.0	74.9	70.7	67.0	63.7	60.8
	42								83.1	77.4	72.8	69.0	65.6	62.5
D	43									80.0	75.1	71.0	67.4	64.3
	44									82.9	77.4	73.1	69.4	66.1
I	45										79.9	75.3	71.3	67.9
N	46										82.7	77.5	73.3	69.7
	47											79.9	75.4	71.6
G	48											82.5	77.6	73.6
	49												79.9	75.6
	50												82.4	77.6
	51													79.9
	52													82.2
	53													85.2
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 33.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
								WATER POTENTIAL, NEGATIVE BARS						
	1	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.7	1.6	1.5	1.4	1.4	1.3
	2	5.1	4.7	4.4	4.1	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.7
	3	7.6	7.1	6.6	6.2	5.8	5.5	5.2	5.0	4.7	4.5	4.3	4.2	4.0
	4	10.2	9.4	8.8	8.3	7.8	7.4	7.0	6.6	6.3	6.0	5.8	5.5	5.3
	5	12.7	11.8	11.1	10.4	9.8	9.2	8.8	8.3	7.9	7.6	7.2	6.9	6.7
	6	15.3	14.3	13.3	12.5	11.8	11.1	10.5	10.0	9.5	9.1	8.7	8.3	8.0
	7	18.0	16.7	15.6	14.6	13.7	13.0	12.3	11.7	11.1	10.6	10.2	9.7	9.4
	8	20.6	19.1	17.8	16.7	15.7	14.9	14.1	13.4	12.8	12.2	11.6	11.2	10.7
	9	23.3	21.6	20.1	18.9	17.8	16.8	15.9	15.1	14.4	13.7	13.1	12.6	12.1
	10	25.9	24.1	22.4	21.0	19.8	18.7	17.7	16.8	16.0	15.3	14.6	14.0	13.4
	11	28.6	26.6	24.8	23.2	21.8	20.6	19.5	18.5	17.6	16.8	16.1	15.4	14.8
	12	31.4	29.1	27.1	25.4	23.9	22.5	21.3	20.3	19.3	18.4	17.6	16.9	16.2
	13	34.1	31.6	29.5	27.6	25.9	24.5	23.2	22.0	20.9	20.0	19.1	18.3	17.6
	14	36.9	34.2	31.8	29.8	28.0	26.4	25.0	23.7	22.6	21.6	20.6	19.7	18.9
	15	39.7	36.8	34.2	32.0	30.1	28.4	26.9	25.5	24.3	23.1	22.1	21.2	20.3
	16	42.5	39.4	36.6	34.3	32.2	30.4	28.7	27.3	25.9	24.7	23.6	22.6	21.7
	17	45.4	42.0	39.1	36.5	34.3	32.4	30.6	29.0	27.6	26.3	25.2	24.1	23.1
	18	48.3	44.7	41.5	38.8	36.5	34.4	32.5	30.8	29.3	28.0	26.7	25.6	24.5
	19	51.3	47.4	44.0	41.1	38.6	36.4	34.4	32.6	31.0	29.6	28.3	27.0	25.9
	20	54.3	50.1	46.6	43.5	40.8	38.4	36.3	34.4	32.7	31.2	29.8	28.5	27.4
M	21	57.4	52.9	49.1	45.8	43.0	40.5	38.2	36.3	34.5	32.8	31.4	30.0	28.8
	22	60.5	55.7	51.7	48.2	45.2	42.5	40.2	38.1	36.2	34.5	32.9	31.5	30.2
I	23	63.7	58.6	54.3	50.6	47.4	44.6	42.2	39.9	37.9	36.1	34.5	33.0	31.7
	24	67.0	61.5	57.0	53.1	49.7	46.7	44.1	41.8	39.7	37.8	36.1	34.5	33.1
C	25	70.4	64.5	59.7	55.6	52.0	48.9	46.1	43.7	41.5	39.5	37.7	36.1	34.6
R	26	74.0	67.6	62.4	58.1	54.3	51.0	48.1	45.6	43.3	41.2	39.3	37.6	36.0
	27	77.8	70.8	65.3	60.6	56.7	53.2	50.2	47.5	45.1	42.9	40.9	39.1	37.5
O	28	82.0	74.2	68.2	63.3	59.1	55.4	52.2	49.4	46.9	44.6	42.6	40.7	39.0
	29		77.7	71.2	65.9	61.5	57.7	54.3	51.4	48.7	46.3	44.2	42.2	40.5
V	30		81.6	74.3	68.7	64.0	59.9	56.4	53.3	50.6	48.1	45.8	43.8	42.0
O	31			77.6	71.5	66.5	62.3	58.6	55.3	52.4	49.8	47.5	45.4	43.5
	32			81.2	74.4	69.1	64.6	60.7	57.3	54.3	51.6	49.2	47.0	45.0
L	33				77.6	71.8	67.0	62.9	59.4	56.2	53.4	50.9	48.6	46.5
	34				80.9	74.6	69.5	65.2	61.5	58.2	55.2	52.6	50.2	48.0
T	35				85.1	77.5	72.0	67.5	63.6	60.1	57.1	54.3	51.8	49.6
	36					80.7	74.7	69.8	65.7	62.1	58.9	56.1	53.5	51.2
	37					84.4	77.4	72.3	67.9	64.1	60.8	57.8	55.2	52.7
R	38						80.4	74.8	70.2	66.2	62.7	59.6	56.8	54.3
	39						83.8	77.4	72.5	68.3	64.7	61.4	58.5	55.9
E	40							80.2	74.9	70.4	66.6	63.3	60.3	57.6
A	41							83.4	77.4	72.7	68.6	65.1	62.0	59.2
	42								80.0	74.9	70.7	67.0	63.8	60.9
D	43								83.0	77.3	72.8	69.0	65.6	62.5
	44									79.9	75.0	70.9	67.4	64.2
I	45									82.6	77.3	73.0	69.3	66.0
N	46										79.7	75.1	71.2	67.7
	47										82.3	77.3	73.1	69.5
G	48											79.6	75.1	71.4
	49											82.1	77.2	73.3
	50											85.1	79.4	75.2
	51												81.8	77.2
	52												84.6	79.3
	53													81.6
	54													84.2
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 34.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.5	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.3	1.3
	2	4.9	4.6	4.3	4.0	3.8	3.6	3.4	3.2	3.1	2.9	2.8	2.7	2.6
	3	7.4	6.9	6.5	6.1	5.7	5.4	5.1	4.9	4.6	4.4	4.2	4.1	3.9
	4	9.9	9.2	8.6	8.1	7.6	7.2	6.8	6.5	6.2	5.9	5.7	5.4	5.2
	5	12.5	11.6	10.8	10.1	9.6	9.0	8.6	8.1	7.7	7.4	7.1	6.8	6.5
	6	15.0	13.9	13.0	12.2	11.5	10.9	10.3	9.8	9.3	8.9	8.5	8.2	7.8
	7	17.6	16.3	15.2	14.3	13.4	12.7	12.0	11.4	10.9	10.4	9.9	9.5	9.2
	8	20.1	18.7	17.5	16.4	15.4	14.5	13.8	13.1	12.5	11.9	11.4	10.9	10.5
	9	22.7	21.1	19.7	18.5	17.4	16.4	15.5	14.8	14.1	13.4	12.8	12.3	11.8
	10	25.3	23.5	21.9	20.6	19.3	18.3	17.3	16.4	15.6	14.9	14.3	13.7	13.1
	11	28.0	26.0	24.2	22.7	21.3	20.1	19.1	18.1	17.2	16.5	15.7	15.1	14.5
	12	30.6	28.4	26.5	24.8	23.3	22.0	20.9	19.8	18.8	18.0	17.2	16.5	15.8
	13	33.3	30.9	28.8	27.0	25.3	23.9	22.6	21.5	20.5	19.5	18.7	17.9	17.2
	14	36.0	33.4	31.1	29.1	27.4	25.8	24.4	23.2	22.1	21.1	20.1	19.3	18.5
	15	38.8	35.9	33.4	31.3	29.4	27.7	26.3	24.9	23.7	22.6	21.6	20.7	19.9
	16	41.5	38.4	35.8	33.5	31.5	29.7	28.1	26.6	25.3	24.2	23.1	22.1	21.2
	17	44.3	41.0	38.2	35.7	33.5	31.6	29.9	28.4	27.0	25.7	24.6	23.6	22.6
	18	47.2	43.6	40.6	37.9	35.6	33.6	31.7	30.1	28.6	27.3	26.1	25.0	24.0
	19	50.0	46.2	43.0	40.2	37.7	35.5	33.6	31.9	30.3	28.9	27.6	26.4	25.3
	20	52.9	48.9	45.4	42.4	39.8	37.5	35.5	33.6	32.0	30.5	29.1	27.9	26.7
M	21	55.9	51.6	47.9	44.7	42.0	39.5	37.3	35.4	33.7	32.1	30.6	29.3	28.1
	22	58.9	54.3	50.4	47.0	44.1	41.5	39.2	37.2	35.4	33.7	32.2	30.8	29.5
I	23	62.0	57.1	53.0	49.4	46.3	43.6	41.1	39.0	37.1	35.3	33.7	32.3	30.9
	24	65.2	59.9	55.5	51.8	48.5	45.6	43.1	40.8	38.8	36.9	35.3	33.7	32.3
C	25	68.5	62.8	58.1	54.2	50.7	47.7	45.0	42.6	40.5	38.6	36.8	35.2	33.8
R	26	71.8	65.8	60.8	56.6	53.0	49.8	47.0	44.5	42.2	40.2	38.4	36.7	35.2
	27	75.4	68.8	63.5	59.1	55.2	51.9	48.9	46.3	44.0	41.9	39.9	38.2	36.6
O	28	79.2	72.0	66.3	61.6	57.5	54.0	50.9	48.2	45.7	43.5	41.5	39.7	38.0
	29	83.6	75.3	69.2	64.2	59.9	56.2	53.0	50.1	47.5	45.2	43.1	41.2	39.5
V	30		78.8	72.2	66.8	62.3	58.4	55.0	52.0	49.3	46.9	44.7	42.8	40.9
O	31		82.8	75.2	69.5	64.7	60.6	57.1	53.9	51.1	48.6	46.4	44.3	42.4
	32			78.5	72.3	67.2	62.9	59.2	55.9	53.0	50.3	48.0	45.8	43.9
L	33			82.1	75.2	69.8	65.2	61.3	57.9	54.8	52.1	49.6	47.4	45.4
	34				78.3	72.4	67.6	63.4	59.9	56.7	53.8	51.3	49.0	46.9
T	35				81.6	75.1	70.0	65.7	61.9	58.6	55.6	53.0	50.6	48.4
	36					78.0	72.5	67.9	64.0	60.5	57.4	54.6	52.2	49.9
	37					81.1	75.1	70.2	66.1	62.4	59.2	56.4	53.8	51.4
R	38					84.9	77.8	72.6	68.2	64.4	61.1	58.1	55.4	53.0
	39						80.7	75.0	70.4	66.4	62.9	59.8	57.0	54.5
E	40						84.1	77.6	72.7	68.5	64.8	61.6	58.7	56.1
A	41							80.3	75.0	70.6	66.8	63.4	60.4	57.7
	42							83.4	77.4	72.7	68.7	65.2	62.1	59.3
D	43								80.0	75.0	70.7	67.1	63.8	60.9
	44								82.9	77.3	72.8	69.0	65.6	62.5
I	45									79.7	74.9	70.9	67.3	64.2
N	46									82.4	77.1	72.9	69.2	65.9
	47										79.5	74.9	71.0	67.6
G	48										82.0	77.0	72.9	69.4
	49										85.0	79.2	74.9	71.1
	50											81.6	76.9	73.0
	51											84.4	79.0	74.8
	52												81.3	76.8
	53												83.8	78.8
	54													81.0
	55													83.4
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 35.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.3
2	4.8	4.5	4.2	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.6	2.5
3	7.3	6.8	6.3	5.9	5.6	5.3	5.0	4.8	4.5	4.3	4.1	4.0	3.8
4	9.7	9.0	8.4	7.9	7.5	7.1	6.7	6.4	6.1	5.8	5.5	5.3	5.1
5	12.2	11.3	10.6	9.9	9.3	8.8	8.4	8.0	7.6	7.2	6.9	6.6	6.4
6	14.7	13.6	12.7	11.9	11.2	10.6	10.1	9.6	9.1	8.7	8.3	8.0	7.7
7	17.2	15.9	14.9	14.0	13.1	12.4	11.8	11.2	10.6	10.2	9.7	9.3	9.0
8	19.7	18.3	17.1	16.0	15.1	14.2	13.5	12.8	12.2	11.6	11.1	10.7	10.2
9	22.2	20.6	19.2	18.0	17.0	16.0	15.2	14.4	13.7	13.1	12.5	12.0	11.5
10	24.8	23.0	21.4	20.1	18.9	17.9	16.9	16.1	15.3	14.6	14.0	13.4	12.8
11	27.3	25.4	23.7	22.2	20.9	19.7	18.6	17.7	16.9	16.1	15.4	14.7	14.2
12	29.9	27.8	25.9	24.2	22.8	21.5	20.4	19.4	18.4	17.6	16.8	16.1	15.5
13	32.5	30.2	28.1	26.3	24.8	23.4	22.1	21.0	20.0	19.1	18.3	17.5	16.8
14	35.2	32.6	30.4	28.5	26.7	25.2	23.9	22.7	21.6	20.6	19.7	18.9	18.1
15	37.8	35.1	32.7	30.6	28.7	27.1	25.7	24.4	23.2	22.1	21.1	20.2	19.4
16	40.5	37.5	35.0	32.7	30.7	29.0	27.4	26.0	24.8	23.6	22.6	21.6	20.8
17	43.3	40.0	37.3	34.9	32.8	30.9	29.2	27.7	26.4	25.2	24.0	23.0	22.1
18	46.0	42.6	39.6	37.0	34.8	32.8	31.0	29.4	28.0	26.7	25.5	24.4	23.4
19	48.8	45.1	42.0	39.2	36.8	34.7	32.8	31.1	29.6	28.2	27.0	25.8	24.8
20	51.6	47.7	44.3	41.4	38.9	36.6	34.6	32.9	31.2	29.8	28.5	27.2	26.1
M 21	54.5	50.3	46.7	43.7	41.0	38.6	36.5	34.6	32.9	31.3	29.9	28.7	27.5
22	57.4	53.0	49.2	45.9	43.1	40.5	38.3	36.3	34.5	32.9	31.4	30.1	28.8
I 23	60.4	55.7	51.6	48.2	45.2	42.5	40.2	38.1	36.2	34.5	32.9	31.5	30.2
24	63.5	58.4	54.1	50.5	47.3	44.5	42.0	39.8	37.9	36.1	34.4	33.0	31.6
C 25	66.6	61.2	56.7	52.8	49.5	46.5	43.9	41.6	39.5	37.7	36.0	34.4	33.0
R 26	69.8	64.1	59.3	55.2	51.7	48.6	45.8	43.4	41.2	39.3	37.5	35.9	34.4
27	73.2	67.0	61.9	57.6	53.9	50.6	47.8	45.2	42.9	40.9	39.0	37.3	35.8
O 28	76.7	70.0	64.6	60.0	56.1	52.7	49.7	47.0	44.6	42.5	40.6	38.8	37.2
29	80.6	73.1	67.3	62.5	58.4	54.8	51.7	48.9	46.4	44.1	42.1	40.3	38.6
V 30	85.4	76.4	70.1	65.0	60.7	56.9	53.6	50.7	48.1	45.8	43.7	41.7	40.0
O 31		79.9	73.1	67.6	63.0	59.1	55.6	52.6	49.9	47.4	45.2	43.2	41.4
32		84.0	76.1	70.3	65.4	61.3	57.7	54.5	51.7	49.1	46.8	44.7	42.8
L 33			79.4	73.0	67.8	63.5	59.7	56.4	53.4	50.8	48.4	46.3	44.3
34			83.0	75.9	70.4	65.8	61.8	58.3	55.3	52.5	50.0	47.8	45.7
T 35				78.9	72.9	68.1	63.9	60.3	57.1	54.2	51.7	49.3	47.2
36				82.2	75.6	70.5	66.1	62.3	58.9	56.0	53.3	50.9	48.7
37					78.5	72.9	68.3	64.3	60.8	57.7	54.9	52.4	50.2
R 38					81.6	75.4	70.5	66.4	62.7	59.5	56.6	54.0	51.7
39						78.1	72.9	68.5	64.7	61.3	58.3	55.6	53.2
E 40						81.0	75.3	70.6	66.6	63.1	60.0	57.2	54.7
A 41						84.3	77.8	72.8	68.6	65.0	61.7	58.8	56.2
42							80.5	75.1	70.7	66.9	63.5	60.5	57.8
D 43							83.5	77.5	72.8	68.8	65.3	62.2	59.3
44								80.0	75.0	70.7	67.1	63.8	60.9
I 45								82.8	77.2	72.8	68.9	65.5	62.5
N 46									79.6	74.8	70.8	67.3	64.2
47									82.2	77.0	72.7	69.1	65.8
G 48										79.2	74.7	70.9	67.5
49										81.7	76.8	72.7	69.2
50										84.5	78.9	74.6	70.9
51											81.2	76.6	72.7
52											83.8	78.6	74.5
53												80.8	76.4
54												83.2	78.3
55													80.4
56													82.6
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 36.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.4	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.3	1.3	1.2
2	4.7	4.4	4.1	3.9	3.6	3.4	3.3	3.1	3.0	2.8	2.7	2.6	2.5
3	7.1	6.6	6.2	5.8	5.5	5.2	4.9	4.7	4.4	4.2	4.1	3.9	3.7
4	9.5	8.8	8.3	7.7	7.3	6.9	6.5	6.2	5.9	5.7	5.4	5.2	5.0
5	11.9	11.1	10.3	9.7	9.1	8.6	8.2	7.8	7.4	7.1	6.8	6.5	6.2
6	14.3	13.3	12.4	11.7	11.0	10.4	9.8	9.4	8.9	8.5	8.1	7.8	7.5
7	16.8	15.6	14.6	13.7	12.9	12.1	11.5	10.9	10.4	9.9	9.5	9.1	8.8
8	19.2	17.9	16.7	15.6	14.7	13.9	13.2	12.5	11.9	11.4	10.9	10.4	10.0
9	21.7	20.2	18.8	17.6	16.6	15.7	14.9	14.1	13.4	12.8	12.3	11.8	11.3
10	24.2	22.5	21.0	19.7	18.5	17.5	16.5	15.7	15.0	14.3	13.7	13.1	12.6
11	26.7	24.8	23.1	21.7	20.4	19.3	18.2	17.3	16.5	15.7	15.1	14.4	13.8
12	29.2	27.1	25.3	23.7	22.3	21.0	19.9	18.9	18.0	17.2	16.4	15.8	15.1
13	31.8	29.5	27.5	25.7	24.2	22.9	21.6	20.5	19.6	18.7	17.8	17.1	16.4
14	34.4	31.9	29.7	27.8	26.1	24.7	23.4	22.2	21.1	20.1	19.3	18.4	17.7
15	37.0	34.3	31.9	29.9	28.1	26.5	25.1	23.8	22.7	21.6	20.7	19.8	19.0
16	39.6	36.7	34.2	32.0	30.0	28.3	26.8	25.5	24.2	23.1	22.1	21.2	20.3
17	42.2	39.1	36.4	34.1	32.0	30.2	28.6	27.1	25.8	24.6	23.5	22.5	21.6
18	44.9	41.6	38.7	36.2	34.0	32.0	30.3	28.8	27.4	26.1	24.9	23.9	22.9
19	47.6	44.0	41.0	38.3	36.0	33.9	32.1	30.4	28.9	27.6	26.4	25.3	24.2
20	50.4	46.6	43.3	40.5	38.0	35.8	33.9	32.1	30.5	29.1	27.8	26.6	25.5
M 21	53.2	49.1	45.6	42.6	40.0	37.7	35.6	33.8	32.1	30.6	29.3	28.0	26.9
22	56.0	51.7	48.0	44.8	42.0	39.6	37.4	35.5	33.7	32.2	30.7	29.4	28.2
I 23	58.9	54.3	50.4	47.0	44.1	41.5	39.2	37.2	35.4	33.7	32.2	30.8	29.5
24	61.8	56.9	52.8	49.3	46.2	43.5	41.1	38.9	37.0	35.2	33.7	32.2	30.9
C 25	64.8	59.6	55.3	51.5	48.3	45.4	42.9	40.6	38.6	36.8	35.1	33.6	32.2
R 26	67.9	62.4	57.8	53.8	50.4	47.4	44.8	42.4	40.3	38.4	36.6	35.0	33.6
27	71.1	65.2	60.3	56.1	52.5	49.4	46.6	44.1	41.9	39.9	38.1	36.5	34.9
O 28	74.5	68.1	62.9	58.5	54.7	51.4	48.5	45.9	43.6	41.5	39.6	37.9	36.3
29	78.0	71.1	65.5	60.9	56.9	53.4	50.4	47.7	45.3	43.1	41.1	39.3	37.7
V 30	81.9	74.2	68.2	63.3	59.1	55.5	52.3	49.5	47.0	44.7	42.6	40.8	39.1
O 31		77.4	71.0	65.8	61.4	57.6	54.3	51.3	48.7	46.3	44.2	42.2	40.4
32		81.0	73.9	68.3	63.7	59.7	56.2	53.2	50.4	47.9	45.7	43.7	41.8
L 33		85.4	76.9	71.0	66.0	61.9	58.2	55.0	52.1	49.6	47.3	45.2	43.3
34			80.2	73.7	68.4	64.0	60.2	56.9	53.9	51.2	48.8	46.7	44.7
T 35			83.9	76.5	70.9	66.3	62.3	58.8	55.7	52.9	50.4	48.1	46.1
36				79.5	73.5	68.5	64.3	60.7	57.5	54.6	52.0	49.7	47.5
37				82.8	76.1	70.9	66.5	62.6	59.3	56.3	53.6	51.2	49.0
R 38					78.9	73.3	68.6	64.6	61.1	58.0	55.2	52.7	50.4
39					82.0	75.8	70.8	66.6	63.0	59.8	56.9	54.2	51.9
E 40						78.4	73.1	68.7	64.9	61.5	58.5	55.8	53.4
A 41						81.2	75.5	70.8	66.8	63.3	60.2	57.4	54.8
42						84.5	77.9	73.0	68.8	65.1	61.9	59.0	56.3
D 43							80.6	75.2	70.8	67.0	63.6	60.6	57.9
44							83.5	77.5	72.8	68.8	65.3	62.2	59.4
I 45								80.0	75.0	70.7	67.1	63.8	60.9
N 46								82.7	77.2	72.7	68.9	65.5	62.5
47									79.5	74.7	70.7	67.2	64.1
G 48									82.0	76.8	72.6	68.9	65.7
49									84.9	79.0	74.5	70.7	67.3
50										81.4	76.5	72.5	69.0
51										84.0	78.6	74.3	70.7
52											80.8	76.2	72.4
53											83.2	78.2	74.2
54												80.3	76.0
55												82.6	77.9
56												85.4	79.9
57													82.0
58													84.4
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 37.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.2
	2	4.6	4.3	4.0	3.8	3.6	3.4	3.2	3.0	2.9	2.8	2.6	2.5	2.4
	3	7.0	6.5	6.0	5.7	5.3	5.1	4.8	4.6	4.3	4.1	4.0	3.8	3.7
	4	9.3	8.6	8.1	7.6	7.1	6.7	6.4	6.1	5.8	5.5	5.3	5.1	4.9
	5	11.7	10.8	10.1	9.5	8.9	8.5	8.0	7.6	7.3	6.9	6.6	6.4	6.1
	6	14.0	13.0	12.2	11.4	10.8	10.2	9.6	9.2	8.7	8.3	8.0	7.6	7.3
	7	16.4	15.3	14.2	13.4	12.6	11.9	11.3	10.7	10.2	9.7	9.3	8.9	8.6
	8	18.8	17.5	16.3	15.3	14.4	13.6	12.9	12.2	11.7	11.1	10.7	10.2	9.8
	9	21.2	19.7	18.4	17.3	16.2	15.3	14.5	13.8	13.1	12.6	12.0	11.5	11.0
	10	23.7	22.0	20.5	19.2	18.1	17.1	16.2	15.4	14.6	14.0	13.4	12.8	12.3
	11	26.1	24.2	22.6	21.2	19.9	18.8	17.8	16.9	16.1	15.4	14.7	14.1	13.5
	12	28.6	26.5	24.7	23.2	21.8	20.6	19.5	18.5	17.6	16.8	16.1	15.4	14.8
	13	31.1	28.8	26.9	25.2	23.7	22.3	21.2	20.1	19.1	18.3	17.5	16.7	16.1
	14	33.6	31.1	29.0	27.2	25.6	24.1	22.8	21.7	20.6	19.7	18.8	18.0	17.3
	15	36.1	33.5	31.2	29.2	27.5	25.9	24.5	23.3	22.2	21.1	20.2	19.4	18.6
	16	38.7	35.8	33.4	31.2	29.4	27.7	26.2	24.9	23.7	22.6	21.6	20.7	19.9
	17	41.2	38.2	35.6	33.3	31.3	29.5	27.9	26.5	25.2	24.1	23.0	22.0	21.1
	18	43.9	40.6	37.8	35.3	33.2	31.3	29.6	28.1	26.8	25.5	24.4	23.4	22.4
	19	46.5	43.0	40.0	37.4	35.2	33.1	31.4	29.7	28.3	27.0	25.8	24.7	23.7
	20	49.2	45.5	42.3	39.5	37.1	35.0	33.1	31.4	29.8	28.5	27.2	26.0	25.0
M	21	51.9	47.9	44.6	41.6	39.1	36.8	34.8	33.0	31.4	29.9	28.6	27.4	26.3
	22	54.6	50.4	46.9	43.8	41.1	38.7	36.6	34.7	33.0	31.4	30.0	28.7	27.6
I	23	57.4	53.0	49.2	45.9	43.1	40.6	38.3	36.3	34.6	32.9	31.5	30.1	28.9
	24	60.3	55.5	51.5	48.1	45.1	42.5	40.1	38.0	36.1	34.4	32.9	31.5	30.2
C	25	63.2	58.2	53.9	50.3	47.1	44.4	41.9	39.7	37.7	36.0	34.3	32.9	31.5
R	26	66.1	60.8	56.3	52.5	49.2	46.3	43.7	41.4	39.3	37.5	35.8	34.2	32.8
	27	69.2	63.5	58.8	54.8	51.3	48.2	45.5	43.1	41.0	39.0	37.2	35.6	34.1
O	28	72.4	66.3	61.3	57.0	53.4	50.2	47.4	44.8	42.6	40.6	38.7	37.0	35.5
	29	75.7	69.1	63.8	59.4	55.5	52.2	49.2	46.6	44.2	42.1	40.2	38.4	36.8
V	30	79.2	72.1	66.4	61.7	57.7	54.2	51.1	48.3	45.9	43.7	41.7	39.8	38.2
O	31	83.2	75.2	69.1	64.1	59.9	56.2	53.0	50.1	47.5	45.2	43.2	41.3	39.5
	32		78.4	71.8	66.5	62.1	58.2	54.9	51.9	49.2	46.8	44.7	42.7	40.9
L	33		82.0	74.7	69.0	64.3	60.3	56.8	53.7	50.9	48.4	46.2	44.1	42.3
	34			77.7	71.6	66.6	62.4	58.7	55.5	52.6	50.0	47.7	45.6	43.6
T	35			80.9	74.3	69.0	64.6	60.7	57.3	54.3	51.6	49.2	47.0	45.0
	36			84.8	77.1	71.4	66.7	62.7	59.2	56.1	53.3	50.8	48.5	46.4
	37				80.1	73.9	69.0	64.7	61.1	57.8	54.9	52.3	50.0	47.8
R	38				83.4	76.5	71.3	66.8	63.0	59.6	56.6	53.9	51.4	49.2
	39					79.3	73.6	68.9	64.9	61.4	58.3	55.5	52.9	50.6
E	40					82.3	76.1	71.1	66.9	63.2	60.0	57.1	54.5	52.1
A	41						78.6	73.3	68.9	65.1	61.7	58.7	56.0	53.5
	42						81.4	75.6	71.0	67.0	63.5	60.3	57.5	55.0
D	43						84.6	78.1	73.1	68.9	65.2	62.0	59.1	56.4
	44							80.6	75.3	70.8	67.0	63.7	60.6	57.9
I	45							83.5	77.5	72.9	68.9	65.4	62.2	59.4
N	46								79.9	74.9	70.7	67.1	63.8	60.9
	47								82.6	77.1	72.7	68.8	65.5	62.5
G	48									79.3	74.6	70.6	67.1	64.0
	49									81.8	76.7	72.5	68.8	65.6
	50									84.6	78.8	74.3	70.5	67.2
	51										81.1	76.3	72.3	68.8
	52										83.6	78.3	74.1	70.4
	53											80.4	75.9	72.1
	54											82.7	77.9	73.9
	55												79.9	75.6
	56												82.0	77.4
	57												84.5	79.4
	58													81.4
	59													83.6
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 38.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.3	2.1	2.0	1.8	1.7	1.6	1.6	1.5	1.4	1.3	1.3	1.2	1.2
2	4.5	4.2	3.9	3.7	3.5	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4
3	6.8	6.3	5.9	5.6	5.2	4.9	4.7	4.5	4.2	4.1	3.9	3.7	3.6
4	9.1	8.5	7.9	7.4	7.0	6.6	6.3	6.0	5.7	5.4	5.2	5.0	4.8
5	11.4	10.6	9.9	9.3	8.8	8.3	7.8	7.5	7.1	6.8	6.5	6.2	6.0
6	13.7	12.8	11.9	11.2	10.5	9.9	9.4	9.0	8.5	8.2	7.8	7.5	7.2
7	16.1	14.9	13.9	13.1	12.3	11.6	11.0	10.5	10.0	9.5	9.1	8.7	8.4
8	18.4	17.1	16.0	15.0	14.1	13.3	12.6	12.0	11.4	10.9	10.4	10.0	9.6
9	20.8	19.3	18.0	16.9	15.9	15.0	14.2	13.5	12.9	12.3	11.8	11.3	10.8
10	23.1	21.5	20.0	18.8	17.7	16.7	15.8	15.0	14.3	13.7	13.1	12.5	12.0
11	25.5	23.7	22.1	20.7	19.5	18.4	17.4	16.6	15.8	15.1	14.4	13.8	13.3
12	27.9	25.9	24.2	22.7	21.3	20.1	19.1	18.1	17.2	16.5	15.7	15.1	14.5
13	30.4	28.2	26.3	24.6	23.2	21.9	20.7	19.7	18.7	17.9	17.1	16.4	15.7
14	32.8	30.4	28.4	26.6	25.0	23.6	22.3	21.2	20.2	19.3	18.4	17.7	16.9
15	35.3	32.7	30.5	28.5	26.8	25.3	24.0	22.8	21.7	20.7	19.8	18.9	18.2
16	37.8	35.0	32.6	30.5	28.7	27.1	25.6	24.3	23.2	22.1	21.1	20.2	19.4
17	40.3	37.3	34.8	32.5	30.6	28.8	27.3	25.9	24.7	23.5	22.5	21.5	20.7
18	42.8	39.7	36.9	34.5	32.5	30.6	29.0	27.5	26.2	25.0	23.9	22.8	21.9
19	45.4	42.0	39.1	36.6	34.4	32.4	30.7	29.1	27.7	26.4	25.2	24.2	23.2
20	48.0	44.4	41.3	38.6	36.3	34.2	32.3	30.7	29.2	27.8	26.6	25.5	24.4
M 21	50.6	46.8	43.5	40.7	38.2	36.0	34.0	32.3	30.7	29.3	28.0	26.8	25.7
22	53.3	49.2	45.8	42.8	40.1	37.8	35.8	33.9	32.2	30.7	29.4	28.1	27.0
I 23	56.0	51.7	48.0	44.9	42.1	39.6	37.5	35.5	33.8	32.2	30.8	29.4	28.2
24	58.8	54.2	50.3	47.0	44.1	41.5	39.2	37.2	35.3	33.7	32.2	30.8	29.5
C 25	61.6	56.7	52.6	49.1	46.0	43.3	40.9	38.8	36.9	35.2	33.6	32.1	30.8
R 26	64.4	59.3	55.0	51.3	48.0	45.2	42.7	40.5	38.5	36.6	35.0	33.5	32.1
27	67.4	61.9	57.3	53.4	50.1	47.1	44.5	42.1	40.0	38.1	36.4	34.8	33.4
O 28	70.4	64.6	59.8	55.7	52.1	49.0	46.3	43.8	41.6	39.6	37.8	36.2	34.7
29	73.6	67.3	62.2	57.9	54.2	50.9	48.1	45.5	43.2	41.1	39.3	37.6	36.0
V 30	76.9	70.1	64.7	60.2	56.3	52.9	49.9	47.2	44.8	42.7	40.7	38.9	37.3
O 31	80.4	73.1	67.3	62.5	58.4	54.8	51.7	48.9	46.4	44.2	42.2	40.3	38.6
32	84.6	76.1	69.9	64.8	60.5	56.8	53.5	50.7	48.1	45.7	43.6	41.7	40.0
L 33		79.3	72.6	67.2	62.7	58.8	55.4	52.4	49.7	47.3	45.1	43.1	41.3
34		82.9	75.4	69.7	64.9	60.9	57.3	54.2	51.4	48.9	46.6	44.5	42.6
T 35			78.4	72.2	67.2	62.9	59.2	55.9	53.0	50.4	48.1	45.9	44.0
36			81.6	74.9	69.5	65.0	61.2	57.7	54.7	52.0	49.6	47.4	45.3
37				77.6	71.9	67.2	63.1	59.6	56.4	53.6	51.1	48.8	46.7
R 38				80.6	74.4	69.4	65.1	61.4	58.2	55.2	52.6	50.2	48.1
39				83.9	76.9	71.6	67.2	63.3	59.9	56.9	54.2	51.7	49.5
E 40					79.7	73.9	69.2	65.2	61.7	58.5	55.7	53.2	50.9
A 41					82.6	76.3	71.4	67.1	63.4	60.2	57.3	54.6	52.3
42						78.9	73.5	69.1	65.3	61.9	58.9	56.1	53.7
D 43						81.6	75.8	71.1	67.1	63.6	60.5	57.6	55.1
44						84.8	78.2	73.2	69.0	65.3	62.1	59.2	56.5
I 45							80.7	75.3	70.9	67.1	63.7	60.7	58.0
N 46							83.5	77.5	72.9	68.9	65.4	62.3	59.5
47								79.9	74.9	70.7	67.1	63.8	60.9
G 48								82.4	77.0	72.6	68.8	65.4	62.4
49									79.2	74.5	70.5	67.1	63.9
50									81.5	76.5	72.3	68.7	65.5
51									84.2	78.6	74.2	70.4	67.0
52										80.8	76.0	72.1	68.6
53										83.2	78.0	73.8	70.2
54											80.1	75.6	71.9
55											82.3	77.5	73.5
56											84.9	79.4	75.3
57												81.5	77.0
58												83.8	78.9
59													80.8
60													82.9
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 39.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.2	2.1	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.2
	2	4.4	4.1	3.9	3.6	3.4	3.2	3.1	2.9	2.8	2.6	2.5	2.4	2.3
	3	6.7	6.2	5.8	5.4	5.1	4.8	4.6	4.4	4.2	4.0	3.8	3.6	3.5
	4	8.9	8.3	7.7	7.3	6.8	6.5	6.1	5.8	5.6	5.3	5.1	4.9	4.7
	5	11.2	10.4	9.7	9.1	8.6	8.1	7.7	7.3	7.0	6.6	6.4	6.1	5.8
	6	13.4	12.5	11.7	10.9	10.3	9.7	9.2	8.8	8.4	8.0	7.6	7.3	7.0
	7	15.7	14.6	13.6	12.8	12.0	11.4	10.8	10.2	9.8	9.3	8.9	8.6	8.2
	8	18.0	16.7	15.6	14.6	13.8	13.0	12.3	11.7	11.2	10.7	10.2	9.8	9.4
	9	20.3	18.9	17.6	16.5	15.5	14.7	13.9	13.2	12.6	12.0	11.5	11.0	10.6
	10	22.6	21.0	19.6	18.4	17.3	16.3	15.5	14.7	14.0	13.4	12.8	12.3	11.8
	11	25.0	23.2	21.6	20.3	19.1	18.0	17.1	16.2	15.4	14.7	14.1	13.5	13.0
	12	27.3	25.4	23.7	22.2	20.9	19.7	18.7	17.7	16.9	16.1	15.4	14.8	14.2
	13	29.7	27.5	25.7	24.1	22.6	21.4	20.3	19.2	18.3	17.5	16.7	16.0	15.4
	14	32.1	29.8	27.7	26.0	24.4	23.1	21.9	20.8	19.8	18.9	18.0	17.3	16.6
	15	34.5	32.0	29.8	27.9	26.3	24.8	23.5	22.3	21.2	20.2	19.4	18.5	17.8
	16	36.9	34.2	31.9	29.9	28.1	26.5	25.1	23.8	22.7	21.6	20.7	19.8	19.0
	17	39.4	36.5	34.0	31.8	29.9	28.2	26.7	25.4	24.1	23.0	22.0	21.1	20.2
	18	41.8	38.7	36.1	33.8	31.7	29.9	28.3	26.9	25.6	24.4	23.3	22.4	21.4
	19	44.3	41.0	38.2	35.8	33.6	31.7	30.0	28.4	27.1	25.8	24.7	23.6	22.7
	20	46.9	43.4	40.4	37.7	35.5	33.4	31.6	30.0	28.6	27.2	26.0	24.9	23.9
M	21	49.4	45.7	42.5	39.8	37.3	35.2	33.3	31.6	30.0	28.6	27.4	26.2	25.1
	22	52.0	48.1	44.7	41.8	39.2	37.0	35.0	33.2	31.5	30.1	28.7	27.5	26.4
I	23	54.7	50.5	46.9	43.8	41.1	38.7	36.6	34.7	33.0	31.5	30.1	28.8	27.6
	24	57.3	52.9	49.1	45.9	43.0	40.5	38.3	36.3	34.5	32.9	31.5	30.1	28.9
C	25	60.0	55.4	51.4	48.0	45.0	42.4	40.0	37.9	36.1	34.4	32.8	31.4	30.1
R	26	62.8	57.8	53.7	50.1	46.9	44.2	41.7	39.6	37.6	35.8	34.2	32.7	31.4
	27	65.6	60.4	56.0	52.2	48.9	46.0	43.5	41.2	39.1	37.3	35.6	34.1	32.7
O	28	68.6	63.0	58.3	54.3	50.9	47.9	45.2	42.8	40.7	38.7	37.0	35.4	33.9
	29	71.6	65.6	60.7	56.5	52.9	49.7	46.9	44.5	42.2	40.2	38.4	36.7	35.2
V	30	74.7	68.3	63.1	58.7	54.9	51.6	48.7	46.1	43.8	41.7	39.8	38.1	36.5
O	31	78.0	71.1	65.6	60.9	57.0	53.5	50.5	47.8	45.4	43.2	41.2	39.4	37.8
	32	81.6	74.0	68.1	63.2	59.1	55.5	52.3	49.5	47.0	44.7	42.6	40.8	39.1
L	33		77.0	70.7	65.5	61.2	57.4	54.1	51.2	48.6	46.2	44.1	42.1	40.4
	34		80.2	73.4	67.9	63.3	59.4	55.9	52.9	50.2	47.7	45.5	43.5	41.7
T	35		83.9	76.1	70.3	65.5	61.4	57.8	54.6	51.8	49.3	47.0	44.9	43.0
	36			79.1	72.8	67.7	63.4	59.7	56.4	53.4	50.8	48.4	46.3	44.3
	37			82.3	75.4	70.0	65.5	61.6	58.1	55.1	52.4	49.9	47.7	45.6
R	38				78.1	72.4	67.6	63.5	59.9	56.8	53.9	51.4	49.1	47.0
	39				81.1	74.8	69.7	65.5	61.7	58.5	55.5	52.9	50.5	48.3
E	40				84.5	77.3	71.9	67.5	63.6	60.2	57.1	54.4	51.9	49.7
A	41					80.0	74.2	69.5	65.4	61.9	58.7	55.9	53.4	51.1
	42					82.9	76.6	71.6	67.3	63.6	60.4	57.5	54.8	52.4
D	43						79.1	73.7	69.3	65.4	62.0	59.0	56.3	53.8
	44						81.7	75.9	71.2	67.2	63.7	60.6	57.8	55.2
I	45						84.9	78.3	73.3	69.1	65.4	62.2	59.2	56.6
N	46							80.7	75.4	71.0	67.1	63.8	60.8	58.0
	47							83.5	77.5	72.9	68.9	65.4	62.3	59.5
G	48								79.8	74.9	70.7	67.0	63.8	60.9
	49								82.3	76.9	72.5	68.7	65.4	62.4
	50								85.3	79.0	74.4	70.4	67.0	63.9
	51									81.3	76.3	72.2	68.6	65.4
	52									83.9	78.3	74.0	70.2	66.9
	53										80.5	75.8	71.9	68.4
	54										82.8	77.7	73.6	70.0
	55											79.7	75.3	71.6
	56											81.8	77.1	73.2
	57											84.2	79.0	74.9
	58												81.0	76.6
	59												83.2	78.4
	60													80.3
	61													82.3
	62													84.6
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 30.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 40.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.2	1.2	1.1
2	4.3	4.0	3.8	3.5	3.3	3.2	3.0	2.8	2.7	2.6	2.5	2.4	2.3
3	6.5	6.1	5.7	5.3	5.0	4.7	4.5	4.3	4.1	3.9	3.7	3.6	3.4
4	8.7	8.1	7.6	7.1	6.7	6.3	6.0	5.7	5.4	5.2	5.0	4.8	4.6
5	10.9	10.1	9.5	8.9	8.4	7.9	7.5	7.1	6.8	6.5	6.2	6.0	5.7
6	13.1	12.2	11.4	10.7	10.1	9.5	9.0	8.6	8.2	7.8	7.5	7.2	6.9
7	15.4	14.3	13.3	12.5	11.8	11.1	10.6	10.0	9.6	9.1	8.7	8.4	8.0
8	17.6	16.4	15.3	14.3	13.5	12.8	12.1	11.5	10.9	10.4	10.0	9.6	9.2
9	19.9	18.4	17.2	16.2	15.2	14.4	13.6	12.9	12.3	11.8	11.3	10.8	10.4
10	22.1	20.6	19.2	18.0	16.9	16.0	15.2	14.4	13.7	13.1	12.5	12.0	11.5
11	24.4	22.7	21.2	19.8	18.7	17.6	16.7	15.9	15.1	14.4	13.8	13.2	12.7
12	26.7	24.8	23.1	21.7	20.4	19.3	18.3	17.3	16.5	15.8	15.1	14.5	13.9
13	29.0	26.9	25.1	23.6	22.2	20.9	19.8	18.8	17.9	17.1	16.4	15.7	15.1
14	31.4	29.1	27.1	25.4	23.9	22.6	21.4	20.3	19.3	18.5	17.7	16.9	16.2
15	33.7	31.3	29.2	27.3	25.7	24.2	23.0	21.8	20.8	19.8	18.9	18.1	17.4
16	36.1	33.5	31.2	29.2	27.5	25.9	24.5	23.3	22.2	21.2	20.2	19.4	18.6
17	38.5	35.7	33.2	31.1	29.3	27.6	26.1	24.8	23.6	22.5	21.5	20.6	19.8
18	40.9	37.9	35.3	33.0	31.0	29.3	27.7	26.3	25.0	23.9	22.8	21.9	21.0
19	43.3	40.1	37.4	35.0	32.9	31.0	29.3	27.8	26.5	25.3	24.2	23.1	22.2
20	45.8	42.4	39.4	36.9	34.7	32.7	30.9	29.4	27.9	26.6	25.5	24.4	23.4
M 21	48.3	44.7	41.6	38.9	36.5	34.4	32.6	30.9	29.4	28.0	26.8	25.7	24.6
22	50.8	47.0	43.7	40.8	38.3	36.1	34.2	32.4	30.9	29.4	28.1	26.9	25.8
I 23	53.4	49.3	45.8	42.8	40.2	37.9	35.8	34.0	32.3	30.8	29.4	28.2	27.0
24	55.9	51.7	48.0	44.8	42.1	39.6	37.5	35.5	33.8	32.2	30.8	29.5	28.3
C 25	58.6	54.0	50.2	46.9	44.0	41.4	39.1	37.1	35.3	33.6	32.1	30.7	29.5
R 26	61.3	56.5	52.4	48.9	45.9	43.2	40.8	38.7	36.8	35.0	33.5	32.0	30.7
27	64.0	58.9	54.6	51.0	47.8	45.0	42.5	40.3	38.3	36.5	34.8	33.3	32.0
O 28	66.8	61.4	56.9	53.1	49.7	46.8	44.2	41.9	39.8	37.9	36.2	34.6	33.2
29	69.7	64.0	59.2	55.2	51.7	48.6	45.9	43.5	41.3	39.3	37.6	35.9	34.4
V 30	72.6	66.6	61.6	57.3	53.6	50.4	47.6	45.1	42.8	40.8	38.9	37.2	35.7
O 31	75.8	69.2	63.9	59.5	55.6	52.3	49.3	46.7	44.4	42.2	40.3	38.6	37.0
32	79.1	72.0	66.4	61.7	57.7	54.2	51.1	48.4	45.9	43.7	41.7	39.9	38.2
L 33	82.7	74.8	68.9	63.9	59.7	56.1	52.8	50.0	47.5	45.2	43.1	41.2	39.5
34		77.8	71.4	66.2	61.8	58.0	54.6	51.7	49.0	46.7	44.5	42.6	40.8
T 35		81.1	74.1	68.5	63.9	59.9	56.4	53.4	50.6	48.2	45.9	43.9	42.0
36		85.0	76.8	70.9	66.0	61.9	58.3	55.1	52.2	49.7	47.3	45.3	43.3
37			79.8	73.4	68.2	63.9	60.1	56.8	53.8	51.2	48.8	46.6	44.6
R 38			83.0	75.9	70.5	65.9	62.0	58.5	55.4	52.7	50.2	48.0	45.9
39				78.6	72.8	68.0	63.9	60.3	57.1	54.2	51.7	49.4	47.2
E 40				81.5	75.2	70.1	65.8	62.0	58.7	55.8	53.1	50.8	48.6
A 41				85.0	77.7	72.3	67.7	63.8	60.4	57.4	54.6	52.2	49.9
42					80.3	74.5	69.7	65.7	62.1	58.9	56.1	53.6	51.2
D 43					83.2	76.8	71.8	67.5	63.8	60.6	57.6	55.0	52.6
44						79.2	73.9	69.4	65.6	62.2	59.1	56.4	53.9
I 45						81.9	76.1	71.4	67.3	63.8	60.7	57.9	55.3
N 46						85.0	78.3	73.3	69.1	65.5	62.2	59.3	56.7
47							80.7	75.4	71.0	67.2	63.8	60.8	58.1
G 48							83.4	77.5	72.9	68.9	65.4	62.3	59.5
49								79.8	74.8	70.6	67.0	63.8	60.9
50								82.2	76.8	72.4	68.7	65.3	62.3
51								85.0	78.9	74.3	70.3	66.9	63.8
52									81.1	76.2	72.0	68.4	65.2
53									83.6	78.1	73.8	70.0	66.7
54										80.2	75.6	71.7	68.2
55										82.4	77.4	73.3	69.8
56										85.0	79.4	75.0	71.3
57											81.4	76.8	72.9
58											83.7	78.6	74.6
59												80.5	76.2
60												82.6	78.0
61												85.1	79.8
62													81.7
63													83.8
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 0.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	6.2	5.9	5.7	5.5	5.3	5.1	4.9	4.7	4.5	4.4	4.3	4.1	4.0
2	12.6	12.1	11.6	11.1	10.6	10.2	9.9	9.5	9.2	8.9	8.6	8.3	8.1
3	19.3	18.4	17.6	16.9	16.2	15.6	15.0	14.5	14.0	13.5	13.1	12.6	12.3
4	26.2	25.0	23.9	22.9	21.9	21.1	20.3	19.5	18.9	18.2	17.6	17.1	16.5
5	33.5	31.9	30.4	29.1	27.9	26.8	25.7	24.8	23.9	23.1	22.3	21.6	20.9
6	41.2	39.2	37.3	35.6	34.1	32.7	31.4	30.2	29.1	28.1	27.1	26.2	25.4
7	49.6	47.0	44.6	42.5	40.6	38.9	37.3	35.9	34.5	33.3	32.1	31.1	30.1
8	58.9	55.5	52.6	50.0	47.6	45.5	43.6	41.8	40.2	38.7	37.3	36.1	34.9
9	70.3	65.4	61.5	58.1	55.2	52.6	50.2	48.1	46.2	44.4	42.8	41.3	39.9
10			72.6	67.7	63.8	60.5	57.5	54.9	52.6	50.5	48.5	46.8	45.1
11					74.9	69.8	65.9	62.5	59.6	57.0	54.7	52.6	50.7
12							77.2	71.7	67.7	64.4	61.5	59.0	56.6
13										73.6	69.5	66.2	63.3
14												75.4	71.1

MOISTURE

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 1.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	6.0	5.7	5.5	5.2	5.0	4.8	4.6	4.5	4.3	4.2	4.0	3.9	3.8
2	12.2	11.6	11.1	10.6	10.2	9.8	9.4	9.0	8.7	8.4	8.1	7.9	7.6
3	18.6	17.7	16.9	16.1	15.5	14.8	14.3	13.7	13.2	12.8	12.3	11.9	11.6
4	25.2	24.0	22.9	21.8	20.9	20.1	19.3	18.5	17.9	17.2	16.6	16.1	15.6
5	32.2	30.6	29.1	27.8	26.6	25.4	24.4	23.5	22.6	21.8	21.1	20.4	19.7
6	39.5	37.5	35.6	33.9	32.4	31.0	29.8	28.6	27.5	26.5	25.6	24.7	23.9
7	47.4	44.8	42.5	40.4	38.6	36.9	35.3	33.9	32.6	31.4	30.3	29.2	28.2
8	56.1	52.8	49.9	47.3	45.1	43.0	41.1	39.4	37.9	36.4	35.1	33.9	32.7
9	66.1	61.7	58.0	54.8	52.0	49.5	47.3	45.3	43.4	41.7	40.1	38.7	37.3
10		72.8	67.5	63.3	59.7	56.6	53.9	51.5	49.3	47.2	45.4	43.7	42.2
11				73.9	68.7	64.6	61.2	58.2	55.6	53.2	51.0	49.0	47.2
12						74.8	69.8	65.9	62.5	59.6	57.0	54.7	52.6
13								75.7	70.7	66.9	63.7	60.9	58.3
14										76.5	71.6	67.9	64.7
15												77.2	72.4

MINOR ROVOLOT ADING

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 2.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	5.7	5.5	5.2	5.0	4.8	4.6	4.4	4.2	4.1	3.9	3.8	3.7	3.6
2	11.7	11.1	10.6	10.1	9.7	9.3	8.9	8.6	8.2	8.0	7.7	7.4	7.2
3	17.8	16.9	16.1	15.3	14.7	14.1	13.5	13.0	12.5	12.1	11.6	11.3	10.9
4	24.1	22.9	21.7	20.7	19.8	19.0	18.2	17.5	16.9	16.2	15.7	15.2	14.7
5	30.7	29.1	27.6	26.3	25.1	24.1	23.1	22.2	21.3	20.5	19.8	19.1	18.5
6	37.6	35.6	33.8	32.1	30.7	29.3	28.1	27.0	25.9	24.9	24.1	23.2	22.4
7	45.0	42.5	40.2	38.2	36.4	34.8	33.3	31.9	30.6	29.5	28.4	27.4	26.5
8	52.9	49.8	47.1	44.6	42.4	40.5	38.7	37.0	35.6	34.2	32.9	31.7	30.6
9	61.9	57.9	54.5	51.5	48.8	46.5	44.3	42.4	40.7	39.0	37.6	36.2	34.9
10	72.9	67.2	62.7	59.0	55.8	52.9	50.4	48.1	46.0	44.1	42.4	40.8	39.4
11			72.9	67.7	63.5	59.9	56.9	54.1	51.7	49.5	47.5	45.7	44.0
12					72.9	68.0	64.1	60.8	57.8	55.2	52.9	50.7	48.8
13						79.6	72.8	68.3	64.6	61.5	58.7	56.2	53.9
14								78.8	72.8	68.6	65.1	62.1	59.4
15										78.2	72.8	68.8	65.5
16												77.8	72.8

MICROVOLT OFFSET

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 3.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	5.5	5.2	5.0	4.7	4.5	4.4	4.2	4.0	3.9	3.7	3.6	3.5	3.4
2	11.1	10.6	10.1	9.6	9.2	8.8	8.4	8.1	7.8	7.5	7.3	7.0	6.8
3	17.0	16.1	15.3	14.6	13.9	13.3	12.8	12.3	11.8	11.4	11.0	10.6	10.3
4	23.0	21.8	20.7	19.7	18.8	18.0	17.3	16.6	15.9	15.3	14.8	14.3	13.8
5	29.2	27.6	26.2	25.0	23.8	22.8	21.8	20.9	20.1	19.4	18.7	18.0	17.4
6	35.7	33.8	32.0	30.4	29.0	27.7	26.5	25.4	24.4	23.5	22.7	21.9	21.1
7	42.6	40.2	38.1	36.1	34.4	32.8	31.4	30.1	28.9	27.8	26.7	25.8	24.9
8	50.0	47.0	44.4	42.1	40.0	38.1	36.4	34.9	33.4	32.1	30.9	29.8	28.8
9	58.1	54.4	51.2	48.4	45.9	43.7	41.7	39.9	38.2	36.7	35.3	34.0	32.7
10	67.5	62.6	58.6	55.2	52.2	49.6	47.2	45.1	43.1	41.4	39.7	38.2	36.8
11		72.6	67.1	62.7	59.1	55.9	53.1	50.6	48.3	46.3	44.4	42.7	41.1
12			78.7	71.7	66.8	62.8	59.4	56.5	53.8	51.4	49.3	47.3	45.5
13					76.8	71.0	66.6	62.9	59.7	57.0	54.4	52.2	50.1
14							75.5	70.4	66.4	63.0	60.0	57.4	55.0
15									74.4	69.9	66.2	63.0	60.3
16										79.4	73.6	69.5	66.1
17												77.8	72.8
18													
19													
20													
M 21													
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 4.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	5.3	5.0	4.7	4.5	4.3	4.1	4.0	3.8	3.7	3.5	3.4	3.3	3.2
	2	10.7	10.1	9.6	9.2	8.7	8.4	8.0	7.7	7.4	7.1	6.9	6.7	6.4
	3	16.2	15.3	14.6	13.9	13.3	12.7	12.1	11.7	11.2	10.8	10.4	10.1	9.7
	4	21.9	20.7	19.7	18.7	17.9	17.1	16.4	15.7	15.1	14.5	14.0	13.5	13.1
	5	27.8	26.3	25.0	23.7	22.6	21.6	20.7	19.8	19.1	18.3	17.7	17.1	16.5
	6	34.0	32.1	30.4	28.9	27.5	26.3	25.1	24.1	23.1	22.2	21.4	20.7	19.9
	7	40.5	38.2	36.1	34.2	32.6	31.1	29.7	28.4	27.3	26.2	25.2	24.3	23.5
	8	47.4	44.5	42.0	39.8	37.8	36.0	34.4	32.9	31.6	30.3	29.2	28.1	27.1
	9	54.8	51.3	48.3	45.7	43.3	41.2	39.3	37.6	36.0	34.5	33.2	32.0	30.8
	10	63.0	58.7	55.1	51.9	49.1	46.6	44.4	42.4	40.6	38.9	37.4	35.9	34.6
	11	73.0	67.1	62.5	58.6	55.3	52.4	49.8	47.4	45.3	43.4	41.7	40.0	38.6
	12		78.4	71.3	66.2	62.1	58.6	55.5	52.8	50.3	48.1	46.1	44.3	42.6
	13				75.6	69.9	65.4	61.7	58.5	55.7	53.1	50.8	48.7	46.8
	14						73.7	68.8	64.8	61.4	58.4	55.8	53.4	51.3
	15							77.9	72.1	67.8	64.2	61.1	58.4	55.9
	16									75.7	70.9	67.1	63.8	60.9
	17										80.2	74.1	69.9	66.4
	18												77.6	72.7
	19													
	20													
M	21													
	22													
I	23													
	24													
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 5.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	5.0	4.8	4.5	4.3	4.1	4.0	3.8	3.6	3.5	3.4	3.2	3.1	3.0
	2	10.2	9.7	9.2	8.7	8.3	8.0	7.6	7.3	7.0	6.8	6.5	6.3	6.1
	3	15.5	14.7	13.9	13.2	12.6	12.1	11.6	11.1	10.7	10.3	9.9	9.5	9.2
	4	21.0	19.8	18.8	17.9	17.0	16.3	15.6	14.9	14.3	13.8	13.3	12.8	12.4
	5	26.6	25.1	23.8	22.6	21.5	20.6	19.7	18.8	18.1	17.4	16.8	16.2	15.6
	6	32.4	30.6	29.0	27.5	26.2	25.0	23.9	22.9	21.9	21.1	20.3	19.6	18.9
	7	38.5	36.3	34.3	32.5	30.9	29.5	28.2	27.0	25.9	24.8	23.9	23.0	22.2
	8	45.0	42.3	39.9	37.8	35.9	34.1	32.6	31.2	29.9	28.7	27.6	26.6	25.6
	9	51.8	48.6	45.7	43.2	41.0	39.0	37.2	35.5	34.0	32.6	31.4	30.2	29.1
	10	59.3	55.3	51.9	49.0	46.3	44.0	41.9	40.0	38.3	36.7	35.3	33.9	32.7
	11	67.8	62.8	58.6	55.1	52.0	49.3	46.9	44.7	42.7	40.9	39.3	37.7	36.3
	12	79.3	71.5	66.2	61.8	58.1	54.9	52.1	49.6	47.3	45.3	43.4	41.7	40.1
	13			75.4	69.4	64.8	61.0	57.7	54.8	52.2	49.8	47.7	45.8	44.0
	14				79.8	72.7	67.8	63.8	60.3	57.3	54.6	52.2	50.0	48.0
	15						76.1	70.7	66.4	62.9	59.7	57.0	54.5	52.3
	16							80.2	73.6	69.1	65.3	62.1	59.2	56.7
	17									76.8	71.7	67.8	64.4	61.4
	18										80.6	74.4	70.2	66.6
	19												77.3	72.6
	20													80.9
M	21													
	22													
I	23													
	24													
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 6.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.8	4.6	4.4	4.1	4.0	3.8	3.6	3.5	3.3	3.2	3.1	3.0	2.9
2	9.8	9.3	8.8	8.4	8.0	7.6	7.3	7.0	6.7	6.5	6.2	6.0	5.8
3	14.9	14.1	13.3	12.7	12.1	11.5	11.0	10.6	10.2	9.8	9.4	9.1	8.8
4	20.1	19.0	18.0	17.1	16.3	15.5	14.9	14.2	13.7	13.1	12.7	12.2	11.8
5	25.5	24.0	22.7	21.6	20.5	19.6	18.7	18.0	17.2	16.6	15.9	15.4	14.8
6	31.0	29.2	27.6	26.2	24.9	23.8	22.7	21.8	20.9	20.0	19.3	18.6	17.9
7	36.8	34.6	32.7	31.0	29.4	28.1	26.8	25.6	24.6	23.6	22.7	21.9	21.1
8	42.8	40.2	37.9	35.9	34.1	32.5	31.0	29.6	28.4	27.2	26.2	25.2	24.3
9	49.2	46.1	43.4	41.0	38.9	37.0	35.3	33.7	32.3	31.0	29.7	28.6	27.6
10	56.1	52.4	49.2	46.4	43.9	41.7	39.7	37.9	36.3	34.8	33.4	32.1	30.9
11	63.6	59.1	55.3	52.0	49.2	46.6	44.3	42.3	40.4	38.7	37.1	35.7	34.4
12	72.6	66.7	62.0	58.1	54.7	51.8	49.1	46.8	44.7	42.7	41.0	39.4	37.9
13		76.0	69.6	64.8	60.7	57.3	54.2	51.5	49.1	47.0	45.0	43.2	41.5
14			79.8	72.5	67.4	63.2	59.7	56.6	53.8	51.3	49.1	47.1	45.2
15					75.4	69.9	65.6	61.9	58.8	56.0	53.5	51.2	49.1
16						78.5	72.4	67.9	64.1	60.9	58.0	55.5	53.1
17								74.9	70.2	66.3	62.9	60.0	57.4
18									77.6	72.4	68.3	64.9	61.9
19										80.7	74.6	70.3	66.8
20												76.9	72.3
M 21													79.5
22													
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 7.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.7	4.4	4.2	4.0	3.8	3.6	3.5	3.3	3.2	3.1	3.0	2.9	2.8
2	9.4	8.9	8.4	8.0	7.6	7.3	7.0	6.7	6.4	6.2	6.0	5.8	5.6
3	14.3	13.5	12.8	12.1	11.6	11.0	10.6	10.1	9.7	9.3	9.0	8.7	8.4
4	19.3	18.2	17.2	16.4	15.6	14.9	14.2	13.6	13.1	12.6	12.1	11.7	11.2
5	24.4	23.0	21.8	20.7	19.7	18.7	17.9	17.2	16.5	15.8	15.2	14.7	14.2
6	29.7	28.0	26.4	25.1	23.8	22.7	21.7	20.8	19.9	19.1	18.4	17.7	17.1
7	35.2	33.1	31.3	29.6	28.1	26.8	25.6	24.5	23.4	22.5	21.6	20.8	20.1
8	40.9	38.4	36.2	34.3	32.5	30.9	29.5	28.2	27.0	25.9	24.9	24.0	23.1
9	46.9	44.0	41.4	39.1	37.1	35.2	33.6	32.1	30.7	29.5	28.3	27.2	26.2
10	53.3	49.8	46.8	44.1	41.8	39.7	37.8	36.0	34.5	33.1	31.7	30.5	29.4
11	60.1	56.0	52.4	49.4	46.7	44.2	42.1	40.1	38.4	36.7	35.3	33.9	32.6
12	67.9	62.8	58.5	54.9	51.8	49.0	46.6	44.4	42.4	40.5	38.9	37.3	35.9
13	77.5	70.4	65.2	60.9	57.2	54.1	51.3	48.8	46.5	44.5	42.6	40.9	39.3
14		81.0	72.9	67.5	63.1	59.4	56.2	53.3	50.8	48.5	46.4	44.5	42.8
15				75.4	69.7	65.3	61.5	58.2	55.3	52.7	50.4	48.3	46.4
16					77.9	71.9	67.3	63.4	60.1	57.2	54.6	52.2	50.1
17						80.8	74.0	69.2	65.3	61.9	59.0	56.3	54.0
18								76.1	71.1	67.1	63.7	60.7	58.0
19									78.2	72.9	68.8	65.3	62.3
20										80.7	74.7	70.5	66.9
M 21												76.6	72.1
22													78.5
I 23													
24													
C 25													
R 26													
27													
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 8.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	4.5	4.3	4.0	3.8	3.6	3.5	3.3	3.2	3.1	2.9	2.8	2.7	2.6
	2	9.1	8.6	8.1	7.7	7.4	7.0	6.7	6.4	6.2	5.9	5.7	5.5	5.3
	3	13.8	13.0	12.3	11.7	11.1	10.6	10.1	9.7	9.3	9.0	8.6	8.3	8.0
	4	18.6	17.5	16.6	15.7	14.9	14.3	13.6	13.0	12.5	12.0	11.6	11.2	10.8
	5	23.5	22.1	20.9	19.8	18.9	18.0	17.2	16.4	15.8	15.1	14.6	14.0	13.5
	6	28.5	26.9	25.4	24.0	22.8	21.8	20.8	19.9	19.1	18.3	17.6	17.0	16.4
	7	33.8	31.7	30.0	28.4	26.9	25.6	24.5	23.4	22.4	21.5	20.7	19.9	19.2
	8	39.2	36.8	34.7	32.8	31.1	29.6	28.2	27.0	25.8	24.8	23.8	22.9	22.1
	9	44.8	42.0	39.5	37.4	35.4	33.7	32.1	30.6	29.3	28.1	27.0	26.0	25.0
	10	50.8	47.5	44.6	42.1	39.8	37.8	36.0	34.4	32.9	31.5	30.3	29.1	28.0
	11	57.1	53.3	49.9	47.0	44.4	42.2	40.1	38.2	36.6	35.0	33.6	32.3	31.1
	12	64.1	59.4	55.5	52.2	49.2	46.6	44.3	42.2	40.3	38.6	37.0	35.5	34.2
	13	72.0	66.2	61.6	57.6	54.3	51.3	48.7	46.3	44.2	42.2	40.5	38.9	37.4
	14		74.1	68.2	63.5	59.6	56.2	53.2	50.6	48.2	46.0	44.1	42.3	40.6
	15			76.2	70.1	65.4	61.4	58.0	55.0	52.4	50.0	47.8	45.8	44.0
	16				78.3	71.9	67.2	63.2	59.7	56.7	54.0	51.6	49.4	47.4
	17					80.5	73.7	68.8	64.8	61.3	58.3	55.6	53.2	51.0
	18							75.4	70.4	66.3	62.9	59.8	57.1	54.7
	19								77.1	71.9	67.8	64.3	61.3	58.6
	20									78.8	73.4	69.2	65.7	62.6
M	21										80.6	74.8	70.6	67.0
	22												76.2	71.9
I	23													77.6
	24													
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 9.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	4.3	4.1	3.9	3.7	3.5	3.4	3.2	3.1	3.0	2.8	2.7	2.6	2.5
	2	8.8	8.3	7.8	7.4	7.1	6.8	6.5	6.2	5.9	5.7	5.5	5.3	5.1
	3	13.3	12.5	11.9	11.3	10.7	10.2	9.8	9.3	9.0	8.6	8.3	8.0	7.7
	4	17.9	16.9	16.0	15.1	14.4	13.7	13.1	12.5	12.0	11.6	11.1	10.7	10.3
	5	22.6	21.3	20.1	19.1	18.1	17.3	16.5	15.8	15.1	14.5	14.0	13.5	13.0
	6	27.5	25.9	24.4	23.1	22.0	20.9	20.0	19.1	18.3	17.6	16.9	16.3	15.7
	7	32.5	30.5	28.8	27.2	25.9	24.6	23.5	22.4	21.5	20.6	19.8	19.1	18.4
	8	37.6	35.3	33.3	31.5	29.8	28.4	27.1	25.9	24.8	23.8	22.8	22.0	21.2
	9	43.0	40.3	37.9	35.8	33.9	32.3	30.7	29.3	28.1	26.9	25.9	24.9	24.0
	10	48.6	45.4	42.7	40.3	38.1	36.2	34.5	32.9	31.5	30.2	29.0	27.8	26.8
	11	54.5	50.8	47.7	44.9	42.5	40.3	38.3	36.6	34.9	33.5	32.1	30.9	29.7
	12	60.8	56.6	52.9	49.7	47.0	44.5	42.3	40.3	38.5	36.8	35.3	33.9	32.7
	13	67.8	62.7	58.5	54.8	51.6	48.9	46.4	44.1	42.1	40.3	38.6	37.1	35.7
	14	76.2	69.5	64.4	60.2	56.6	53.4	50.6	48.1	45.9	43.8	42.0	40.3	38.7
	15		77.9	71.1	66.0	61.8	58.2	55.0	52.3	49.8	47.5	45.5	43.6	41.9
	16			79.5	72.6	67.5	63.3	59.7	56.6	53.8	51.3	49.0	47.0	45.1
	17				81.3	74.0	68.9	64.7	61.1	58.0	55.2	52.7	50.5	48.4
	18						75.4	70.2	66.0	62.5	59.4	56.6	54.1	51.8
	19							76.6	71.5	67.3	63.7	60.6	57.9	55.4
	20								77.9	72.6	68.5	64.9	61.8	59.1
M	21									79.1	73.8	69.6	66.1	63.0
	22										80.4	74.9	70.7	67.1
I	23											81.8	75.9	71.7
	24													76.9
C	25													
R	26													
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 10.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	4.2	4.0	3.8	3.6	3.4	3.2	3.1	3.0	2.8	2.7	2.6	2.5	2.4
	2	8.5	8.0	7.6	7.2	6.8	6.5	6.2	6.0	5.7	5.5	5.3	5.1	4.9
	3	12.9	12.1	11.5	10.9	10.3	9.8	9.4	9.0	8.6	8.3	8.0	7.7	7.4
	4	17.3	16.3	15.4	14.6	13.9	13.2	12.6	12.1	11.6	11.1	10.7	10.3	9.9
	5	21.9	20.6	19.4	18.4	17.5	16.7	15.9	15.2	14.6	14.0	13.4	13.0	12.5
	6	26.5	24.9	23.5	22.3	21.2	20.1	19.2	18.4	17.6	16.9	16.2	15.6	15.1
	7	31.3	29.4	27.7	26.2	24.9	23.7	22.6	21.6	20.7	19.8	19.1	18.3	17.7
	8	36.2	34.0	32.0	30.3	28.7	27.3	26.0	24.9	23.8	22.8	21.9	21.1	20.3
	9	41.3	38.7	36.4	34.4	32.6	31.0	29.5	28.2	27.0	25.9	24.8	23.9	23.0
	10	46.6	43.6	41.0	38.7	36.6	34.8	33.1	31.6	30.2	28.9	27.8	26.7	25.7
	11	52.2	48.7	45.7	43.1	40.7	38.6	36.7	35.0	33.5	32.1	30.8	29.6	28.5
	12	58.1	54.1	50.6	47.6	45.0	42.6	40.5	38.6	36.9	35.3	33.8	32.5	31.3
	13	64.4	59.7	55.8	52.3	49.4	46.7	44.3	42.2	40.3	38.6	37.0	35.5	34.1
	14	71.6	65.9	61.2	57.3	53.9	51.0	48.3	46.0	43.8	41.9	40.1	38.5	37.0
	15	80.6	72.8	67.2	62.6	58.8	55.4	52.5	49.8	47.5	45.3	43.4	41.6	40.0
	16		81.9	73.9	68.4	63.9	60.1	56.8	53.8	51.2	48.9	46.8	44.8	43.0
	17			83.5	75.0	69.5	65.1	61.3	58.0	55.1	52.5	50.2	48.1	46.1
	18					76.0	70.5	66.2	62.5	59.2	56.3	53.8	51.4	49.3
	19						76.9	71.5	67.2	63.5	60.3	57.5	54.9	52.6
	20							77.8	72.4	68.2	64.5	61.4	58.5	56.0
M	21								78.6	73.3	69.1	65.5	62.3	59.6
	22									79.5	74.1	69.9	66.4	63.3
I	23										80.3	74.9	70.7	67.2
	24											81.1	75.6	71.5
C	25												81.9	76.3
R	26													82.8
	27													
O	28													
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 11.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	4.1	3.9	3.6	3.5	3.3	3.1	3.0	2.9	2.7	2.6	2.5	2.4	2.4
2	8.2	7.8	7.3	7.0	6.6	6.3	6.0	5.8	5.5	5.3	5.1	4.9	4.7
3	12.5	11.7	11.1	10.5	10.0	9.5	9.1	8.7	8.3	8.0	7.7	7.4	7.2
4	16.8	15.8	14.9	14.1	13.4	12.8	12.2	11.7	11.2	10.7	10.3	9.9	9.6
5	21.2	19.9	18.8	17.8	16.9	16.1	15.3	14.7	14.1	13.5	13.0	12.5	12.0
6	25.7	24.1	22.7	21.5	20.4	19.4	18.5	17.7	17.0	16.3	15.6	15.1	14.5
7	30.3	28.4	26.8	25.3	24.0	22.8	21.8	20.8	19.9	19.1	18.4	17.7	17.0
8	35.0	32.8	30.9	29.2	27.7	26.3	25.1	23.9	22.9	22.0	21.1	20.3	19.6
9	39.8	37.3	35.1	33.2	31.4	29.8	28.4	27.1	26.0	24.9	23.9	23.0	22.1
10	44.9	42.0	39.5	37.2	35.2	33.4	31.8	30.4	29.1	27.8	26.7	25.7	24.7
11	50.1	46.8	43.9	41.4	39.1	37.1	35.3	33.7	32.2	30.8	29.6	28.4	27.4
12	55.6	51.8	48.6	45.7	43.2	40.9	38.9	37.1	35.4	33.9	32.5	31.2	30.0
13	61.5	57.1	53.4	50.2	47.3	44.8	42.5	40.5	38.7	37.0	35.5	34.1	32.8
14	67.9	62.8	58.5	54.8	51.6	48.8	46.3	44.0	42.0	40.2	38.5	36.9	35.5
15	75.2	68.9	63.9	59.7	56.1	53.0	50.2	47.7	45.5	43.4	41.6	39.9	38.3
16		75.9	69.8	64.9	60.8	57.3	54.2	51.4	49.0	46.8	44.7	42.9	41.2
17			76.6	70.6	65.8	61.8	58.4	55.3	52.6	50.2	48.0	46.0	44.1
18				77.2	71.4	66.7	62.8	59.4	56.4	53.7	51.3	49.1	47.1
19					77.8	72.0	67.5	63.7	60.3	57.4	54.7	52.4	50.2
20						78.3	72.7	68.3	64.5	61.2	58.3	55.7	53.3
M 21							78.8	73.3	68.9	65.3	62.0	59.2	56.6
22								79.3	73.9	69.6	66.0	62.8	60.0
I 23									79.7	74.4	70.2	66.6	63.5
24										80.1	74.9	70.8	67.3
C 25											80.5	75.3	71.3
R 26												80.9	75.8
27													81.3
O 28													
29													
V 30													
O 31													
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 12.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	4.0	3.7	3.5	3.4	3.2	3.0	2.9	2.8	2.7	2.6	2.5	2.4	2.3
	2	8.0	7.5	7.1	6.8	6.4	6.1	5.8	5.6	5.4	5.1	4.9	4.8	4.6
	3	12.1	11.4	10.8	10.2	9.7	9.2	8.8	8.4	8.1	7.7	7.4	7.2	6.9
	4	16.3	15.3	14.5	13.7	13.0	12.4	11.8	11.3	10.8	10.4	10.0	9.6	9.3
	5	20.5	19.3	18.2	17.2	16.4	15.6	14.8	14.2	13.6	13.0	12.5	12.1	11.6
	6	24.9	23.4	22.0	20.8	19.8	18.8	17.9	17.1	16.4	15.7	15.1	14.5	14.0
	7	29.3	27.5	25.9	24.5	23.2	22.1	21.0	20.1	19.2	18.5	17.7	17.1	16.4
	8	33.8	31.7	29.9	28.2	26.7	25.4	24.2	23.1	22.1	21.2	20.4	19.6	18.9
	9	38.5	36.1	33.9	32.0	30.3	28.8	27.4	26.2	25.0	24.0	23.0	22.2	21.3
	10	43.3	40.5	38.1	35.9	34.0	32.3	30.7	29.3	28.0	26.8	25.7	24.8	23.8
	11	48.3	45.1	42.3	39.9	37.7	35.8	34.0	32.5	31.0	29.7	28.5	27.4	26.4
	12	53.5	49.9	46.7	44.0	41.6	39.4	37.4	35.7	34.1	32.6	31.3	30.1	28.9
	13	59.0	54.8	51.3	48.2	45.5	43.1	40.9	39.0	37.2	35.6	34.1	32.8	31.5
	14	64.8	60.1	56.0	52.6	49.5	46.9	44.5	42.3	40.4	38.6	37.0	35.5	34.1
	15	71.3	65.7	61.0	57.1	53.8	50.8	48.1	45.8	43.6	41.7	39.9	38.3	36.8
	16	78.9	71.8	66.4	61.9	58.1	54.8	51.9	49.3	47.0	44.9	42.9	41.2	39.5
	17		79.1	72.3	67.1	62.7	59.0	55.8	52.9	50.4	48.1	46.0	44.1	42.3
	18			79.3	72.7	67.7	63.5	59.9	56.7	53.9	51.4	49.1	47.0	45.1
	19				79.4	73.1	68.2	64.2	60.7	57.6	54.8	52.3	50.1	48.0
	20					79.5	73.5	68.8	64.8	61.4	58.4	55.7	53.2	51.0
M	21						79.6	73.8	69.2	65.4	62.0	59.1	56.4	54.0
	22							79.7	74.1	69.7	65.9	62.7	59.8	57.2
I	23								79.8	74.4	70.1	66.4	63.2	60.4
	24									79.9	74.6	70.5	66.9	63.8
C	25										80.0	74.9	70.8	67.3
R	26											80.0	75.1	71.1
	27												80.1	75.3
O	28													80.2
	29													
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 13.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.9	3.6	3.4	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4	2.3	2.2
	2	7.8	7.3	6.9	6.6	6.2	5.9	5.7	5.4	5.2	5.0	4.8	4.6	4.4
	3	11.8	11.1	10.5	9.9	9.4	8.9	8.5	8.2	7.8	7.5	7.2	6.9	6.7
	4	15.8	14.9	14.0	13.3	12.6	12.0	11.4	10.9	10.5	10.0	9.7	9.3	9.0
	5	20.0	18.7	17.7	16.7	15.9	15.1	14.4	13.7	13.2	12.6	12.1	11.7	11.2
	6	24.2	22.7	21.4	20.2	19.2	18.2	17.4	16.6	15.9	15.2	14.6	14.1	13.6
	7	28.4	26.7	25.1	23.7	22.5	21.4	20.4	19.5	18.6	17.8	17.1	16.5	15.9
	8	32.8	30.8	28.9	27.3	25.9	24.6	23.4	22.4	21.4	20.5	19.7	18.9	18.2
	9	37.3	34.9	32.8	31.0	29.3	27.9	26.5	25.3	24.2	23.2	22.3	21.4	20.6
	10	41.9	39.2	36.8	34.7	32.9	31.2	29.7	28.3	27.1	25.9	24.9	23.9	23.0
	11	46.7	43.6	40.9	38.5	36.4	34.6	32.9	31.3	29.9	28.7	27.5	26.4	25.4
	12	51.6	48.1	45.1	42.4	40.1	38.0	36.1	34.4	32.9	31.5	30.2	29.0	27.9
	13	56.8	52.8	49.4	46.5	43.8	41.5	39.4	37.6	35.9	34.3	32.9	31.6	30.4
	14	62.2	57.7	53.9	50.6	47.7	45.1	42.8	40.8	38.9	37.2	35.6	34.2	32.9
	15	68.1	62.9	58.6	54.9	51.7	48.8	46.3	44.0	42.0	40.1	38.4	36.9	35.5
	16	74.6	68.5	63.5	59.4	55.8	52.6	49.9	47.4	45.2	43.1	41.3	39.6	38.1
	17	83.0	74.6	68.8	64.1	60.1	56.6	53.5	50.8	48.4	46.2	44.2	42.4	40.7
	18		82.4	74.7	69.1	64.6	60.7	57.3	54.4	51.7	49.3	47.2	45.2	43.4
	19			81.9	74.7	69.4	65.0	61.3	58.0	55.1	52.5	50.2	48.1	46.1
	20				81.5	74.7	69.7	65.5	61.8	58.7	55.8	53.3	51.0	48.9
M	21					81.1	74.8	69.9	65.9	62.3	59.3	56.5	54.0	51.7
	22						80.8	74.8	70.1	66.2	62.8	59.8	57.1	54.7
I	23							80.5	74.8	70.3	66.5	63.2	60.3	57.7
	24								80.3	74.8	70.5	66.9	63.6	60.8
C	25									80.0	74.8	70.7	67.1	64.0
R	26										79.8	74.8	70.8	67.4
	27											79.6	74.9	71.0
O	28												79.4	74.9
	29													79.3
V	30													
O	31													
	32													
L	33													
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 14.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.8	3.6	3.4	3.2	3.0	2.9	2.7	2.6	2.5	2.4	2.3	2.2	2.1
2	7.6	7.2	6.7	6.4	6.1	5.8	5.5	5.3	5.0	4.8	4.6	4.5	4.3
3	11.5	10.8	10.2	9.6	9.1	8.7	8.3	7.9	7.6	7.3	7.0	6.7	6.5
4	15.4	14.5	13.7	12.9	12.3	11.7	11.1	10.6	10.2	9.7	9.4	9.0	8.7
5	19.4	18.2	17.2	16.2	15.4	14.6	14.0	13.3	12.8	12.2	11.8	11.3	10.9
6	23.5	22.0	20.8	19.6	18.6	17.7	16.8	16.1	15.4	14.8	14.2	13.6	13.1
7	27.6	25.9	24.4	23.0	21.8	20.7	19.8	18.9	18.0	17.3	16.6	16.0	15.4
8	31.9	29.9	28.1	26.5	25.1	23.8	22.7	21.7	20.7	19.9	19.1	18.3	17.6
9	36.2	33.9	31.8	30.0	28.4	27.0	25.7	24.5	23.4	22.4	21.5	20.7	19.9
10	40.6	38.0	35.7	33.6	31.8	30.2	28.7	27.4	26.2	25.1	24.1	23.1	22.2
11	45.2	42.2	39.6	37.3	35.3	33.4	31.8	30.3	29.0	27.7	26.6	25.6	24.6
12	49.9	46.5	43.6	41.0	38.8	36.7	34.9	33.3	31.8	30.4	29.2	28.0	26.9
13	54.8	51.0	47.7	44.9	42.4	40.1	38.1	36.3	34.6	33.1	31.8	30.5	29.3
14	59.9	55.6	52.0	48.8	46.0	43.6	41.3	39.4	37.5	35.9	34.4	33.0	31.8
15	65.3	60.5	56.4	52.9	49.8	47.1	44.7	42.5	40.5	38.7	37.1	35.6	34.2
16	71.2	65.6	61.0	57.1	53.7	50.7	48.0	45.7	43.5	41.6	39.8	38.2	36.7
17	77.9	71.1	65.9	61.5	57.7	54.4	51.5	48.9	46.6	44.5	42.6	40.8	39.2
18		77.4	71.1	66.1	61.9	58.3	55.1	52.3	49.7	47.5	45.4	43.5	41.8
19			77.0	71.1	66.3	62.3	58.8	55.7	53.0	50.5	48.3	46.2	44.4
20				76.6	71.0	66.5	62.6	59.3	56.3	53.6	51.2	49.0	47.0
M 21				83.7	76.3	71.0	66.7	62.9	59.7	56.8	54.2	51.8	49.7
22					82.7	75.9	71.0	66.8	63.2	60.1	57.3	54.7	52.4
I 23						81.9	75.7	70.9	67.0	63.5	60.5	57.7	55.3
24							81.2	75.4	70.9	67.1	63.8	60.8	58.2
C 25								80.6	75.2	70.9	67.2	64.0	61.1
R 26									80.1	75.0	70.9	67.3	64.2
27										79.7	74.8	70.9	67.5
O 28											79.3	74.6	70.8
29												78.9	74.5
V 30												84.5	78.5
O 31													83.6
32													
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 15.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.7	3.5	3.3	3.1	2.9	2.8	2.7	2.5	2.4	2.3	2.2	2.2	2.1
2	7.4	7.0	6.6	6.2	5.9	5.6	5.4	5.1	4.9	4.7	4.5	4.3	4.2
3	11.2	10.5	9.9	9.4	8.9	8.5	8.1	7.7	7.4	7.1	6.8	6.5	6.3
4	15.0	14.1	13.3	12.6	11.9	11.3	10.8	10.3	9.9	9.5	9.1	8.7	8.4
5	18.9	17.8	16.7	15.8	15.0	14.2	13.6	13.0	12.4	11.9	11.4	11.0	10.6
6	22.9	21.5	20.2	19.1	18.1	17.2	16.4	15.6	14.9	14.3	13.7	13.2	12.7
7	26.9	25.2	23.7	22.4	21.2	20.1	19.2	18.3	17.5	16.8	16.1	15.5	14.9
8	31.0	29.0	27.3	25.8	24.4	23.1	22.0	21.0	20.1	19.3	18.5	17.8	17.1
9	35.2	32.9	30.9	29.2	27.6	26.2	24.9	23.8	22.7	21.8	20.9	20.1	19.3
10	39.4	36.9	34.6	32.6	30.9	29.3	27.8	26.5	25.4	24.3	23.3	22.4	21.5
11	43.8	40.9	38.4	36.2	34.2	32.4	30.8	29.4	28.0	26.8	25.7	24.7	23.8
12	48.3	45.1	42.2	39.8	37.6	35.6	33.8	32.2	30.8	29.4	28.2	27.1	26.1
13	53.0	49.3	46.2	43.4	41.0	38.8	36.9	35.1	33.5	32.1	30.7	29.5	28.4
14	57.8	53.7	50.2	47.2	44.5	42.1	40.0	38.1	36.3	34.7	33.3	31.9	30.7
15	62.9	58.3	54.4	51.0	48.1	45.5	43.1	41.0	39.1	37.4	35.8	34.4	33.0
16	68.3	63.1	58.8	55.0	51.8	48.9	46.4	44.1	42.0	40.1	38.4	36.9	35.4
17	74.2	68.2	63.3	59.2	55.6	52.4	49.7	47.2	45.0	42.9	41.1	39.4	37.8
18	81.2	73.7	68.1	63.5	59.5	56.1	53.1	50.4	47.9	45.8	43.8	41.9	40.3
19		80.1	73.3	68.0	63.6	59.8	56.5	53.6	51.0	48.6	46.5	44.5	42.8
20			79.2	72.9	67.9	63.7	60.1	56.9	54.1	51.6	49.3	47.2	45.3
M 21				78.4	72.5	67.8	63.9	60.4	57.3	54.6	52.1	49.9	47.8
22					77.7	72.2	67.8	64.0	60.6	57.7	55.0	52.6	50.4
I 23					84.3	77.1	71.9	67.7	64.1	60.9	58.0	55.4	53.1
24						82.9	76.5	71.7	67.7	64.2	61.1	58.3	55.8
C 25							81.9	76.0	71.5	67.6	64.3	61.3	58.6
R 26								81.0	75.6	71.2	67.6	64.3	61.5
27									80.2	75.2	71.1	67.5	64.4
O 28										79.5	74.8	70.9	67.5
29											78.9	74.4	70.7
V 30											84.1	78.4	74.1
O 31												83.1	77.9
32													82.2
L 33													
34													
T 35													
36													
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 16.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.6	3.4	3.2	3.0	2.9	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0
	2	7.3	6.8	6.4	6.1	5.8	5.5	5.2	5.0	4.8	4.6	4.4	4.2	4.1
	3	10.9	10.3	9.7	9.1	8.7	8.2	7.8	7.5	7.2	6.9	6.6	6.3	6.1
	4	14.7	13.8	13.0	12.2	11.6	11.0	10.5	10.0	9.6	9.2	8.8	8.5	8.2
	5	18.5	17.3	16.3	15.4	14.6	13.9	13.2	12.6	12.0	11.5	11.1	10.7	10.3
	6	22.3	20.9	19.7	18.6	17.6	16.7	15.9	15.2	14.5	13.9	13.3	12.8	12.4
	7	26.2	24.6	23.1	21.8	20.6	19.6	18.6	17.8	17.0	16.3	15.6	15.0	14.5
	8	30.2	28.3	26.6	25.0	23.7	22.5	21.4	20.4	19.5	18.7	17.9	17.2	16.6
	9	34.2	32.0	30.1	28.3	26.8	25.4	24.2	23.1	22.0	21.1	20.3	19.5	18.7
	10	38.4	35.8	33.6	31.7	30.0	28.4	27.0	25.8	24.6	23.6	22.6	21.7	20.9
	11	42.6	39.7	37.3	35.1	33.2	31.4	29.9	28.5	27.2	26.0	25.0	24.0	23.1
	12	46.9	43.7	41.0	38.6	36.4	34.5	32.8	31.2	29.8	28.5	27.3	26.3	25.3
	13	51.4	47.8	44.8	42.1	39.7	37.6	35.7	34.0	32.5	31.1	29.8	28.6	27.5
	14	56.0	52.0	48.7	45.7	43.1	40.8	38.7	36.8	35.2	33.6	32.2	30.9	29.7
	15	60.8	56.4	52.6	49.4	46.5	44.0	41.7	39.7	37.9	36.2	34.7	33.3	32.0
	16	65.8	60.9	56.7	53.2	50.1	47.3	44.8	42.6	40.6	38.8	37.2	35.7	34.3
	17	71.2	65.6	61.0	57.1	53.7	50.7	48.0	45.6	43.4	41.5	39.7	38.1	36.6
	18	77.2	70.7	65.5	61.1	57.4	54.1	51.2	48.6	46.3	44.2	42.3	40.5	38.9
	19	85.1	76.2	70.2	65.3	61.2	57.6	54.5	51.7	49.2	46.9	44.9	43.0	41.3
	20		82.9	75.4	69.8	65.2	61.3	57.9	54.9	52.2	49.7	47.5	45.5	43.7
M	21			81.3	74.6	69.4	65.1	61.4	58.1	55.2	52.6	50.2	48.1	46.1
	22				80.1	74.0	69.1	65.0	61.5	58.3	55.5	53.0	50.7	48.6
I	23					79.0	73.4	68.8	64.9	61.5	58.5	55.8	53.3	51.1
	24						78.1	72.8	68.5	64.8	61.6	58.7	56.1	53.7
C	25						83.8	77.2	72.4	68.3	64.8	61.6	58.8	56.3
R	26							82.4	76.5	71.9	68.1	64.7	61.7	59.0
	27								81.3	75.9	71.6	67.9	64.6	61.7
O	28									80.3	75.3	71.2	67.7	64.6
	29										79.4	74.7	70.9	67.5
V	30										84.6	78.6	74.2	70.6
O	31											83.2	77.9	73.8
	32												82.1	77.3
L	33													81.2
	34													
T	35													
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 17.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.5	3.3	3.1	2.9	2.8	2.7	2.5	2.4	2.3	2.2	2.1	2.0	2.0
	2	7.1	6.7	6.3	5.9	5.6	5.3	5.1	4.8	4.6	4.4	4.3	4.1	4.0
	3	10.7	10.0	9.4	8.9	8.4	8.0	7.6	7.3	7.0	6.7	6.4	6.2	5.9
	4	14.3	13.4	12.6	11.9	11.3	10.7	10.2	9.8	9.3	8.9	8.6	8.3	7.9
	5	18.0	16.9	15.9	15.0	14.2	13.5	12.8	12.3	11.7	11.2	10.8	10.4	10.0
	6	21.8	20.4	19.2	18.1	17.1	16.3	15.5	14.8	14.1	13.5	13.0	12.5	12.0
	7	25.6	23.9	22.5	21.2	20.1	19.1	18.1	17.3	16.5	15.8	15.2	14.6	14.0
	8	29.4	27.5	25.9	24.4	23.1	21.9	20.8	19.8	19.0	18.2	17.4	16.7	16.1
	9	33.4	31.2	29.3	27.6	26.1	24.7	23.5	22.4	21.4	20.5	19.7	18.9	18.2
	10	37.4	34.9	32.7	30.8	29.1	27.6	26.3	25.0	23.9	22.9	21.9	21.1	20.3
	11	41.4	38.7	36.2	34.1	32.2	30.5	29.0	27.6	26.4	25.3	24.2	23.3	22.4
	12	45.6	42.5	39.8	37.5	35.4	33.5	31.8	30.3	28.9	27.7	26.5	25.5	24.5
	13	49.9	46.4	43.5	40.9	38.6	36.5	34.7	33.0	31.5	30.1	28.9	27.7	26.6
	14	54.3	50.5	47.2	44.3	41.8	39.5	37.5	35.7	34.1	32.6	31.2	29.9	28.8
	15	58.8	54.6	51.0	47.9	45.1	42.6	40.5	38.5	36.7	35.1	33.6	32.2	31.0
	16	63.6	58.9	54.9	51.5	48.5	45.8	43.4	41.3	39.3	37.6	36.0	34.5	33.2
	17	68.6	63.4	59.0	55.2	51.9	49.0	46.4	44.1	42.0	40.1	38.4	36.8	35.4
	18	74.0	68.0	63.2	59.0	55.4	52.3	49.5	47.0	44.8	42.7	40.9	39.2	37.6
	19	80.2	73.1	67.6	63.0	59.1	55.7	52.6	50.0	47.5	45.4	43.4	41.6	39.9
	20		78.6	72.2	67.1	62.8	59.1	55.9	53.0	50.4	48.0	45.9	44.0	42.2
M	21			77.3	71.5	66.7	62.7	59.1	56.0	53.3	50.8	48.5	46.4	44.5
	22			83.5	76.2	70.9	66.4	62.5	59.2	56.2	53.5	51.1	48.9	46.9
I	23				81.7	75.3	70.3	66.1	62.4	59.2	56.4	53.8	51.4	49.3
	24					80.2	74.4	69.8	65.8	62.3	59.3	56.5	54.0	51.7
C	25						79.0	73.7	69.3	65.5	62.2	59.3	56.6	54.2
R	26						84.7	77.9	73.0	68.9	65.3	62.1	59.3	56.7
	27							82.9	77.0	72.4	68.5	65.1	62.1	59.3
O	28								81.5	76.1	71.8	68.1	64.9	62.0
	29									80.3	75.4	71.3	67.8	64.7
V	30										79.2	74.7	70.8	67.5
O	31										83.9	78.3	74.1	70.4
	32											82.5	77.5	73.5
L	33												81.3	76.7
	34													80.3
T	35													84.8
	36													
	37													
R	38													
	39													
E	40													
A	41													
	42													
D	43													
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 18.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.5	3.2	3.0	2.9	2.7	2.6	2.5	2.4	2.3	2.2	2.1	2.0	1.9
2	6.9	6.5	6.1	5.8	5.5	5.2	4.9	4.7	4.5	4.3	4.2	4.0	3.8
3	10.5	9.8	9.2	8.7	8.2	7.8	7.4	7.1	6.8	6.5	6.2	6.0	5.8
4	14.0	13.1	12.3	11.7	11.0	10.5	10.0	9.5	9.1	8.7	8.4	8.0	7.7
5	17.6	16.5	15.5	14.6	13.8	13.1	12.5	11.9	11.4	10.9	10.5	10.1	9.7
6	21.3	19.9	18.7	17.6	16.7	15.8	15.1	14.4	13.7	13.1	12.6	12.1	11.7
7	25.0	23.4	21.9	20.7	19.6	18.5	17.6	16.8	16.1	15.4	14.8	14.2	13.6
8	28.7	26.8	25.2	23.7	22.5	21.3	20.2	19.3	18.4	17.6	16.9	16.3	15.6
9	32.5	30.4	28.5	26.9	25.4	24.1	22.9	21.8	20.8	19.9	19.1	18.3	17.6
10	36.4	34.0	31.9	30.0	28.3	26.9	25.5	24.3	23.2	22.2	21.3	20.5	19.7
11	40.3	37.6	35.3	33.2	31.3	29.7	28.2	26.9	25.6	24.5	23.5	22.6	21.7
12	44.4	41.3	38.7	36.4	34.4	32.6	30.9	29.4	28.1	26.9	25.7	24.7	23.8
13	48.5	45.1	42.2	39.7	37.5	35.5	33.7	32.0	30.6	29.2	28.0	26.9	25.8
14	52.7	49.0	45.8	43.0	40.6	38.4	36.4	34.7	33.1	31.6	30.3	29.0	27.9
15	57.1	53.0	49.5	46.4	43.8	41.4	39.2	37.3	35.6	34.0	32.6	31.2	30.0
16	61.6	57.1	53.2	49.9	47.0	44.4	42.1	40.0	38.1	36.4	34.9	33.5	32.1
17	66.3	61.3	57.1	53.5	50.3	47.5	45.0	42.8	40.7	38.9	37.2	35.7	34.3
18	71.3	65.7	61.1	57.1	53.6	50.6	47.9	45.5	43.4	41.4	39.6	38.0	36.4
19	76.7	70.3	65.2	60.8	57.1	53.8	50.9	48.3	46.0	43.9	42.0	40.2	38.6
20	83.2	75.3	69.5	64.7	60.7	57.1	54.0	51.2	48.7	46.5	44.4	42.6	40.8
M 21		81.0	74.1	68.8	64.3	60.5	57.1	54.1	51.5	49.1	46.9	44.9	43.1
22			79.2	73.1	68.1	64.0	60.3	57.1	54.3	51.7	49.4	47.3	45.3
I 23				77.8	72.2	67.6	63.6	60.2	57.1	54.4	51.9	49.7	47.6
24				83.3	76.5	71.4	67.1	63.3	60.1	57.1	54.5	52.1	49.9
C 25					81.4	75.4	70.6	66.6	63.1	59.9	57.1	54.6	52.3
R 26						79.8	74.4	70.0	66.2	62.8	59.8	57.1	54.7
27						85.5	78.5	73.5	69.4	65.8	62.6	59.7	57.1
O 28							83.3	77.4	72.8	68.8	65.4	62.4	59.6
29								81.7	76.3	72.0	68.3	65.1	62.2
V 30									80.3	75.4	71.4	67.9	64.8
O 31									85.2	79.1	74.6	70.8	67.5
32										83.3	78.0	73.9	70.3
L 33											81.9	77.1	73.2
34												80.6	76.2
T 35												85.0	79.6
36													83.4
37													
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 19.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.4	3.2	3.0	2.8	2.7	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.9
2	6.8	6.4	6.0	5.6	5.3	5.1	4.8	4.6	4.4	4.2	4.0	3.9	3.7
3	10.2	9.6	9.0	8.5	8.0	7.6	7.3	6.9	6.6	6.3	6.1	5.8	5.6
4	13.7	12.8	12.1	11.4	10.8	10.2	9.7	9.3	8.8	8.5	8.1	7.8	7.5
5	17.2	16.1	15.1	14.3	13.5	12.8	12.2	11.6	11.1	10.6	10.2	9.8	9.4
6	20.8	19.4	18.3	17.2	16.3	15.4	14.7	14.0	13.4	12.8	12.3	11.8	11.3
7	24.4	22.8	21.4	20.2	19.1	18.1	17.2	16.4	15.6	15.0	14.4	13.8	13.3
8	28.0	26.2	24.6	23.1	21.9	20.7	19.7	18.8	17.9	17.2	16.5	15.8	15.2
9	31.7	29.6	27.8	26.2	24.7	23.4	22.3	21.2	20.2	19.4	18.6	17.8	17.1
10	35.5	33.1	31.0	29.2	27.6	26.1	24.8	23.6	22.6	21.6	20.7	19.9	19.1
11	39.3	36.7	34.3	32.3	30.5	28.9	27.4	26.1	24.9	23.8	22.8	21.9	21.1
12	43.2	40.3	37.7	35.4	33.4	31.7	30.1	28.6	27.3	26.1	25.0	24.0	23.1
13	47.2	43.9	41.1	38.6	36.4	34.5	32.7	31.1	29.7	28.4	27.2	26.1	25.1
14	51.3	47.7	44.5	41.8	39.4	37.3	35.4	33.7	32.1	30.7	29.4	28.2	27.1
15	55.4	51.5	48.1	45.1	42.5	40.2	38.1	36.2	34.5	33.0	31.6	30.3	29.1
16	59.7	55.4	51.7	48.4	45.6	43.1	40.8	38.8	37.0	35.3	33.8	32.4	31.2
17	64.2	59.4	55.4	51.8	48.8	46.1	43.6	41.5	39.5	37.7	36.1	34.6	33.2
18	68.9	63.6	59.1	55.3	52.0	49.1	46.5	44.1	42.0	40.1	38.4	36.8	35.3
19	73.9	67.9	63.0	58.9	55.3	52.1	49.3	46.8	44.6	42.5	40.7	39.0	37.4
20	79.4	72.5	67.1	62.6	58.7	55.3	52.3	49.6	47.2	45.0	43.0	41.2	39.5
M 21		77.5	71.4	66.4	62.1	58.5	55.2	52.4	49.8	47.5	45.4	43.5	41.7
22		83.4	76.0	70.4	65.7	61.8	58.3	55.2	52.5	50.0	47.8	45.7	43.9
I 23			81.1	74.6	69.5	65.1	61.4	58.1	55.2	52.6	50.2	48.0	46.1
24				79.2	73.4	68.7	64.6	61.1	58.0	55.2	52.7	50.4	48.3
C 25				84.8	77.6	72.4	68.0	64.2	60.8	57.8	55.2	52.7	50.5
R 26					82.5	76.3	71.4	67.3	63.7	60.6	57.7	55.1	52.8
27						80.6	75.1	70.6	66.7	63.3	60.3	57.6	55.1
O 28							79.1	74.0	69.8	66.2	63.0	60.1	57.5
29							83.7	77.7	73.1	69.2	65.7	62.6	59.9
V 30								81.8	76.5	72.2	68.5	65.3	62.3
O 31									80.3	75.5	71.5	68.0	64.9
32									84.8	78.9	74.5	70.7	67.4
L 33										82.9	77.8	73.6	70.1
34											81.3	76.7	72.9
T 35											85.9	80.0	75.8
36												83.8	78.9
37													82.3
R 38													
39													
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 20.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.3	3.1	2.9	2.7	2.6	2.5	2.3	2.2	2.1	2.0	2.0	1.9	1.8
2	6.6	6.2	5.8	5.5	5.2	4.9	4.7	4.5	4.3	4.1	3.9	3.8	3.6
3	10.0	9.4	8.8	8.3	7.8	7.4	7.1	6.7	6.4	6.2	5.9	5.7	5.5
4	13.4	12.5	11.8	11.1	10.5	10.0	9.5	9.0	8.6	8.3	7.9	7.6	7.3
5	16.8	15.7	14.8	13.9	13.2	12.5	11.9	11.3	10.8	10.3	9.9	9.5	9.2
6	20.3	19.0	17.8	16.8	15.9	15.0	14.3	13.6	13.0	12.4	11.9	11.5	11.0
7	23.8	22.3	20.9	19.7	18.6	17.6	16.7	15.9	15.2	14.6	14.0	13.4	12.9
8	27.4	25.6	24.0	22.6	21.3	20.2	19.2	18.3	17.4	16.7	16.0	15.4	14.8
9	31.0	28.9	27.1	25.5	24.1	22.8	21.7	20.6	19.7	18.8	18.1	17.3	16.7
10	34.6	32.3	30.3	28.5	26.9	25.4	24.2	23.0	22.0	21.0	20.1	19.3	18.6
11	38.4	35.7	33.5	31.5	29.7	28.1	26.7	25.4	24.2	23.2	22.2	21.3	20.5
12	42.1	39.2	36.7	34.5	32.5	30.8	29.2	27.8	26.5	25.4	24.3	23.3	22.4
13	46.0	42.8	40.0	37.6	35.4	33.5	31.8	30.2	28.8	27.6	26.4	25.3	24.3
14	49.9	46.4	43.3	40.7	38.3	36.3	34.4	32.7	31.2	29.8	28.5	27.4	26.3
15	53.9	50.1	46.7	43.8	41.3	39.0	37.0	35.2	33.5	32.0	30.7	29.4	28.3
16	58.0	53.8	50.2	47.1	44.3	41.8	39.7	37.7	35.9	34.3	32.8	31.5	30.2
17	62.3	57.7	53.7	50.3	47.3	44.7	42.4	40.2	38.3	36.6	35.0	33.6	32.2
18	66.7	61.7	57.4	53.7	50.4	47.6	45.1	42.8	40.8	38.9	37.2	35.7	34.3
19	71.4	65.8	61.1	57.1	53.6	50.5	47.8	45.4	43.2	41.2	39.4	37.8	36.3
20	76.4	70.1	64.9	60.6	56.8	53.5	50.6	48.0	45.7	43.6	41.7	39.9	38.3
M 21	82.1	74.6	68.9	64.2	60.1	56.6	53.5	50.7	48.2	46.0	44.0	42.1	40.4
22		79.7	73.1	67.9	63.5	59.7	56.4	53.4	50.8	48.4	46.3	44.3	42.5
I 23		86.0	77.7	71.8	67.0	62.9	59.4	56.2	53.4	50.9	48.6	46.5	44.6
24			82.8	76.0	70.7	66.2	62.4	59.0	56.0	53.4	50.9	48.7	46.7
C 25				80.6	74.5	69.7	65.5	61.9	58.7	55.9	53.3	51.0	48.9
R 26					78.7	73.3	68.8	64.9	61.5	58.5	55.8	53.3	51.0
27					83.4	77.1	72.1	68.0	64.3	61.1	58.2	55.6	53.3
O 28						81.3	75.7	71.1	67.2	63.8	60.7	58.0	55.5
29							79.5	74.5	70.2	66.6	63.3	60.4	57.8
V 30							84.0	78.0	73.4	69.4	66.0	62.9	60.1
O 31								81.9	76.7	72.4	68.7	65.4	62.5
32									80.2	75.5	71.5	68.0	64.9
L 33									84.4	78.8	74.4	70.7	67.4
34										82.5	77.5	73.4	69.9
T 35											80.9	76.3	72.6
36											84.8	79.5	75.3
37												82.9	78.2
R 38													81.4
39													85.1
E 40													
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 21.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.2	3.0	2.8	2.7	2.5	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.8
2	6.5	6.1	5.7	5.4	5.1	4.8	4.6	4.4	4.2	4.0	3.8	3.7	3.5
3	9.8	9.2	8.6	8.1	7.7	7.3	6.9	6.6	6.3	6.0	5.8	5.5	5.3
4	13.1	12.3	11.5	10.8	10.2	9.7	9.2	8.8	8.4	8.0	7.7	7.4	7.1
5	16.5	15.4	14.4	13.6	12.8	12.2	11.6	11.0	10.5	10.1	9.7	9.3	8.9
6	19.9	18.5	17.4	16.4	15.5	14.7	13.9	13.3	12.7	12.1	11.6	11.1	10.7
7	23.3	21.7	20.4	19.2	18.1	17.2	16.3	15.5	14.8	14.2	13.6	13.0	12.5
8	26.8	25.0	23.4	22.0	20.8	19.7	18.7	17.8	17.0	16.2	15.6	14.9	14.4
9	30.3	28.2	26.4	24.9	23.5	22.2	21.1	20.1	19.2	18.3	17.6	16.9	16.2
10	33.8	31.5	29.5	27.7	26.2	24.8	23.5	22.4	21.4	20.4	19.6	18.8	18.0
11	37.4	34.9	32.6	30.7	28.9	27.4	26.0	24.7	23.6	22.5	21.6	20.7	19.9
12	41.1	38.2	35.8	33.6	31.7	30.0	28.4	27.1	25.8	24.7	23.6	22.7	21.8
13	44.8	41.7	39.0	36.6	34.5	32.6	30.9	29.4	28.0	26.8	25.7	24.6	23.6
14	48.6	45.2	42.2	39.6	37.3	35.3	33.4	31.8	30.3	29.0	27.7	26.6	25.5
15	52.5	48.7	45.5	42.6	40.2	38.0	36.0	34.2	32.6	31.1	29.8	28.6	27.4
16	56.4	52.3	48.8	45.7	43.1	40.7	38.5	36.6	34.9	33.3	31.9	30.6	29.4
17	60.5	56.0	52.2	48.9	46.0	43.4	41.1	39.1	37.2	35.5	34.0	32.6	31.3
18	64.7	59.8	55.7	52.1	49.0	46.2	43.8	41.6	39.6	37.8	36.1	34.6	33.2
19	69.1	63.8	59.3	55.4	52.0	49.1	46.4	44.1	41.9	40.0	38.3	36.7	35.2
20	73.8	67.8	62.9	58.7	55.1	51.9	49.1	46.6	44.3	42.3	40.4	38.7	37.2
M 21	78.9	72.1	66.7	62.2	58.3	54.9	51.9	49.2	46.8	44.6	42.6	40.8	39.2
22	84.9	76.6	70.6	65.7	61.5	57.8	54.6	51.8	49.2	46.9	44.8	42.9	41.2
I 23		81.7	74.8	69.4	64.8	60.9	57.5	54.4	51.7	49.3	47.1	45.0	43.2
24			79.3	73.2	68.2	64.0	60.4	57.1	54.3	51.7	49.3	47.2	45.2
C 25			84.6	77.3	71.8	67.3	63.3	59.9	56.8	54.1	51.6	49.4	47.3
R 26				81.8	75.6	70.6	66.4	62.7	59.4	56.5	53.9	51.6	49.4
27					79.7	74.1	69.5	65.6	62.1	59.0	56.3	53.8	51.5
O 28					84.4	77.8	72.8	68.5	64.9	61.6	58.7	56.1	53.7
29						81.9	76.2	71.6	67.7	64.2	61.1	58.3	55.8
V 30							79.9	74.8	70.6	66.9	63.6	60.7	58.0
O 31							84.2	78.3	73.6	69.6	66.2	63.1	60.3
32								82.0	76.8	72.5	68.8	65.5	62.6
L 33									80.2	75.5	71.5	68.0	64.9
34									84.1	78.6	74.3	70.6	67.3
T 35										82.1	77.2	73.2	69.7
36											80.4	76.0	72.2
37											84.0	78.9	74.9
R 38												82.1	77.6
39												86.1	80.6
E 40													83.9
A 41													
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 22.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.2	3.0	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.9	1.8	1.7
2	6.4	5.9	5.6	5.3	5.0	4.7	4.5	4.3	4.1	3.9	3.7	3.6	3.4
3	9.6	9.0	8.4	7.9	7.5	7.1	6.7	6.4	6.1	5.9	5.6	5.4	5.2
4	12.8	12.0	11.2	10.6	10.0	9.5	9.0	8.6	8.2	7.8	7.5	7.2	6.9
5	16.1	15.0	14.1	13.3	12.5	11.9	11.3	10.7	10.2	9.8	9.4	9.0	8.7
6	19.4	18.1	17.0	16.0	15.1	14.3	13.6	12.9	12.3	11.8	11.3	10.8	10.4
7	22.8	21.2	19.9	18.7	17.7	16.7	15.9	15.1	14.4	13.8	13.2	12.7	12.2
8	26.1	24.4	22.8	21.5	20.3	19.2	18.2	17.3	16.5	15.8	15.1	14.5	14.0
9	29.6	27.5	25.8	24.2	22.9	21.6	20.5	19.6	18.7	17.8	17.1	16.4	15.8
10	33.0	30.7	28.8	27.0	25.5	24.1	22.9	21.8	20.8	19.9	19.0	18.3	17.5
11	36.5	34.0	31.8	29.9	28.2	26.6	25.3	24.0	22.9	21.9	21.0	20.1	19.3
12	40.1	37.3	34.9	32.7	30.8	29.2	27.7	26.3	25.1	24.0	23.0	22.0	21.2
13	43.7	40.6	37.9	35.6	33.6	31.7	30.1	28.6	27.3	26.1	24.9	23.9	23.0
14	47.4	44.0	41.1	38.5	36.3	34.3	32.5	30.9	29.5	28.1	26.9	25.8	24.8
15	51.1	47.4	44.3	41.5	39.1	36.9	35.0	33.2	31.7	30.3	29.0	27.8	26.7
16	54.9	50.9	47.5	44.5	41.9	39.5	37.5	35.6	33.9	32.4	31.0	29.7	28.5
17	58.9	54.5	50.8	47.5	44.7	42.2	40.0	38.0	36.2	34.5	33.0	31.6	30.4
18	62.9	58.2	54.1	50.6	47.6	44.9	42.5	40.4	38.4	36.7	35.1	33.6	32.3
19	67.1	61.9	57.5	53.8	50.5	47.6	45.1	42.8	40.7	38.8	37.1	35.6	34.2
20	71.5	65.8	61.0	57.0	53.5	50.4	47.7	45.2	43.0	41.0	39.2	37.6	36.1
M 21	76.1	69.8	64.6	60.3	56.5	53.2	50.3	47.7	45.4	43.3	41.3	39.6	38.0
22	81.2	74.0	68.4	63.6	59.6	56.1	53.0	50.2	47.7	45.5	43.5	41.6	39.9
I 23		78.6	72.2	67.1	62.8	59.0	55.7	52.8	50.1	47.8	45.6	43.7	41.9
24		83.7	76.4	70.7	66.0	62.0	58.5	55.3	52.6	50.1	47.8	45.7	43.8
C 25			80.8	74.5	69.4	65.0	61.3	58.0	55.0	52.4	50.0	47.8	45.8
R 26			86.5	78.5	72.9	68.2	64.2	60.7	57.5	54.7	52.2	49.9	47.8
27				83.0	76.6	71.5	67.1	63.4	60.1	57.1	54.5	52.1	49.9
O 28					80.6	74.9	70.2	66.2	62.7	59.6	56.8	54.2	51.9
29					85.3	78.5	73.4	69.1	65.3	62.0	59.1	56.4	54.0
V 30						82.5	76.7	72.1	68.1	64.6	61.5	58.7	56.1
O 31							80.3	75.2	70.9	67.2	63.9	60.9	58.2
32							84.4	78.5	73.8	69.8	66.3	63.2	60.4
L 33								82.1	76.9	72.6	68.8	65.6	62.6
34								86.6	80.1	75.4	71.4	68.0	64.9
T 35									83.8	78.4	74.1	70.4	67.2
36										81.7	77.0	73.0	69.5
37										85.6	80.0	75.6	71.9
R 38											83.3	78.4	74.4
39												81.4	77.1
E 40												84.9	79.8
A 41													82.8
42													
D 43													
44													
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 23.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.1	2.9	2.7	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.7
	2	6.2	5.8	5.4	5.1	4.8	4.6	4.4	4.2	4.0	3.8	3.6	3.5	3.4
	3	9.4	8.8	8.2	7.7	7.3	6.9	6.6	6.2	6.0	5.7	5.5	5.2	5.0
	4	12.6	11.7	11.0	10.3	9.7	9.2	8.8	8.3	8.0	7.6	7.3	7.0	6.7
	5	15.8	14.7	13.8	12.9	12.2	11.6	11.0	10.5	10.0	9.5	9.1	8.8	8.4
	6	19.0	17.7	16.6	15.6	14.7	13.9	13.2	12.6	12.0	11.5	11.0	10.6	10.1
	7	22.2	20.7	19.4	18.2	17.2	16.3	15.5	14.7	14.0	13.4	12.9	12.3	11.9
	8	25.5	23.8	22.3	20.9	19.7	18.7	17.7	16.9	16.1	15.4	14.7	14.1	13.6
	9	28.9	26.9	25.2	23.6	22.3	21.1	20.0	19.0	18.2	17.4	16.6	15.9	15.3
	10	32.2	30.0	28.1	26.4	24.9	23.5	22.3	21.2	20.2	19.3	18.5	17.8	17.1
	11	35.6	33.2	31.0	29.1	27.4	26.0	24.6	23.4	22.3	21.3	20.4	19.6	18.8
	12	39.1	36.4	34.0	31.9	30.0	28.4	26.9	25.6	24.4	23.3	22.3	21.4	20.6
	13	42.6	39.6	37.0	34.7	32.7	30.9	29.3	27.8	26.5	25.3	24.3	23.3	22.3
	14	46.2	42.9	40.0	37.5	35.3	33.4	31.6	30.1	28.7	27.4	26.2	25.1	24.1
	15	49.8	46.2	43.1	40.4	38.0	35.9	34.0	32.3	30.8	29.4	28.1	27.0	25.9
	16	53.5	49.6	46.2	43.3	40.7	38.5	36.4	34.6	33.0	31.5	30.1	28.9	27.7
	17	57.3	53.0	49.4	46.2	43.5	41.0	38.9	36.9	35.1	33.5	32.1	30.7	29.5
	18	61.1	56.5	52.6	49.2	46.3	43.6	41.3	39.2	37.3	35.6	34.1	32.6	31.3
	19	65.1	60.1	55.9	52.3	49.1	46.3	43.8	41.6	39.6	37.7	36.1	34.6	33.2
	20	69.3	63.8	59.3	55.4	51.9	49.0	46.3	43.9	41.8	39.9	38.1	36.5	35.0
M	21	73.7	67.7	62.7	58.5	54.9	51.7	48.8	46.3	44.0	42.0	40.1	38.4	36.9
	22	78.3	71.6	66.3	61.7	57.8	54.4	51.4	48.7	46.3	44.2	42.2	40.4	38.7
I	23	83.6	75.8	69.9	65.0	60.8	57.2	54.0	51.2	48.6	46.3	44.3	42.4	40.6
	24		80.4	73.8	68.4	63.9	60.1	56.7	53.7	51.0	48.5	46.4	44.4	42.5
C	25		85.9	77.8	72.0	67.1	63.0	59.4	56.2	53.3	50.8	48.5	46.4	44.4
R	26			82.3	75.7	70.4	66.0	62.1	58.7	55.7	53.0	50.6	48.4	46.4
	27				79.7	73.8	69.0	64.9	61.4	58.2	55.3	52.8	50.4	48.3
O	28				84.2	77.4	72.2	67.8	64.0	60.7	57.7	55.0	52.5	50.3
	29					81.4	75.6	70.8	66.7	63.2	60.0	57.2	54.6	52.3
V	30					86.1	79.1	73.9	69.5	65.8	62.4	59.4	56.8	54.3
O	31						83.0	77.1	72.4	68.4	64.9	61.7	58.9	56.4
	32							80.6	75.4	71.1	67.4	64.1	61.1	58.4
L	33							84.6	78.6	73.9	70.0	66.5	63.3	60.5
	34								82.1	76.9	72.6	68.9	65.6	62.7
T	35								86.3	80.0	75.4	71.4	67.9	64.8
	36									83.5	78.3	74.0	70.3	67.0
	37										81.4	76.7	72.8	69.3
R	38										84.9	79.5	75.3	71.6
	39											82.6	77.9	74.0
E	40											86.4	80.8	76.5
A	41												83.9	79.1
	42													81.9
D	43													85.2
	44													
I	45													
N	46													
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 24.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	3.0	2.8	2.7	2.5	2.4	2.2	2.1	2.0	1.9	1.8	1.8	1.7	1.6
2	6.1	5.7	5.3	5.0	4.7	4.5	4.3	4.0	3.9	3.7	3.5	3.4	3.3
3	9.2	8.6	8.0	7.5	7.1	6.7	6.4	6.1	5.8	5.6	5.3	5.1	4.9
4	12.3	11.4	10.7	10.1	9.5	9.0	8.5	8.1	7.8	7.4	7.1	6.8	6.6
5	15.4	14.4	13.4	12.6	11.9	11.3	10.7	10.2	9.7	9.3	8.9	8.5	8.2
6	18.6	17.3	16.2	15.2	14.3	13.6	12.9	12.3	11.7	11.2	10.7	10.3	9.9
7	21.7	20.2	18.9	17.8	16.8	15.9	15.1	14.3	13.7	13.1	12.5	12.0	11.5
8	25.0	23.2	21.7	20.4	19.3	18.2	17.3	16.4	15.7	15.0	14.3	13.8	13.2
9	28.2	26.2	24.5	23.0	21.7	20.6	19.5	18.5	17.7	16.9	16.2	15.5	14.9
10	31.5	29.3	27.4	25.7	24.2	22.9	21.7	20.7	19.7	18.8	18.0	17.3	16.6
11	34.8	32.4	30.2	28.4	26.7	25.3	24.0	22.8	21.7	20.8	19.9	19.0	18.3
12	38.2	35.5	33.1	31.1	29.3	27.7	26.2	24.9	23.8	22.7	21.7	20.8	20.0
13	41.6	38.6	36.0	33.8	31.8	30.1	28.5	27.1	25.8	24.7	23.6	22.6	21.7
14	45.0	41.8	39.0	36.6	34.4	32.5	30.8	29.3	27.9	26.6	25.5	24.4	23.4
15	48.5	45.0	42.0	39.3	37.0	35.0	33.1	31.5	30.0	28.6	27.4	26.2	25.2
16	52.1	48.3	45.0	42.2	39.6	37.4	35.4	33.7	32.1	30.6	29.3	28.0	26.9
17	55.8	51.6	48.1	45.0	42.3	39.9	37.8	35.9	34.2	32.6	31.2	29.9	28.7
18	59.5	55.0	51.2	47.9	45.0	42.4	40.2	38.1	36.3	34.6	33.1	31.7	30.4
19	63.3	58.5	54.4	50.8	47.7	45.0	42.6	40.4	38.4	36.7	35.0	33.6	32.2
20	67.3	62.0	57.6	53.8	50.5	47.6	45.0	42.7	40.6	38.7	37.0	35.4	34.0
M 21	71.4	65.7	60.9	56.8	53.3	50.2	47.4	45.0	42.8	40.8	39.0	37.3	35.8
22	75.8	69.4	64.3	59.9	56.1	52.8	49.9	47.3	45.0	42.9	41.0	39.2	37.6
I 23	80.5	73.4	67.8	63.1	59.0	55.5	52.4	49.7	47.2	45.0	43.0	41.1	39.4
24	86.1	77.6	71.4	66.3	62.0	58.3	55.0	52.1	49.5	47.1	45.0	43.0	41.3
C 25		82.2	75.2	69.7	65.0	61.1	57.6	54.5	51.7	49.3	47.0	45.0	43.1
R 26			79.2	73.1	68.1	63.9	60.2	57.0	54.0	51.4	49.1	46.9	45.0
27			83.7	76.8	71.4	66.8	62.9	59.4	56.4	53.6	51.2	48.9	46.9
O 28				80.7	74.7	69.8	65.6	62.0	58.8	55.9	53.3	50.9	48.8
29				85.3	78.3	72.9	68.5	64.6	61.2	58.1	55.4	52.9	50.7
V 30					82.1	76.2	71.4	67.2	63.6	60.4	57.6	55.0	52.6
O 31						79.6	74.4	70.0	66.1	62.8	59.8	57.0	54.6
32						83.4	77.5	72.8	68.7	65.1	62.0	59.1	56.6
L 33							80.9	75.7	71.3	67.6	64.2	61.3	58.6
34							84.7	78.8	74.1	70.1	66.6	63.4	60.6
T 35								82.1	76.9	72.6	68.9	65.6	62.7
36								86.0	79.9	75.3	71.3	67.9	64.8
37									83.2	78.1	73.8	70.2	66.9
R 38										81.0	76.4	72.5	69.1
39										84.3	79.2	75.0	71.3
E 40											82.1	77.5	73.6
A 41											85.4	80.2	76.0
42												83.1	78.5
D 43												86.6	81.1
44													84.0
I 45													
N 46													
47													
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 25.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	3.0	2.8	2.6	2.4	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.7	1.6
	2	6.0	5.6	5.2	4.9	4.6	4.4	4.1	3.9	3.8	3.6	3.4	3.3	3.2
	3	9.0	8.4	7.8	7.4	6.9	6.6	6.2	5.9	5.7	5.4	5.2	5.0	4.8
	4	12.0	11.2	10.5	9.8	9.3	8.8	8.3	7.9	7.6	7.2	6.9	6.6	6.4
	5	15.1	14.0	13.1	12.3	11.6	11.0	10.4	9.9	9.5	9.1	8.7	8.3	8.0
	6	18.1	16.9	15.8	14.8	14.0	13.2	12.6	12.0	11.4	10.9	10.4	10.0	9.6
	7	21.2	19.8	18.5	17.4	16.4	15.5	14.7	14.0	13.3	12.7	12.2	11.7	11.2
	8	24.4	22.7	21.2	19.9	18.8	17.8	16.8	16.0	15.3	14.6	14.0	13.4	12.9
	9	27.5	25.6	23.9	22.5	21.2	20.0	19.0	18.1	17.2	16.4	15.7	15.1	14.5
	10	30.7	28.6	26.7	25.1	23.6	22.3	21.2	20.1	19.2	18.3	17.5	16.8	16.1
	11	34.0	31.6	29.5	27.7	26.1	24.6	23.3	22.2	21.1	20.2	19.3	18.5	17.8
	12	37.2	34.6	32.3	30.3	28.5	27.0	25.5	24.3	23.1	22.1	21.1	20.3	19.5
	13	40.5	37.6	35.1	32.9	31.0	29.3	27.8	26.4	25.1	24.0	23.0	22.0	21.1
	14	43.9	40.7	38.0	35.6	33.5	31.7	30.0	28.5	27.1	25.9	24.8	23.7	22.8
	15	47.3	43.9	40.9	38.3	36.0	34.0	32.2	30.6	29.2	27.8	26.6	25.5	24.5
	16	50.8	47.0	43.8	41.0	38.6	36.4	34.5	32.8	31.2	29.8	28.5	27.3	26.2
	17	54.3	50.3	46.8	43.8	41.2	38.8	36.8	34.9	33.2	31.7	30.3	29.0	27.9
	18	57.9	53.5	49.8	46.6	43.8	41.3	39.1	37.1	35.3	33.7	32.2	30.8	29.6
	19	61.6	56.9	52.9	49.4	46.4	43.8	41.4	39.3	37.4	35.6	34.1	32.6	31.3
	20	65.4	60.3	56.0	52.3	49.1	46.3	43.7	41.5	39.5	37.6	36.0	34.4	33.0
M	21	69.3	63.8	59.2	55.2	51.8	48.8	46.1	43.7	41.6	39.6	37.9	36.3	34.8
	22	73.4	67.4	62.4	58.2	54.5	51.3	48.5	46.0	43.7	41.7	39.8	38.1	36.5
I	23	77.8	71.1	65.8	61.2	57.3	53.9	50.9	48.3	45.9	43.7	41.7	39.9	38.3
	24	82.6	75.0	69.2	64.3	60.2	56.6	53.4	50.6	48.0	45.7	43.7	41.8	40.1
C	25		79.2	72.8	67.5	63.1	59.2	55.9	52.9	50.2	47.8	45.6	43.7	41.9
R	26		83.9	76.5	70.8	66.0	62.0	58.4	55.3	52.4	49.9	47.6	45.6	43.7
	27			80.5	74.2	69.1	64.7	61.0	57.7	54.7	52.0	49.6	47.5	45.5
O	28			85.1	77.8	72.2	67.6	63.6	60.1	57.0	54.2	51.7	49.4	47.3
	29				81.7	75.5	70.5	66.3	62.6	59.3	56.4	53.7	51.3	49.1
V	30				86.4	79.0	73.6	69.0	65.1	61.6	58.6	55.8	53.3	51.0
O	31					82.8	76.7	71.8	67.7	64.0	60.8	57.9	55.3	52.9
	32						80.1	74.8	70.3	66.5	63.1	60.0	57.3	54.8
L	33						83.8	77.8	73.1	69.0	65.4	62.2	59.3	56.7
	34							81.1	75.9	71.5	67.7	64.4	61.4	58.7
T	35							84.8	78.9	74.2	70.1	66.6	63.5	60.6
	36								82.1	76.9	72.6	68.9	65.6	62.7
	37								85.8	79.8	75.2	71.3	67.8	64.7
R	38									83.0	77.9	73.7	70.0	66.8
	39									86.8	80.7	76.2	72.3	68.9
E	40										83.8	78.8	74.6	71.0
A	41											81.5	77.1	73.2
	42											84.6	79.6	75.5
D	43												82.3	77.9
	44												85.4	80.4
I	45													83.1
N	46													86.2
	47													
G	48													
	49													
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 26.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.9	2.7	2.5	2.4	2.2	2.1	2.0	1.9	1.8	1.8	1.7	1.6	1.5
2	5.8	5.4	5.1	4.8	4.5	4.3	4.0	3.8	3.7	3.5	3.4	3.2	3.1
3	8.8	8.2	7.6	7.2	6.8	6.4	6.1	5.8	5.5	5.3	5.0	4.8	4.7
4	11.7	10.9	10.2	9.6	9.1	8.6	8.1	7.7	7.4	7.0	6.7	6.5	6.2
5	14.7	13.7	12.8	12.0	11.3	10.7	10.2	9.7	9.2	8.8	8.4	8.1	7.8
6	17.7	16.5	15.4	14.5	13.7	12.9	12.2	11.6	11.1	10.6	10.2	9.7	9.4
7	20.7	19.3	18.0	16.9	16.0	15.1	14.3	13.6	13.0	12.4	11.9	11.4	10.9
8	23.8	22.1	20.7	19.4	18.3	17.3	16.4	15.6	14.9	14.2	13.6	13.0	12.5
9	26.9	25.0	23.4	21.9	20.7	19.5	18.5	17.6	16.8	16.0	15.3	14.7	14.1
10	30.0	27.9	26.0	24.4	23.0	21.8	20.6	19.6	18.7	17.8	17.1	16.4	15.7
11	33.2	30.8	28.8	27.0	25.4	24.0	22.7	21.6	20.6	19.7	18.8	18.0	17.3
12	36.3	33.7	31.5	29.5	27.8	26.3	24.9	23.6	22.5	21.5	20.6	19.7	18.9
13	39.6	36.7	34.3	32.1	30.2	28.5	27.0	25.7	24.5	23.3	22.3	21.4	20.6
14	42.8	39.7	37.0	34.7	32.7	30.8	29.2	27.7	26.4	25.2	24.1	23.1	22.2
15	46.1	42.8	39.9	37.3	35.1	33.1	31.4	29.8	28.4	27.1	25.9	24.8	23.8
16	49.5	45.8	42.7	40.0	37.6	35.5	33.6	31.9	30.3	29.0	27.7	26.5	25.5
17	52.9	49.0	45.6	42.7	40.1	37.8	35.8	34.0	32.3	30.8	29.5	28.2	27.1
18	56.4	52.1	48.5	45.4	42.6	40.2	38.0	36.1	34.3	32.7	31.3	30.0	28.8
19	59.9	55.4	51.5	48.1	45.2	42.6	40.3	38.2	36.3	34.7	33.1	31.7	30.4
20	63.6	58.7	54.5	50.9	47.8	45.0	42.5	40.4	38.4	36.6	35.0	33.5	32.1
M 21	67.3	62.0	57.5	53.7	50.4	47.4	44.8	42.5	40.4	38.5	36.8	35.2	33.8
22	71.2	65.5	60.7	56.6	53.0	49.9	47.2	44.7	42.5	40.5	38.7	37.0	35.5
I 23	75.3	69.0	63.9	59.5	55.7	52.4	49.5	46.9	44.6	42.5	40.5	38.8	37.2
24	79.7	72.7	67.1	62.5	58.4	54.9	51.9	49.1	46.7	44.4	42.4	40.6	38.9
C 25	84.6	76.6	70.5	65.5	61.2	57.5	54.3	51.4	48.8	46.5	44.3	42.4	40.7
R 26		80.8	74.0	68.6	64.1	60.1	56.7	53.7	50.9	48.5	46.3	44.2	42.4
27		85.6	77.7	71.9	67.0	62.8	59.2	56.0	53.1	50.5	48.2	46.1	44.2
O 28			81.7	75.2	70.0	65.5	61.7	58.3	55.3	52.6	50.2	47.9	45.9
29			86.5	78.8	73.1	68.3	64.2	60.7	57.5	54.7	52.1	49.8	47.7
V 30				82.6	76.3	71.2	66.9	63.1	59.8	56.8	54.1	51.7	49.5
O 31					79.7	74.1	69.5	65.6	62.1	58.9	56.1	53.6	51.3
32					83.4	77.2	72.3	68.1	64.4	61.1	58.2	55.5	53.1
L 33						80.5	75.1	70.6	66.8	63.3	60.3	57.5	55.0
34						84.2	78.1	73.3	69.2	65.6	62.4	59.5	56.9
T 35							81.3	76.1	71.7	67.9	64.5	61.5	58.8
36							84.9	79.0	74.2	70.2	66.7	63.5	60.7
37								82.0	76.9	72.6	68.9	65.6	62.6
R 38								85.6	79.7	75.1	71.2	67.7	64.6
39									82.7	77.7	73.5	69.8	66.6
E 40									86.2	80.4	75.9	72.0	68.6
A 41										83.4	78.4	74.3	70.7
42										86.9	81.1	76.6	72.9
D 43											83.9	79.1	75.1
44												81.7	77.3
I 45												84.5	79.7
N 46													82.2
47													85.1
G 48													
49													
50													
51													
52													
53													
54													
55													
56													
57													
58													
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 27.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.8	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.6	1.5
	2	5.7	5.3	5.0	4.7	4.4	4.2	3.9	3.8	3.6	3.4	3.3	3.1	3.0
	3	8.6	8.0	7.5	7.0	6.6	6.2	5.9	5.6	5.4	5.1	4.9	4.7	4.5
	4	11.5	10.7	10.0	9.4	8.8	8.4	7.9	7.5	7.2	6.9	6.6	6.3	6.1
	5	14.4	13.4	12.5	11.7	11.1	10.5	9.9	9.4	9.0	8.6	8.2	7.9	7.6
	6	17.3	16.1	15.1	14.1	13.3	12.6	11.9	11.4	10.8	10.3	9.9	9.5	9.1
	7	20.3	18.8	17.6	16.5	15.6	14.7	14.0	13.3	12.7	12.1	11.6	11.1	10.7
	8	23.2	21.6	20.2	18.9	17.9	16.9	16.0	15.2	14.5	13.8	13.2	12.7	12.2
	9	26.3	24.4	22.8	21.4	20.1	19.0	18.0	17.1	16.3	15.6	14.9	14.3	13.7
	10	29.3	27.2	25.4	23.8	22.4	21.2	20.1	19.1	18.2	17.4	16.6	15.9	15.3
	11	32.4	30.1	28.1	26.3	24.8	23.4	22.2	21.1	20.1	19.2	18.3	17.6	16.9
	12	35.5	32.9	30.7	28.8	27.1	25.6	24.2	23.0	21.9	20.9	20.0	19.2	18.4
	13	38.6	35.8	33.4	31.3	29.4	27.8	26.3	25.0	23.8	22.7	21.7	20.8	20.0
	14	41.8	38.7	36.1	33.8	31.8	30.0	28.4	27.0	25.7	24.5	23.5	22.5	21.6
	15	45.0	41.7	38.8	36.4	34.2	32.3	30.6	29.0	27.6	26.4	25.2	24.1	23.2
	16	48.2	44.7	41.6	38.9	36.6	34.5	32.7	31.0	29.5	28.2	26.9	25.8	24.8
	17	51.5	47.7	44.4	41.5	39.0	36.8	34.8	33.1	31.5	30.0	28.7	27.5	26.4
	18	54.9	50.8	47.2	44.2	41.5	39.1	37.0	35.1	33.4	31.9	30.5	29.2	28.0
	19	58.3	53.9	50.1	46.8	44.0	41.4	39.2	37.2	35.4	33.7	32.2	30.9	29.6
	20	61.9	57.1	53.0	49.5	46.5	43.8	41.4	39.3	37.3	35.6	34.0	32.6	31.2
M	21	65.5	60.3	56.0	52.2	49.0	46.1	43.6	41.4	39.3	37.5	35.8	34.3	32.9
	22	69.2	63.6	59.0	55.0	51.6	48.5	45.9	43.5	41.3	39.4	37.6	36.0	34.5
I	23	73.0	67.0	62.1	57.8	54.2	51.0	48.1	45.6	43.3	41.3	39.4	37.7	36.2
	24	77.1	70.5	65.2	60.7	56.8	53.4	50.4	47.8	45.4	43.2	41.3	39.5	37.8
C	25	81.5	74.2	68.4	63.6	59.5	55.9	52.7	49.9	47.4	45.2	43.1	41.2	39.5
R	26	86.9	78.1	71.8	66.6	62.2	58.4	55.1	52.1	49.5	47.1	45.0	43.0	41.2
	27		82.2	75.2	69.7	65.0	61.0	57.5	54.4	51.6	49.1	46.8	44.8	42.9
O	28			78.9	72.8	67.8	63.6	59.9	56.6	53.7	51.1	48.7	46.6	44.6
	29			82.9	76.1	70.8	66.2	62.3	58.9	55.8	53.1	50.6	48.4	46.3
V	30				79.6	73.8	69.0	64.8	61.2	58.0	55.1	52.5	50.2	48.1
O	31				83.5	77.0	71.8	67.4	63.6	60.2	57.2	54.5	52.0	49.8
	32					80.3	74.7	70.0	66.0	62.4	59.3	56.5	53.9	51.6
L	33					84.0	77.7	72.7	68.4	64.7	61.4	58.5	55.8	53.4
	34						80.9	75.5	70.9	67.0	63.6	60.5	57.7	55.2
T	35						84.5	78.4	73.5	69.4	65.7	62.5	59.6	57.0
	36							81.5	76.2	71.8	68.0	64.6	61.6	58.8
	37							85.0	79.0	74.3	70.2	66.7	63.5	60.7
R	38								82.0	76.9	72.6	68.9	65.5	62.6
	39								85.4	79.6	75.0	71.1	67.6	64.5
E	40									82.5	77.5	73.3	69.7	66.4
A	41									85.8	80.1	75.6	71.8	68.4
	42										82.9	78.1	74.0	70.4
D	43										86.2	80.6	76.2	72.5
	44											83.3	78.6	74.6
I	45											86.5	81.0	76.8
N	46												83.7	79.1
	47												86.9	81.5
G	48													84.1
	49													87.3
	50													
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 28.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.8	2.6	2.4	2.3	2.1	2.0	1.9	1.8	1.7	1.7	1.6	1.5	1.5
	2	5.6	5.2	4.8	4.5	4.3	4.1	3.8	3.7	3.5	3.3	3.2	3.1	2.9
	3	8.4	7.8	7.3	6.8	6.4	6.1	5.8	5.5	5.2	5.0	4.8	4.6	4.4
	4	11.2	10.4	9.7	9.1	8.6	8.1	7.7	7.3	7.0	6.7	6.4	6.1	5.9
	5	14.0	13.1	12.2	11.5	10.8	10.2	9.7	9.2	8.8	8.4	8.0	7.7	7.4
	6	16.9	15.7	14.7	13.8	13.0	12.3	11.6	11.1	10.5	10.1	9.6	9.2	8.9
	7	19.8	18.4	17.2	16.1	15.2	14.4	13.6	12.9	12.3	11.8	11.3	10.8	10.4
	8	22.7	21.1	19.7	18.5	17.4	16.5	15.6	14.8	14.1	13.5	12.9	12.4	11.9
	9	25.6	23.8	22.2	20.9	19.6	18.6	17.6	16.7	15.9	15.2	14.5	13.9	13.4
	10	28.6	26.6	24.8	23.2	21.9	20.7	19.6	18.6	17.7	16.9	16.2	15.5	14.9
	11	31.6	29.3	27.4	25.6	24.1	22.8	21.6	20.5	19.5	18.7	17.8	17.1	16.4
	12	34.6	32.1	30.0	28.1	26.4	24.9	23.6	22.4	21.4	20.4	19.5	18.7	17.9
	13	37.6	34.9	32.6	30.5	28.7	27.1	25.7	24.4	23.2	22.1	21.2	20.3	19.5
	14	40.7	37.8	35.2	33.0	31.0	29.3	27.7	26.3	25.0	23.9	22.9	21.9	21.0
	15	43.9	40.6	37.9	35.4	33.3	31.4	29.8	28.3	26.9	25.7	24.5	23.5	22.6
	16	47.0	43.5	40.5	37.9	35.7	33.6	31.8	30.2	28.8	27.4	26.2	25.1	24.1
	17	50.2	46.5	43.3	40.5	38.0	35.9	33.9	32.2	30.6	29.2	27.9	26.8	25.7
	18	53.5	49.5	46.0	43.0	40.4	38.1	36.0	34.2	32.5	31.0	29.6	28.4	27.2
	19	56.8	52.5	48.8	45.6	42.8	40.3	38.2	36.2	34.4	32.8	31.4	30.0	28.8
	20	60.2	55.6	51.6	48.2	45.2	42.6	40.3	38.2	36.3	34.6	33.1	31.7	30.4
M	21	63.7	58.7	54.5	50.8	47.7	44.9	42.4	40.2	38.3	36.5	34.8	33.3	32.0
	22	67.2	61.9	57.4	53.5	50.2	47.2	44.6	42.3	40.2	38.3	36.6	35.0	33.6
I	23	70.9	65.1	60.3	56.2	52.7	49.6	46.8	44.4	42.2	40.2	38.4	36.7	35.2
	24	74.7	68.5	63.4	59.0	55.2	51.9	49.0	46.4	44.1	42.0	40.1	38.4	36.8
C	25	78.8	72.0	66.4	61.8	57.8	54.3	51.3	48.6	46.1	43.9	41.9	40.1	38.4
R	26	83.3	75.6	69.6	64.7	60.4	56.8	53.5	50.7	48.1	45.8	43.7	41.8	40.1
	27		79.4	72.9	67.6	63.1	59.2	55.8	52.8	50.1	47.7	45.5	43.5	41.7
O	28		83.7	76.3	70.6	65.8	61.7	58.2	55.0	52.2	49.6	47.4	45.3	43.4
	29			80.0	73.7	68.6	64.3	60.5	57.2	54.2	51.6	49.2	47.0	45.0
V	30			84.0	77.0	71.5	66.9	62.9	59.4	56.3	53.6	51.1	48.8	46.7
O	31				80.4	74.5	69.6	65.4	61.7	58.4	55.5	52.9	50.6	48.4
	32				84.3	77.6	72.3	67.9	64.0	60.6	57.6	54.8	52.4	50.1
L	33					80.9	75.1	70.4	66.3	62.8	59.6	56.7	54.2	51.8
	34					84.5	78.1	73.0	68.7	65.0	61.7	58.7	56.0	53.6
T	35						81.3	75.8	71.2	67.2	63.8	60.6	57.9	55.3
	36						84.8	78.6	73.7	69.5	65.9	62.6	59.7	57.1
	37							81.6	76.3	71.9	68.0	64.7	61.6	58.9
R	38							85.0	79.0	74.3	70.3	66.7	63.5	60.7
	39								81.9	76.8	72.5	68.8	65.5	62.5
E	40								85.2	79.4	74.9	70.9	67.5	64.4
A	41									82.2	77.3	73.1	69.5	66.3
	42									85.4	79.8	75.4	71.6	68.2
D	43										82.5	77.7	73.7	70.1
	44										85.5	80.1	75.9	72.1
I	45											82.8	78.1	74.2
N	46											85.7	80.5	76.3
	47												83.0	78.5
G	48												85.8	80.8
	49													83.2
	50													86.0
	51													
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 29.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.7	2.5	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.6	1.5	1.4
	2	5.4	5.1	4.7	4.4	4.2	4.0	3.8	3.6	3.4	3.3	3.1	3.0	2.9
	3	8.2	7.6	7.1	6.7	6.3	5.9	5.6	5.4	5.1	4.9	4.7	4.5	4.3
	4	10.9	10.2	9.5	8.9	8.4	7.9	7.5	7.2	6.8	6.5	6.2	6.0	5.8
	5	13.7	12.8	11.9	11.2	10.5	10.0	9.4	9.0	8.6	8.2	7.8	7.5	7.2
	6	16.5	15.3	14.3	13.5	12.7	12.0	11.4	10.8	10.3	9.8	9.4	9.0	8.7
	7	19.3	18.0	16.8	15.7	14.8	14.0	13.3	12.6	12.0	11.5	11.0	10.5	10.1
	8	22.2	20.6	19.2	18.0	17.0	16.0	15.2	14.5	13.8	13.1	12.6	12.1	11.6
	9	25.0	23.2	21.7	20.3	19.2	18.1	17.1	16.3	15.5	14.8	14.2	13.6	13.0
	10	27.9	25.9	24.2	22.7	21.3	20.2	19.1	18.1	17.3	16.5	15.8	15.1	14.5
	11	30.8	28.6	26.7	25.0	23.5	22.2	21.1	20.0	19.0	18.2	17.4	16.7	16.0
	12	33.8	31.3	29.2	27.4	25.8	24.3	23.0	21.9	20.8	19.9	19.0	18.2	17.5
	13	36.7	34.1	31.8	29.7	28.0	26.4	25.0	23.7	22.6	21.6	20.6	19.8	19.0
	14	39.7	36.8	34.3	32.1	30.2	28.5	27.0	25.6	24.4	23.3	22.3	21.3	20.5
	15	42.8	39.6	36.9	34.6	32.5	30.6	29.0	27.5	26.2	25.0	23.9	22.9	22.0
	16	45.8	42.4	39.5	37.0	34.8	32.8	31.0	29.4	28.0	26.7	25.6	24.5	23.5
	17	48.9	45.3	42.2	39.4	37.1	34.9	33.1	31.4	29.8	28.5	27.2	26.1	25.0
	18	52.1	48.2	44.8	41.9	39.4	37.1	35.1	33.3	31.7	30.2	28.9	27.6	26.5
	19	55.3	51.1	47.5	44.4	41.7	39.3	37.2	35.3	33.5	32.0	30.5	29.2	28.1
	20	58.6	54.1	50.3	46.9	44.1	41.5	39.2	37.2	35.4	33.7	32.2	30.9	29.6
M	21	61.9	57.1	53.0	49.5	46.4	43.7	41.3	39.2	37.3	35.5	33.9	32.5	31.1
	22	65.4	60.2	55.8	52.1	48.8	46.0	43.4	41.2	39.1	37.3	35.6	34.1	32.7
I	23	68.9	63.3	58.7	54.7	51.3	48.2	45.6	43.2	41.0	39.1	37.3	35.7	34.2
	24	72.5	66.6	61.6	57.4	53.7	50.5	47.7	45.2	42.9	40.9	39.1	37.4	35.8
C	25	76.4	69.9	64.6	60.1	56.2	52.9	49.9	47.2	44.9	42.7	40.8	39.0	37.4
R	26	80.4	73.3	67.6	62.8	58.8	55.2	52.1	49.3	46.8	44.6	42.5	40.7	39.0
	27	85.1	76.9	70.7	65.7	61.3	57.6	54.3	51.4	48.8	46.4	44.3	42.3	40.6
O	28		80.7	74.0	68.5	64.0	60.0	56.5	53.5	50.7	48.3	46.1	44.0	42.2
	29		85.0	77.4	71.5	66.6	62.5	58.8	55.6	52.7	50.2	47.8	45.7	43.8
V	30			81.0	74.6	69.4	65.0	61.1	57.8	54.8	52.1	49.6	47.4	45.4
O	31			85.0	77.8	72.2	67.5	63.5	59.9	56.8	54.0	51.5	49.2	47.1
	32				81.2	75.1	70.1	65.9	62.1	58.9	55.9	53.3	50.9	48.7
L	33				85.0	78.1	72.8	68.3	64.4	61.0	57.9	55.1	52.6	50.4
	34					81.4	75.6	70.8	66.7	63.1	59.9	57.0	54.4	52.1
T	35					85.0	78.5	73.4	69.0	65.2	61.9	58.9	56.2	53.8
	36						81.6	76.0	71.4	67.4	63.9	60.8	58.0	55.5
	37						85.0	78.8	73.9	69.7	66.0	62.7	59.8	57.2
R	38							81.7	76.4	72.0	68.1	64.7	61.7	58.9
	39							85.0	79.0	74.3	70.3	66.7	63.5	60.7
E	40								81.9	76.8	72.5	68.7	65.4	62.5
A	41								85.0	79.5	74.7	70.8	67.4	64.3
	42									82.0	77.1	72.9	69.3	66.1
D	43									85.0	79.5	75.1	71.3	68.0
	44										82.1	77.4	73.4	69.9
I	45										85.0	79.7	75.5	71.8
N	46											82.2	77.7	73.8
	47											85.0	79.9	75.8
G	48												82.3	77.9
	49												84.9	80.1
	50													82.4
	51													84.9
	52													
	53													
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 30.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.6	2.5	2.3	2.2	2.0	1.9	1.8	1.7	1.7	1.6	1.5	1.5	1.4
	2	5.3	4.9	4.6	4.3	4.1	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8
	3	8.0	7.4	6.9	6.5	6.1	5.8	5.5	5.2	5.0	4.8	4.6	4.4	4.2
	4	10.7	9.9	9.3	8.7	8.2	7.8	7.4	7.0	6.7	6.4	6.1	5.8	5.6
	5	13.4	12.4	11.6	10.9	10.3	9.7	9.2	8.8	8.3	8.0	7.6	7.3	7.0
	6	16.1	15.0	14.0	13.1	12.4	11.7	11.1	10.5	10.0	9.6	9.2	8.8	8.4
	7	18.9	17.5	16.4	15.4	14.5	13.7	12.9	12.3	11.7	11.2	10.7	10.3	9.9
	8	21.6	20.1	18.8	17.6	16.6	15.7	14.8	14.1	13.4	12.8	12.3	11.8	11.3
	9	24.4	22.7	21.2	19.9	18.7	17.7	16.7	15.9	15.1	14.4	13.8	13.2	12.7
	10	27.2	25.3	23.6	22.1	20.8	19.7	18.6	17.7	16.8	16.1	15.4	14.7	14.2
	11	30.1	27.9	26.0	24.4	23.0	21.7	20.5	19.5	18.6	17.7	17.0	16.2	15.6
	12	32.9	30.6	28.5	26.7	25.1	23.7	22.5	21.3	20.3	19.4	18.5	17.8	17.0
	13	35.8	33.2	31.0	29.0	27.3	25.8	24.4	23.2	22.0	21.0	20.1	19.3	18.5
	14	38.7	35.9	33.5	31.3	29.5	27.8	26.3	25.0	23.8	22.7	21.7	20.8	20.0
	15	41.7	38.6	36.0	33.7	31.7	29.9	28.3	26.8	25.5	24.4	23.3	22.3	21.4
	16	44.7	41.4	38.5	36.1	33.9	32.0	30.2	28.7	27.3	26.1	24.9	23.9	22.9
	17	47.7	44.1	41.1	38.4	36.1	34.1	32.2	30.6	29.1	27.7	26.5	25.4	24.4
	18	50.8	47.0	43.7	40.8	38.4	36.2	34.2	32.5	30.9	29.4	28.1	26.9	25.8
	19	53.9	49.8	46.3	43.3	40.6	38.3	36.2	34.3	32.7	31.1	29.8	28.5	27.3
	20	57.1	52.7	49.0	45.7	42.9	40.4	38.2	36.3	34.5	32.9	31.4	30.1	28.8
M	21	60.3	55.6	51.6	48.2	45.2	42.6	40.3	38.2	36.3	34.6	33.0	31.6	30.3
	22	63.6	58.6	54.4	50.7	47.6	44.8	42.3	40.1	38.1	36.3	34.7	33.2	31.8
I	23	67.0	61.6	57.1	53.3	49.9	47.0	44.4	42.0	40.0	38.1	36.4	34.8	33.4
	24	70.5	64.7	59.9	55.8	52.3	49.2	46.5	44.0	41.8	39.8	38.0	36.4	34.9
C	25	74.1	67.9	62.8	58.4	54.7	51.4	48.6	46.0	43.7	41.6	39.7	38.0	36.4
R	26	77.9	71.2	65.7	61.1	57.2	53.7	50.7	48.0	45.6	43.4	41.4	39.6	38.0
	27	82.0	74.6	68.7	63.8	59.6	56.0	52.8	50.0	47.5	45.2	43.1	41.2	39.5
O	28	86.9	78.1	71.8	66.6	62.2	58.3	55.0	52.0	49.4	47.0	44.8	42.9	41.1
	29		82.0	75.0	69.4	64.7	60.7	57.2	54.1	51.3	48.8	46.6	44.5	42.6
V	30		86.4	78.3	72.3	67.4	63.1	59.4	56.2	53.3	50.7	48.3	46.2	44.2
O	31			81.9	75.3	70.0	65.6	61.7	58.3	55.2	52.5	50.1	47.8	45.8
	32			86.0	78.5	72.8	68.1	64.0	60.4	57.2	54.4	51.8	49.5	47.4
L	33				81.9	75.7	70.6	66.3	62.6	59.2	56.3	53.6	51.2	49.0
	34				85.7	78.7	73.2	68.7	64.7	61.3	58.2	55.4	52.9	50.6
T	35					81.9	76.0	71.1	67.0	63.4	60.1	57.2	54.6	52.3
	36					85.4	78.8	73.6	69.3	65.5	62.1	59.1	56.4	53.9
	37						81.8	76.2	71.6	67.6	64.1	61.0	58.1	55.6
R	38						85.2	78.9	74.0	69.8	66.1	62.8	59.9	57.3
	39							81.8	76.5	72.0	68.2	64.8	61.7	59.0
E	40							85.0	79.0	74.3	70.3	66.7	63.5	60.7
A	41								81.8	76.7	72.4	68.7	65.4	62.4
	42								84.8	79.2	74.6	70.7	67.3	64.2
D	43									81.8	76.9	72.8	69.2	66.0
	44									84.6	79.2	74.9	71.1	67.8
I	45										81.7	77.1	73.1	69.6
N	46										84.4	79.3	75.1	71.5
	47											81.7	77.2	73.4
G	48											84.3	79.4	75.4
	49											87.5	81.7	77.4
	50												84.2	79.5
	51												87.1	81.7
	52													84.1
	53													86.8
	54													
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 31.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.6	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.4
	2	5.2	4.8	4.5	4.2	4.0	3.8	3.6	3.4	3.2	3.1	3.0	2.8	2.7
	3	7.8	7.3	6.8	6.4	6.0	5.7	5.4	5.1	4.9	4.6	4.4	4.3	4.1
	4	10.4	9.7	9.1	8.5	8.0	7.6	7.2	6.8	6.5	6.2	5.9	5.7	5.5
	5	13.1	12.2	11.4	10.7	10.0	9.5	9.0	8.5	8.1	7.8	7.4	7.1	6.8
	6	15.7	14.6	13.7	12.8	12.1	11.4	10.8	10.3	9.8	9.3	8.9	8.6	8.2
	7	18.4	17.1	16.0	15.0	14.1	13.3	12.6	12.0	11.4	10.9	10.4	10.0	9.6
	8	21.1	19.6	18.3	17.2	16.2	15.3	14.5	13.8	13.1	12.5	12.0	11.5	11.0
	9	23.8	22.1	20.7	19.4	18.2	17.2	16.3	15.5	14.8	14.1	13.5	12.9	12.4
	10	26.6	24.7	23.0	21.6	20.3	19.2	18.2	17.3	16.4	15.7	15.0	14.4	13.8
	11	29.4	27.2	25.4	23.8	22.4	21.1	20.0	19.0	18.1	17.3	16.5	15.8	15.2
	12	32.1	29.8	27.8	26.0	24.5	23.1	21.9	20.8	19.8	18.9	18.1	17.3	16.6
	13	35.0	32.4	30.2	28.3	26.6	25.1	23.8	22.6	21.5	20.5	19.6	18.8	18.0
	14	37.8	35.0	32.6	30.6	28.7	27.1	25.7	24.4	23.2	22.1	21.2	20.3	19.5
	15	40.7	37.7	35.1	32.9	30.9	29.1	27.6	26.2	24.9	23.8	22.7	21.8	20.9
	16	43.6	40.3	37.6	35.2	33.0	31.2	29.5	28.0	26.6	25.4	24.3	23.3	22.3
	17	46.5	43.0	40.1	37.5	35.2	33.2	31.4	29.8	28.4	27.0	25.8	24.8	23.7
	18	49.5	45.8	42.6	39.8	37.4	35.3	33.3	31.6	30.1	28.7	27.4	26.3	25.2
	19	52.5	48.5	45.1	42.2	39.6	37.3	35.3	33.5	31.8	30.4	29.0	27.8	26.6
	20	55.6	51.3	47.7	44.6	41.8	39.4	37.3	35.3	33.6	32.0	30.6	29.3	28.1
M	21	58.7	54.2	50.3	47.0	44.1	41.5	39.2	37.2	35.4	33.7	32.2	30.8	29.6
	22	61.9	57.0	52.9	49.4	46.3	43.6	41.2	39.1	37.1	35.4	33.8	32.4	31.0
I	23	65.1	60.0	55.6	51.9	48.6	45.8	43.2	41.0	38.9	37.1	35.4	33.9	32.5
	24	68.5	62.9	58.3	54.4	50.9	47.9	45.2	42.9	40.7	38.8	37.0	35.4	34.0
C	25	71.9	66.0	61.1	56.9	53.3	50.1	47.3	44.8	42.5	40.5	38.7	37.0	35.5
R	26	75.5	69.1	63.9	59.5	55.6	52.3	49.3	46.7	44.4	42.3	40.3	38.6	37.0
	27	79.3	72.4	66.8	62.1	58.0	54.5	51.4	48.7	46.2	44.0	42.0	40.2	38.5
O	28	83.5	75.7	69.7	64.7	60.5	56.8	53.5	50.6	48.1	45.8	43.7	41.7	40.0
	29		79.3	72.7	67.4	62.9	59.1	55.6	52.6	49.9	47.5	45.3	43.3	41.5
V	30		83.1	75.9	70.2	65.5	61.4	57.8	54.6	51.8	49.3	47.0	44.9	43.0
O	31			79.2	73.1	68.0	63.7	60.0	56.7	53.7	51.1	48.7	46.6	44.6
	32			82.8	76.1	70.7	66.1	62.2	58.7	55.7	52.9	50.4	48.2	46.1
L	33			87.1	79.2	73.4	68.6	64.4	60.8	57.6	54.7	52.2	49.8	47.7
	34				82.5	76.2	71.1	66.7	62.9	59.6	56.6	53.9	51.5	49.3
T	35				86.4	79.1	73.6	69.0	65.1	61.6	58.5	55.7	53.2	50.9
	36					82.3	76.3	71.4	67.3	63.6	60.4	57.5	54.8	52.5
	37					85.8	79.1	73.9	69.5	65.7	62.3	59.3	56.5	54.1
R	38						82.1	76.4	71.8	67.8	64.2	61.1	58.3	55.7
	39						85.3	79.1	74.1	69.9	66.2	62.9	60.0	57.3
E	40							81.9	76.5	72.1	68.2	64.8	61.7	59.0
A	41							84.9	79.0	74.3	70.2	66.7	63.5	60.7
	42								81.7	76.6	72.3	68.6	65.3	62.4
D	43								84.6	79.0	74.5	70.6	67.1	64.1
	44									81.5	76.7	72.6	69.0	65.8
I	45									84.3	79.0	74.6	70.9	67.6
N	46									87.6	81.4	76.8	72.8	69.4
	47										84.0	79.0	74.8	71.2
G	48										87.0	81.3	76.8	73.0
	49											83.7	78.9	74.9
	50											86.5	81.1	76.9
	51												83.5	78.9
	52												86.1	81.0
	53													83.3
	54													85.7
	55													
	56													
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 32.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.5	2.3	2.2	2.1	1.9	1.8	1.7	1.7	1.6	1.5	1.4	1.4	1.3
	2	5.1	4.7	4.4	4.1	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.7
	3	7.6	7.1	6.6	6.2	5.9	5.5	5.2	5.0	4.8	4.5	4.3	4.2	4.0
	4	10.2	9.5	8.8	8.3	7.8	7.4	7.0	6.7	6.3	6.1	5.8	5.6	5.3
	5	12.8	11.9	11.1	10.4	9.8	9.3	8.8	8.3	7.9	7.6	7.3	7.0	6.7
	6	15.4	14.3	13.3	12.5	11.8	11.1	10.6	10.0	9.6	9.1	8.7	8.4	8.0
	7	18.0	16.7	15.6	14.6	13.8	13.0	12.3	11.7	11.2	10.7	10.2	9.8	9.4
	8	20.6	19.2	17.9	16.8	15.8	14.9	14.1	13.4	12.8	12.2	11.7	11.2	10.7
	9	23.3	21.6	20.2	18.9	17.8	16.8	15.9	15.1	14.4	13.8	13.2	12.6	12.1
	10	26.0	24.1	22.5	21.1	19.8	18.7	17.7	16.8	16.0	15.3	14.6	14.0	13.5
	11	28.6	26.6	24.8	23.2	21.9	20.6	19.5	18.6	17.7	16.9	16.1	15.5	14.8
	12	31.4	29.1	27.1	25.4	23.9	22.6	21.4	20.3	19.3	18.4	17.6	16.9	16.2
	13	34.1	31.6	29.5	27.6	26.0	24.5	23.2	22.0	21.0	20.0	19.1	18.3	17.6
	14	36.9	34.2	31.8	29.8	28.0	26.5	25.0	23.8	22.6	21.6	20.6	19.8	19.0
	15	39.7	36.7	34.2	32.0	30.1	28.4	26.9	25.5	24.3	23.2	22.2	21.2	20.4
	16	42.5	39.3	36.6	34.3	32.2	30.4	28.8	27.3	26.0	24.8	23.7	22.7	21.8
	17	45.3	42.0	39.1	36.5	34.3	32.4	30.6	29.1	27.7	26.4	25.2	24.1	23.2
	18	48.2	44.6	41.5	38.8	36.5	34.4	32.5	30.9	29.3	28.0	26.7	25.6	24.6
	19	51.2	47.3	44.0	41.1	38.6	36.4	34.4	32.6	31.0	29.6	28.3	27.1	26.0
	20	54.1	50.0	46.5	43.4	40.8	38.4	36.3	34.4	32.8	31.2	29.8	28.6	27.4
M	21	57.2	52.8	49.0	45.8	43.0	40.5	38.2	36.3	34.5	32.9	31.4	30.1	28.8
	22	60.2	55.5	51.6	48.1	45.1	42.5	40.2	38.1	36.2	34.5	33.0	31.5	30.2
I	23	63.4	58.4	54.2	50.5	47.4	44.6	42.1	39.9	37.9	36.2	34.5	33.0	31.7
	24	66.6	61.3	56.8	52.9	49.6	46.7	44.1	41.8	39.7	37.8	36.1	34.6	33.1
C	25	69.9	64.2	59.4	55.4	51.9	48.8	46.1	43.6	41.5	39.5	37.7	36.1	34.6
R	26	73.3	67.2	62.2	57.9	54.2	50.9	48.1	45.5	43.2	41.2	39.3	37.6	36.0
	27	76.9	70.3	64.9	60.4	56.5	53.1	50.1	47.4	45.0	42.9	40.9	39.1	37.5
O	28	80.7	73.5	67.8	63.0	58.8	55.3	52.1	49.3	46.8	44.6	42.5	40.7	39.0
	29	85.0	76.8	70.7	65.6	61.2	57.5	54.2	51.3	48.6	46.3	44.2	42.2	40.4
V	30		80.4	73.7	68.2	63.7	59.7	56.3	53.2	50.5	48.0	45.8	43.8	41.9
O	31		84.2	76.8	71.0	66.1	62.0	58.4	55.2	52.3	49.8	47.5	45.4	43.4
	32			80.1	73.8	68.7	64.3	60.5	57.2	54.2	51.5	49.1	46.9	44.9
L	33			83.6	76.7	71.2	66.6	62.7	59.2	56.1	53.3	50.8	48.5	46.5
	34				79.8	73.9	69.0	64.9	61.2	58.0	55.1	52.5	50.1	48.0
T	35				83.1	76.7	71.5	67.1	63.3	59.9	56.9	54.2	51.7	49.5
	36				87.0	79.6	74.0	69.4	65.4	61.9	58.7	55.9	53.4	51.1
	37					82.6	76.6	71.7	67.5	63.8	60.6	57.7	55.0	52.6
R	38					86.2	79.3	74.1	69.7	65.8	62.4	59.4	56.7	54.2
	39						82.2	76.6	71.9	67.9	64.3	61.2	58.4	55.8
E	40						85.5	79.2	74.2	70.0	66.3	63.0	60.0	57.4
A	41							81.9	76.5	72.1	68.2	64.8	61.8	59.0
	42							84.9	79.0	74.3	70.2	66.7	63.5	60.6
D	43								81.6	76.5	72.3	68.5	65.2	62.3
	44								84.4	78.8	74.3	70.5	67.0	64.0
I	45									81.3	76.5	72.4	68.8	65.6
N	46									83.9	78.7	74.4	70.7	67.4
	47									87.0	81.0	76.5	72.6	69.1
G	48										83.5	78.6	74.5	70.9
	49										86.3	80.8	76.4	72.7
	50											83.2	78.5	74.5
	51											85.8	80.6	76.4
	52												82.8	78.4
	53												85.3	80.4
	54													82.5
	55													84.8
	56													87.7
	57													
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 33.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.5	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.4	1.3
	2	4.9	4.6	4.3	4.0	3.8	3.6	3.4	3.2	3.1	2.9	2.8	2.7	2.6
	3	7.4	6.9	6.5	6.1	5.7	5.4	5.1	4.9	4.6	4.4	4.2	4.1	3.9
	4	10.0	9.3	8.6	8.1	7.6	7.2	6.8	6.5	6.2	5.9	5.7	5.4	5.2
	5	12.5	11.6	10.8	10.2	9.6	9.0	8.6	8.1	7.8	7.4	7.1	6.8	6.5
	6	15.0	13.9	13.0	12.2	11.5	10.9	10.3	9.8	9.3	8.9	8.5	8.2	7.8
	7	17.6	16.3	15.2	14.3	13.5	12.7	12.0	11.4	10.9	10.4	10.0	9.5	9.2
	8	20.1	18.7	17.5	16.4	15.4	14.6	13.8	13.1	12.5	11.9	11.4	10.9	10.5
	9	22.7	21.1	19.7	18.5	17.4	16.4	15.5	14.8	14.1	13.4	12.8	12.3	11.8
	10	25.3	23.5	21.9	20.6	19.4	18.3	17.3	16.4	15.7	14.9	14.3	13.7	13.1
	11	28.0	25.9	24.2	22.7	21.3	20.1	19.1	18.1	17.3	16.5	15.7	15.1	14.5
	12	30.6	28.4	26.5	24.8	23.3	22.0	20.9	19.8	18.9	18.0	17.2	16.5	15.8
	13	33.3	30.9	28.8	26.9	25.3	23.9	22.6	21.5	20.5	19.5	18.7	17.9	17.2
	14	36.0	33.3	31.1	29.1	27.4	25.8	24.4	23.2	22.1	21.1	20.1	19.3	18.5
	15	38.7	35.9	33.4	31.3	29.4	27.7	26.2	24.9	23.7	22.6	21.6	20.7	19.9
	16	41.4	38.4	35.7	33.5	31.4	29.7	28.1	26.6	25.3	24.2	23.1	22.1	21.2
	17	44.2	40.9	38.1	35.7	33.5	31.6	29.9	28.4	27.0	25.7	24.6	23.6	22.6
	18	47.0	43.5	40.5	37.9	35.6	33.5	31.7	30.1	28.6	27.3	26.1	25.0	24.0
	19	49.9	46.1	42.9	40.1	37.7	35.5	33.6	31.8	30.3	28.9	27.6	26.4	25.3
	20	52.8	48.8	45.3	42.4	39.8	37.5	35.4	33.6	32.0	30.5	29.1	27.9	26.7
M	21	55.7	51.4	47.8	44.6	41.9	39.5	37.3	35.4	33.6	32.1	30.6	29.3	28.1
	22	58.7	54.1	50.3	46.9	44.0	41.5	39.2	37.1	35.3	33.7	32.1	30.8	29.5
I	23	61.7	56.9	52.8	49.2	46.2	43.5	41.1	38.9	37.0	35.3	33.7	32.2	30.9
	24	64.8	59.7	55.3	51.6	48.4	45.5	43.0	40.7	38.7	36.9	35.2	33.7	32.3
C	25	68.0	62.5	57.9	54.0	50.6	47.6	44.9	42.6	40.4	38.5	36.8	35.2	33.7
R	26	71.2	65.4	60.5	56.4	52.8	49.6	46.9	44.4	42.2	40.1	38.3	36.7	35.1
	27	74.6	68.4	63.2	58.8	55.0	51.7	48.8	46.2	43.9	41.8	39.9	38.2	36.6
O	28	78.2	71.4	65.9	61.3	57.3	53.8	50.8	48.1	45.6	43.5	41.5	39.7	38.0
	29	82.0	74.6	68.7	63.8	59.6	56.0	52.8	49.9	47.4	45.1	43.0	41.2	39.4
V	30	86.4	77.9	71.5	66.4	62.0	58.1	54.8	51.8	49.2	46.8	44.6	42.7	40.9
O	31		81.4	74.5	69.0	64.3	60.3	56.8	53.7	51.0	48.5	46.2	44.2	42.3
	32		85.3	77.6	71.7	66.8	62.6	58.9	55.7	52.8	50.2	47.9	45.7	43.8
L	33			80.8	74.4	69.2	64.8	61.0	57.6	54.6	51.9	49.5	47.3	45.3
	34			84.4	77.3	71.8	67.1	63.1	59.6	56.5	53.7	51.1	48.8	46.8
T	35				80.4	74.4	69.5	65.3	61.6	58.3	55.4	52.8	50.4	48.3
	36				83.6	77.1	71.9	67.4	63.6	60.2	57.2	54.5	52.0	49.8
	37				87.7	79.9	74.3	69.7	65.6	62.1	59.0	56.1	53.6	51.3
R	38					83.0	76.9	72.0	67.7	64.0	60.8	57.8	55.2	52.8
	39					86.5	79.6	74.3	69.9	66.0	62.6	59.6	56.8	54.3
E	40						82.4	76.7	72.0	68.0	64.5	61.3	58.4	55.9
A	41						85.6	79.2	74.3	70.0	66.3	63.0	60.1	57.4
	42							81.9	76.6	72.1	68.2	64.8	61.8	59.0
D	43							84.8	79.0	74.2	70.2	66.6	63.5	60.6
	44								81.5	76.4	72.2	68.5	65.2	62.2
I	45								84.2	78.7	74.2	70.3	66.9	63.8
N	46								87.4	81.1	76.3	72.2	68.7	65.5
	47									83.6	78.5	74.2	70.5	67.2
G	48									86.5	80.7	76.2	72.3	68.9
	49										83.1	78.2	74.2	70.6
	50										85.7	80.4	76.1	72.3
	51											82.6	78.0	74.1
	52											85.1	80.1	76.0
	53												82.2	77.9
	54												84.5	79.8
	55												87.3	81.9
	56													84.0
	57													86.5
	58													
	59													
	60													
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 34.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.4	2.2	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.3
2	4.8	4.5	4.2	3.9	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.6	2.5
3	7.3	6.8	6.3	5.9	5.6	5.3	5.0	4.8	4.5	4.3	4.1	4.0	3.8
4	9.7	9.0	8.4	7.9	7.5	7.1	6.7	6.4	6.1	5.8	5.5	5.3	5.1
5	12.2	11.3	10.6	9.9	9.3	8.8	8.4	8.0	7.6	7.2	6.9	6.6	6.4
6	14.7	13.6	12.7	11.9	11.2	10.6	10.1	9.6	9.1	8.7	8.3	8.0	7.7
7	17.2	15.9	14.9	14.0	13.1	12.4	11.8	11.2	10.6	10.2	9.7	9.3	8.9
8	19.7	18.3	17.1	16.0	15.0	14.2	13.5	12.8	12.2	11.6	11.1	10.7	10.2
9	22.2	20.6	19.2	18.0	17.0	16.0	15.2	14.4	13.7	13.1	12.5	12.0	11.5
10	24.7	23.0	21.4	20.1	18.9	17.8	16.9	16.1	15.3	14.6	14.0	13.4	12.8
11	27.3	25.3	23.6	22.1	20.8	19.7	18.6	17.7	16.8	16.1	15.4	14.7	14.1
12	29.9	27.7	25.9	24.2	22.8	21.5	20.4	19.3	18.4	17.6	16.8	16.1	15.5
13	32.5	30.1	28.1	26.3	24.7	23.4	22.1	21.0	20.0	19.1	18.2	17.5	16.8
14	35.1	32.5	30.3	28.4	26.7	25.2	23.9	22.7	21.6	20.6	19.7	18.8	18.1
15	37.8	35.0	32.6	30.5	28.7	27.1	25.6	24.3	23.2	22.1	21.1	20.2	19.4
16	40.4	37.5	34.9	32.6	30.7	28.9	27.4	26.0	24.7	23.6	22.6	21.6	20.7
17	43.1	39.9	37.2	34.8	32.7	30.8	29.2	27.7	26.3	25.1	24.0	23.0	22.1
18	45.9	42.4	39.5	37.0	34.7	32.7	31.0	29.4	28.0	26.7	25.5	24.4	23.4
19	48.6	45.0	41.8	39.1	36.7	34.6	32.8	31.1	29.6	28.2	26.9	25.8	24.7
20	51.4	47.5	44.2	41.3	38.8	36.6	34.6	32.8	31.2	29.7	28.4	27.2	26.1
M 21	54.3	50.1	46.6	43.5	40.9	38.5	36.4	34.5	32.8	31.3	29.9	28.6	27.4
22	57.2	52.8	49.0	45.8	42.9	40.4	38.2	36.2	34.5	32.8	31.4	30.0	28.8
I 23	60.1	55.4	51.4	48.0	45.0	42.4	40.1	38.0	36.1	34.4	32.9	31.5	30.2
24	63.1	58.1	53.9	50.3	47.1	44.4	41.9	39.7	37.8	36.0	34.4	32.9	31.5
C 25	66.1	60.9	56.4	52.6	49.3	46.4	43.8	41.5	39.4	37.6	35.9	34.3	32.9
R 26	69.3	63.6	58.9	54.9	51.4	48.4	45.7	43.3	41.1	39.2	37.4	35.8	34.3
27	72.5	66.5	61.5	57.3	53.6	50.4	47.6	45.1	42.8	40.8	38.9	37.2	35.7
O 28	75.9	69.4	64.1	59.7	55.8	52.5	49.5	46.9	44.5	42.4	40.4	38.7	37.1
29	79.4	72.4	66.8	62.1	58.1	54.5	51.4	48.7	46.2	44.0	42.0	40.2	38.5
V 30	83.3	75.6	69.6	64.6	60.3	56.6	53.4	50.5	48.0	45.6	43.5	41.6	39.9
O 31		78.8	72.4	67.1	62.6	58.8	55.4	52.4	49.7	47.3	45.1	43.1	41.3
32		82.3	75.3	69.7	65.0	60.9	57.4	54.2	51.4	48.9	46.7	44.6	42.7
L 33		86.4	78.3	72.3	67.3	63.1	59.4	56.1	53.2	50.6	48.2	46.1	44.2
34			81.6	75.0	69.8	65.3	61.4	58.0	55.0	52.3	49.8	47.6	45.6
T 35			85.1	77.9	72.3	67.6	63.5	60.0	56.8	54.0	51.4	49.1	47.0
36				80.9	74.8	69.9	65.6	61.9	58.6	55.7	53.1	50.7	48.5
37				84.1	77.5	72.2	67.8	63.9	60.5	57.4	54.7	52.2	50.0
R 38					80.3	74.6	69.9	65.9	62.3	59.2	56.3	53.8	51.4
39					83.3	77.2	72.2	67.9	64.2	60.9	58.0	55.4	52.9
E 40					86.7	79.8	74.5	70.0	66.2	62.7	59.7	56.9	54.4
A 41						82.6	76.8	72.1	68.1	64.5	61.4	58.5	56.0
42						85.7	79.3	74.3	70.1	66.4	63.1	60.1	57.5
D 43							81.9	76.6	72.1	68.3	64.8	61.8	59.0
44							84.7	78.9	74.2	70.2	66.6	63.4	60.6
I 45								81.3	76.3	72.1	68.4	65.1	62.1
N 46								84.0	78.5	74.1	70.2	66.8	63.7
47								87.0	80.8	76.1	72.1	68.5	65.3
G 48									83.3	78.2	74.0	70.3	67.0
49									86.0	80.4	75.9	72.0	68.6
50										82.7	77.9	73.9	70.3
51										85.2	80.0	75.7	72.0
52											82.2	77.6	73.8
53											84.5	79.6	75.5
54											87.2	81.7	77.4
55												83.9	79.3
56												86.3	81.2
57													83.3
58													85.6
59													
60													
61													
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 35.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
								WATER POTENTIAL, NEGATIVE BARS						
	1	2.4	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4	1.3	1.3	1.2
	2	4.7	4.4	4.1	3.9	3.6	3.4	3.3	3.1	2.9	2.8	2.7	2.6	2.5
	3	7.1	6.6	6.2	5.8	5.5	5.2	4.9	4.6	4.4	4.2	4.0	3.9	3.7
	4	9.5	8.8	8.2	7.7	7.3	6.9	6.5	6.2	5.9	5.6	5.4	5.2	5.0
	5	11.9	11.1	10.3	9.7	9.1	8.6	8.2	7.8	7.4	7.1	6.8	6.5	6.2
	6	14.3	13.3	12.4	11.7	11.0	10.4	9.8	9.3	8.9	8.5	8.1	7.8	7.5
	7	16.8	15.6	14.5	13.6	12.8	12.1	11.5	10.9	10.4	9.9	9.5	9.1	8.7
	8	19.2	17.8	16.7	15.6	14.7	13.9	13.2	12.5	11.9	11.4	10.9	10.4	10.0
	9	21.7	20.1	18.8	17.6	16.6	15.7	14.8	14.1	13.4	12.8	12.3	11.7	11.3
	10	24.2	22.4	20.9	19.6	18.5	17.4	16.5	15.7	14.9	14.3	13.6	13.1	12.5
	11	26.7	24.7	23.1	21.6	20.4	19.2	18.2	17.3	16.5	15.7	15.0	14.4	13.8
	12	29.2	27.1	25.2	23.7	22.3	21.0	19.9	18.9	18.0	17.2	16.4	15.7	15.1
	13	31.7	29.4	27.4	25.7	24.2	22.8	21.6	20.5	19.5	18.6	17.8	17.1	16.4
	14	34.3	31.8	29.6	27.7	26.1	24.6	23.3	22.1	21.1	20.1	19.2	18.4	17.7
	15	36.9	34.2	31.8	29.8	28.0	26.4	25.0	23.8	22.6	21.6	20.6	19.8	19.0
	16	39.5	36.6	34.1	31.9	30.0	28.3	26.8	25.4	24.2	23.1	22.0	21.1	20.3
	17	42.1	39.0	36.3	34.0	31.9	30.1	28.5	27.0	25.7	24.5	23.5	22.5	21.6
	18	44.7	41.4	38.6	36.1	33.9	32.0	30.2	28.7	27.3	26.0	24.9	23.8	22.9
	19	47.4	43.9	40.8	38.2	35.9	33.8	32.0	30.3	28.9	27.5	26.3	25.2	24.2
	20	50.2	46.4	43.1	40.3	37.9	35.7	33.8	32.0	30.5	29.0	27.7	26.6	25.5
M	21	52.9	48.9	45.5	42.5	39.9	37.6	35.5	33.7	32.0	30.5	29.2	27.9	26.8
	22	55.7	51.4	47.8	44.6	41.9	39.5	37.3	35.4	33.6	32.1	30.6	29.3	28.1
I	23	58.5	54.0	50.2	46.8	43.9	41.4	39.1	37.1	35.2	33.6	32.1	30.7	29.5
	24	61.4	56.6	52.6	49.0	46.0	43.3	40.9	38.8	36.9	35.1	33.6	32.1	30.8
C	25	64.4	59.3	55.0	51.3	48.1	45.2	42.7	40.5	38.5	36.7	35.0	33.5	32.1
R	26	67.4	62.0	57.4	53.5	50.2	47.2	44.6	42.2	40.1	38.2	36.5	34.9	33.5
	27	70.5	64.7	59.9	55.8	52.3	49.2	46.4	44.0	41.8	39.8	38.0	36.3	34.8
O	28	73.7	67.6	62.5	58.1	54.4	51.2	48.3	45.7	43.4	41.4	39.5	37.8	36.2
	29	77.0	70.4	65.0	60.5	56.6	53.2	50.2	47.5	45.1	42.9	41.0	39.2	37.6
V	30	80.6	73.4	67.7	62.9	58.8	55.2	52.1	49.3	46.8	44.5	42.5	40.6	38.9
O	31	84.5	76.5	70.4	65.3	61.0	57.3	54.0	51.1	48.5	46.1	44.0	42.1	40.3
	32		79.7	73.1	67.8	63.3	59.3	55.9	52.9	50.2	47.7	45.5	43.5	41.7
L	33		83.3	76.0	70.3	65.6	61.5	57.9	54.7	51.9	49.4	47.1	45.0	43.1
	34		87.5	79.0	72.9	67.9	63.6	59.9	56.6	53.6	51.0	48.6	46.5	44.5
T	35			82.2	75.6	70.3	65.8	61.9	58.4	55.4	52.6	50.2	47.9	45.9
	36			85.8	78.4	72.7	68.0	63.9	60.3	57.1	54.3	51.7	49.4	47.3
	37				81.4	75.2	70.2	66.0	62.2	58.9	56.0	53.3	50.9	48.7
R	38				84.6	77.9	72.5	68.1	64.2	60.7	57.7	54.9	52.4	50.2
	39					80.6	74.9	70.2	66.1	62.6	59.4	56.5	54.0	51.6
E	40					83.6	77.4	72.4	68.1	64.4	61.1	58.2	55.5	53.1
A	41					87.0	79.9	74.6	70.2	66.3	62.9	59.8	57.0	54.5
	42						82.7	77.0	72.2	68.2	64.6	61.5	58.6	56.0
D	43						85.7	79.4	74.4	70.1	66.4	63.1	60.2	57.5
	44							81.9	76.6	72.1	68.3	64.8	61.8	59.0
I	45							84.7	78.8	74.1	70.1	66.6	63.4	60.5
N	46								81.2	76.2	72.0	68.3	65.0	62.1
	47								83.8	78.4	73.9	70.1	66.7	63.6
G	48								86.7	80.6	75.9	71.9	68.4	65.2
	49									83.0	78.0	73.7	70.1	66.8
	50									85.6	80.1	75.6	71.8	68.4
	51										82.3	77.6	73.6	70.0
	52										84.7	79.6	75.4	71.7
	53										87.6	81.7	77.2	73.4
	54											83.9	79.1	75.1
	55											86.5	81.1	76.9
	56												83.2	78.7
	57												85.5	80.6
	58													82.6
	59													84.8
	60													87.2
	61													
	62													
	63													
	64													
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 36.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.3	2.1	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.2
2	4.6	4.3	4.0	3.8	3.5	3.4	3.2	3.0	2.9	2.8	2.6	2.5	2.4
3	6.9	6.5	6.0	5.7	5.3	5.0	4.8	4.5	4.3	4.1	4.0	3.8	3.6
4	9.3	8.6	8.1	7.6	7.1	6.7	6.4	6.1	5.8	5.5	5.3	5.1	4.9
5	11.6	10.8	10.1	9.5	8.9	8.4	8.0	7.6	7.2	6.9	6.6	6.3	6.1
6	14.0	13.0	12.1	11.4	10.7	10.1	9.6	9.1	8.7	8.3	7.9	7.6	7.3
7	16.4	15.2	14.2	13.3	12.5	11.9	11.2	10.7	10.2	9.7	9.3	8.9	8.5
8	18.8	17.4	16.3	15.3	14.4	13.6	12.9	12.2	11.6	11.1	10.6	10.2	9.8
9	21.2	19.7	18.4	17.2	16.2	15.3	14.5	13.8	13.1	12.5	12.0	11.5	11.0
10	23.6	21.9	20.4	19.2	18.0	17.0	16.1	15.3	14.6	13.9	13.3	12.8	12.3
11	26.0	24.2	22.5	21.1	19.9	18.8	17.8	16.9	16.1	15.4	14.7	14.1	13.5
12	28.5	26.4	24.7	23.1	21.7	20.5	19.4	18.5	17.6	16.8	16.0	15.4	14.8
13	31.0	28.7	26.8	25.1	23.6	22.3	21.1	20.0	19.1	18.2	17.4	16.7	16.0
14	33.5	31.0	28.9	27.1	25.5	24.0	22.8	21.6	20.6	19.6	18.8	18.0	17.3
15	36.0	33.4	31.1	29.1	27.4	25.8	24.4	23.2	22.1	21.1	20.2	19.3	18.5
16	38.5	35.7	33.3	31.1	29.3	27.6	26.1	24.8	23.6	22.5	21.5	20.6	19.8
17	41.1	38.0	35.4	33.2	31.2	29.4	27.8	26.4	25.1	24.0	22.9	22.0	21.1
18	43.7	40.4	37.6	35.2	33.1	31.2	29.5	28.0	26.7	25.4	24.3	23.3	22.3
19	46.3	42.8	39.9	37.3	35.0	33.0	31.2	29.6	28.2	26.9	25.7	24.6	23.6
20	48.9	45.2	42.1	39.4	37.0	34.8	33.0	31.3	29.7	28.4	27.1	26.0	24.9
M 21	51.6	47.7	44.4	41.5	38.9	36.7	34.7	32.9	31.3	29.8	28.5	27.3	26.2
22	54.3	50.2	46.6	43.6	40.9	38.5	36.4	34.6	32.9	31.3	29.9	28.6	27.5
I 23	57.1	52.7	48.9	45.7	42.9	40.4	38.2	36.2	34.4	32.8	31.3	30.0	28.8
24	59.9	55.2	51.3	47.9	44.9	42.3	39.9	37.9	36.0	34.3	32.8	31.4	30.1
C 25	62.7	57.8	53.6	50.0	46.9	44.2	41.7	39.5	37.6	35.8	34.2	32.7	31.4
R 26	65.6	60.4	56.0	52.2	48.9	46.1	43.5	41.2	39.2	37.3	35.6	34.1	32.7
27	68.6	63.1	58.4	54.4	51.0	48.0	45.3	42.9	40.8	38.8	37.1	35.5	34.0
O 28	71.7	65.8	60.9	56.7	53.1	49.9	47.1	44.6	42.4	40.4	38.5	36.9	35.3
29	74.8	68.5	63.4	59.0	55.2	51.9	48.9	46.3	44.0	41.9	40.0	38.3	36.7
V 30	78.2	71.4	65.9	61.3	57.3	53.8	50.8	48.1	45.6	43.5	41.5	39.7	38.0
O 31	81.7	74.3	68.5	63.6	59.5	55.8	52.7	49.8	47.3	45.0	43.0	41.1	39.4
32	85.7	77.4	71.1	66.0	61.6	57.9	54.5	51.6	49.0	46.6	44.4	42.5	40.7
L 33		80.6	73.9	68.4	63.9	59.9	56.4	53.4	50.6	48.2	45.9	43.9	42.1
34		84.1	76.7	70.9	66.1	62.0	58.3	55.2	52.3	49.7	47.4	45.3	43.4
T 35			79.7	73.5	68.4	64.1	60.3	57.0	54.0	51.4	49.0	46.8	44.8
36			82.9	76.1	70.7	66.2	62.2	58.8	55.7	53.0	50.5	48.2	46.2
37			86.5	78.9	73.1	68.4	64.2	60.6	57.4	54.6	52.0	49.7	47.6
R 38				81.8	75.6	70.6	66.3	62.5	59.2	56.2	53.6	51.2	49.0
39				85.0	78.2	72.8	68.3	64.4	61.0	57.9	55.1	52.6	50.4
E 40					80.9	75.2	70.4	66.3	62.8	59.6	56.7	54.1	51.8
A 41					83.8	77.6	72.6	68.3	64.6	61.3	58.3	55.6	53.2
42					87.2	80.1	74.8	70.3	66.4	63.0	59.9	57.1	54.6
D 43						82.8	77.0	72.3	68.3	64.7	61.5	58.7	56.1
44						85.7	79.4	74.4	70.2	66.5	63.2	60.2	57.5
I 45							81.9	76.5	72.1	68.2	64.8	61.8	59.0
N 46							84.6	78.8	74.1	70.1	66.5	63.4	60.5
47							87.9	81.1	76.1	71.9	68.2	64.9	62.0
G 48								83.6	78.2	73.8	70.0	66.6	63.5
49								86.4	80.4	75.7	71.7	68.2	65.1
50									82.7	77.7	73.5	69.9	66.6
51									85.2	79.8	75.4	71.5	68.2
52										81.9	77.2	73.3	69.8
53										84.2	79.2	75.0	71.4
54										86.9	81.2	76.8	73.0
55											83.4	78.7	74.7
56											85.8	80.6	76.5
57												82.6	78.2
58												84.8	80.1
59												87.4	82.0
60													84.0
61													86.3
62													
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 37.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.3	2.1	2.0	1.8	1.7	1.6	1.6	1.5	1.4	1.3	1.3	1.2	1.2
2	4.5	4.2	3.9	3.7	3.5	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4
3	6.8	6.3	5.9	5.5	5.2	4.9	4.7	4.4	4.2	4.0	3.9	3.7	3.6
4	9.1	8.4	7.9	7.4	7.0	6.6	6.2	5.9	5.7	5.4	5.2	5.0	4.8
5	11.4	10.6	9.9	9.3	8.7	8.2	7.8	7.4	7.1	6.8	6.5	6.2	6.0
6	13.7	12.7	11.9	11.1	10.5	9.9	9.4	8.9	8.5	8.1	7.8	7.5	7.2
7	16.0	14.9	13.9	13.0	12.3	11.6	11.0	10.4	9.9	9.5	9.1	8.7	8.4
8	18.3	17.0	15.9	14.9	14.0	13.3	12.6	11.9	11.4	10.9	10.4	10.0	9.6
9	20.7	19.2	17.9	16.8	15.8	15.0	14.2	13.5	12.8	12.2	11.7	11.2	10.8
10	23.1	21.4	20.0	18.7	17.6	16.7	15.8	15.0	14.3	13.6	13.0	12.5	12.0
11	25.4	23.6	22.0	20.7	19.4	18.4	17.4	16.5	15.7	15.0	14.4	13.8	13.2
12	27.8	25.8	24.1	22.6	21.2	20.1	19.0	18.0	17.2	16.4	15.7	15.0	14.4
13	30.3	28.1	26.2	24.5	23.1	21.8	20.6	19.6	18.7	17.8	17.0	16.3	15.7
14	32.7	30.3	28.3	26.5	24.9	23.5	22.3	21.1	20.1	19.2	18.4	17.6	16.9
15	35.1	32.6	30.4	28.4	26.7	25.2	23.9	22.7	21.6	20.6	19.7	18.9	18.1
16	37.6	34.9	32.5	30.4	28.6	27.0	25.5	24.2	23.1	22.0	21.0	20.2	19.4
17	40.1	37.2	34.6	32.4	30.5	28.7	27.2	25.8	24.6	23.4	22.4	21.5	20.6
18	42.6	39.5	36.8	34.4	32.3	30.5	28.9	27.4	26.1	24.9	23.8	22.8	21.8
19	45.2	41.8	38.9	36.4	34.2	32.3	30.5	29.0	27.6	26.3	25.1	24.1	23.1
20	47.7	44.2	41.1	38.4	36.1	34.0	32.2	30.6	29.1	27.7	26.5	25.4	24.3
M 21	50.3	46.6	43.3	40.5	38.0	35.8	33.9	32.2	30.6	29.2	27.9	26.7	25.6
22	53.0	49.0	45.5	42.5	39.9	37.6	35.6	33.8	32.1	30.6	29.2	28.0	26.9
I 23	55.7	51.4	47.8	44.6	41.9	39.4	37.3	35.4	33.6	32.1	30.6	29.3	28.1
24	58.4	53.9	50.0	46.7	43.8	41.3	39.0	37.0	35.2	33.5	32.0	30.6	29.4
C 25	61.1	56.4	52.3	48.8	45.8	43.1	40.7	38.6	36.7	35.0	33.4	32.0	30.7
R 26	63.9	58.9	54.6	51.0	47.8	45.0	42.5	40.3	38.3	36.5	34.8	33.3	31.9
27	66.8	61.5	57.0	53.1	49.8	46.8	44.2	41.9	39.8	37.9	36.2	34.7	33.2
O 28	69.7	64.1	59.3	55.3	51.8	48.7	46.0	43.6	41.4	39.4	37.6	36.0	34.5
29	72.8	66.7	61.7	57.5	53.8	50.6	47.8	45.3	43.0	40.9	39.1	37.4	35.8
V 30	75.9	69.5	64.2	59.7	55.9	52.5	49.6	46.9	44.6	42.4	40.5	38.7	37.1
O 31	79.2	72.3	66.7	62.0	58.0	54.5	51.4	48.6	46.2	44.0	41.9	40.1	38.4
32	82.8	75.2	69.3	64.3	60.1	56.4	53.2	50.3	47.8	45.5	43.4	41.5	39.8
L 33	86.9	78.2	71.9	66.7	62.2	58.4	55.0	52.1	49.4	47.0	44.9	42.9	41.1
34		81.4	74.6	69.0	64.4	60.4	56.9	53.8	51.0	48.6	46.3	44.3	42.4
T 35		85.0	77.4	71.5	66.6	62.4	58.8	55.6	52.7	50.1	47.8	45.7	43.7
36			80.3	74.0	68.9	64.5	60.7	57.3	54.4	51.7	49.3	47.1	45.1
37			83.5	76.6	71.2	66.6	62.6	59.1	56.0	53.3	50.8	48.5	46.4
R 38			87.2	79.3	73.5	68.7	64.6	60.9	57.7	54.9	52.3	49.9	47.8
39				82.2	76.0	70.9	66.6	62.8	59.4	56.5	53.8	51.4	49.2
E 40				85.4	78.5	73.1	68.6	64.6	61.2	58.1	55.3	52.8	50.5
A 41					81.1	75.4	70.6	66.5	62.9	59.7	56.9	54.3	51.9
42					84.0	77.8	72.7	68.4	64.7	61.4	58.4	55.8	53.3
D 43					87.4	80.2	74.9	70.4	66.5	63.1	60.0	57.2	54.7
44						82.8	77.1	72.4	68.3	64.8	61.6	58.7	56.1
I 45						85.8	79.4	74.4	70.2	66.5	63.2	60.2	57.6
N 46							81.8	76.5	72.1	68.2	64.8	61.8	59.0
47							84.5	78.7	74.0	70.0	66.5	63.3	60.5
G 48							87.6	81.0	76.0	71.8	68.1	64.9	61.9
49								83.4	78.0	73.6	69.8	66.4	63.4
50								86.0	80.2	75.5	71.5	68.0	64.9
51									82.4	77.5	73.3	69.7	66.4
52									84.8	79.5	75.1	71.3	68.0
53									87.8	81.6	76.9	73.0	69.5
54										83.8	78.8	74.7	71.1
55										86.3	80.8	76.5	72.7
56											82.9	78.3	74.3
57											85.1	80.1	76.0
58											87.9	82.1	77.7
59												84.2	79.5
60												86.5	81.4
61													83.3
62													85.4
63													
64													
65													
66													
67													
68													
69													
70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 38.0

OFFSET FROM ZERO IN MICROVOLTS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
		WATER POTENTIAL, NEGATIVE BARS												
	1	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.4	1.3	1.3	1.2	1.2
	2	4.4	4.1	3.8	3.6	3.4	3.2	3.0	2.9	2.8	2.6	2.5	2.4	2.3
	3	6.6	6.2	5.8	5.4	5.1	4.8	4.6	4.3	4.1	4.0	3.8	3.6	3.5
	4	8.9	8.3	7.7	7.2	6.8	6.4	6.1	5.8	5.5	5.3	5.1	4.8	4.7
	5	11.1	10.3	9.7	9.1	8.5	8.1	7.6	7.3	6.9	6.6	6.3	6.1	5.8
	6	13.4	12.4	11.6	10.9	10.3	9.7	9.2	8.7	8.3	7.9	7.6	7.3	7.0
	7	15.6	14.5	13.6	12.7	12.0	11.3	10.7	10.2	9.7	9.3	8.9	8.5	8.2
	8	17.9	16.7	15.6	14.6	13.7	13.0	12.3	11.7	11.1	10.6	10.2	9.7	9.4
	9	20.2	18.8	17.5	16.4	15.5	14.6	13.9	13.2	12.5	12.0	11.5	11.0	10.5
	10	22.5	20.9	19.5	18.3	17.2	16.3	15.4	14.7	14.0	13.3	12.7	12.2	11.7
	11	24.9	23.1	21.5	20.2	19.0	17.9	17.0	16.2	15.4	14.7	14.0	13.5	12.9
	12	27.2	25.2	23.6	22.1	20.8	19.6	18.6	17.7	16.8	16.0	15.3	14.7	14.1
	13	29.6	27.4	25.6	24.0	22.6	21.3	20.2	19.2	18.2	17.4	16.6	16.0	15.3
	14	31.9	29.6	27.6	25.9	24.3	23.0	21.8	20.7	19.7	18.8	18.0	17.2	16.5
	15	34.3	31.8	29.7	27.8	26.1	24.7	23.4	22.2	21.1	20.2	19.3	18.5	17.7
	16	36.7	34.1	31.7	29.7	27.9	26.4	25.0	23.7	22.6	21.5	20.6	19.7	18.9
	17	39.2	36.3	33.8	31.7	29.8	28.1	26.6	25.2	24.0	22.9	21.9	21.0	20.1
	18	41.6	38.6	35.9	33.6	31.6	29.8	28.2	26.8	25.5	24.3	23.2	22.3	21.4
	19	44.1	40.8	38.0	35.6	33.4	31.5	29.8	28.3	26.9	25.7	24.6	23.5	22.6
	20	46.6	43.1	40.1	37.6	35.3	33.3	31.5	29.9	28.4	27.1	25.9	24.8	23.8
M	21	49.1	45.5	42.3	39.5	37.1	35.0	33.1	31.4	29.9	28.5	27.2	26.1	25.0
	22	51.7	47.8	44.5	41.6	39.0	36.8	34.8	33.0	31.4	29.9	28.6	27.4	26.3
I	23	54.3	50.2	46.6	43.6	40.9	38.5	36.4	34.6	32.9	31.3	29.9	28.7	27.5
	24	56.9	52.6	48.8	45.6	42.8	40.3	38.1	36.1	34.4	32.8	31.3	30.0	28.7
C	25	59.6	55.0	51.1	47.7	44.7	42.1	39.8	37.7	35.9	34.2	32.7	31.3	30.0
R	26	62.3	57.4	53.3	49.7	46.6	43.9	41.5	39.3	37.4	35.6	34.0	32.6	31.2
	27	65.1	59.9	55.6	51.8	48.6	45.7	43.2	41.0	38.9	37.1	35.4	33.9	32.5
O	28	67.9	62.5	57.9	54.0	50.6	47.6	44.9	42.6	40.5	38.5	36.8	35.2	33.8
	29	70.8	65.0	60.2	56.1	52.5	49.4	46.7	44.2	42.0	40.0	38.2	36.5	35.0
V	30	73.8	67.7	62.6	58.3	54.5	51.3	48.4	45.8	43.5	41.5	39.6	37.9	36.3
O	31	76.9	70.4	65.0	60.5	56.6	53.2	50.2	47.5	45.1	42.9	41.0	39.2	37.6
	32	80.2	73.1	67.5	62.7	58.6	55.1	51.9	49.2	46.7	44.4	42.4	40.5	38.9
L	33	83.8	76.0	70.0	65.0	60.7	57.0	53.7	50.8	48.3	45.9	43.8	41.9	40.1
	34		79.0	72.5	67.3	62.8	58.9	55.5	52.5	49.8	47.4	45.2	43.3	41.4
T	35		82.2	75.2	69.6	64.9	60.9	57.4	54.2	51.5	48.9	46.7	44.6	42.7
	36		85.8	78.0	72.0	67.1	62.9	59.2	56.0	53.1	50.5	48.1	46.0	44.0
	37			80.9	74.5	69.3	64.9	61.1	57.7	54.7	52.0	49.6	47.4	45.4
R	38			84.0	77.1	71.6	67.0	63.0	59.5	56.3	53.6	51.0	48.8	46.7
	39			87.9	79.7	73.9	69.0	64.9	61.2	58.0	55.1	52.5	50.2	48.0
E	40				82.6	76.3	71.2	66.8	63.0	59.7	56.7	54.0	51.6	49.4
A	41				85.8	78.8	73.4	68.8	64.9	61.4	58.3	55.5	53.0	50.7
	42					81.4	75.6	70.8	66.7	63.1	59.9	57.0	54.4	52.1
D	43					84.2	77.9	72.9	68.6	64.8	61.5	58.5	55.9	53.4
	44					87.6	80.3	75.0	70.5	66.6	63.2	60.1	57.3	54.8
I	45						82.9	77.2	72.4	68.4	64.8	61.6	58.8	56.2
N	46						85.7	79.4	74.4	70.2	66.5	63.2	60.3	57.6
	47							81.8	76.5	72.1	68.2	64.8	61.7	59.0
G	48							84.3	78.6	73.9	69.9	66.4	63.3	60.4
	49							87.3	80.8	75.9	71.7	68.0	64.8	61.9
	50								83.2	77.9	73.5	69.7	66.3	63.3
	51								85.7	79.9	75.3	71.4	67.9	64.8
	52									82.1	77.2	73.1	69.5	66.2
	53									84.5	79.2	74.8	71.1	67.7
	54									87.2	81.2	76.6	72.7	69.3
	55										83.4	78.5	74.4	70.8
	56										85.7	80.4	76.1	72.4
	57											82.4	77.8	74.0
	58											84.5	79.7	75.6
	59											87.0	81.5	77.3
	60												83.5	79.0
	61												85.7	80.8
	62													82.6
	63													84.6
	64													86.9
	65													
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 39.0

OFFSET FROM ZERO IN MICROVOLTS

WATER POTENTIAL, NEGATIVE BARS

		-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	1	2.2	2.0	1.9	1.8	1.7	1.6	1.5	1.4	1.3	1.3	1.2	1.2	1.1
	2	4.3	4.0	3.8	3.5	3.3	3.1	3.0	2.8	2.7	2.6	2.5	2.4	2.3
	3	6.5	6.0	5.6	5.3	5.0	4.7	4.5	4.3	4.1	3.9	3.7	3.6	3.4
	4	8.7	8.1	7.5	7.1	6.7	6.3	6.0	5.7	5.4	5.2	4.9	4.7	4.6
	5	10.9	10.1	9.4	8.9	8.4	7.9	7.5	7.1	6.8	6.5	6.2	5.9	5.7
	6	13.1	12.2	11.4	10.7	10.0	9.5	9.0	8.5	8.1	7.8	7.4	7.1	6.9
	7	15.3	14.2	13.3	12.5	11.7	11.1	10.5	10.0	9.5	9.1	8.7	8.3	8.0
	8	17.5	16.3	15.2	14.3	13.4	12.7	12.0	11.4	10.9	10.4	10.0	9.5	9.2
	9	19.8	18.4	17.2	16.1	15.1	14.3	13.6	12.9	12.3	11.7	11.2	10.7	10.3
	10	22.0	20.5	19.1	17.9	16.9	15.9	15.1	14.3	13.7	13.0	12.5	12.0	11.5
	11	24.3	22.6	21.1	19.7	18.6	17.6	16.6	15.8	15.0	14.4	13.7	13.2	12.6
	12	26.6	24.7	23.0	21.6	20.3	19.2	18.2	17.3	16.4	15.7	15.0	14.4	13.8
	13	28.9	26.8	25.0	23.4	22.1	20.8	19.7	18.7	17.8	17.0	16.3	15.6	15.0
	14	31.2	29.0	27.0	25.3	23.8	22.5	21.3	20.2	19.2	18.4	17.6	16.8	16.2
	15	33.5	31.1	29.0	27.2	25.6	24.1	22.8	21.7	20.7	19.7	18.9	18.1	17.3
	16	35.9	33.3	31.0	29.1	27.3	25.8	24.4	23.2	22.1	21.1	20.1	19.3	18.5
	17	38.3	35.5	33.1	31.0	29.1	27.5	26.0	24.7	23.5	22.4	21.4	20.5	19.7
	18	40.7	37.7	35.1	32.9	30.9	29.1	27.6	26.2	24.9	23.8	22.7	21.8	20.9
	19	43.1	39.9	37.2	34.8	32.7	30.8	29.2	27.7	26.4	25.1	24.0	23.0	22.1
	20	45.5	42.1	39.2	36.7	34.5	32.5	30.8	29.2	27.8	26.5	25.3	24.3	23.3
M	21	48.0	44.4	41.3	38.6	36.3	34.2	32.4	30.7	29.2	27.9	26.6	25.5	24.5
	22	50.5	46.7	43.4	40.6	38.1	35.9	34.0	32.3	30.7	29.3	28.0	26.8	25.7
I	23	53.0	49.0	45.5	42.6	40.0	37.7	35.6	33.8	32.1	30.6	29.3	28.0	26.9
	24	55.5	51.3	47.7	44.6	41.8	39.4	37.3	35.3	33.6	32.0	30.6	29.3	28.1
C	25	58.1	53.7	49.9	46.6	43.7	41.2	38.9	36.9	35.1	33.4	31.9	30.6	29.3
R	26	60.8	56.0	52.0	48.6	45.6	42.9	40.6	38.5	36.6	34.8	33.3	31.9	30.5
	27	63.5	58.5	54.2	50.6	47.5	44.7	42.2	40.0	38.0	36.3	34.6	33.1	31.8
O	28	66.2	60.9	56.5	52.7	49.4	46.5	43.9	41.6	39.5	37.7	36.0	34.4	33.0
	29	69.0	63.4	58.8	54.8	51.3	48.3	45.6	43.2	41.0	39.1	37.3	35.7	34.2
V	30	71.9	66.0	61.0	56.9	53.3	50.1	47.3	44.8	42.6	40.5	38.7	37.0	35.5
O	31	74.8	68.5	63.4	59.0	55.2	51.9	49.0	46.4	44.1	42.0	40.1	38.3	36.7
	32	77.9	71.2	65.8	61.2	57.2	53.8	50.7	48.0	45.6	43.4	41.4	39.6	38.0
L	33	81.2	73.9	68.2	63.4	59.2	55.6	52.5	49.7	47.1	44.9	42.8	41.0	39.2
	34	84.8	76.8	70.6	65.6	61.3	57.5	54.2	51.3	48.7	46.3	44.2	42.3	40.5
T	35		79.8	73.2	67.8	63.3	59.4	56.0	53.0	50.3	47.8	45.6	43.6	41.8
	36		82.9	75.8	70.2	65.4	61.3	57.8	54.6	51.8	49.3	47.0	45.0	43.1
	37		86.6	78.5	72.5	67.6	63.3	59.6	56.3	53.4	50.8	48.4	46.3	44.3
R	38			81.4	75.0	69.7	65.3	61.4	58.0	55.0	52.3	49.9	47.7	45.6
	39			84.6	77.5	72.0	67.3	63.3	59.8	56.6	53.8	51.3	49.0	46.9
E	40				80.1	74.2	69.3	65.2	61.5	58.3	55.4	52.8	50.4	48.2
A	41				82.9	76.6	71.4	67.1	63.3	59.9	56.9	54.2	51.8	49.5
	42				86.1	79.0	73.6	69.0	65.0	61.6	58.5	55.7	53.2	50.9
D	43					81.6	75.8	71.0	66.9	63.2	60.0	57.2	54.6	52.2
	44					84.4	78.1	73.0	68.7	64.9	61.6	58.6	56.0	53.5
I	45					87.7	80.4	75.1	70.6	66.7	63.2	60.2	57.4	54.9
N	46						82.9	77.2	72.5	68.4	64.9	61.7	58.8	56.2
	47						85.7	79.4	74.4	70.2	66.5	63.2	60.3	57.6
G	48							81.7	76.4	72.0	68.2	64.8	61.7	59.0
	49							84.2	78.5	73.9	69.9	66.3	63.2	60.4
	50							87.1	80.7	75.8	71.6	67.9	64.7	61.8
	51								82.9	77.7	73.3	69.6	66.2	63.2
	52								85.4	79.7	75.1	71.2	67.7	64.6
	53									81.8	77.0	72.9	69.3	66.1
	54									84.1	78.9	74.6	70.9	67.5
	55									86.6	80.9	76.3	72.4	69.0
	56										82.9	78.1	74.1	70.5
	57										85.2	80.0	75.7	72.1
	58											81.9	77.4	73.6
	59											84.0	79.2	75.2
	60											86.3	81.0	76.8
	61												82.9	78.5
	62												85.0	80.2
	63												87.4	82.0
	64													83.9
	65													86.0
	66													
	67													
	68													
	69													
	70													

PREDICTED WATER POTENTIAL

COOLING TIME IN SECONDS ---------- 60.0
PSYCHROMETER TEMPERATURE, CENTIGRADE --- 40.0

OFFSET FROM ZERO IN MICROVOLTS

	-60	-50	-40	-30	-20	-10	0	+10	+20	+30	+40	+50	+60
	WATER POTENTIAL, NEGATIVE BARS												
1	2.1	2.0	1.8	1.7	1.6	1.5	1.5	1.4	1.3	1.3	1.2	1.2	1.1
2	4.2	3.9	3.7	3.5	3.3	3.1	2.9	2.8	2.6	2.5	2.4	2.3	2.2
3	6.4	5.9	5.5	5.2	4.9	4.6	4.4	4.2	4.0	3.8	3.6	3.5	3.3
4	8.5	7.9	7.4	6.9	6.5	6.2	5.9	5.6	5.3	5.1	4.8	4.6	4.5
5	10.6	9.9	9.2	8.7	8.2	7.7	7.3	7.0	6.6	6.3	6.1	5.8	5.6
6	12.8	11.9	11.1	10.4	9.8	9.3	8.8	8.4	8.0	7.6	7.3	7.0	6.7
7	15.0	13.9	13.0	12.2	11.5	10.9	10.3	9.8	9.3	8.9	8.5	8.2	7.8
8	17.1	15.9	14.9	14.0	13.1	12.4	11.8	11.2	10.7	10.2	9.7	9.3	9.0
9	19.3	18.0	16.8	15.7	14.8	14.0	13.3	12.6	12.0	11.5	11.0	10.5	10.1
10	21.5	20.0	18.7	17.5	16.5	15.6	14.8	14.0	13.4	12.8	12.2	11.7	11.2
11	23.8	22.1	20.6	19.3	18.2	17.2	16.3	15.5	14.7	14.1	13.5	12.9	12.4
12	26.0	24.1	22.5	21.1	19.9	18.8	17.8	16.9	16.1	15.4	14.7	14.1	13.5
13	28.2	26.2	24.5	22.9	21.6	20.4	19.3	18.3	17.5	16.7	15.9	15.3	14.7
14	30.5	28.3	26.4	24.8	23.3	22.0	20.8	19.8	18.8	18.0	17.2	16.5	15.8
15	32.8	30.4	28.4	26.6	25.0	23.6	22.4	21.2	20.2	19.3	18.5	17.7	17.0
16	35.1	32.5	30.3	28.4	26.7	25.2	23.9	22.7	21.6	20.6	19.7	18.9	18.1
17	37.4	34.7	32.3	30.3	28.5	26.9	25.4	24.2	23.0	21.9	21.0	20.1	19.3
18	39.7	36.8	34.3	32.1	30.2	28.5	27.0	25.6	24.4	23.3	22.2	21.3	20.4
19	42.1	39.0	36.3	34.0	32.0	30.2	28.5	27.1	25.8	24.6	23.5	22.5	21.6
20	44.5	41.2	38.3	35.9	33.7	31.8	30.1	28.6	27.2	25.9	24.8	23.7	22.8
M 21	46.9	43.4	40.4	37.8	35.5	33.5	31.7	30.1	28.6	27.3	26.1	25.0	24.0
22	49.3	45.6	42.4	39.7	37.3	35.2	33.3	31.6	30.0	28.6	27.4	26.2	25.1
I 23	51.7	47.8	44.5	41.6	39.1	36.8	34.8	33.1	31.4	30.0	28.7	27.4	26.3
24	54.2	50.1	46.6	43.5	40.9	38.5	36.4	34.6	32.9	31.3	29.9	28.7	27.5
C 25	56.7	52.4	48.7	45.5	42.7	40.2	38.0	36.1	34.3	32.7	31.3	29.9	28.7
R 26	59.3	54.7	50.8	47.5	44.5	42.0	39.7	37.6	35.8	34.1	32.6	31.2	29.9
27	61.9	57.1	53.0	49.5	46.4	43.7	41.3	39.1	37.2	35.5	33.9	32.4	31.1
O 28	64.5	59.4	55.2	51.5	48.2	45.4	42.9	40.7	38.7	36.8	35.2	33.7	32.3
29	67.2	61.9	57.4	53.5	50.1	47.2	44.6	42.2	40.1	38.2	36.5	34.9	33.5
V 30	70.0	64.3	59.6	55.5	52.0	48.9	46.2	43.8	41.6	39.6	37.8	36.2	34.7
O 31	72.8	66.8	61.8	57.6	53.9	50.7	47.9	45.4	43.1	41.0	39.2	37.5	35.9
32	75.8	69.4	64.1	59.7	55.9	52.5	49.6	46.9	44.6	42.5	40.5	38.8	37.2
L 33	78.9	72.0	66.5	61.8	57.8	54.3	51.3	48.5	46.1	43.9	41.9	40.1	38.4
34	82.1	74.7	68.9	64.0	59.8	56.2	53.0	50.1	47.6	45.3	43.2	41.3	39.6
T 35	85.8	77.5	71.3	66.2	61.8	58.0	54.7	51.7	49.1	46.7	44.6	42.6	40.9
36		80.5	73.8	68.4	63.8	59.9	56.4	53.4	50.6	48.2	46.0	44.0	42.1
37		83.7	76.4	70.7	65.9	61.8	58.2	55.0	52.2	49.7	47.4	45.3	43.4
R 38		87.5	79.1	73.0	68.0	63.7	60.0	56.7	53.7	51.1	48.7	46.6	44.6
39			81.9	75.4	70.1	65.6	61.8	58.4	55.3	52.6	50.1	47.9	45.9
E 40			85.1	77.9	72.3	67.6	63.6	60.0	56.9	54.1	51.5	49.2	47.1
A 41				80.5	74.5	69.6	65.4	61.7	58.5	55.6	53.0	50.6	48.4
42				83.3	76.9	71.7	67.3	63.5	60.1	57.1	54.4	51.9	49.7
D 43				86.4	79.3	73.8	69.2	65.2	61.7	58.6	55.8	53.3	51.0
44					81.8	75.9	71.1	67.0	63.4	60.2	57.3	54.7	52.3
I 45					84.5	78.2	73.1	68.8	65.1	61.7	58.7	56.1	53.6
N 46						87.9	80.5	75.1	70.6	66.7	63.3	60.2	57.5	54.9
47							83.0	77.2	72.5	68.5	64.9	61.7	58.9	56.3
G 48							85.7	79.4	74.4	70.2	66.5	63.2	60.3	57.6
49								81.7	76.4	72.0	68.1	64.7	61.7	59.0
50								84.1	78.4	73.8	69.8	66.3	63.1	60.3
51								86.9	80.5	75.6	71.5	67.8	64.6	61.7
52									82.7	77.5	73.2	69.4	66.1	63.1
53									85.1	79.5	75.0	71.0	67.6	64.5
54										81.6	76.8	72.7	69.1	65.9
55										83.7	78.6	74.3	70.6	67.3
56										86.2	80.5	76.0	72.2	68.8
57											82.5	77.8	73.8	70.3
58											84.7	79.6	75.4	71.7
59											87.2	81.5	77.1	73.3
60												83.5	78.8	74.8
61												85.6	80.5	76.4
62													82.4	78.0
63													84.3	79.7
64													86.5	81.4
65														83.2
66														85.2
67														87.5
68														
69														
70														

☆ U.S. GOVERNMENT PRINTING OFFICE: 1982-0-576-026/6

Brown, Ray W., and Dale L. Bartos.
1982. A calibration model for screen-caged Peltier thermocouple psychrometers. USDA For. Serv. Res. Pap. INT-293, 155 p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

A calibration model for screen-caged Peltier thermocouple psychrometers was developed that applies to a water potential range of 0 to -80 bars, over a temperature range of 0° to 40° C, and for cooling times of 15 to 60 seconds. In addition, the model corrects for the effects of temperature gradients over zero-offsets from -60 to +60 microvolts. Complete details of model development are discussed, together with the theory of thermocouple psychrometers, and techniques of calibration and cleaning. Also, information for computer programing and tabular summaries of model characteristics are provided.

KEYWORDS: thermocouple psychrometers, calibration, modeling, water potential, temperature gradient effects, Peltier cooling, screen-caged psychrometers, psychrometer calibration model

The Intermountain Station, headquartered in Ogden, Utah, is one of eight regional experiment stations charged with providing scientific knowledge to help resource managers meet human needs and protect forest and range ecosystems.

The Intermountain Station includes the States of Montana, Idaho, Utah, Nevada, and western Wyoming. About 231 million acres, or 85 percent, of the land area in the Station territory are classified as forest and rangeland. These lands include grasslands, deserts, shrublands, alpine areas, and well-stocked forests. They supply fiber for forest industries; minerals for energy and industrial development; and water for domestic and industrial consumption. They also provide recreation opportunities for millions of visitors each year.

Field programs and research work units of the Station are maintained in:

Boise, Idaho

Bozeman, Montana (in cooperation with Montana State University)

Logan, Utah (in cooperation with Utah State University)

Missoula, Montana (in cooperation with the University of Montana)

Moscow, Idaho (in cooperation with the University of Idaho)

Provo, Utah (in cooperation with Brigham Young University)

Reno, Nevada (in cooperation with the University of Nevada)