

The TIGER Newsletter

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Edited by:



With the contribution of



GEO-AQUIFER, the follow on project of AQUIFER project begins

GEO-AQUIFER is an ambitious eighteen month project involving Algeria, Libya and Tunisia seeking to support the monitoring and sustainable management of their common, trans-boundary groundwater resources using satellite imagery. This groundwater aquifer, known as the North-Western Sahara Aquifer System (SASS, after its French acronym) covers an area of over one million square kilometres. SASS has negligible recharge regime and is the sole key water resource under great pressure due to ground water mining in the region. It is essential to ensure the sustainable use of this valuable, non-renewable resource that millions of people lives depend on for drinking water and irrigation.

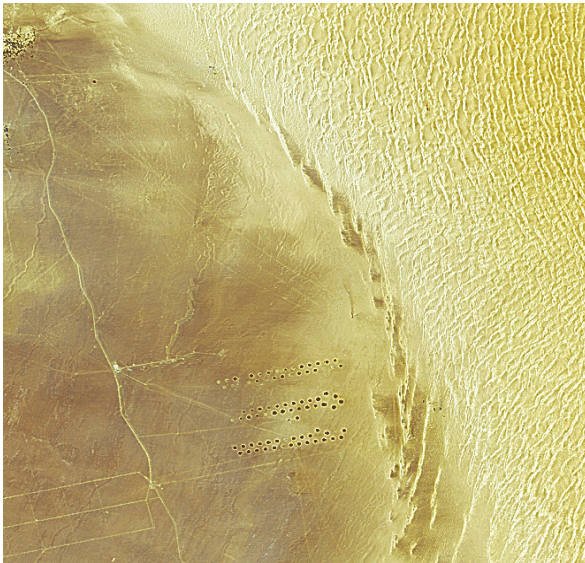


Group picture at the launch event

A ministerial consultative mechanism among the three countries is in place and together with the Sahara and Sahel Observatory (OSS) they will benefit greatly from the information services that GEO-AQUIFER will offer so that they can make informed, timely and objective decisions for strengthening the Integrated Water Resource Management (IWRM) practices within the SASS.

Specific satellite data products and services that GEO-AQUIFER will deliver are information on water consumption for irrigation based on land-use and land-cover maps, change maps, surface water extent and dynamics and digital terrain models.

The AQUIFER project, the precursor project of GEO-AQUIFER was developed under ESA's Data User Element (DUE) programme and took place as part of the TIGER Initiative. AQUIFER demonstrated that despite the fact that groundwater resources are buried more than one kilometre below the surface, observations of the earth surface from space could provide useful information on this resource. GEO-AQUIFER will therefore be an extension and expansion of the AQUIFER project with increased geographic coverage and user specific fine-tuned products and services.



Al Kufrah Oasis, Libya acquired by Envisat's MERIS sensor on 10 February 2006

"The ESA Aquifer project has demonstrated to us and the countries several tools that space technology can provide. We are starting the GEO-AQUIFER project because we think this technology can help us to get information quickly on issues that have an exponential evolution", the OSS Executive

Secretary Youba Sokona said during the Geo-AQUIFER launch event.

Speaking at the same event, Yvan Kedaj from the African Water Facility commended the efforts of the African agencies involved. "I really appreciate the appropriation by the countries of the tools and methodologies demonstrated by the ESA TIGER Aquifer project. Countries asked us through the OSS initially as coordinating and executing agency, and now as secretariat of the consultation mechanism, for continuation of national capacity building on the tools and methodologies developed through Aquifer".

The GEO-AQUIFER project is co-funded by OSS and the African Water Facility (AWF), which is managed by the African Development Bank (AfDB). OSS is the executive agency for GEO-AQUIFER with the National Water Ministries as key partners. ESA is involved as member of the steering committee.

Source: ESA-ESRIN
Contact: Diego Fernandez Prieto
More information: <http://www.tiger.esa.int/>



Limpopo River Basin project partners benefit from Radar Training Course

The IUCN office in Mozambique, in collaboration with its project partners Centro Nacional de Cartografia e Teledeteccao (CENACARTA) Mozambique, IUCN Canada and Gartner Lee Ltd recently completed a three day GIS and Remote Sensing training session.

The training course attracted participation of sixteen GIS and Remote Sensing experts from various local Government agencies and academia and was conducted from 13th – 15th June 2007. It constituted as part of the "Vulnerability Assessment and Formulation of Adaptation Strategies in the Limpopo River Basin" project that aims at developing a Decision Support System (DSS) to assist monitoring water level variations and potential impacts from floods in the Limpopo Basin.



Training session in progress



Lecture sessions

The training focused on the use and interpretation of radar imagery using a variety of software applications such as the Canadian Space Agency Swath Planner and ERDAS for satellite image treatment and analysis.

Following the training activity, IUCN Mozambique and Canada staff conducted a field trip on June 18th 2007 to the Limpopo River Basin accompanied by project partners from the Eduardo Mondlane University and Gartner Lee Ltd. The visit aimed at validating information from Radarsat 1 images as well as testing new field mapping applications and equipment in the formerly inundated low farmlands around Chokwe and Xai-Xai. Radar imagery will help constitute one of the main sources of information to be used by the web based DSS under development.

Source: CSA
Contact: Steve Iris
More information: <http://www.space.gc.ca>



TIGER Bureau begins audit of Research projects

As part of the process of TIGER evolving towards a more African driven initiative in the medium-term strategic plan for 2008 – 2010, the Bureau is performing an evaluation of all the TIGER projects.

Three different questionnaires have been prepared for various categories ESA research projects, pre-operational projects funded by both ESA and CSA and users of pre-operational projects. Through the questionnaires, we will identify the strengths and weaknesses of the projects in a view of improving their performance in future.

Currently, only the research projects' questionnaire has been administered to the Principal Investigators. Specifically this questionnaire seeks to expose any satellite data access problems

experienced and the impact and relevance of any training capacity building sessions attended.

Additionally, the effectiveness of the partnerships in achieving project goals in the pre-operational phase will be established. For the end users of the pre-operational projects, we will evaluate the projects' impact and contribution to development. These two questionnaires will be administered when most of the projects are completed.

We appeal to all participants to respond promptly to the questionnaires so that adequate data is collected for statistical analysis.

Source: TIGER Executive Bureau; UNESCO Nairobi
Contact: David Kirugara
More information:
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SHARE and IWAREMA Pre-operational projects successfully concluded

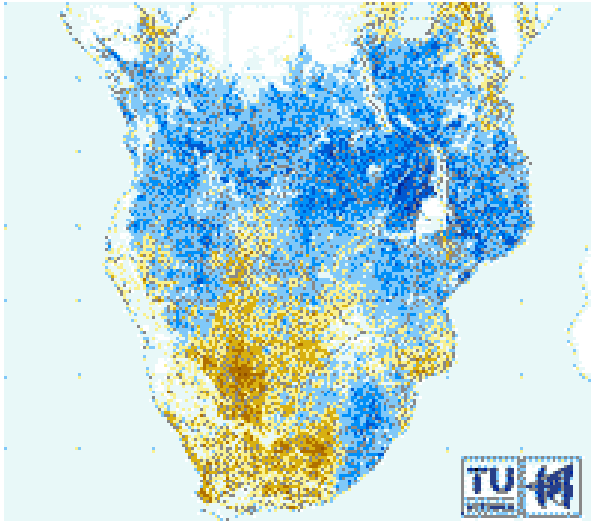
The Soil Moisture for Hydrometeorological Applications in the Southern African Development Community Region (SHARE) project team is proud to have successfully completed the pre-operational project in June 2007. The project combined

expertise in soil moisture Remote Sensing from Vienna University of Technology and specialists in hydro-meteorological applications from University of KwaZulu-Natal in Durban, South Africa.

SHARE, funded through the ESA's Data User Element, is the first project to generate online soil

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moisture maps with a spatial resolution of one km for the entire southern African subcontinent and at temporal (less than one week) resolution using Synthetic Aperture Radar (SAR) instruments. The maps, based on data from ESA's ENVISAT satellite will provide information on possibility of too little soil moisture which is the main cause of rain-fed crops and natural vegetation wilting, thus lead to better agricultural planning. Also the data will lead to better weather and extreme-event forecasting, such as floods and droughts because such risk of increase when there is too much or too little soil moisture respectively.



Soil moisture values in 2005-2006

The innovative approach of this project lies in the fact that it provides an avenue for derivation of soil moisture information in Africa which has been lacking due to the high costs of in-situ measurement networks and the fact that unlike satellite observations, point-based measurements are often not sufficient for modelling applications over large areas. Soil moisture is such an important variable that it influences vegetation, soil, run-off and weather, affecting the lives of us all.

Integrated Water Resource management for Zambia (IWAREMA) project focused on the Kafue River Basin, which is a sub-basin of the Zambezi River and is home to more than half of the country's population and hence of great importance to the country's economy.

The project, funded through ESA's Data User Element, was carried out by the Belgium Company GIM (Geographic Information Management) in partnership with the University of Zambia and the Zambian Water authorities. Data from ESA's multispectral MERIS sensor aboard ENVISAT was used to create maps depicting existing water resources, suitable dam locations and land cover.



Lake Kariba as seen by Envisat

The results of the IWAREMA project are useful for information services required for the protection of Zambia's ecosystems especially in the Kafue flats where wildlife, agricultural activities, fisheries and tourism compete for limited water resources.

In an effort to alleviate water shortages, the Zambian Water Authorities are considering possibilities for a large water transfer scheme from potentially and relatively wet areas to dry areas for food growing (or food security) purposes based on assessment of the Lukanga swamp dynamics. These plans are based on satellite imagery information.

Source: ESA-ESRIN
 Contact: Diego Fernandez Prieto
 More information: <http://www.tiger.esa.int/>



Canadian TIGER Projects plan presence at AfricaGIS 2007

Following an invitation from the organizers of AfricaGIS 2007 to hold a special



session under the topic "Geo-information and fight against poverty in Africa", Canadian project teams with their African partners are planning a session

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to present and discuss the TIGER project results.

These projects have been jointly carried out in various parts of the African continent over the past three years using a variety of Earth Observation satellites data, such as RADARSAT-1. The AfricaGIS conference is scheduled to take place in Ouagadougou, Burkina Faso in September 2007.

For further information on the Canadian Tiger projects and the AfricaGIS conference, visit the following sites <http://www.africagis2007.gov.bf> and <http://www.space.gc.ca/asc/eng/satellites/tiger>.

Source: CSA
Contact: Steve Iris
More information: <http://www.space.gc.ca>



TCBF planning for degree courses in future

Twenty nine participants from thirteen TIGER projects participated in the tailored capacity building programme hosted at the TIGER Capacity Building Facility. Each of the participants underwent an intensive training session at the International Institute for Geo-Information Science and Earth Observation (Netherlands) partly to study advanced topics relevant for their project research and to participate in personalized coaching related to their projects. The evaluation reports from the participants showed a general satisfaction with the programme content and willingness by most of them to attend future advanced training under the framework of TCBF.



Tiger CBF participants in ITC

Furthermore, thirty nine participants enrolled for the basic remote sensing and GIS distance education courses. Two courses have already been completed while a GIS course is scheduled for September-October this year. Another remote sensing course will take place in May-June 2008.

The beneficiaries of the course have an opportunity for admission for the Advanced Remote Sensing distance education courses in future. A

hyperspectral course has already taken place with one of the TIGER participants and the rest of the courses will be run until February 2008 giving eleven more candidates a chance for knowledge improvement.



Mr. Kawawa Banda receives his certificate

There was a general consensus among the participants that the TCBF addressed important topics necessary for the successful completion of their TIGER projects. In this regard, TCBF will extend available facilities to degree courses in the new planned phase beginning in 2008. Participants have suggested several topics ranging from problems in hydrogeological applications to water quantity/ quality as core in African Remote Sensing research for the water sector.

Interested potential participants are requested to contact one of the following at TCBF:

Source: ITC
Professor Dr. Bob Su (su@itc.nl)
Dr. Zoltan Vekerdy (vekerdy@itc.nl),
Ir. Arno van Lieshout (lieshout@itc.nl)
Ir. Bert Boer (boer@itc.nl).

International Symposium on New Direction in Urban water Management. 12th - 14th September 2007, Paris, France, symposiumUWM2007@unesco.org

ESRI Eastern Africa User Conference, 13th – 14th September 2007, Sheraton Hotel, Kampala, Uganda,
http://www.esriea.co.ke/events/events_eauc.php.

AfricaGIS2007, 17th - 21st September 2007, Quagadougou, Burkina Faso,
<http://www.africagis2007.gov.bf>

The 10th Annual ESRI Middle East & North Africa Users Conference, 29th - 31st October 2007, Barr Al Jissah Resort in Muscat, Oman,
<http://www.meauc.com/>

Local Solutions to Global Water Problems: Lessons from the South, Pretoria, South Africa, 4th - 9th November 2007

Conference of the water directors of the Euro-Mediterranean and Southeastern European Countries, Alexandria, Egypt, 10th - 11th December 2007,

<http://www.emwis.net/documents/meetings/ol148169/>

1st International Conference on Water Resources Monitoring, Modelling and Simulation (EWRA 2007), Alexandria, Egypt, 25th - 27th December 2007,
ewra2007d@ewra.com

International Conference on Groundwater and Climate in Africa, Kampala Uganda, 25th – 28th June 2008. Deadline for abstracts. September 2007. Contact: Richard Taylor, University College London.
r.taylor@geog.ucl.ac.uk

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