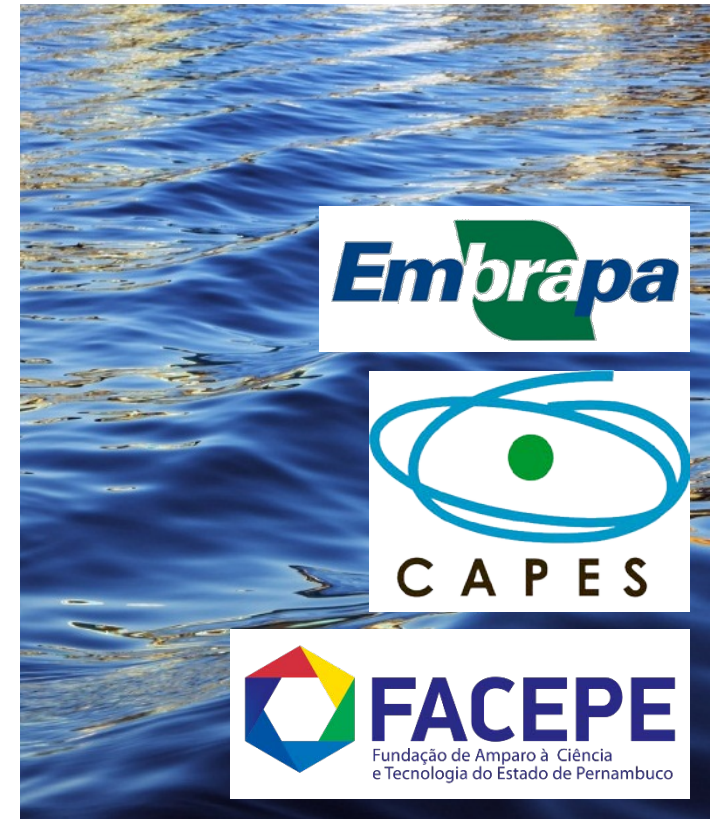




Calibration of a Brazilian watershed using MODIS evapotranspiration data

Authors: Miranda RQ, Galvncio JD, Paz YM, Moura MSB,
Jones CA, Srinivasan R, Montenegro, S. G.



SWAT applications



Africa



Europe



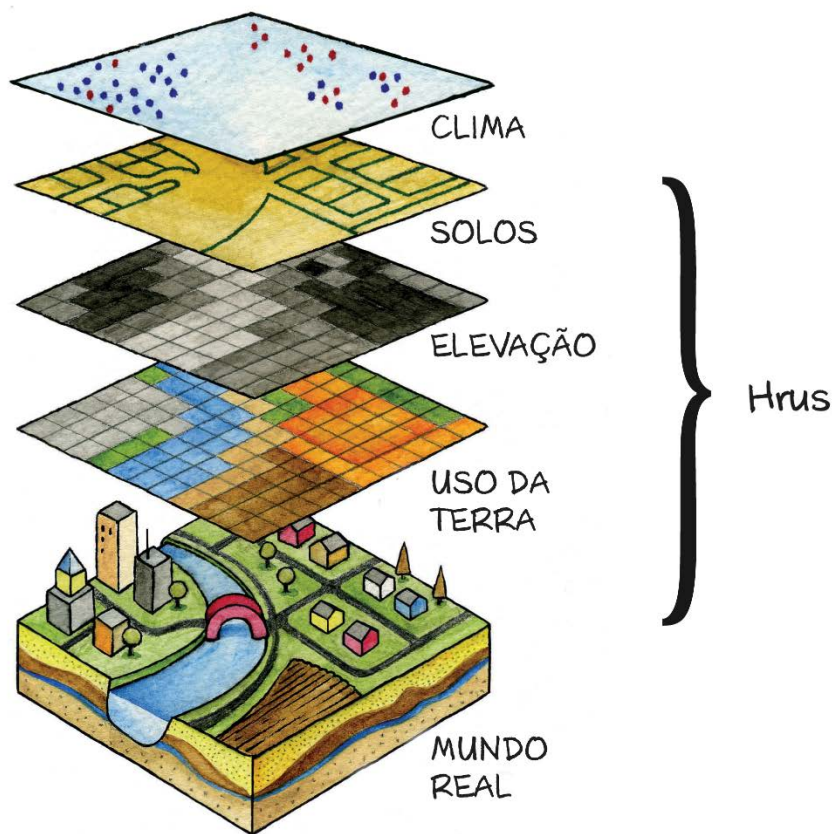
United States



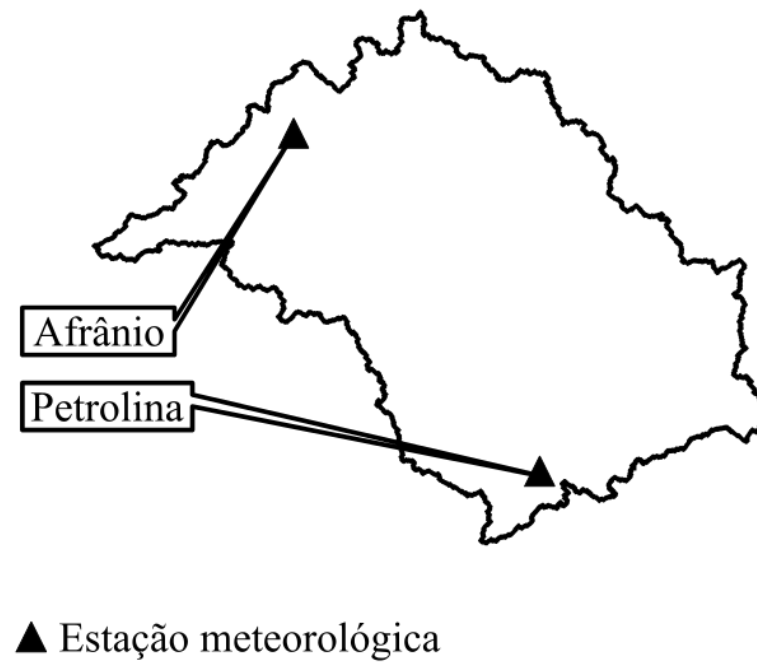
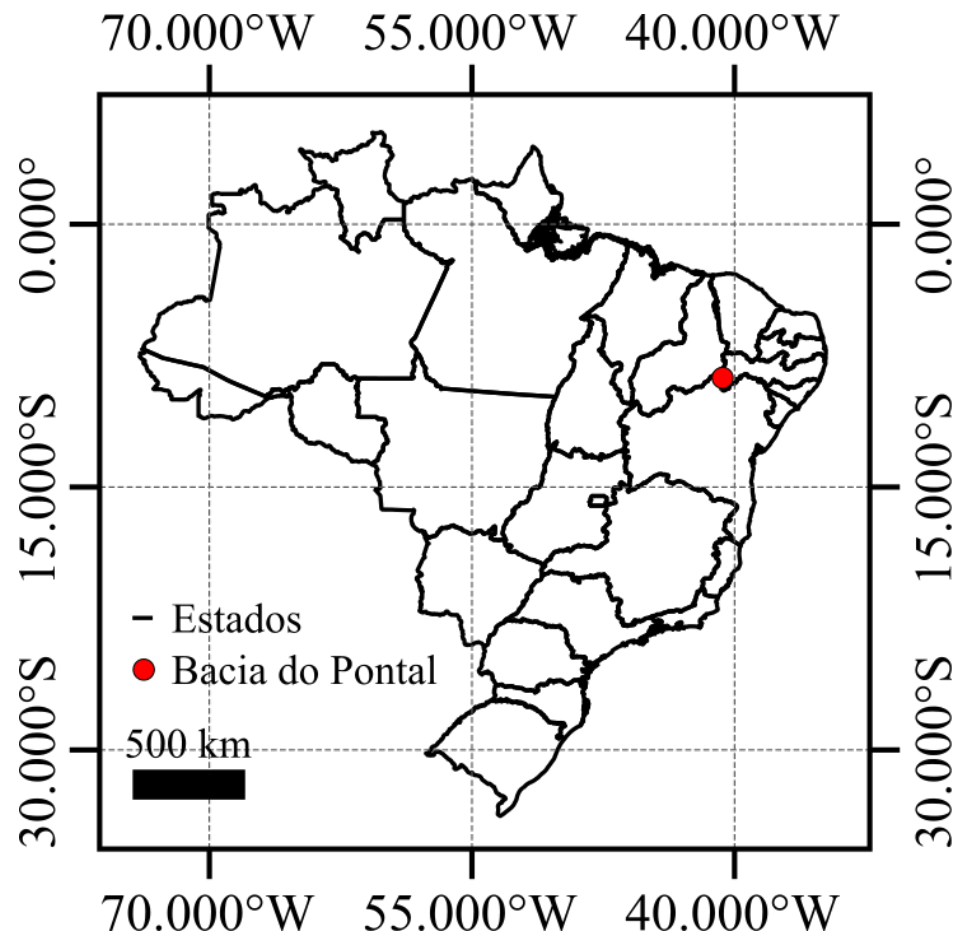
Brazil



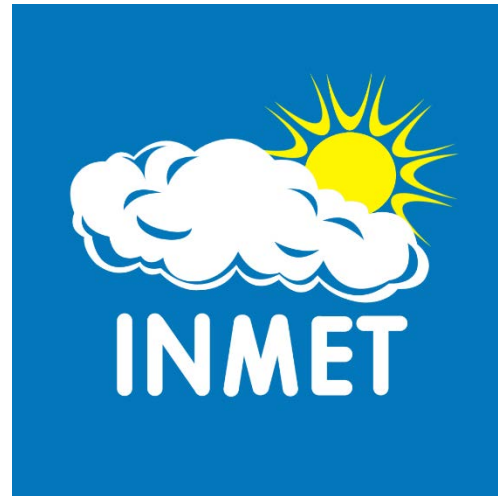
Input data



Stations used in this work



Climate



Data of air temperature, relative air humidity, global radiation, wind speed and precipitation from the stations of the National Institute of Meteorology and Pernambuco Agency of Water and Climate for the period from 2005 to 2010

Elevation and soils

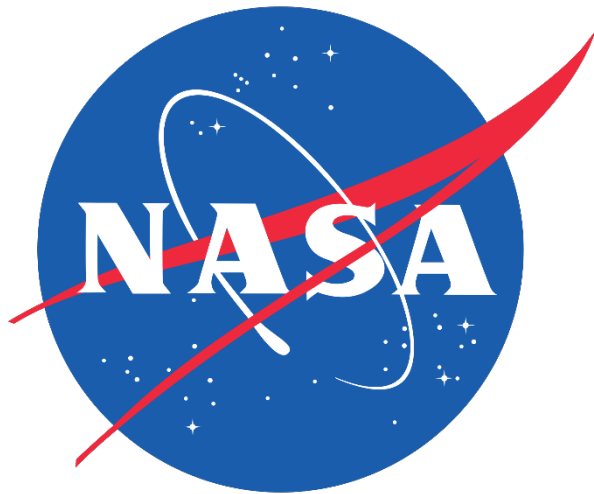
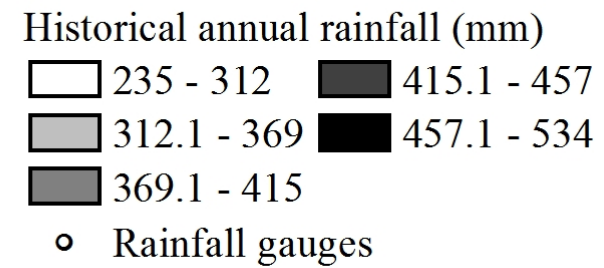
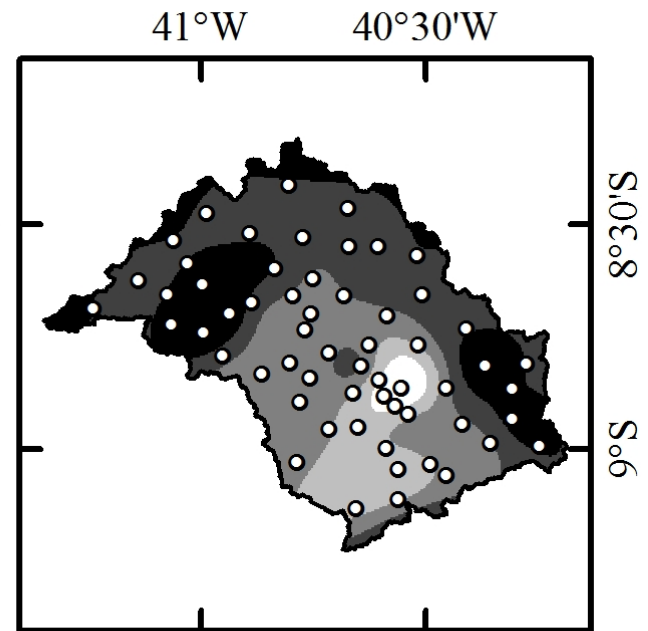
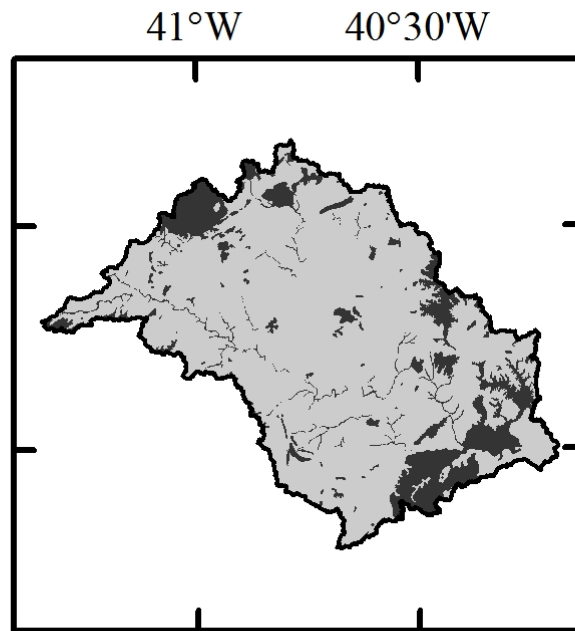
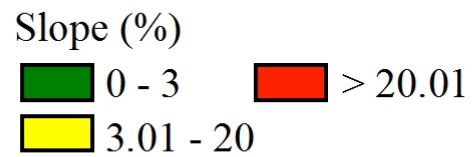
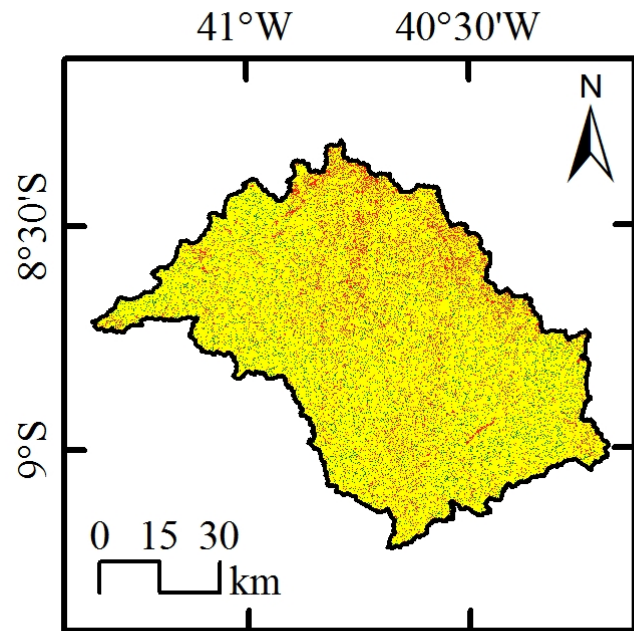
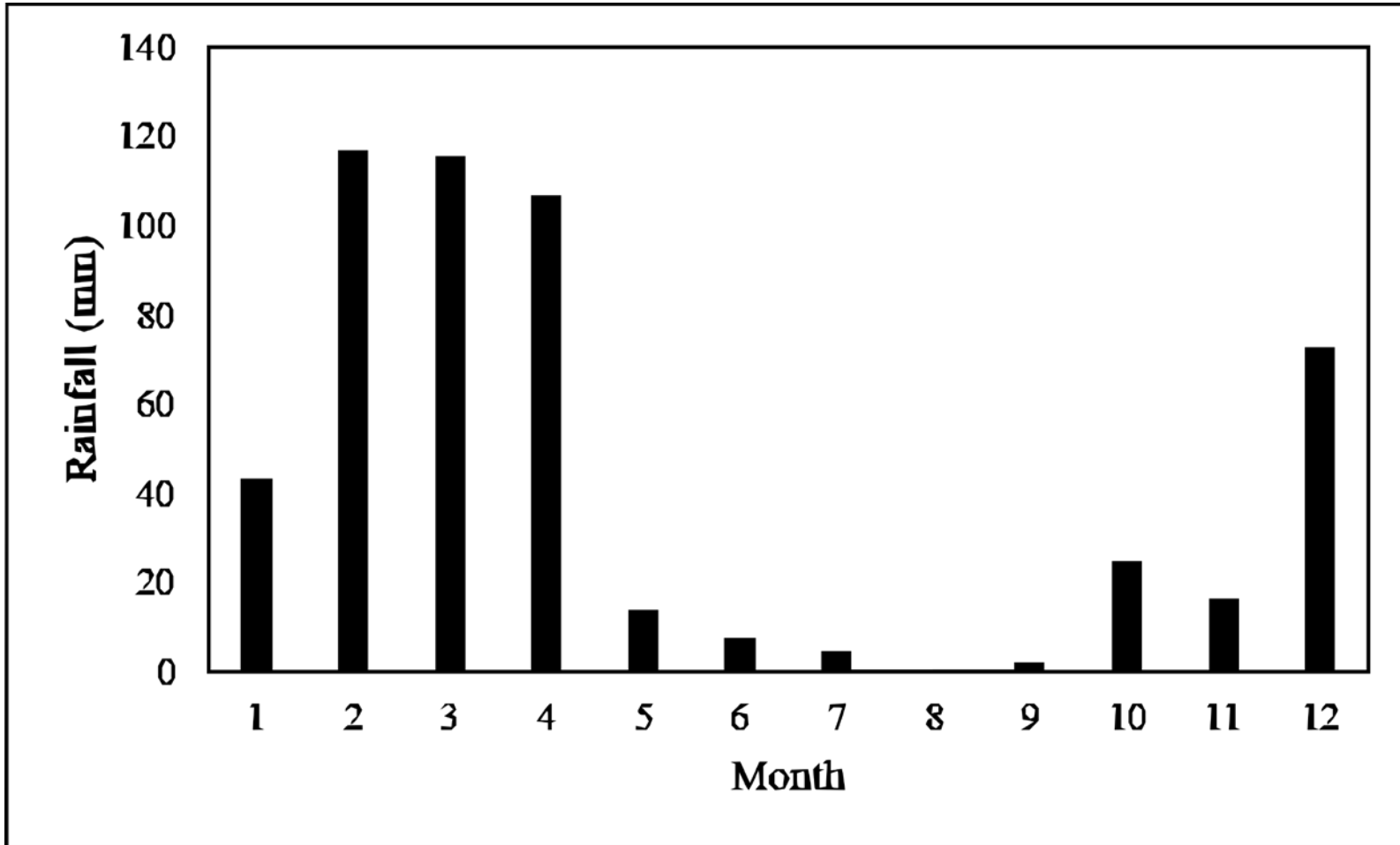


Image ASTER GDEM spatial resolution of 30 m and altitude values (m)



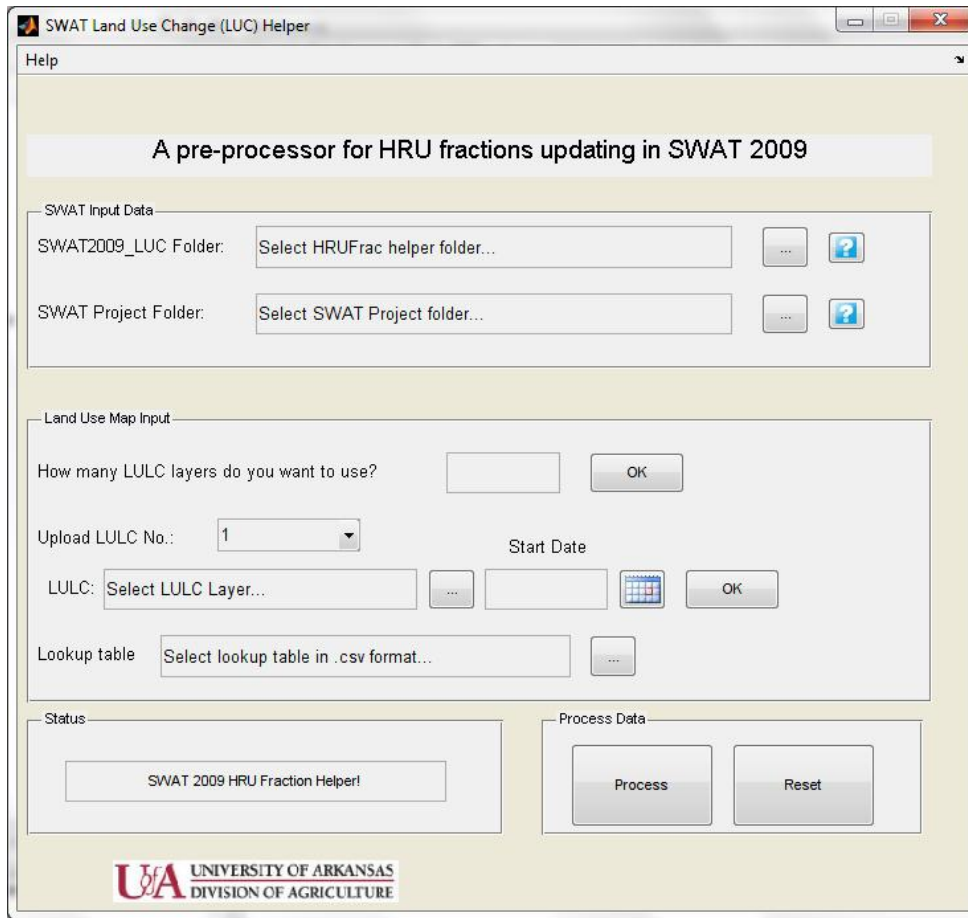
Agroecological Zoning of the State of Pernambuco (ZAPE) formed of map with 1: 250,000 scale





Landuse cover

Dynamic maps. Different years. Why?



DIVISION OF AGRICULTURE
RESEARCH & EXTENSION

University of Arkansas System

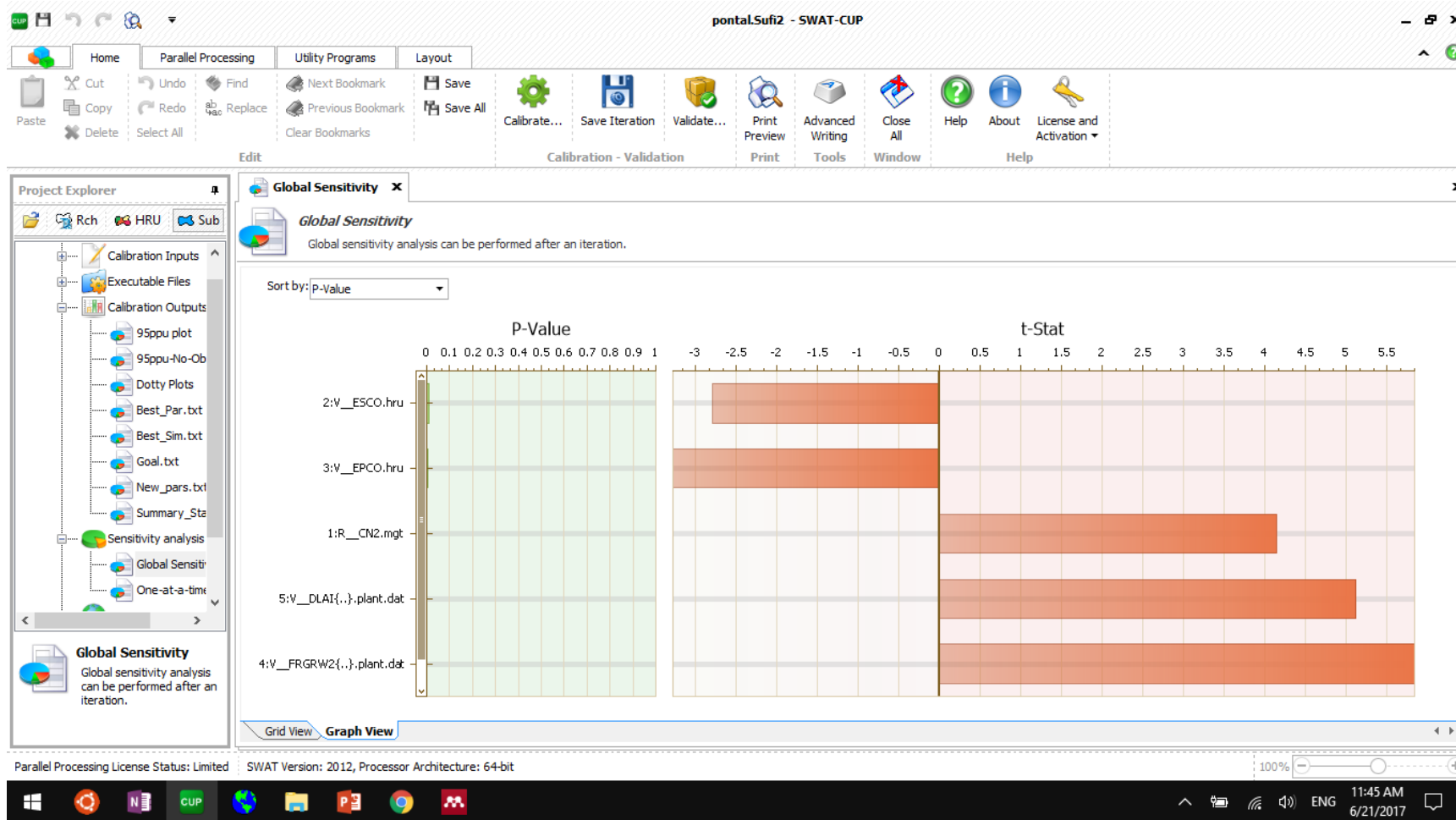
Project configuration



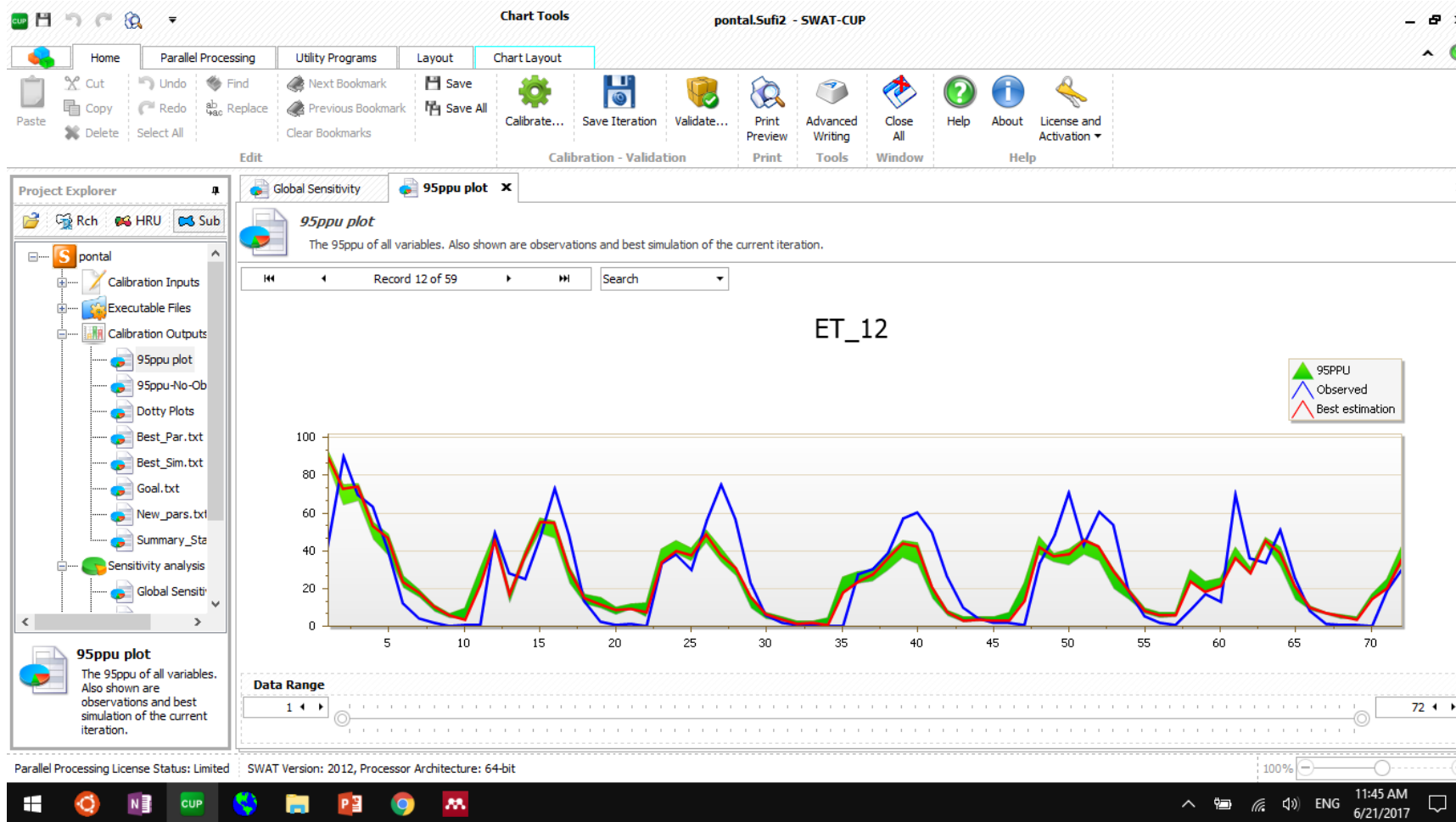
Yihun T. Dile, Prasad Daggupati, Chris George, Raghavan Srinivasan, Jeff Arnold, *Introducing a new open source GIS user interface for the SWAT model*, Environmental Modelling & Software, Vol. 85, n. Nov 2016, doi: [10.1016/j.envsoft.2016.08.004](https://doi.org/10.1016/j.envsoft.2016.08.004), 2016

This options due free software.

Sensitivity analysis

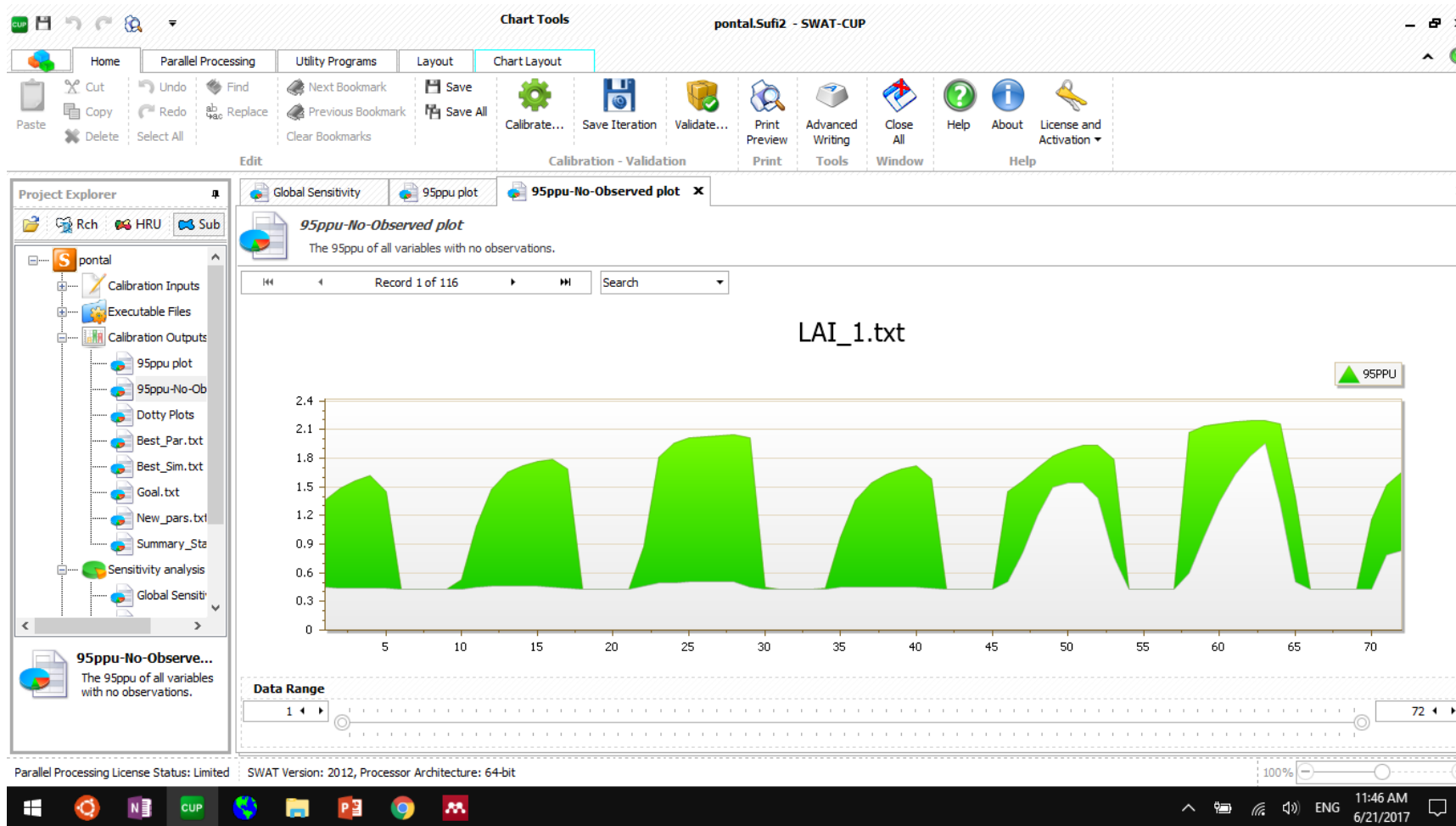


Calibration



Its possible to calibrate with MODIS because MODIS is daily. Other advantage is possible to obtain image without clouds.

Leaf Area Index adjustment



Other problem was LAI because in Caatinga (Savanna) LAI is not zero, due this adjusted LAI as show above.

Management operations

The screenshot shows the 'Edit Management Parameters' window for 'Subbasin 1, Land Use RNGB, Soil CX, Slope 3.0-45.0'. The 'Operations' tab is active, displaying a table of 'Current Management Operations'.

Year	Month	Day	Operation	Crop
1	10	1	Plant/begin. growing se	RNGB
1	11	15	Auto fertilization initializ	
*				

Below the table, the 'Operation Parameters' section is visible, with 'Schedule by Date' selected and 'OP NUM' set to 1. The 'Extend Parameter Edits' section has 'Extend Edits to Current HRU' checked. The 'Selected HRUs' section shows empty boxes for Subbasins, Land Use, Soils, and Slope.

Windows taskbar at the bottom shows the time as 11:47 AM on 6/21/2017.

In growing of the plant was adjusted or management operations.

Conclusions

- It is possible to calibrate the SWAT model with MODIS evapotranspiration for Savanna and obtain good results.
- In basins without runoff data we recommend to use remote sensing data to calibrate the SWAT model. This situations without data is common in watershed in Brazil.
- This results is part of the thesis of first author. Complete results you can see in Advances in Meteorology.

<https://www.hindawi.com/journals/amete/2017/9314801/>

The screenshot shows the Hindawi journal website interface. The header includes the Hindawi logo, the journal title 'Advances in Meteorology', and the impact factor '1.277'. A navigation menu on the left lists various journal services. The main content area features a 'Corrigendum' notice, followed by the article title 'Reliability of MODIS Evapotranspiration Products for Heterogeneous Dry Forest: A Study Case of Caatinga' by Rodrigo de Queiroga Miranda, Josidéia Domiciano Galvino, Magna Soelma Bezerra de Sousa, Charles Allan Jones, and Raghavan Srinivasan. The article details include the journal name, volume, issue, and page numbers, along with a DOI link. A list of download options (Abstract, Full-Text PDF, Full-Text HTML, Full-Text ePUB, Full-Text XML, Linked References, Citations to this Article, How to Cite this Article, Corrigendum) is provided on the right. A table at the bottom right shows the number of views (413), citations (1), ePUBs (3), and PDFs (141). The article's reception dates are also listed: Received 23 September 2016; Accepted 29 November 2016; Published 24 January 2017.

Thanks!



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