

LBA-ECO ND-02 Landsat Imagery, Para, Brazil: 1984, 1994, and 1999

Summary:

This data set provides Landsat images of the county of Sao Francisco do Para located in the Bragantina region of Para, Brazil, the oldest agriculture frontier in Amazonia. These images are subsets for the municipio (county) and immediate region.

There are seven GeoTIFF files (.tif) with this data set which includes two for July 24, 1984 multispectral scanner (MSS), one for June 21, 1994 thematic mapper Landsat 5 (TM5), three for July 13, 1999 thematic mapper Landsat 7 (TM7), and one TM for June 21, 1994.

Data Citation:

Cite this data set as follows:

Vieira, I.C.G., A.S. de Almeida, E.A. Davidson, T.A. Stone, C.J.R. de Carvalho, J.B. Guerrero. 2013. LBA-ECO ND-02 Landsat Imagery, Para, Brazil: 1984, 1994, and 1999. Data set. Available on-line [<http://daac.ornl.gov>] from Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, U.S.A. <http://dx.doi.org/10.3334/ORNLDAAC/1156>

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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.

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1. Data Set Overview:

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

Activity: LBA-ECO

LBA Science Component: Land Use and Land Cover

Team ID: ND-02 (Davidson / Stone / Markewitz / Carvalho / Sa / Vieira / Moutinho / Figueiredo)

The investigators were Davidson, Eric A.; Stone, Thomas A.; Carvalho, Claudio Jose Reis de; Vieira, Ima Celia G.; Almeida, Arlete Silva de and Guerrero, Jose Benito. You may contact Stone, Thomas A. (tstone@whrc.org).

LBA Data Set Inventory ID: ND02_Landsat_TM_MSS_Para

This data set provides Landsat images of the county of Sao Francisco do Para located in the Bragantina region of Para, Brazil, the oldest agriculture frontier in Amazonia. These images are subsets for the municipio (county) and immediate region.

Related data set:

[LBA-ECO LC-09 Landsat TM and ETM+ Data, Sites in Rondonia and Para, Brazil: 1985-2004](#) (Landsat images of Bragantina for June 21, 1994)

2. Data Characteristics

There are seven GeoTIFF (.tif) files with this data set. All Landsat data are subsets of full imagery from Landsat path row 223/61, radiometrically and geometrically corrected. Both raw DN (8 Bit) and reflectivity (float) data sets are available.

MSS data are 62 meter resolution.

TM data are 30 meters.

All data are UTM projected, datum is WGS84.

Data filename: MSS_7_24_84_4bnds_subset_DN.tif

This Landsat MSS image is from July 24, 1984

Width = 605 Height = 739 pixels

Pixel size = 62.0 meters

Pixel depth = 8 bit

Projection is UTM, Zone 23N, Datum is WGS84

There are 4 bands of data.

Data type is unsigned 8 bit.

Upper left x = 178065.0

Upper left y = -11808.0

Units are meters.

Data filename: SFDOPMSS_7_24_84_4bnds_DN.tif

This image is from July 27, 1984 and consists of the 4 MSS bands.

Pixel resolution is: 62 X 62 M

Map Projection is: UTM, Zone 23 WGS84 datum

ULHC X is 183333.879, units are meters

ULHC Y is -115246.707

Data are unsigned 8 bit.

Data order is BIL

rows = 593, columns = 372

Data filename: SFDOPTM_6_21_94_6bnds_DN.tif

This Landsat TM image is from June 21, 1994

Width = 767, Height = 1223 pixels

Pixel size = 30.0 meters

Projection is UTM, Zone 23, Datum is WGS84

There are 6 bands of data. Band 6 here is TM band 7.

Data type is unsigned 8 bit.

Upper left x = 183333.879

Upper left y = -115246.707

Units are meters

Data filename: TM_6_21_94_6bnds_REFL.tif

This Landsat TM image is from June 21, 1994

Width = 2875, Height = 4839 pixels

Pixel size = 30.0 meters

Projection is UTM, Zone 23s, Datum is WGS84

There are 6 bands of data. Band 6 here is TM band 7.

Data type is 64 bit.

Upper left x = 182415

Upper left y = 9886425

Units are meters

Data filename: TM_7_13_99_6bnds_REFL.tif

This Landsat TM image is from July 13, 1999

Width = 2875, Height = 4839 pixels

Pixel size = 30.0 meters

Projection is UTM, Zone 23, Datum is WGS84

Reflectivity calculated using a modified COST model.

There are 6 bands of data. Band 6 here is TM band 7.

Data type is 64 Bit

Upper left x = 182547.0

Upper left y = 9886425.0

Units are meters

Data Filename: SFDOPTM_7_13_99_6bnds_DN.tif

This Landsat TM image is from July 13, 1999

Width = 767, Height = 1223 pixels

Pixel size = 30.0 meters

Projection is UTM, Zone 23, Datum is WGS84

There are 6 bands of data. Band 6 here is TM band 7.

Data type is unsigned 8 bit.

Upper left x = 183333.879

Upper left y = -115246.707

Units are meters

Data File: TM_7_13_99_6bnds_subset_REFL.tif

This Landsat TM image is from July 13, 1999

Width = 813, Height = 1275 pixels

Pixel size = 30.0 meters

Projection is UTM, Zone 23, Datum is WGS84

Reflectivity calculated using a modified COST model.

There are 6 bands of data. Band 6 here is TM band 7.

Data type is Float.

Upper left x = 182547.0

Upper left y = -114621.0

Units are meters

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

| Site (Region) | Westernmost Longitude | Easternmost Longitude | Northernmost Latitude | Southernmost Latitude | Geodetic Datum |
|---|-----------------------|-----------------------|-----------------------|-----------------------|--------------------------------------|
| Para Eastern (Belem) - Sao Francisco do Para (Para Eastern (Belem)) | -47.89194 | -47.55639 | -1.00306 | -1.38028 | World Geodetic System, 1984 (WGS-84) |

Time period

- The data set covers the period 1984/07/24 to 1999/07/13.
- Temporal Resolution:

Platform/Sensor/Parameters reported include:

- LANDSAT (LAND REMOTE-SENSING SATELLITE) / TM (THEMATIC MAPPER) / LAND COVER

3. Data Application and Derivation:

The 1999 imagery was classified with ERDAS Imagine Software V 8.5 and showed that forests of differing ages classes occupied 22%, 13%, 9%, and 6% of the area, young to old, respectively (Vieira et al., 2003).

4. Quality Assessment:

Not provided.

5. Data Acquisition Materials and Methods:

Site description

The images are of the county of Sao Francisco do Para located in the Bragantina region of Para, Brazil, the oldest agriculture frontier in Amazonia. These images are subsets for the municipio (county) and immediate region. The dominant vegetation of the region was moist lowland tropical forest, but is now mostly secondary forests and small agricultural fields of corn, rice, beans, and manioc, as well as pastures and tree crops such as oil palm, coconut, brazil nut, orange, mango, and remnant rubber plantations.

The dominant soil type is Latossolo amarelo, medium texture, pH about 4.5, formed on tertiary deposits of the Barreiras formation. Mean annual precipitation is 2,200 mm, with a distinct dry season from June to November. Mean annual temperature is 26 jC with very little seasonal variation (Vieira et al., 2003).

Satellite image acquisition

All satellite data were acquired through the U.S. Geological Survey (USGS) Earth Resources Observation and Science (EROS) Center or through the Brazilian Space Agency, Instituto Nacional de Pesquisas Espaciais (INPE).

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

References

Vieira, I.C., A.S. de Almeida, E. A. Davidson, T.A. Stone, C. J. R. de Carvalho, and J. B. Guerrero, 2003. Classifying Successional Forests Using Landsat Spectral Properties and Ecological Characteristics in Eastern Amazonia, Remote Sensing of Environment. 87(4):470-481.