



SERVIR

Regional Visualization and Monitoring System

SERVIR – Geospatial Data Platform

UR 2012 Forum

July 4, 2012

By

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SERVIR-Africa/RCMRD

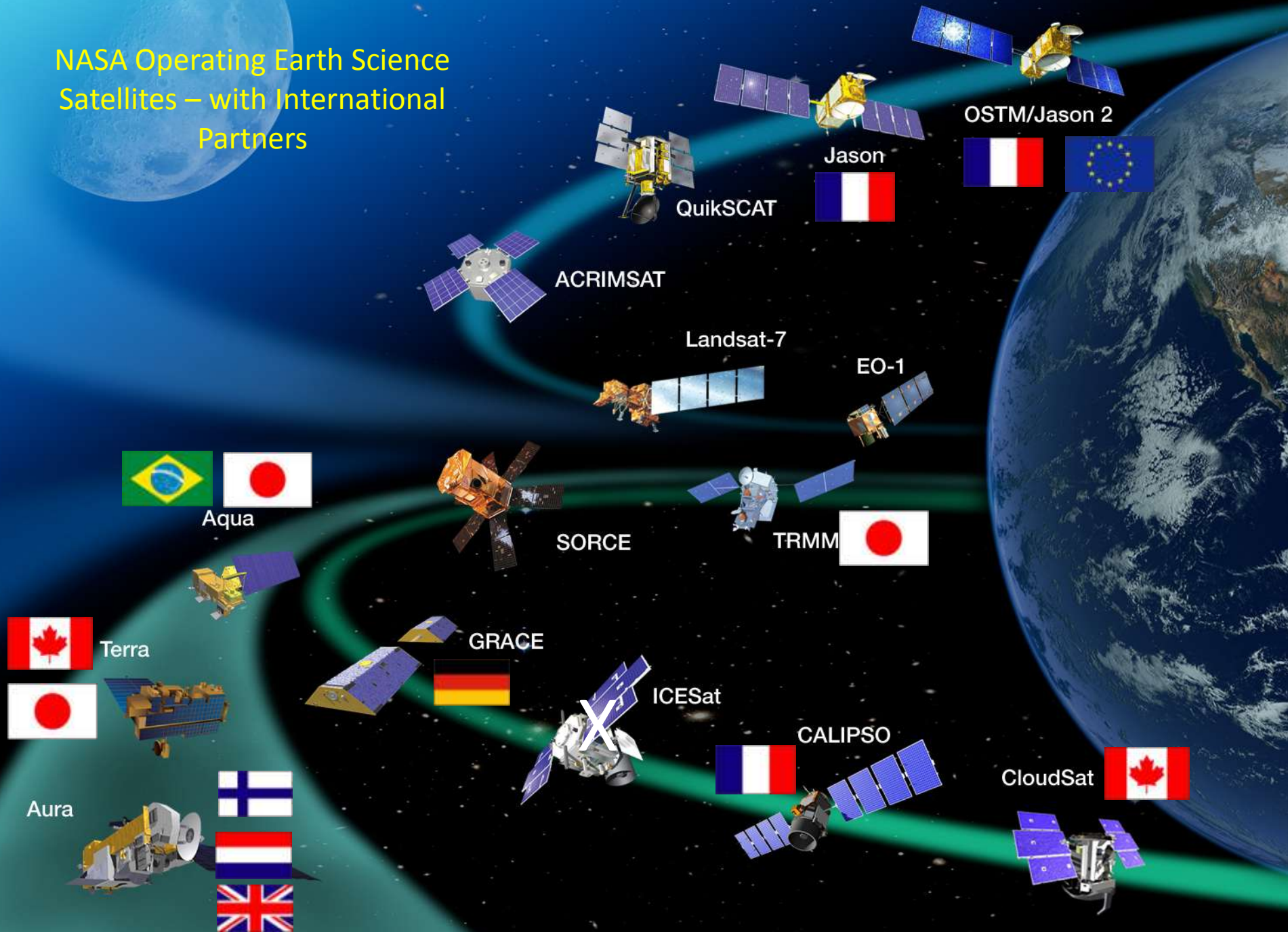
When People Think of NASA...



Goal 3A: Study Earth from space to advance scientific understanding and meet societal needs



NASA Operating Earth Science Satellites – with International Partners



US Agency for International Development

Science and Technology for Development:

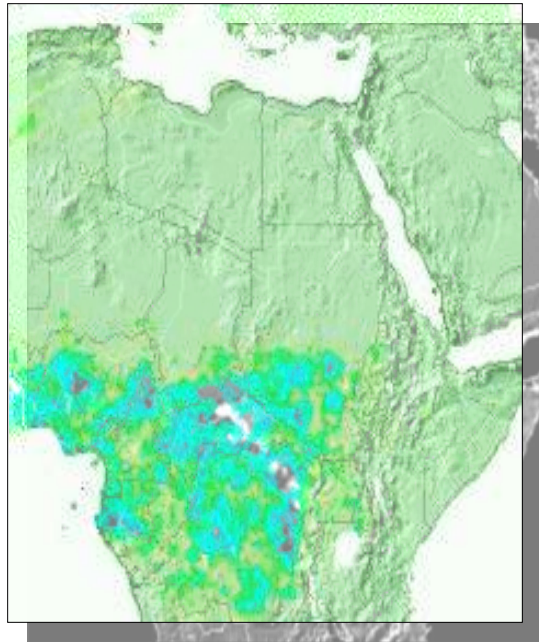
- Climate change adaptation
- Disaster risk management
- Environmental monitoring



SERVIR



Strengthen the capacity of governments and other key stakeholders to integrate Earth observations into development decision-making



Flood Forecasting in Africa



Training and Capacity Building



Mapping Fires in Guatemala Mexico

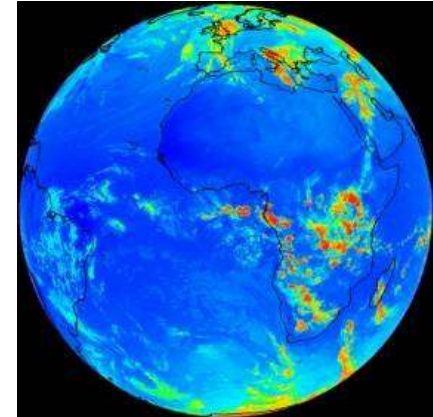
SERVIR Science Activities



Health



Ecosystems



Climate



Disasters



Biodiversity



Water



Agriculture

Towards a Geospatial “One-Stop” – Why?

- Effective decision making on environmental issues requires integration of information from a variety of sources
- Growing volume and variety of data, information, and services
- Decision-makers need a synthesized view of their region, especially for issues that transcend national boundaries
- Earth observations and models remain under-utilized because they are not “user-friendly”

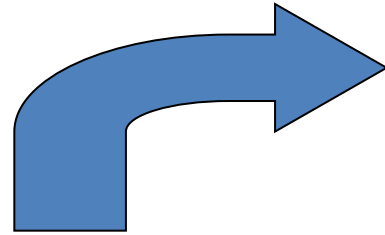
Towards a Geospatial “One-Stop” – What?

- Provide a repository of geospatial data and information to support priority regional applications.
- Integrate searching for geospatial resources with other content.
- Enable regional users to share their data and contribute to regional web map services.
- Provide simple, web-based tool for building custom maps.

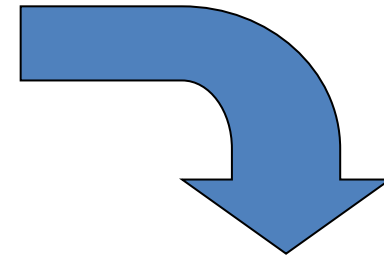
SERVIR Platform: User Perspective

Discover

- Managed knowledge base
- Catalog services
- Notification services
- Directory services
- Browse & search fxns



Share



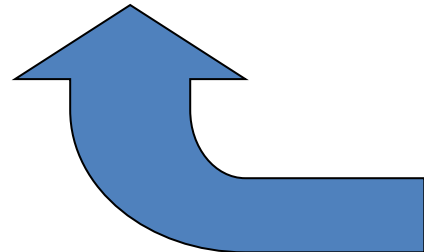
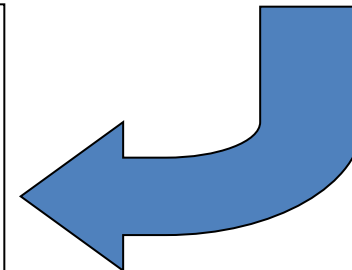
Acquire

- Ground receiving station
- Data acquisition services
- Data processing services
- Data archive
- Geodata services

Web portal
Event monitoring tools

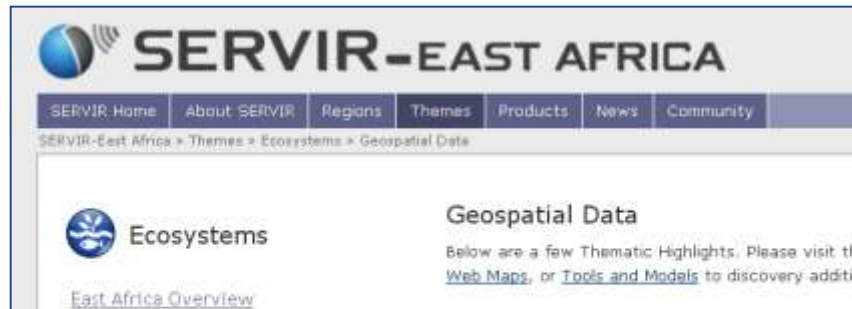
Use / Create

- Visualization tools
- Analysis (services & tools)
- Support for interoperability
- Support for product use



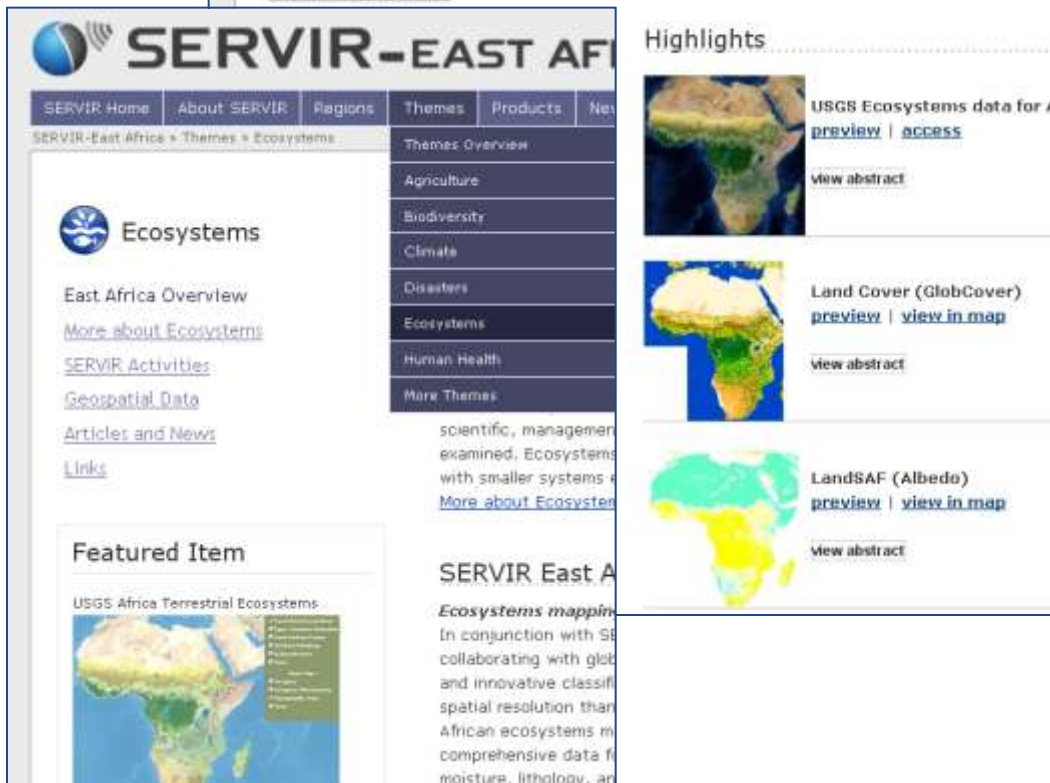
- Metadata authoring tools
- Community building tools
- Community knowledge base
- Feedback mechanisms
- Mitigating barriers to sharing

SERVIR Platform: Discover



Theme Based Knowledge Mgmt

- Web content and metadata organized thematically
- SERVIR metadata profiles extend standards (e.g. ISO, FGDC, Dublin Core) to include GEOSS themes



SERVIR Platform: Discover

The screenshot shows the SERVIR East Africa Geospatial Catalog search results page. The search term is "agriculture". The results list 1-10 of 15 records. The first few results are:

- Africa Irrigation
- Africa Dams
- Nasir Town Landuse & Landcover
- Awail Town Landuse & Landcover In Southern Sudan
- Bertu Town Landuse And Landcover In Southern Sudan

The page includes a search bar, a "Where" section with radio buttons for "Anywhere", "Intersecting", and "Fully within", and a map of Africa with a red bounding box around the search area.

Catalog Services

- Web portal integrated with metadata repository
- Using OGC standard interfaces

The screenshot shows the metadata page for the "USGS Africa Ecosystems Mapping" dataset. The page includes the following information:

- Title:** USGS Africa Ecosystems Mapping
- Dataset:** USGS Africa Ecosystems
- Publication:** 2013-10-21
- Date:** 2013-10-21
- Abstract:** The U.S. Geological Survey (USGS) Geographic Analysis and Monitoring (GAM) Program is currently leading an effort, commissioned by the Group on Earth Observations (GEO) to classify and map global ecosystems in a standardized, robust, and practical manner at scales appropriate for on-the-ground management. This effort will produce standardized geospatial ecosystem models enabling the use of ecosystem occurrences as a robust spatial unit of analysis for assessing climate change effects on ecosystems. The three ongoing continental ecosystem mapping efforts are the United States, South America, and Africa.
- Type of Service:** ArcGIS Service
- Service Name:** USGS Africa Ecosystems
- Service URL:** http://www.fao.org/geonetwork/ogc/arcgis/rest/services/USGS_Africa_Ecosystems
- Type of Coupling with Digit. Content:** On-line Data

The page also includes a small map of Africa showing the ecosystem data.

SERVIR Platform: Discover



Geospatial Diaspora



The [Department of Geography at the University of North Alabama](#) (USA) and SERVIR-Africa jointly are providing a platform for academic and research collaboration through mobilizing the professional, technological, and entrepreneurial expertise and resources of the African Diaspora.

The African Diaspora is operationally defined as "people of African origin living outside the continent, irrespective of citizenship and nationality, who are willing to contribute to the development of the continent." For DCAGS, we have extended this definition a bit to include African geospatial scientists who are working in Africa, but not in their country of origin. Geospatial science is defined to include academic and other professional research activities that involve the use of geographic information systems, remote sensing, global positioning systems and any other technologies that handle location-based information and spatially-referenced data.

Directory Services

- Registry of African researchers in the Geospatial Diaspora
- Directories for African Organizations and Projects



SERVIR Platform: Acquire

Title	Context	Threat	Base	Scenario Requests	Created At
Mushu landslide	Landslide and Flooding, Cerro el Socorro, Puebla Mexico	flood ng	gmsatstverde	Landslide Cerro el Socorro	12/12/2009 07:30 PM
Hunga Tonga-Hunga Ha'apai	Undersea volcano in Tonga Islands	volcano	jellen	Hunga Tonga-Hunga Ha'apai	03/16/2009 02:30 PM
Joggins Cliffs	UNESCO site on the Bay of Fundy	tsht	jellen	Joggins Cliffs	03/04/2009 08:30 PM
Karumba	Karumba, Queensland	flood ng	jellen	-	03/12/2009 02:40 PM
Lake Eyre	(anticipated) refilling of Lake Eyre from heavy rain upstream in Queensland	flood ng	jellen	Lake Eyre	03/14/2009 03:52 PM
Lake Eyre (North)	Floodwaters entering Lake Eyre basin from Queensland floods	flood ng	jellen	Lake Eyre (North)	03/14/2009 01:58 PM
Leadville/Leadville System	Wild Firezone	flood ng	stufve	Vancouver, North of Minnesota	03/19/2009 09:31 PM
Madagascar	Flooding from Adier's forecast	flood ng	stufve	Adier's forecast 3-22-09, Adier 7-16-09	02/11/2009 09:14 PM
Mozambique	Flooding on the Zambezi and Limpopo Rivers	flood ng	stufve	Adier forecast 3-18-09, Adier 7-22-09, OLA/C3 geow2	02/05/2009 03:31 PM
Mt. Asama	Volcano in Japan, currently active	volcano	jellen	-	02/02/2009 07:49 PM
Namibia	Flooding in Namibia	flood ng	remy-dan	-	04/06/2009 12:40 PM

Scenario Campaign Tasking Requests for Namibia

Create Scenario Campaign Tasking Request

Title:

Content:

Latitude:

Longitude:

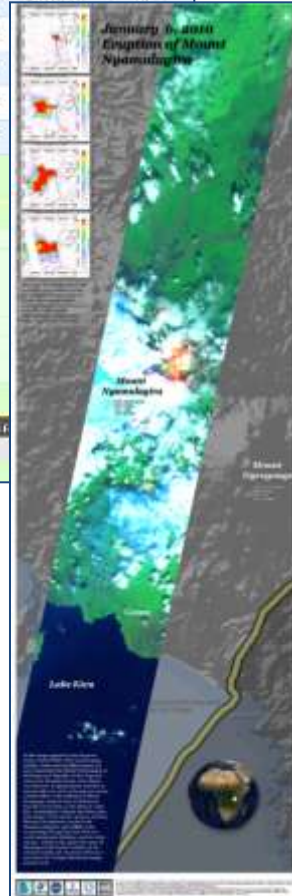
Day/Night Time:

Title	Context	Geolocation	Day/Night Time	Scenario F
0 Forest			No Entries	



Direct Request Tasking

- NASA's Earth Observing-1 (EO-1)
- Major application areas: Pre- and post-event imagery of floods, volcanoes, and wildfires



SERVIR Platform: Acquire



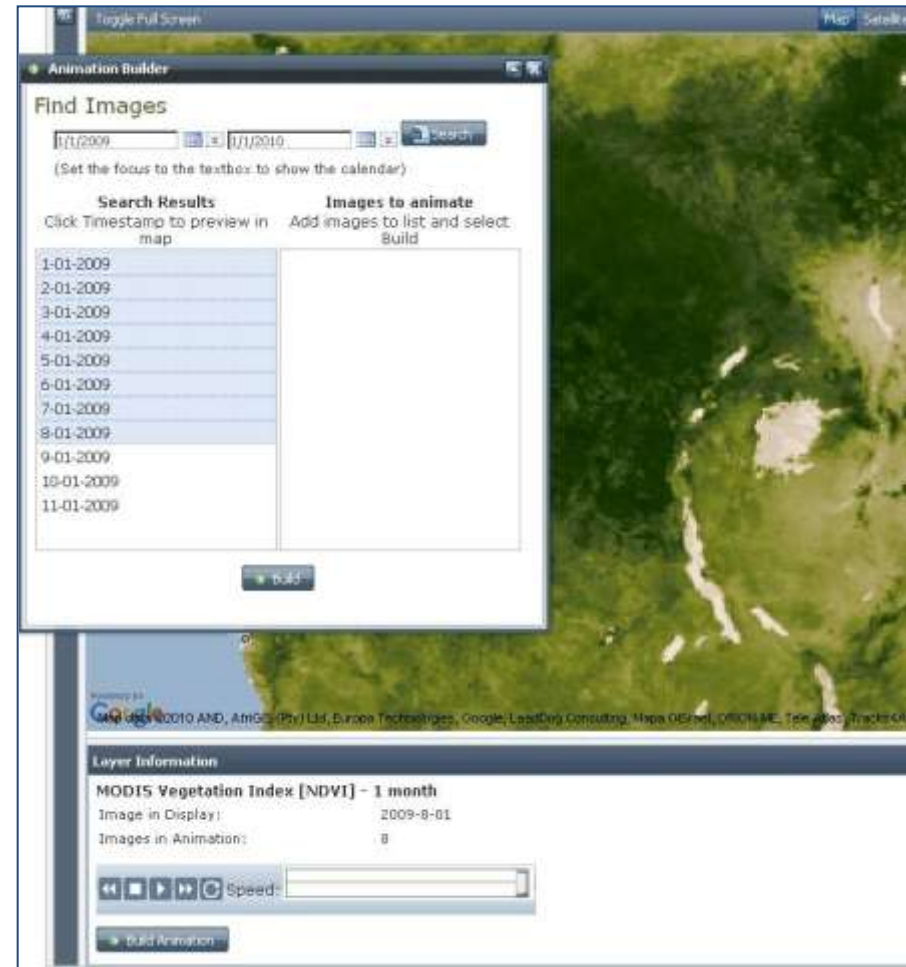
Roads Data Development in Ethiopia

- CIESIN, IMMAP, and RCMRD (*Gates Foundation - AGCommons "Quick Win" project*)
- Developing roads data for Ethiopia using a PDA tool.
- Digital data collection forms compliant with UNSDI-T v2.
- Location information for infrastructure important to farmers

SERVIR Platform: Use

Interactive web maps

- Generate custom maps using data from different sources
- Build user-defined animations for temporal data



SERVIR Platform: Use

Custom apps built on geoprocessing services

- e.g. Clip, Zip, & Ship – Users can download data from multiple datasets for their area of interest

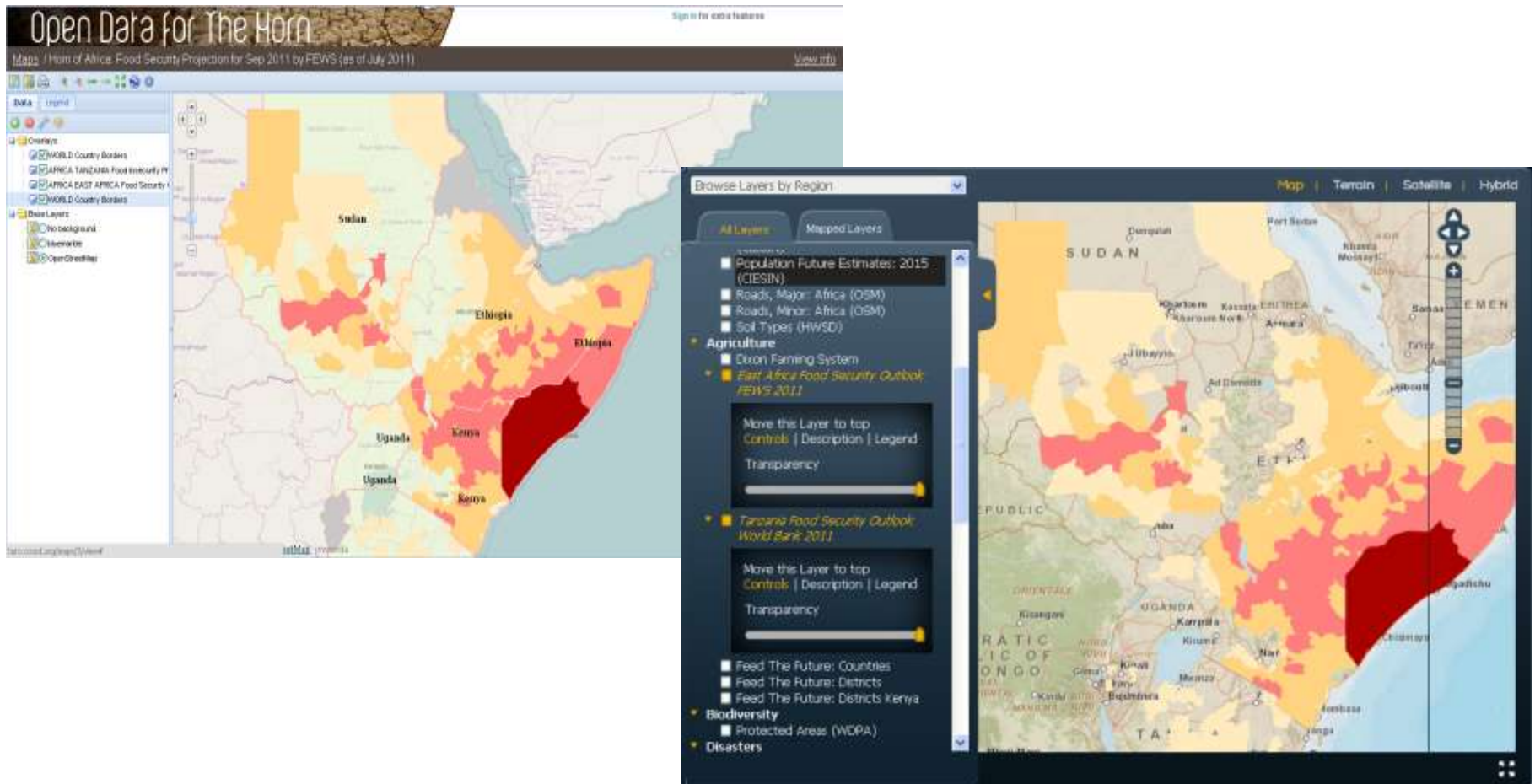


base: 271.1.1/3212 - Release Date: 10/21/10 23:34:00

SERVIR Platform: Use

Integration with Geonode:

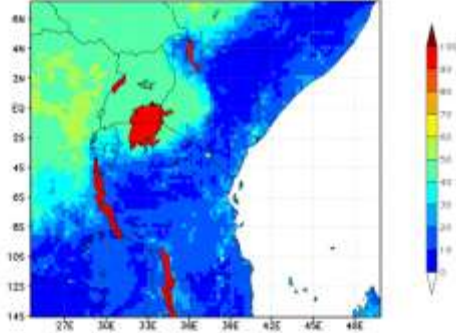
- Metadata search
- Visualization



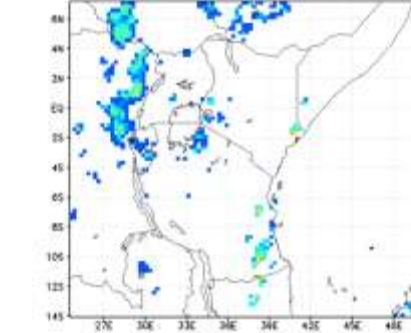
SERVIR Platform: Use

Spatially distributed hydrological model CREST

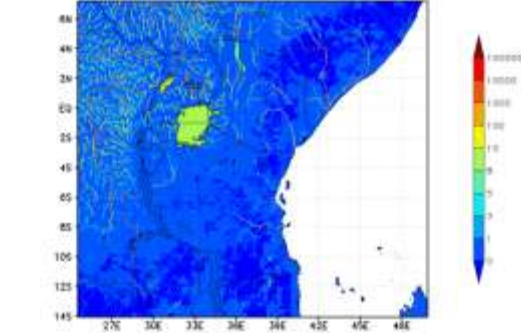
Latest 24h/3h Soil Moisture (%) 2011-09-22 15h



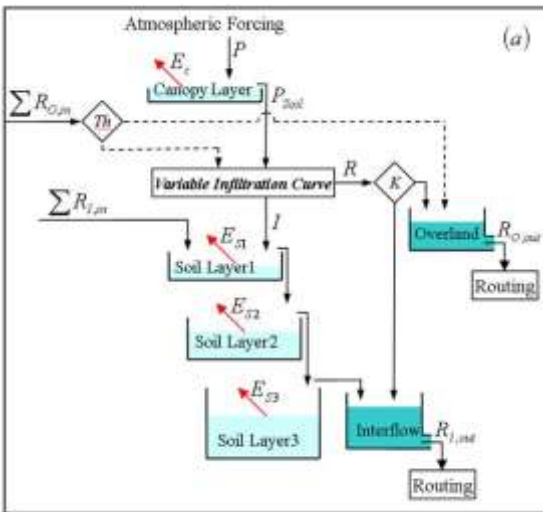
Latest 24h/3h Precipitation (mm/h) 2011-09-22 15h



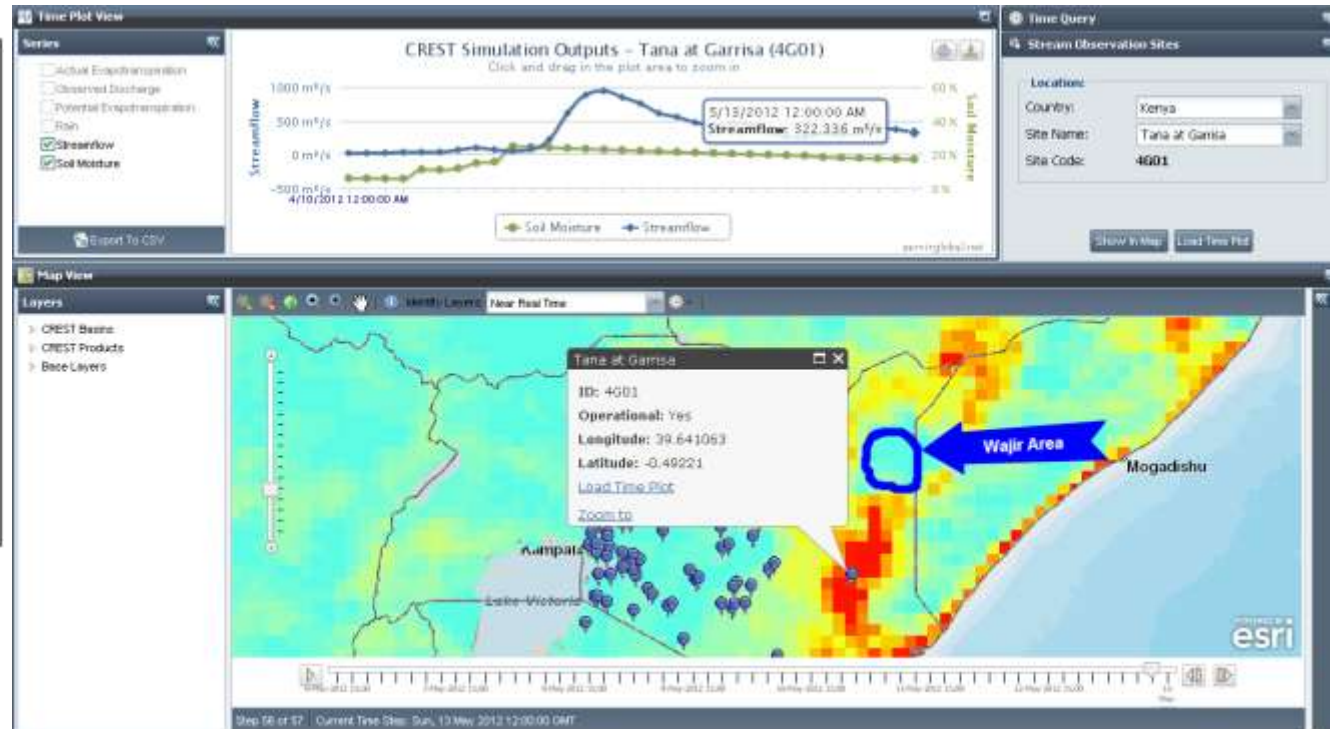
Latest 24h/3h Stream Flow (m³/s) 2011-09-22 15h



KMD East African Domain



CREST model



CREST Viewer

SERVIR Platform: Share

Geodata Portal

- Community users can contribute
- Metadata authoring tools
- Support for multiple metadata standards (ISO, FGDC, INSPIRE) customized to include GEOSS Themes

Metadata Editor

Please enter the requested information below for the content that you would like to publish to the Geoportals. Please provide as much information as you can for your content.

Don't panic! Use the help icon in the top right.

General Information

File Identifier: [OC0001244-8506-4B13-00A5-EA50E4A0E80E]

Websets Language: [en]

Metadata Date Stamp: [2013-10-29] [yyyy-mm-dd]

Organization: [POWER - Air-ME Service - An-OS Service]

Organization Role: [custodian]

Identification Information

Title: [OGC Catalogue Service 2.0 (DCRBA Binding)]

Dataset Publication Date: [OGC Catalogue Service 2.0 (HTTP Binding, Profile)]

Abstract: [OGC Catalogue Service 2.0 (HTTP Binding, CSO/SIF Profile)]

Type of Service: [OGC Catalogue Service 2.0 (HTTP Binding, INSPIRE Profile)]

Operation Name: [OGC Catalogue Service 2.0 (OGC FA Binding)]

Service URL: [OGC Catalogue Service 2.0 (OGC ED Binding, OGC Profile)]

Type of Coupling with Dataset: [OGC Catalogue Service 2.0 (OGC ED Binding, SPU)]

[Test]



Metadata standard:

- SERVIR ISO Profile
- SERVIR FGDC Best Practices Profile
- Dublin Core
- SERVIR ISO 19139 Datasets
- SERVIR ISO 19139 Web Services
- INSPIRE Metadata (Datasets)
- INSPIRE Metadata (Services)

Proceed

Current Priorities for SERVIR-Africa

- Implementation of flood potential and forecast models and operationalization of the services by Governments
- Enhancing services through the web-portal with data, products and models
- Capacity building / enhancement (universities, government institutions, NGOs)

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