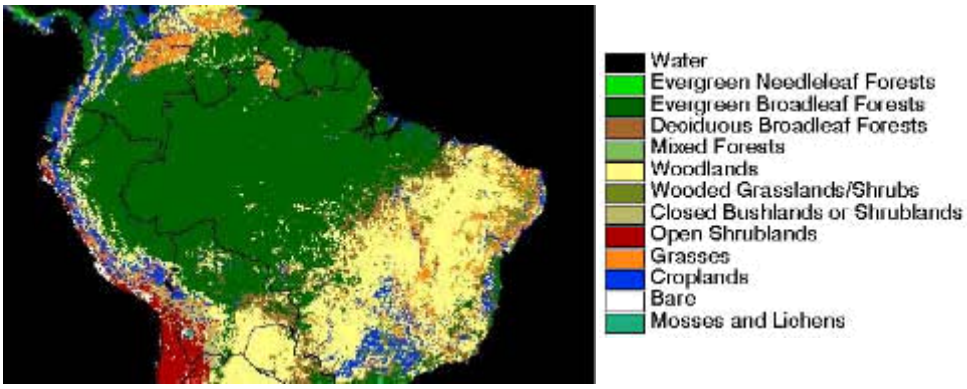
LBA Regional Land Cover from AVHRR, 8-km, 1984 (DeFries et al.)

Description:

This data set consists of an LBA study area subset of the UMD 8 km Global Land Cover product in ASCII GRID format.

To develop improved methodologies for global land cover classifications as well as to provide global land cover products for immediate use in global change research, researchers at the Laboratory for Global Remote Sensing Studies (LGRSS) at the University of Maryland, have employed the NASA/NOAA Pathfinder Land (PAL) data set with a spatial resolution of 8km. This data set has a length of record of 14 years (1981-1994), providing the ability to test the stability of classification algorithms. Furthermore, this data set includes red, infrared, and thermal bands in addition to the Normalized Difference Vegetation Index (NDVI). Inclusion of these additional bands improves discrimination between cover types. The project aim is to develop and validate global land cover data sets and to develop advanced methodologies for more realistically describing the vegetative land surface based on satellite data.

The 8km global land cover product was derived by testing several metrics that describe the temporal dynamics of vegetation over an annual cycle. These metrics were applied to 1984 PAL data at 8km resolution to derive a global landcover classification product using a decision tree classifier. The final product contains 13 land cover classes. The 8km global land cover product is available for download from the Global Land Cover Facility (GLCF) web site. The data are provided as UNIX compressed files in a choice of two formats: 1) BSQ binary Goodes projection and 2) BSQ binary lat/long projection (Plate Carree projection). Additional information and references on this data set can be found at the GLCF web site as well as at the LGRSS web site (link provided at the GLCF web site) and in the readme files found along with the data.



This README file contains information regarding:
1. Data format
2. Procedure used to create the Amazon subset
3. Legend and data source

DATA FORMAT

The downloadable file, glcf8km.dat.gz, is a UNIX compressed file

The data file is in ASCII GRID format for ArcInfo. The file contains a single ASCII array with integer values. Data values range from 0 to 13. Coordinates listed below are in decimal degrees.

Rows 560
Columns 880
UpLeftX -85
UpLeftY 10
LoRightX -30
LoRightY -25
cellsize 0.0625
Projection geographic

The ASCII file consists of header information containing a set of keywords, followed by cell values in row-major order. The file format is

<NCOLS xxx>
<NROWS xxx>
<XLLCORNER xxx>
<YLLCORNER xxx>
<CELLSIZE xxx>
{NODATA_VALUE xxx}
row 1
row 2
.
.
.
row n

where xxx is a number, and the keyword NODATA_VALUE is optional and defaults to -9999. Row 1 of the data is at the top of the grid, row 2 is just under row 1 and so on. The end of each row of data from the grid is terminated with a carriage return in the file.

Although the nodata_value is set to -9999 in the header portion of the glcf8km.dat file, that value does not actually occur in the data set.

To import this file into ArcInfo use the following command at an ARC prompt:

ASCIIGRID <in_ascii_file> <out_grid> {INT | FLOAT}

Arguments
<in_ascii_file> - the ASCII file to be converted.
<out_grid> - the name of the grid to be created.
{INT | FLOAT} - the data type of the output grid.
INT - an integer grid will be created.
FLOAT - a floating-point grid will be created.

PROCEDURE USED TO CREATE THE AMAZON SUBSET

The original data set was imported into ArcInfo using the IMAGEGRID command. Using GRID (a raster- or cell-based geoprocessing toolbox that is integrated with ArcInfo) the SETWINDOW command was used to define the subarea of interest. This subarea was defined by identifying the bounding coordinates as follows:

x_min -85 y_min -25 x_max -30 y_max 10

The "snap_grid" option of the SETWINDOW command was used. This snaps the lower-left corner of the specified window to the lower-left corner of the nearest cell in the snap_grid and snaps the upper-right corner of the specified window to the upper-right corner of the nearest cell in the snap_grid. In this case the snap_grid is the original data grid. The purpose of this is to ensure the proper registration of the newly set analysis window. The command format used is as follows:

SETWINDOW x_min y_min x_max y_max original_grid

Once the window was set, creating the new grid was simply a matter of setting the new subset grid equal to the original grid.

subset_grid = original_grid

An ASCII array was created from the new subset grid using the GRID command GRIDASCII.

file.dat = GRIDASCII(subset_grid)

LEGEND & ADDITIONAL SOURCES OF INFORMATION

The following legend is used in the original data set:

0 Water
1 Evergreen needleleaf forests
2 Evergreen broadleaf forests
3 Deciduous needleleaf forests
4 Deciduous broadleaf forests
5 Mixed forests
6 Woodlands
7 Wooded grasslands/shrubs
8 Closed bushlands or shrublands
9 Open shrublands
10 Grasses
11 Croplands
12 Bare
13 Mosses and lichens

Although not all of these categories may be represented in the subset of the data, the original legend has been retained.

The original data and documentation can be obtained from the Global Land Cover Facility at the University of Maryland: http://glcf.umiacs.umd.edu