LBA Regional Mean Climatology, 0.5-Deg, 1930-1960, V. 2.1 (Cramer and Leemans)

Description:

This data set is a subset of the global mean monthly climatology (Cramer and Leemans 1999) for the Large Scale Biosphere-Atmosphere Experiment in Amazonia (LBA) in South America (i.e., longitude 85° to 30° W, latitude 25° S to 10° N). The data are available in ASCII GRID file formats.
The parent database is a major update of the Leemans and Cramer database (Leemans and Cramer 1991). It contains long-term monthly averages, for the period 1931-1960, of mean temperature, temperature range, precipitation, rain days and sunshine hours for the terrestrial surface of the globe, gridded at 0.5-degree longitude/latitude resolution. It was generated from a larger database, using the partial thin-plate splining algorithm developed by Michael F. Hutchinson, Canberra (Hutchinson and Bischof 1983). The current version is 2.1--this is the same version that is currently used widely around the globe, notably by all groups participating in the IGBP NPP model intercomparison.

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

DATA FORMAT

There are three files within the ftp site for the LBA subset of Leemans and Cramer IIASA Mean Monthly Values of Temperature, Precipitation, and Cloudiness:

1. temp.tar.gz --> average monthly surface air temperature (degrees C x 10)
2. precip.tar.gz --> average monthly precipitation (mm/month uncorrected for rain-gauge bias)
3. cloud.tar.gz --> average monthly cloudiness (% sunshine hours of potential hours per month)

Each of these compressed files, contains 12 data files with the following naming convention:
varMM.dat
where var is one of the following variable abbreviations:
tmp temperature
precip precipitation
cloud cloudiness
and, MM is the month (01 through 12).

The data files are in ASCII Grid format for ArcInfo. Each file contains a single ASCII array with integer values. Coordinates listed below are in decimal degrees.

Rows 70

Columns 110
UpLeftX -85
UpLeftY 10
LoRightX -30
LoRightY -25
cellsize 0.5
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 SUBSET

The original data were downloaded from the Global Ecosystems Database (GED) Version II with Online Data Access (http://www.ngdc.noaa.gov/seg/eco/cdroms/ged_iia/go.htm) at the National Geophysical Data Center. The data 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 = GRIDASCII(subset_grid)

LEGEND & ADDITIONAL SOURCES OF INFORMATION

Temperature has units of degrees C x 10, -999 = water
Precipitation has units of mm/month uncorrected for rain-gauge bias,-999 = water
Cloudiness has units of % sunshine hours of potential hours per month, 255 = water

The original documentation and data files may be found through the on-line version of the Global Ecosystems Database (GED) at the National Geophysical Data Center (NGDC):
http://www.ngdc.noaa.gov/seg/fliers/se-2006.shtml