



Mapping the landscape, managing the future – EUMEDCONNECT3 and Agadir

Moroccan and French researchers are using EUMEDCONNECT3 to combine their expertise in Geographic Information Systems (GIS) and remote sensing to produce new thematic maps of Agadir, Morocco.

Monitoring vulnerable landscapes

Situated in a semi-arid zone, the Souss region of Agadir is vulnerable to man-made and climatic changes. Part of the area is a protected UNESCO Biosphere Reserve and the region plays an important part in Morocco's export of fruit and vegetables.

To monitor this fragile and changing landscape, researchers from the Image et Reconnaissance de Formes – Systèmes Intelligents et Communicants (IRF-SIC) laboratory of the Ibn Zohr University in Morocco created thematic maps of the Agadir region using remote sensing and GIS technology.

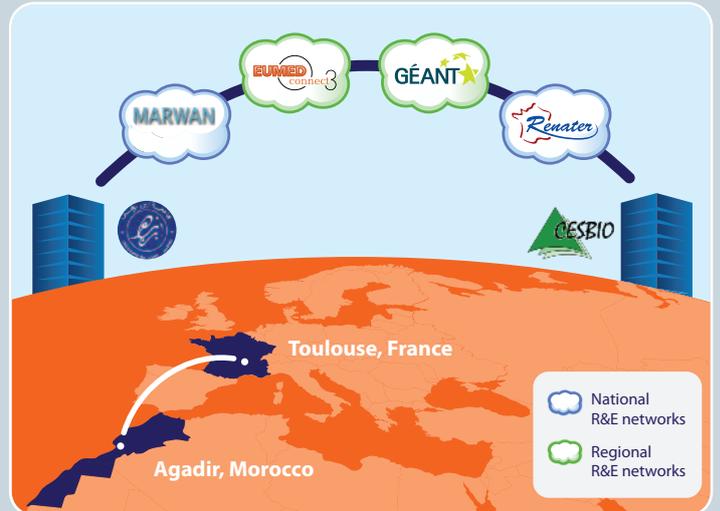


A unique habitat that deserves analysis and care

Thematic maps enable researchers to focus on individual features of the landscape such as land cover or the progress of natural hazards, which could have socio-economic impact on the region. These maps can be used to help land-management authorities take action to protect the area.

Collaborating on innovative landscape analysis

IRF-SIC processed the maps using innovative techniques at Centre d'Etudes Spatiales de la Biosphère (CESBIO) in Toulouse, France. The French institution has the capability to classify satellite images using methods that are not available in commercial software.



Researchers in Agadir collaborate with their peers in Toulouse via national and regional research and education Internet networks

The Challenge: To meet the objectives of IRF-SIC, Morocco to provide policy makers with the tools to manage the Agadir territory in a sustainable way, using high-quality thematic maps.

The Solution: The EUMEDCONNECT3 high-speed network for researchers in the Mediterranean provides dedicated internet connectivity between the researchers in Morocco and France. This enables a fast and reliable transfer of large satellite data files between researchers to produce accurate maps quickly and effectively.

Key Benefits: EUMEDCONNECT3 helps researchers in Morocco to peer with specialist laboratories on other continents to analyse GIS data. The resulting thematic maps improve policy-makers' knowledge of Agadir to help them take decisions on how to manage the territory sustainably.



Reliable transfer of large satellite data

At 250 megabytes, each satellite image handled by the researchers requires the high bandwidth provided by MARWAN, the Moroccan Research and Education Network, and EUMEDCONNECT3 to transfer the data internationally, much faster and more reliably than the commercial internet.

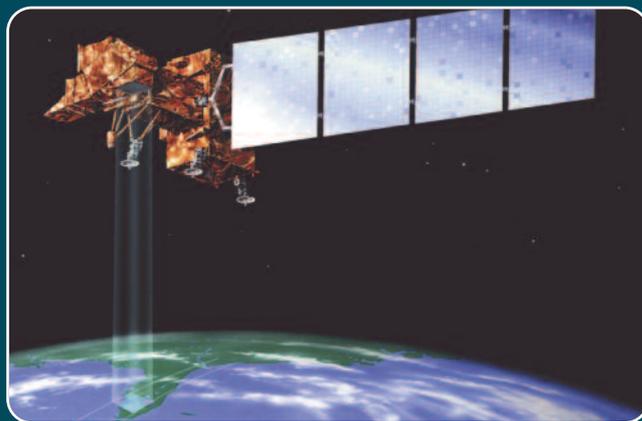
Scientists at the two institutions used the high-capacity EUMEDCONNECT3 and MARWAN research and education networks to transfer the large data files to each other. Using new methods, the researchers produced a variety of maps of Agadir including: land cover maps; urban road-network maps; and the evolution of the Argan (an endemic tree found only in this region) between 1988 and 2005. Their findings were published in a number of journals.

"The fast and stable connectivity we have through the EUMEDCONNECT3 and MARWAN networks means that we can transmit hundreds of megabytes of data to CESBIO. The data is then classified with CESBIO's specialist remote sensing software and returned quickly."

Soufiane Idbraim, assistant professor, Department of Computer Science, Faculty of Sciences, Ibn Zohr University, Agadir

Plans are underway to provide land-management authorities in Agadir with relevant thematic maps. Already, the researchers' output has been used to provide GIS training for the transport department of the urban municipality of Agadir.

The research could be developed to create new thematic maps to monitor, for example, natural hazards and accessibility which have socio-economic implications for the region.



Landsat 7 satellite capturing images of the Earth.
Image courtesy of NASA/USGS Landsat



3D visualisation of the study area

ASREN

Building on the success of EUMEDCONNECT, Arab States Research and Education Network (ASREN) is the association of the Arab region's National Research and Education Networks (NRENs). It aims to implement, manage and extend sustainable pan-Arab e-Infrastructures dedicated to research and education communities and to boost scientific research and cooperation in member countries.

MARWAN – Moroccan Academic and Research Wide Area Network

- Not-for-profit national research and education network (NREN)
- Aiming to put in place a high-speed information and communication network for Morocco's research and education institutions
- Helping Moroccan universities develop new education services, transfer technologies and carry out scientific research in collaboration with researchers in other countries
- Run by the Centre National pour la Recherche Scientifique et Technique (CNRST)
- A founding member of the Arab States Research and Education Network (ASREN)
- Connects to EUMEDCONNECT3, the EU-funded research and education network for the Mediterranean region. With direct links to GÉANT, the pan-European Research and Education network, researchers in North Africa and the Middle East can reach over 40 million users at over 8000 research and education establishments across Europe.

For more information:

EUMEDCONNECT3: www.eumedconnect3.net

GÉANT: www.geant.net

MARWAN: www.marwan.ma

ASREN: www.asrenorg.net

EC: http://ec.europa.eu/europeaid/index_en.htm

Ibn Zohr University: www.univ-ibnzohr.ac.ma

CESBIO: www.cesbio.ups-tlse.fr



EU Funded Project

