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LBA-ECO LC-24 Land Cover Classes from Landsat TM, Uruara, Para: 1986-1991

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Revision date: December 19, 2011

Summary:

This data set provides coarse land cover classifications derived from Landsat TM images for 1986, 1988, and 1991 for the area surrounding the municipality of Uruara, Para, Brazil. Five land cover classes (Water, Clouds/Shadow, Forest, Not Forest, and Background) were derived (Aldrich et al. 2006). The Land Cover is in a compressed (*.zip) GeoTIFF file for each year.

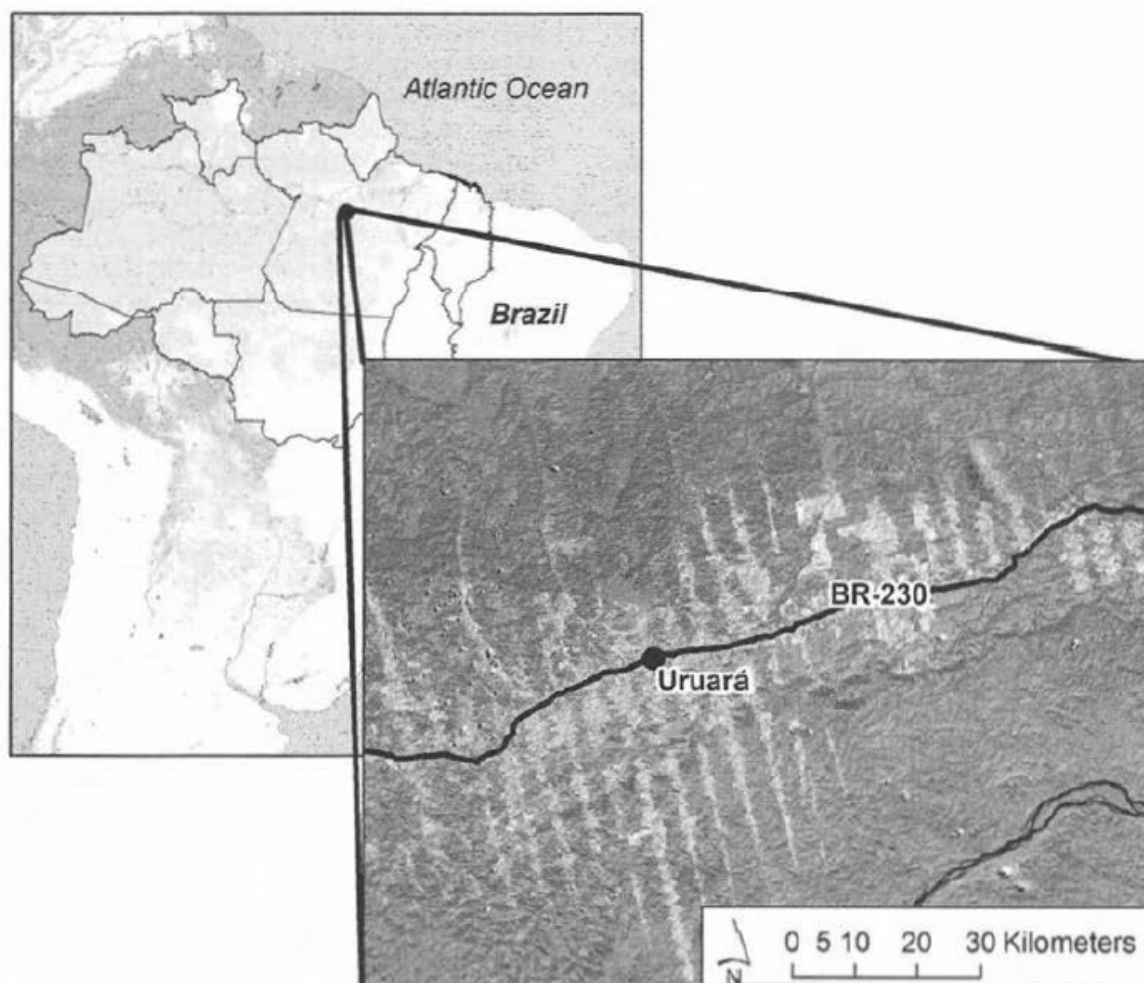


Figure 1. The study area of Uruara, located along the Transamazon Highway (BR-230) in the state of Para, Brazil.

Data Citation:

Cite this data set as follows:

Aldrich, S.P. and R.T. Walker. 2011. LBA-ECO LC-24 Land Cover Classes from Landsat TM, Uruara, Para: 1986-1991. 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/1053

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 Users who download LBA data in the five years after data have been archived must contact the investigators who collected the data, per provisions 6 and 7 in the Policy.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 December of 2011. Users who download the data between December 2011 and November 2016 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://lbaeco-archive.ornl.gov/>] 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: Human Dimensions

Team ID: LC-24 (Walker / Reis)

The investigators were Walker, Robert T.; Reis, Eustaquio J; Arima, Eugenio; Bohrer, Claudio Belmonte de Athayde; Caldas, Marcellus Marques; Perz, Stephen G; Pfaff, Alexander; Qi, Jiaguo and Souza Jr., Carlos Moreira de . You may contact Walker, Robert T. (rwalker@msu.edu).

LBA Data Set Inventory ID: LC24_Land_Cover_Uruara_Para

This data set provides coarse land cover classifications derived from Landsat TM images for 1986, 1988, and 1991 for the area surrounding the municipality of Uruara, Para, Brazil. Five land cover classes (Water, Clouds/Shadow, Forest, Not Forest, and Background) were derived as described in Aldrich et al. 2006.

Related data Sets

- [LBA-ECO LC-24 Landsat TM and ETM+ Land Cover, Southern Para, Brazil: 1984-2003](#)
- [LBA-ECO LC-24 MODIS 500-m, Forest Cover Map of South America: 2001](#)
- [LBA-ECO LC-24 Cadastral Property Map of Uruara, Para, Brazil: ca.1975](#)

2. Data Characteristics:

The imagery were acquired from TRFIC (<http://www.trfic.msu.edu/>) and Landsat.org (<http://www.landsat.org>). Each year is a mosaic consisting of four images, so a total of 12 images were acquired. There are three compressed (*.zip) files with this data set.

Files are named as follows:

uruaralc1986.zip
uruaralc1988.zip
uruaralc1991.zip

Projection: Universal Transverse Mercator, Zone 22S

Horizontal Datum Name: D_WGS_1984

Ellipsoid Name: WGS_1984

Cell size: 30 meters

Pixel Values:

1 = Forest
2 = Nonforest

- 3 = Water
- 4 = Cloud/Shadow
- 0 = Background

Spatial Extent:

1986

Westernmost Longitude -55.592774
 Easternmost Longitude -51.669118
 Northernmost Latitude -1.910215
 Southernmost Latitude -5.258368

1988

Westernmost Longitude -55.582046
 Easternmost Longitude -52.015660
 Northernmost Latitude -2.769178
 Southernmost Latitude -4.671928

1991

Westernmost Longitude -55.603709
 Easternmost Longitude -51.778753
 Northernmost Latitude -1.790539
 Southernmost Latitude -5.294196

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

Site (Region)	Westernmost Longitude	Easternmost Longitude	Northernmost Latitude	Southernmost Latitude	Geodetic Datum
Para Western (Santarem) - Uruara (Para Western (Santarem))	-55.6	-51.7	-1.8	-5.3	World Geodetic System 1984 (WGS-1984)

Time period:

- The data set covers the period: 1986, 1988, and 1991

Platform/Sensor/Parameters measured include:

- LANDSAT-5 / LANDSAT TM (LANDSAT THEMATIC MAPPER) / LAND COVER
- FIELD INVESTIGATION / HUMAN OBSERVER / LAND COVER

3. Data Application and Derivation:

These data were used in an analysis of the changing character of land-cover in the Uruara area for the years listed as divided between properties over 3,000 ha in size (glebas) and those smaller (smallholder farms).

4. Quality Assessment:

No formal accuracy assessment has been undertaken with regards to attribution. It is possible, indeed, likely, that there are errors of commission and omission in the resulting classification. Spatial accuracy after georectification of the 1986, 1988, and 1991 scenes was good, RMSE less than 0.8.

5. Data Acquisition Materials and Methods:

Site description

Uruara is located on the Transamazon highway in the state of Para between Altamira and Ruropolis. Uruara is a midpoint of the transect from Altamira, through Uruara, to Santarem. The transect passes through various vegetation types and is used for remote sensing purposes as well as for field surveys of local farmers.

Imagery

The imagery were acquired from TRFIC (<http://www.trfic.msu.edu/>) and Landsat.org (<http://www.landsat.org>). Uruara is centered close to the corner of four Worldwide Reference System II (WRSII) scenes (Path 226, Row 62; Path 226, Row 63; Path 227, Row 62; Path 227, Row 63), which necessitated the creation of a mosaic image for the area. Each year is a mosaic consisting of four images, so a total of 12 images were acquired.

Classification of rough land-cover

Each of the images for the years 1986, 1988, and 1991 were coregistered to 1999 imagery (not provided with this data set) with a resulting root mean square error (RMSE) in all cases, of less than 0.8. These images were then classified into 255 classes using transformed divergence in Erdas Imagine 8.1 software. These classes were then collapsed down to 20 by merging classes which, according to the measures developed in the transformed divergence procedure, were statistically spectrally similar across multiple bands. The resulting 20 classes, by means of visual comparison, were then collapsed into the 5 final classes

of Water, Clouds/Shadow, Forest, Not Forest, and Background (Aldrich et al. 2006).

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:

Aldrich, S., R. Walker, E. Arima, M. Caldas, J. Browder, and S. Perz. 2006. Land-Cover and Land-Use Change in the Brazilian Amazon: Smallholders, Ranchers, and Frontier Stratification.. *Economic Geography* 82(3):265-288.



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