

Remote Sensing for Decision Support Systems (DSS) in Nile Basin Water Management

Location	Nile Basin
Contractor	Water Resources Planning and Management, NBI
Period	2008

Scope of the project

A Remote Sensing (RS) scoping study was conducted to support the Decision Support System (DSS) for the Water Resources Planning and Management project (WRPM) of the Nile Basin Initiative (NBI) with spatial data derived from satellites. RS has developed to one of the most powerful scientific disciplines for providing operational tools and products for water resources management. Many active data archives at NASA, USGS, USDA and LANDSAF have been created during the last couple of years. The existence of these satellite data archives covering land properties, land surface state variables, and land surface physical processes is hardly known, and the strong advances in RS technologies over recent years were relatively unnoticed in many circles.

Study approach

For this study an inventory was made of the currently available RS data and how RS data can be used in a DSS. The inventory included an analysis of the availability of the data, the collection, storage, and processing needed, and a validation of the data in the international literature. Furthermore the consultant interviewed key institutes and RS experts on this program.

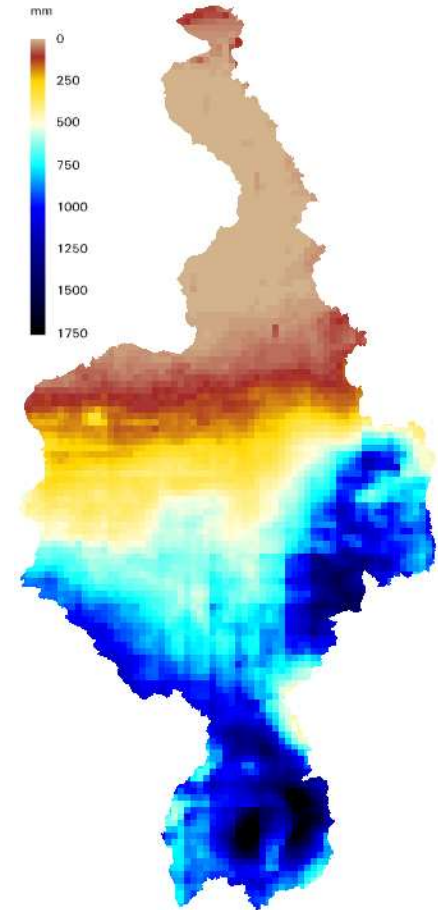
Results

This study showed that RS data could be assessed without restrictions in many cases. The advantage of RS data is that it is not biased, covers the entire 3 million km² Nile basin, and is available shortly after satellite overpass. Special purpose RS products are described that can directly support various aspects of river basin management: (i) hydrology, (ii) water accounting, (iii) disaster management, (iv) irrigation management, (v) wetland management, (vi) watershed management and (vii) land degradation.

Also a framework for a future Regional DSS-RS center is provided, with specifications for the major hardware and software requirements and the required human resources to implement such a program.

Conclusions

This innovative approach to water resource management is unique for international river basins in the world, and is only possible by combining all the data archives and latest RS algorithms; this would not have been possible one year ago. Considering the great potential and enthusiasm received during the two training and awareness workshops, it is recommended to start the implementation of the Regional DSS-RS center as soon as possible.



Rainfall distribution based on TRMM