# LBA Regional Boundary for the Amazon and Tocantins River Basins, 5-min

Description:

The Amazon and Tocantins River Basins Border data set consists of a single grid with values of 1 for cells within the basins and 0 for cells outside. The resolution of the data set is 5 x 5 min (approximately 9 x 9 km). The original data set covered the area of 6N to 21S and 80W to 44W. This area was slightly expanded in the version of the data set available for download from Oak Ridge National Laboratory to be consistent with the LBA study area as defined for the ORNL/LBA subsetting activity.
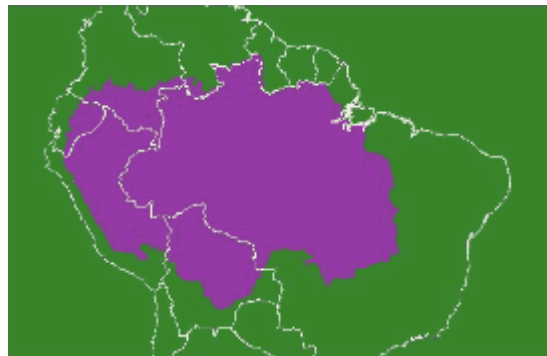
The methodology described in the original documentation is as follows: Initially, two borders were drawn independently. The first one was digitized from a 1:5.000.000 hydrogeological map of South America, that has the borders of the Amazon and Tocantins basins marked. The second one was digitized from a 1:000.000 map of Northern South America. This map doesnÍt show the basin borders, so it was assumed that the border would be in the middle point between nearby rivers that run into and out of the basin. Then, the two maps were overlaid. The final version was obtained together with the river directions data set, to match the drainage areas of fluviometric stations, provided by ANEEL - Brazilian Agency for Waters and Electrical Energy (see also the methodology section of the river direction data set).

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

DATA FORMAT

The downloadable file, lba_basin.dat.gz, is a UNIX compressed ASCII file.

The data file, lba_basin.dat, is in ASCII Grid format for ArcInfo. The file contains a single ASCII array with integer Coordinates listed below are in decimal degrees.

Rows 420
Columns 660
UpLeftX -85
UpLeftY 10
LoRightX -30
LoRightY -25
cellsize 0.083333
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.

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 LBA STUDY AREA SUBSET

The original data file was provided by Marcos Heil Costa, at Federal University of Vicosa (UFV), Vicosa, MG, Brazil (mhcosta@mail.ufv.br). The original data were imported into ArcInfo using the ASCIIGRID command.

The original data set covered the area of 6N to 21S and 80W to 44W. In order to be consistent with the other data sets provided for the LBA study area, the data set needed to be expanded to 10N to 25S and 85W to 30W. The extra cells added to the original data were all given the value of 0.

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

file.dat = GRIDASCII(expanded_grid)

LEGEND & ADDITIONAL SOURCES OF INFORMATION
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0 outside basin
1 within basin

For additional information please contact Marcos Heil Costa, at Federal University of Vicosa (UFV), Vicosa, MG, Brazil (mhcosta@mail.ufv.br)

References:
Brazil - Instituto Brasileiro de Geografia e Estatística (IBGE). 1972: International chart of the world on the millionth scale - Brazil. 46 p.
Brazil - DNPM/UNESCO, 1996: Mapa hidrogeologico de America del Sur.