



# AGRICAB

**First GEONETCast & Tools workshop in  
Nairobi, Kenya, 2012-06-25 to 2012-07-06**

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Ref.: AGRICAB\_GNCWorkshop\_Nairobi

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## **Report of the first regional GEONETCast and Tools workshop in Nairobi, Kenya**

Organized in collaboration between University Twente – Faculty ITC, RCMRD and VITO, with contribution from European Commission – DG-JRC, detached to the EU Delegation in Nairobi, Kenya

<i>Date</i>	25 June – 6 July 2012
<i>Location</i>	Nairobi, Kenya
<i>Topic</i>	<b>AGRICAB Regional Workshop on GEONETCast and Tools</b>
<i>Participants</i>	See below
<i>Diffusion</i>	Open



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<b>Version</b>	<b>Prepared by</b>	<b>Date</b>
0.1	Ben Maathuis (UT-ITC)	2012-07-07
1.0	Tim Jacobs, Sven Gilliams (VITO)	2012-10-11

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## 1. INTRODUCTION

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In the framework of the [AGRICAB](#) project, that receives funding from the European Union through the 7<sup>th</sup> Framework Programme for Research under Grant Agreement 282621, ITC-UT was tasked with the organization and execution of at least two international workshops on GEONETCast and related Earth Observation (EO) image processing tools, set to take place in Africa. This course was the first one, aiming in particular to English-speaking participants from eastern and southern Africa. A second one is being prepared for francophone western and central Africa, to take place in November 2012.

This workshop in Nairobi, Kenya was conducted under lead from ITC-UT, but in close collaboration with project partners: the regional centre RCMRD as host institute, VITO, Belgium as project coordinator and co-trainer and European Commission's DG-JRC contributed a trainer that was detached to the EU Delegation in Nairobi at that time. The workshop aimed to update participants with respect to the latest developments in the GEONETCast satellite broadcast and give hands-on practice on installing/configuring GEONETCast receiving stations and using software tools to visualize and process the received data (import, generic GIS/remote sensing analysis techniques, time series analysis). Therefore, participants were required to have background knowledge of or experience in GIS or Remote Sensing (notably image processing) and an interest in the GEONETCast low cost data sharing technology was considered an advantage.

During the preparation of the workshop, participants were selected, using the above profile and focussing project sponsoring with respect to the role of their organization in the overall AGRICAB project and the involved agriculture and forest thematic fields. Furthermore, a diverse participation was ensured in terms of sector and job type (e.g. government practitioners, university research & education staff). Within a maximum capacity of 30 attendees, participants with own resources were also encouraged to attend, notably from different relevant organizations in Kenya, like CETRAD, Kenya Wildlife Service and ICPAC, etc.

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## 2. WORKSHOP PREPARATION ON-SITE

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On Friday 23 June 2012, the final preparations for execution of the workshop were taken care of, incl. distribution of the workshop materials, provision of badges, registration, checking computer facilities, internet connectivity, checking configuration and performance of the GEONETCast reception station at RCMRD (for the intended demonstration broadcast of some LANDSAT7-ETM satellite data), network access of the data archive and transfer of international participants to the guesthouse. Finally, two last minute cancellations by participants from Mozambique and Zambia had to be arranged. Saturday 23 June was used to talk to the people at ICIPE guesthouse and do the final course content preparation. On Saturday evening Bas Retsios (UT-ITC) arrived to assist during the first week of project execution. On



Sunday, it was discussed further how ILWIS3.8 should be developed to support the objectives of the AGRICAB project and to monitor the arrival of international workshop participants. This arrival went smooth for all but one participant, who had to spend the night at the airport before immigration procedures could be sorted out on Monday morning. The Kenyan participants mostly arrived on that Monday morning, just in time for the workshop opening.

### **3. WORKSHOP EXECUTION**

The workshop started with an introduction to the main international initiatives towards or involving Africa, related to provision of geo-information. This was followed by an introduction to the GEONETCast system and the relevant data sources (satellite images and products) that can be received. The first part of the second day was devoted to EUMETCast data services, registration, ground receiving system setup visit of the reception station at RCMRD and related freeware processing software. During the afternoon participants started with a set of guided exercises, focusing on processing, parameter extraction and visualization Meteosat Second Generation (MSG) data.



**Photo 1 - Group photo with participants at the start of the workshop**

This procedure continued on Wednesday and Thursday using data from EUMETSAT's Meteorological Product Extraction Facility (MPEF), the Land Surface Analysis Satellite Application Facility (LSA-SAF) and VITO's SPOT-VEGETATION data. An additional lecture on the VEGETATION instruments and products was given on Wednesday morning. Friday was devoted to extraction of images or products relevant to the



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individual participants' background and assistance was provided in case of questions. During the first week Maathuis and Retsios acted as the main resource persons for the execution of the workshop content. Retsios departed Friday evening.

Over the weekend, a technical excursion was organized to the Tsavo National Park, about 350 km from Nairobi, in the direction of Mombasa. Free access to the park for the workshop participants was provided by the director of Kenya Wildlife Service (KWS). After arrival in Voi, all participants checked in at a lodge at the edge of the park. Later in the afternoon the research station of the KWS was visited and a first attempt was made to set-up a GEONETCast reception station. While this was a good hands-on experience, KWS participants had already indicated before the trip that the research station is situated at the foot slope of a hill, which might be an obstruction to have a free view (line-of-sight) for Atlantic Bird3 reception. To address this issue, an SRTM-4 digital elevation model (DEM) was processed for the location and, using the typical [Dishpointer website](#), a suitable location at the research station was determined for the antenna setup. After onsite instruction to the participants and a few trials to point the antenna, the majority of the group went for a game drive in the park. Together with KWS staff, a few participants and with the help from a local satellite dish vendor, the antenna was successfully pointed and soon after the GEONETCast data was received at the station.



Photo 2 - Pointing of the C-band antenna at the Kenya Wildlife Service Research Station in Voi



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After an early game drive on Sunday morning, and receiving additional information on the park and animals by KWS staff, the participants were shown the reception station achievements of the previous afternoon-evening. The KWS staff then also showed them how they monitor 13 elephants in the Tsavo park, using their GPS location devices. KWS will use data received via GEONETCast, relate them to the (real time) movement of the elephants and eventually integrating them as new data sources in their Maximum Entropy Species Distribution Modelling software (showing probability of certain animal presence). After breakfast, the group returned Nairobi.

The second week of the workshop was devoted to the use of SPIRITS, the new software for time series analysis developed by VITO for the European Commission - Joint Research Centre (JRC) -MARS Unit. Felix Rembold (detached from JRC to the EU Delegation in Nairobi, assisted with training on Monday and Tuesday) and Sven Gilliams (VITO, participated the entire 2<sup>nd</sup> week) introduced the concepts, software and supervised the practical exercises. On Monday and Tuesday, participants went through the whole time series processing chain and produce the time series charts and quick looks. Wednesday was devoted to import data into SPIRITS and exchange data between ILWIS and SPIRITS. On Thursday, the participants were asked to work on an independent assignment using the SPIRITS-ILWIS analysis techniques and to prepare a presentation on the analysis conducted and results obtained. Following these presentations on Friday, the workshop was evaluated in a discussion round and participants were handed their certificate of attendance. After the closing ceremony, a farewell drink was provided.

#### **4. TRAINING MATERIALS**

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All materials - lecture presentations, exercises, background information and handbooks, software and data, etc. - were provided to participants on DVD. As most participants brought their own laptop, all software was installed directly on their own systems and it was noted that all utilities provided worked according to expectations. It is expected that the materials are further developed, notably including a French translation, for the second GEONETCast & Tools workshop. They will also be provided online at a later stage in AGRICAB.

#### **5. EVALUATION OF WORKSHOP BY PARTICIPANTS**

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At the end of the workshop an open discussion on the workshop content and outcome was conducted. The results of the evaluation are summarized below.

Schedule of workshop:

- Well organized topics, workshop schedule setup was ok.
- The change in the agenda between importing the data and the overview of SPIRITS did not disrupt the flow; it would be best continued like this.



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- A flow chart to explain the whole process would be very much appreciated.

#### Content and workload:

- The time devoted to work on own datasets is well appreciated.
- The time that was given to work on the exercises was good, balance between exercises and theory.
- The workload was ok.

#### Training material:

- Training manual of SPIRITS needed to be updated to make it more consistent with the other exercises.
- Training material for week one could even be used for distance learning.
- Could the material, including SPIRITS manual, be translated in French?
- Stepwise material describing how and where to download data and also on how to store the data would be good. Organizing data is very important, so an example of the structure should be included in the material.
- Content of the training material was wide enough, in order for the trainees to work on interesting datasets.
- The DVD structure was very good.

#### Software:

- Able to handle, even when novice in use of ILWIS and is user friendly.

#### Lectures vs. participants background:

- The language was not a real problem, understanding the lectures was ok, presenting (in case of Mozambique and Burundi) was a bit more difficult (language).
- Some further elaboration of the use of MSG for meteorological applications was appreciated.

#### General appreciation of the workshop:

- Exposure to the group of users was really interesting; it is a nice network to start from.
- The final assignment was really inspiring; it made the users think about applications. People will further elaborate on this and it would be nice to have some remote backstopping on this.
- There was a good, two-way interaction between the trainees and the trainers.

Responding to one of the questions raised, VITO sent around the SPIRITS manual to the participants shortly after the workshop.



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## 6. LIST OF PARTICIPANTS

NAME	COUNTRY	ORGANIZATION/ JOB TITLE
Masego Rachel Nkepu	Botswana	Botswana Department of Meteorological Services, Meteorologist
Syori Aloys	Burundi	Geographic Institute of Burundi(IGEBU), Head of Photogrammetry
Engdawork Minass	Ethiopia	Disaster Risk Management and Food Security Sector, GIS Expert
Kedir Shemsu	Ethiopia	UN WFP-Ethiopia, GIS Officer
Muyambi Fortunate	Kenya	AMESD, Thematic Expert
Alexander Gombe Mwazo	Kenya	International Fund for Animal Welfare(IFAW) Field Research Assistant
Abisalom Omolo	Kenya	ILRI, GIS Analyst
Bernard Ngoru	Kenya	Kenya Wildlife Service, Senior Research Scientist
Kibet S. Reuben	Kenya	DRSRS, Geo-Information Assistant
Vincent Mate Imala	Kenya	DRSRS, Geo Information Assistant
John Njogu	Kenya	DRSRS, Natural Resource Scientist
Shadrack Ngene	Kenya	Kenya Wildlife Service, Elephant Programme Coordinator
Dennis O Ojwang'	Kenya	CETRAD, Centre for Training & Integrated Research in ASAL Development, GIS/RS Analyst
Amos Ilahonga Shibutse	Kenya	ICPAC/AMESD, GIS technician
Sebastian Mukumbira	Namibia	Polytechnic of Namibia, Junior Lecturer
J J Kanyangalazi	Malawi	Ministry of Agriculture, Principal Land Resources Conservation Officer
Anacleta De Sousa Botao	Mozambique	Ministry of Agriculture, Agro-meteorologist
Jonas Zucule	Mozambique	National Institute of Meteorology, Meteorologist
Mazimpaka Jean Damascene	Rwanda	NUR, Research Assistant
Simelane Sydney	Swaziland	Surveyor General, Assistant Surveyor General
Alex K. Koton	Somalia	FAO- Somalia, GIS Officer
Henok G. Solomon	South Africa	University of Western Cape, Senior Officer
Peter Poul Luoy	South Sudan	Ministry of Water Resources and Irrigation, Director
Hussein M. Sulieman	Sudan	University of Gadarit, Director of Remote Sensing Unit
Asteria Stephen Ringia	Tanzania	Ministry of Agriculture, Food, Security and Cooperatives, Principal Agricultural Field Officer
Ellen Kayendeke	Uganda	Makerere University, Assistant Lecturer
Gwitira Isaiah	Zimbabwe	University of Zimbabwe, Lecturer
Lawrence O Okelo	Kenya	RCMRD, Data Manager
David N Ongo	Kenya	RCMRD, Remote Sensing Technician
Patrick Kabatha	Kenya	RCMRD, Data Specialist
Samuel Njau Ng'ang'a	Kenya	RCMRD, GIS Training Coordinator
Eunice Wangui	Kenya	RCMRD/AMESD, GEO Information Technician