

**CEOS WGCapD/RCMRD DEM Workshop  
6-10 May 2013  
Nairobi, Kenya**

**Report**



The inaugural Committee on Earth Observation Satellites' Working Group on Capacity Building and Data Democracy (CEOS WGCapD) Digital Elevation Model (DEM) Workshop took place at RCMRD in Nairobi, Kenya, on 6-10 May 2013. The workshop was a joint effort amongst the following partners:

- Instituto Nacional de Pesquisas Espaciais (INPE)
- Regional Centre for Mapping of Resources for Development (RCMRD)
- Secure World Foundation (SWF)
- South African National Space Agency (SANSA)
- U.S. Geological Survey (USGS)
- U.S. National Oceanic and Atmospheric Administration (NOAA)

The purpose of the DEM Workshop was to build capacity in the East African region for utilizing satellite-derived digital elevation data, specifically newly released 30m elevation data gathered on the Shuttle Radar Topography Mission (SRTM), in a variety of ways, but with an emphasis on hydrological models. The final agenda can be found in the appendix of this report. The workshop included 11 participants from the following countries:

- Ethiopia
- Kenya
- Somalia

- South Sudan
- Uganda
- Zambia

A detailed list of participants can be found in the appendix. Presenters and trainers were sent from:

- FEWSNET
- INPE
- SANSA
- SWF
- RCMRD/SERVIR
- USGS

The purpose of this report is to explore “lessons learned” from the DEM Workshop, primarily with a view to informing future, similar CEOS WGCapD activities. The report incorporates feedback from the workshop participants, as well as the workshop trainers and facilitators.

### **Strengths:**

#### **1. Local Partner**

It was absolutely necessary to have a local partner/host with considerable experience in organizing these types of events and participants’ attendance, on-ground support and resources for managing all aspects, and existing relationships in the region. It really would not have been possible without RCMRD’s support, resources, expertise, and connections. For future activities, it will be key to identify and partner with local organizations like RCMRD as they will have the best understanding of what is needed by the end user and how to organize a successful capacity building activity.

#### **2. Collaborative Effort and Burden-Sharing**

The collaboration amongst all partners within WGCapD really made this workshop a success. Being able to draw from several agencies’ expertise, tools and software, staff/trainers, resources, funding, and support made this effort possible when it would not have been with a single host. It also enriched the experience for the participants by diversifying the tools and skillsets offered and widening their network considerably.

#### **3. WGCapD Rep/Facilitator**

It is beneficial to have a dedicated WGCapD representative on the ground to facilitate the process, present on behalf of the Working Group, introduce GEO, CEOS, and the other overarching efforts related to the DEM Workshop initiative, interact with local host and participants, and report back to the rest of the Working Group. Ideally, this would be the WGCapD Project Lead.

#### **4. Technically-trained Participants**

It was agreed that part of the success of this workshop was because we had a group of technical participants. It enabled a higher level of training and discussion than if we had policy- or management-type participants.

#### **5. Case Study**

It was useful to focus on a single region or case study for the hands-on exercises. It provided continuity through the diverse range of training topics and modules.

#### **6. Step-by-Step Instructions for Hands-On Exercises**

Many of the presenters, especially those with hands-on exercises, had written up Word documents with step-by-step instructions, complete with screenshots in many places. This was incredibly helpful, enabling participants to either catch up or move a bit ahead, allowing the whole workshop to run more smoothly. This also gives them a reference guide to take home.

#### **7. Take Home Materials**

INPE and RCMRD had pre-printed discs for each participant to take home with presentations, files, and software. They really appreciated this.

8. **Feedback Opportunity**

Collecting feedback surveys from the participants at the end of the workshop and taking the time to have an open discussion about their experiences are crucial if we are to improve. It also gives participants the opportunity to express their opinions, ask general questions, and reflect on their experience.

9. **Closing Ceremony**

The formal certificate presentation session at the end was really nice, giving the entire workshop an air of professionalism. It was also good to have a few words about what comes next with the WGCapD and the data release.

**Suggestions for Improvement:**

1. **WGCapD Rep/Facilitator**

While it was good to have SWF on the ground representing WGCapD, it would have been preferable to have the WGCapD Project Lead present, but because of sequestration in the U.S., this was not possible. Having at least one on the ground is good, but if it can be an official WGCapD representative, this is even better, especially the Project Lead and the one who has the best understanding of the project.

2. **Defined Facilitator**

It would have been beneficial to designate one facilitator for the entire week. It was unclear if this role was to be played by the local partner or the WGCapD rep. Some days, there was no one to guide the workshop throughout the various modules and each presenter was responsible for taking charge, kicking things off, etc. There was also quite a bit of lag or down time as no one stepped up to introduce the next session. It would be best if, in future, someone is clearly fulfilling this role and maintains it throughout the entire week. It will provide needed structure and continuity. It is recommended that this role be played by either the local partner or the WGCapD representative, but again, these roles should be clearly defined in advance, understood, and maintained throughout the entire event.

3. **Clarify Objective**

More could be done to clearly introduce and identify the objective of the workshop from the outset. This should be done during the WGCapD introductory presentation. We failed to do this effectively for the first workshop, and this presents another reason why having the official CEOS WGCapD Project Lead present is so important. Moreover, it would be good to review the expectations of the participants from the beginning. This will provide a point of reference for the feedback session at the end and could also enable slight customization throughout the week to best meet each participant's expectations.

4. **Preparation**

The more preparation we can do in advance of such an activity, the better. If at all possible, having facilitators and trainers arrive early to meet and run through agenda, software, data, demos, hands on exercises, and other details together would be ideal. Some of the data and software had been installed, but we lost some time throughout the week installing files on each training station. It would be nice to have a prepared list of participants and their contact info to hand out at the beginning. While most presenters composed step-by-step instructions or brought take home materials, not all did. It would be ideal to have everything on one disc for them to take home. Another example would be to prepare, print, and sign the participants' certificates in advance so it is not being rushed through at the very end.

5. **Structure of Agenda/Order of Presentations**

Participants and facilitators generally agreed that the overall structure of the agenda and order of presentations was good. There was a suggestion that the introductory modules on DEMs all come at the beginning. For example, the raster techniques for DEMs would have fit well on the first day with the SANSA introduction to DEMs and DSMs. A possible solution is to develop a very rough outline based on our experience in Nairobi for the flow of a weeklong workshop. Additionally, a general template for the training presentations/modules could be crafted so that each presentation is organized similarly. For example, it was very helpful to hear about the theory and development of each software or product, but sometimes this was done and sometimes not, other times there was too much detail. A loose template could help unify the various modules and presentations.

**6. Hands-On Exercises**

These were by far the most dynamic portion of the workshop. It would be useful to have maybe two exercises to run through – one guided and the other largely done on their own with the help of facilitators.

**7. Data Release**

Participants were really eager to know when they might expect the SRTM 30m data for their own country. SWF gave an update on the data release situation, but it would have been better coming from the CEOS WGCapD Project Lead, especially since he has the most knowledge about this situation. It makes a lot of sense to be able to train them on their own data and send them home with it. Hopefully this successful workshop will help make the case for releasing the data sooner rather than later.



## Appendix 1: Workshop Agenda

<b>Day One: Monday, 6 May 2013</b>		
<b>Time</b>	<b>Activity</b>	<b>Responsible</b>
8.30am - 9.15am	Arrival of Participants and Registration	RCMRD
9.15am - 9.45am	Opening Session Welcoming Remarks by Acting Director General Remarks by Acting Director of RSGIS Department Group photo session	RCMRD
9.45am - 10.15am	Intro to CEOS and GEO	CEOS
<b>10.15am - 10.30am</b>	<b>Health Break</b>	<b>RCMRD</b>
10.30am – 12.45pm	Digital Terrain Modeling and Data Structures	SANSA
<b>12.45pm – 1.45pm</b>	<b>Lunch</b>	<b>RCMRD</b>
1.45pm – 2.45pm	Intro to Hydrological Models	SANSA
<b>2.45pm – 3.00pm</b>	<b>Health Break</b>	<b>RCMRD</b>
3.00pm – 5.00pm	Intro to GeoSUR	USGS
<b>Day Two: Tuesday, 7 May 2013</b>		
<b>Time</b>	<b>Activity</b>	<b>Responsible</b>
8.30am - 10.30am	TerraHidro - Theoretical Concepts	INPE - Dr. Sergio Rosim
<b>10.30am - 10.45am</b>	<b>Health Break</b>	<b>RCMRD</b>
10.45am - 12.45pm	TerraHidro - Tools and Usage Examples	INPE - Dr. Sergio Rosim
<b>12.45pm – 2.00pm</b>	<b>Lunch</b>	<b>RCMRD</b>
2.00pm – 3.15pm	TerraHidro hands-on	INPE - Dr. Sergio Rosim
<b>3.15pm – 3.30pm</b>	<b>Health Break</b>	<b>RCMRD</b>
3.30pm – 5.00pm	TerraHidro hands-on	INPE - Dr. Sergio Rosim
<b>Day Three: Wednesday, 8 May 2013</b>		
<b>Time</b>	<b>Activity</b>	<b>Responsible</b>
8.30am - 10.30am	Overview: TerraLib and TerraView	INPE - Dr. Laercio Namikawa
<b>10.30am - 10.45am</b>	<b>Health Break</b>	<b>RCMRD</b>
10.45am - 12.45pm	Overview: TerraMa and TerraMe	INPE - Dr. Laercio Namikawa
<b>12.45pm – 2.00pm</b>	<b>Lunch</b>	<b>RCMRD</b>
2.00pm – 3.15pm	Overview SPRING	INPE - Dr. Laercio Namikawa
<b>3.15pm – 3.30pm</b>	<b>Health Break</b>	<b>RCMRD</b>
3.30pm – 5.00pm	SPRING Hands-on	INPE - Dr. Laercio Namikawa

<b>Day Four: Thursday, 9 May 2013</b>		
<b>Time</b>	<b>Activity</b>	<b>Responsible</b>
9.00am – 9.30am	Overview of SERVIR	RCMRD - John Gitau
9.30am – 10.30am	SERVIR Data Discovery and Visualization Tools	RCMRD - Patrick Kabatha
<b>10.30am – 10.45am</b>	<b>Health Break</b>	<b>RCMRD</b>
10.45am - 11.15am	CREST Hydrological Model	RCMRD - John Gitau
11.15am – 12.45pm	USGS Flood Mapping Tool	RCMRD - Eric Kabuchanga
<b>12.45pm – 2.00pm</b>	<b>Lunch</b>	<b>RCMRD</b>
2.00pm – 3.15pm	Introduction to Regional Climate Data	FEWSNET – Gideon Galu
<b>3.15pm – 3.30pm</b>	<b>Health Break</b>	<b>RCMRD</b>
3.30pm – 5.00pm	CREST Blackbox Tool - Handson	RCMRD - Eric Kabuchanga
<b>Day Five: Friday, 10 May 2013</b>		
<b>Time</b>	<b>Activity</b>	<b>Responsible</b>
8.30am – 10.15am	Raster Processing Techniques Using ArcGIS	RCMRD – Sammy Ng'ang'a
<b>10.15am – 10.30 am</b>	<b>Health Break</b>	<b>RCMRD</b>
10.30am - 12.45pm	Raster Processing Techniques Using ArcGIS	RCMRD – Sammy Ng'ang'a
<b>12.45pm – 2.00pm</b>	<b>Lunch Break</b>	<b>RCMRD</b>
2.00pm – 3.00pm	Feedback from Participants: Potential uses of DEM datasets such as SRTM2 Discussion on challenges pertaining to application of DEM data in case studies and other hurdles foreseen by participants Feedback on the workshop Recommendations on way forward	RCMRD
3.00pm – 3.15pm	Workshop Closure and Certificates Handing Out	RCMRD