

LAGDataClima

Gridded database of monthly precipitation and temperature of Southeast of South America for the period 1991-2000

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1. Background

This application allows calculating and displaying monthly precipitation and monthly mean temperature of Southeast of South America, between 19.6°S - 36°S, and 61.9°W - 45.5°W.

The resulting graphs and output text files can be saved and exported in different formats.

The database is the result of a Kriging interpolation at 0.4° resolution, of monthly time series of precipitation and surface temperature of 102 weather stations with complete records, provided for this purpose by the National Meteorological Services of Argentina, Brazil, Paraguay and Uruguay.

2. Program installation

To install the program simply do this:

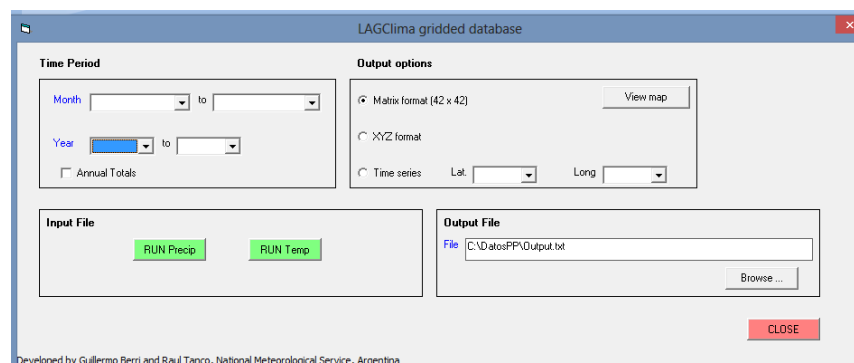
- 1) create the folder c:\DatosPP in your PC and copy all files
- 2) rename file DatosPP.ppp as DatosPP.exe

Note 1: the program runs in Windows environment and has been tested up to Windows 7. However, we were not successful with more recent Windows versions, but you can try and we wish you good luck. In case you succeed, please let us know how you did it and we will be most grateful

Note 2: the PC configuration must have *dot* as the decimal symbol

3. Program execution

Executing DatosPP.exe the following window opens up:



3.1 Input Files

The input files are *Precip.txt* and *TempCorr.txt*. Each file consists of a concatenation of 120 matrices of 42x42 elements, a total of 5040 lines with 42 columns.

The 120 matrices correspond to the 120 months from January 1991 to December 2000.

Each matrix contains the monthly data interpolated with Kriging method to a 42x42 grid (0.4° resolution), between latitudes 36° S to 19.6° S, and longitudes 61.9° W to 45.5° W, over land areas (there is a mask over the ocean).

In each matrix, rows are ordered from West to East and columns from South to North.

3.2 Output

There are two types of outputs:

- text file named *Output.txt*
- graph of the data contained in *Output.txt* (see below the details about the different formats)

3.3 Calculations available

There are two types of calculations available:

- mean value of monthly precipitation or monthly mean temperature of the chosen period of months and years
- mean value of the total annual precipitation of the chosen period of years

3.3.1 Monthly precipitation and monthly mean temperature

You must choose the calculation period in the *Time Period* box, the initial and the final month (any between January and December), and the initial and the final year (any between 1991 and 2000).

The result will be the mean value of monthly precipitation or monthly mean temperature of the chosen period of months and years.

3.3.2 Annual precipitation

You can choose the period of years in the *Time Period* box (any between 1991 and 2000).

The result will be the mean value of annual precipitation of the chosen period of years (this result is independent of the period of months indicated in the *Time Period* box)

3.4 Results

By clicking the bottom *RUN Precip* or *RUN Temp*, the result will be saved in the *Output.txt* file.

3.5 Format of output file *Output.txt*

There are three different formats of file *Output.txt*:

- *Matrix format (42 x 42)*: consists of a matrix, described in 3.1, with the mean value of monthly precipitation or monthly mean temperature of the period indicated in the *Time Period* box (this is the format used for the graphical display).
- *XYZ format*: consists of a matrix of 1764 rows (the total number of 42x42 grid points), with 3 columns containing latitude, longitude, and the mean value of monthly precipitation or monthly mean temperature of the period indicated in the *Time Period* box (this format has no graphical display).
- *Time series*: consist of the time series January 1991 to December 2000, with 3 columns containing year, month, and monthly precipitation or monthly mean temperature at the chosen point with *Lat* and *Long* bottoms. This format is independent of the period indicated in the *Time Period* box (this format has no graphical display).

3.6 Graphical display

The *View map* bottom will display a map with the mean value of monthly precipitation or monthly mean temperature of the period indicated in the *Time Period* box.

NOTE: the *Output options* box must indicate the format *Matrix format (42 x 42)*

3.7 Saving the map

The map is automatically saved in a file named *Precip.gif* (for either precipitation or temperature) in folder *C:\DatosPP\PCGRADS*.

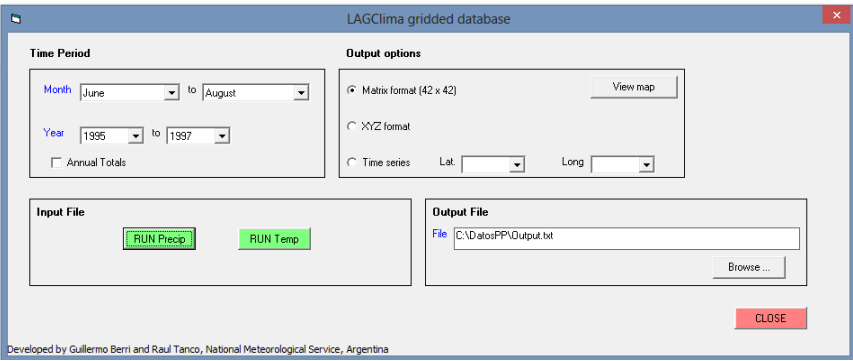
The *Options* bottom of the map window opens the menu and allows saving the map in two different formats.

- gif format with the *Save as file* bottom
- gmf format (a format available through the Grads GV Viewer), with the *Preliminary view* bottom. The file is saved as a Windows metafile with extension .wmf

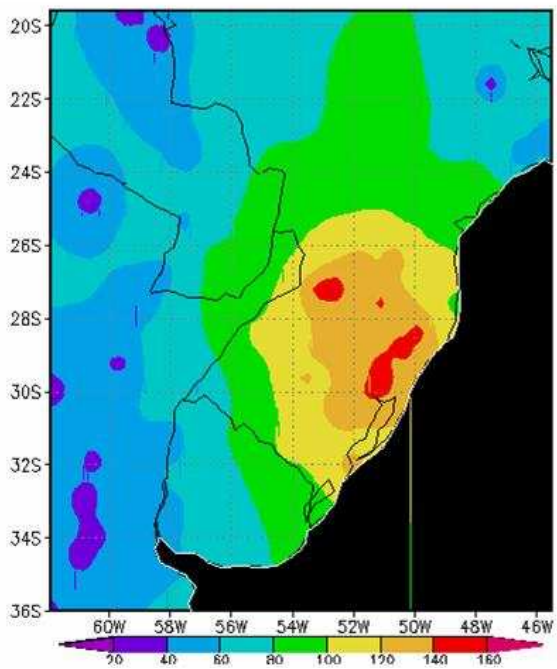
4. Examples

4.1 mean value of monthly precipitation of the period June-August 1995-1997

The program window should be the following:

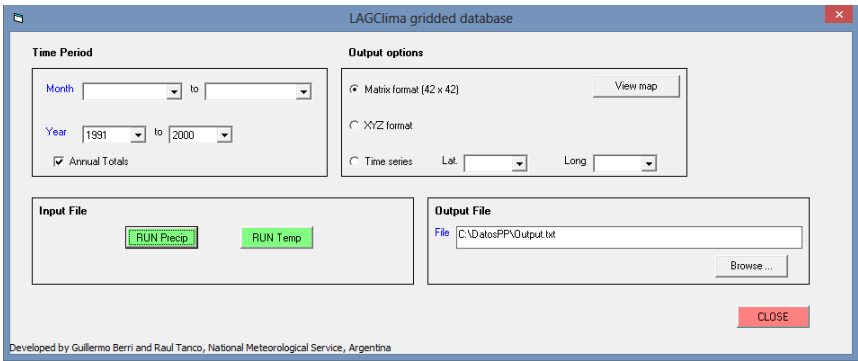


The *View map* bottom should display the following map:



4.2 mean value of annual precipitation of the period 1991-2000.

The program window should be the following:



NOTE: the *Time Period* window displays no months, on purpose, to remind that the result depends only on the chosen period of years.

The *View map* bottom should display the following map:

