Revision Date: March 11, 2009

LBA-ECO TG-07 Ground-based Biometry Data at km 83 Site, Tapajos National Forest: 1997

Summary:

A field inventory of trees was conducted in March of 1997 in a logging concession at the Tapajos National Forest, south of Santarem, Para, Brazil. The inventory was conducted by the foresters and technicians of the Tropical Forest Foundation (FFT) and included all trees with diameter at breast height greater than or equal to 35 cm. Four blocks of approximately 100 ha each within the 3,200 ha concession were inventoried. Within each block, parallel trails 50 m apart were established, and the location of each tree measured was recorded to the nearest meter using an orthogonal coordinate system based on these trails. Field data for each tree includes: identification number, ground position, diameter, common name, scientific name and qualitative estimates of bole and canopy quality. Data are provided in one ASCII comma separated file.

These data were used to calculate above-ground live biomass as described in Keller et al. (2001), but biomass data are not included in this data set.

Data Citation:

Cite this data set as follows:

Keller, M.M. and M.W. Palace. 2009. LBA-ECO TG-07 Ground-based Biometry Data at km 83 Site, Tapajos National Forest: 1997. Data set. Available on-line [http://daac.ornl.gov] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A. doi:10.3334/ORNLDAAC/923

Implementation of the LBA Data and Publication Policy by Data Users:

The LBA Data and Publication Policy [http://daac.ornl.gov/LBA/lba_data_policy.html] is in effect for a period of five (5) years from the date of archiving and should be followed by data users who have obtained LBA data sets from the ORNL DAAC. Users who download LBA data in the five years after data have been archived must contact the investigators who collected the data, per provisions 6 and 7 in the Policy.

This data set was archived in April of 2009. Users who download the data between April 2009 and March 2014 must comply with the LBA Data and Publication Policy.

Data users should use the Investigator contact information in this document to communicate with the data provider. Alternatively, the LBA Web Site [http://lba.inpa.gov.br/lba/] in Brazil will have current contact information.

Data users should use the Data Set Citation and other applicable references provided in this document to acknowledge use of the data.

Table of Contents:

1. Data Set Overview:

Project: LBA (Large-Scale Biosphere-Atmosphere Experiment in the Amazon)

Activity: LBA-ECO

LBA Science Component: Trace Gas and Aerosol Fluxes

Team ID: TG-07 (Keller / de Mello)

The investigators were Keller, Michael; Palace, Michael William; Pereira, Rodrigo Antonio; Hurtt, George C. and Zweede, Johan Cornelis . You may contact Palace, Michael (palace@kaos.sr.unh.edu)

LBA Data Set Inventory ID: TG07_FFT_Survey_Km83

A field inventory of trees was conducted in March of 1997 in a logging concession at the Tapajos National Forest, south of Santarem, Para, Brazil. The inventory was conducted by the foresters and technicians of the Tropical Forest Foundation (FFT) and included all trees with diameter at breast height greater than or equal to 35 cm. Four blocks of approximately 100 ha each within the 3,200 ha concession were inventoried. Within each block parallel trails 50 m apart were established and location of each tree measured was recorded to the nearest meter using an orthogonal coordinate system based on these trails. Field data for each tree includes: identification number, ground position, diameter, common name, scientific name and qualitative estimates of bole and canopy quality.

2. Data Characteristics:

Study Area

The entrance to the study site was located at -3.067 degree (S) and -54.95 degree (W) , 83 km south of Santarem, Para, on the BR-163 (Santarem-Cuiaba) Highway. A field inventory of trees in four blocks of approximately 100 ha each within the 3,200 ha logging concession at the Tapajos National Forest. This was a one time survey conducted in March 1997 by the foresters and technicians of the Tropical Forest Foundation (FFT).

Data File

The tree inventory measurements are reported in one ASCII comma separated file, **TG07_FFT_Survey_Km83_20090217.csv**

Column #	Column Heading	Units	Variable Description/Comment
1	plot		Logging block approximately 100 ha
2	Tree_number		Tree ID number
3	X	m	Distance along x axis from 0,0 corner of plot
4	Y	m	Distance along y transect from plot x axis
5	xx	m	Distance off transect line
6	Real_Transect		Transect Number (every 50 m)
7	subtrans		Used for Monte Carlo resampling in Keller et al 2001
8	subplot		Used for Monte Carlo resampling in Keller et al 2001
9	Scientific_name		Scientific Name
10	Common_name		Common Name
11	Family		Scientific Family
12	Class	qualitative	Quality Class for Commercial Species (Classes 1-10)
13	Diameter	cm	Diameter at breast height (DBH)
14	Basal_Area	m2	Basal Area, in m2 per tree calculated from DBH
15	H	m	Commercial Height
16	Bole_quality	qualitative	Bole form/quality
17	Crown_quality	qualitative	Crown form

18	Volume	m3	Volume of bole calculated using the equation: pi divided by four times dbh squared times height times 0.7
19	Commercial_grade		Commercial use: 1 indicates species currently considered commercial and 2 indicates species that are potentially commercial but have no market in the region at the current time
20	Observations		Researcher Observations

Example Data Records

Missing data are represented by -9999.

```
Header records omitted
...
plot,Tree_number,X,Y,xx,Real_Transect,subtrans,subplot,Scientific_name,Common_name,Family,Class,Diameter,Basal_A
Crown_quality,volume,Commercial_grade,Observations
b18,1,43,1,43,1,1,1,Vochysia maxima,Quaruba verdadeira,Vochysiaceae,2,51,0.2,16,1,2,4.75,1,None
b18,2,26,7,26,1,1,1,Holopixydium jarana,Jarana,Lecythidaceae,1,41.5,0.13,17,2,1,3.52,1,None
b18,3,20,9,20,1,1,1,Chimarrhis turbinata,Pau de remo,Rubiaceae,4,65,0.33,12,4,2,5.66,2,None
...
b9,5867,996,6,46,20,1,1,Swartzia panacoco,Gombeira,Leg.- Papilionoideae,1,37,0.11,17,2,2,-9999,-9999,None
b9,5868,987,2,37,20,1,1,Brosimum rubescens,Amapa amargoso,Moraceae,1,42,0.14,14,3,2,-9999,-9999,None
b9,5869,987,0,37,20,1,1,Holopixydium jarana,Jarana,Lecythidaceae,2,45.5,0.16,15,1,3,-9999,-9999,None
```

Site boundaries: (All latitude and longitude given in degrees and fractions)

Site (Region)	Westernmost Longitude	Easternmost Longitude	Northernmost Latitude	Southernmost Latitude	Geodetic Datum
Para Western	-54.9707	-54.9707	-3.017	-3.017	South-American

(Santarem) - km 83 Logged Forest Tower (Para Western (Santarem))					Datum, 1969 (SAD-69)

Time period:

- The data set covers the period 1997/03/01 to 1997/03/31.
- Temporal Resolution: One-time field survey

Platform/Sensor/Parameters measured include:

- FIELD INVESTIGATION / STEEL MEASURING TAPE / FOREST COMPOSITION/STRUCTURE

3. Data Application and Derivation:

The data collected in this data set were used to estimate above ground biomass in this forest using four separate allometric equations as described in Keller et al. (2001). While allometric equations allow for plot scale biomass estimates made on the basis of existing forest inventories, most biomass and forestry plots are on the order of 1 ha. In contrast, these data represent 392 ha of sampling effort.

4. Quality Assessment:

Keller et al. (2001) discuss their approach to account for both sampling errors and other potential sources of uncertainty resulting in a very conservative error estimate. While biomass data are not reported here users are referred to Keller et al. (2001) for more details. Sampling errors related to spatial variations in biomass were estimated from the variation of the four blocks sampled. Additive errors were summed directly where they were correlated and summed in quadrature when they were independent. Other sources of error were assumed to have a multiplicative effect. Positive and negative error bounds were calculated using the formula: (estimated biomass + sampling error) x (1 + other errors). The effect of sample area on biomass estimates was estimated using a Monte Carlo approach to subsample the entire data set.

5. Data Acquisition Materials and Methods:

The field inventory was conducted in March 1997 by the foresters and technicians of theTropical Forest Foundation (FFT). Four blocks of approximately 100 ha each within the 3,200 ha logging concession in the Tapajos National Forest were selected corresponding to the anticipated timing of future logging operations. Each block was surveyed with parallel transects at 50 m intervals using fiberglass measuring tape and staff compasses. All trees with diameter at breast height (1.3 m) were tagged with a unique number and measured. Diameters

for buttressed trees were measured directly above the buttress. Relative ground position for each tree was recorded using an orthogonal coordinate system based on the survey transects.

6. Data Access:

This data is available through the Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

Data Archive Center:

Contact for Data Center Access Information:

E-mail: uso@daac.ornl.gov
Telephone: +1 (865) 241-3952

7. References:

Keller, M., M. Palace, and G.Hurtt. 2001. Biomass estimation in the Tapajos National Forest, Brazil - Examination of sampling and allometric uncertainties. Forest Ecology and Management 154(3):371-382. doi:10.1016/S0378-1127(01)00509-6
