Connecting Space to Village

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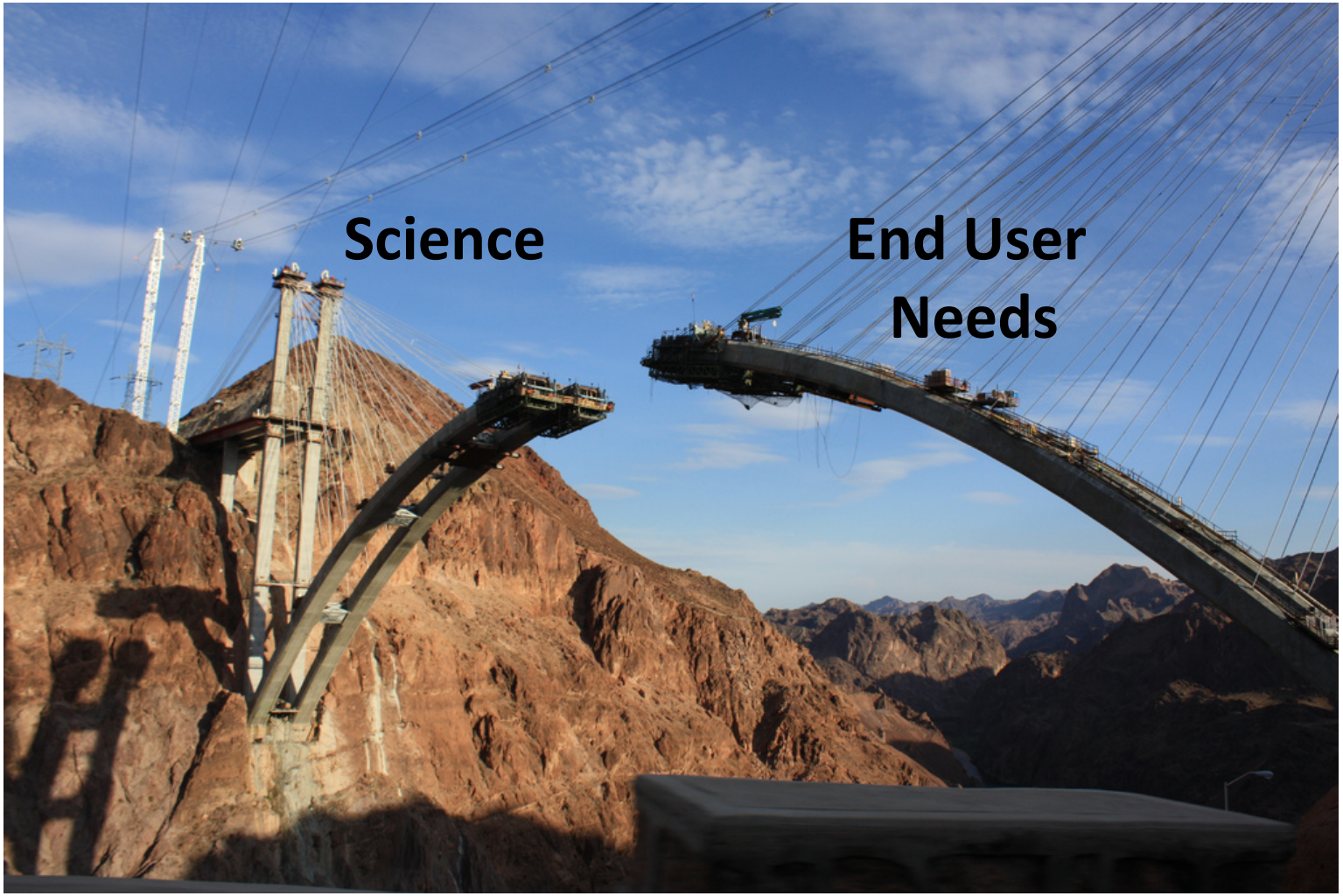
NASA

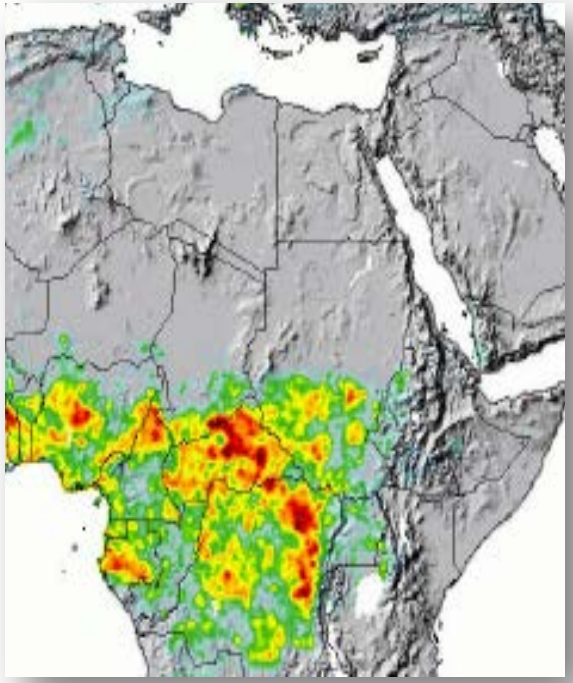
Linking Science to End User Needs



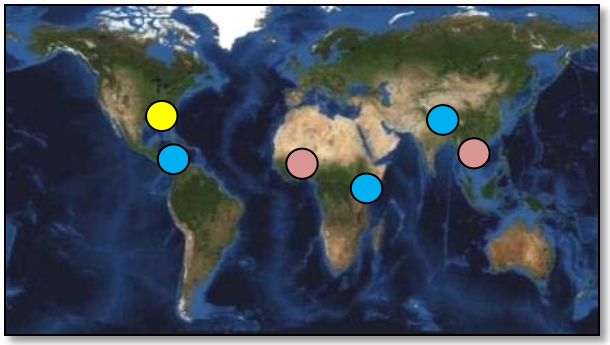
Courtesy: alifayre

What We Do

- Identify needs in SERVIR regions
- Link science products from research institutions to meet those needs through improved access to data, models, online maps, and visualizations
- Build capacity of regional institutions, stakeholders, and young professionals
- Strengthen partnerships and foster collaboration across SERVIR network



Background - Timeline



SERVIR Network

2008: SERVIR-Eastern and Southern Africa at RCMRD

2014: SERVIR-Lower Mekong

2003: SERVIR Concept

2005: SERVIR-Mesoamerica at CATHALAC

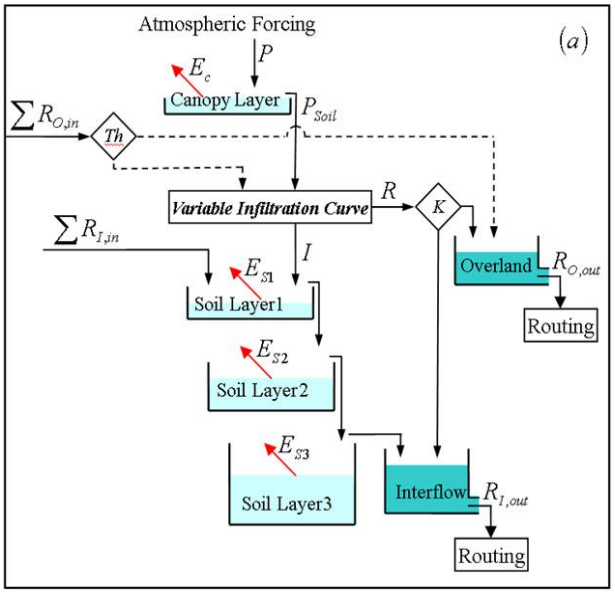
2010: SERVIR-Himalaya at ICIMOD

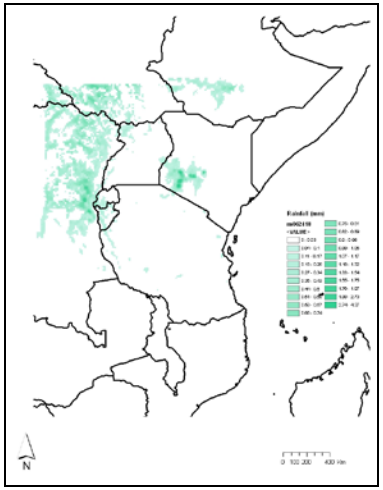
Results Summary

Results (cumulative totals)	as of Feb 2014	as of Feb 2015
People trained	**1,800**	**2,060**
Institutions with improved capacity to use Earth observations	**223**	**322**
Scientists or decision-makers participating in exchanges between SERVIR hubs or partner institutions	**209**	**339**
Stakeholders using climate information in their decision-making	**976**	**1,139**
Decision Support Tools developed	**43**	**62**
SERVIR activities in countries	**29**	**38**
SERVIR use of Earth observing sensors and products	**19**	**22**
Map Requests made	**1,029,470**	**2,368,939**
Data Layers Standardized	**1,734**	**1,793**

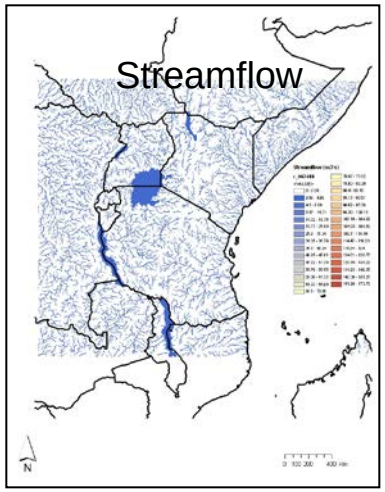
SERVIR Eastern and Southern Africa Hydrological Modeling

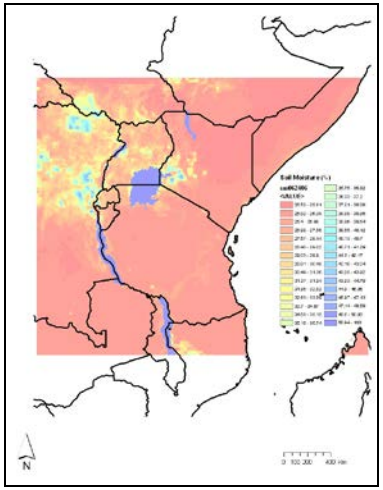
- Ministry of Water in Kenya, Rwanda, Uganda, and Namibia did not have real time assessments of hydrologic conditions
- Spatially distributed hydrologic model CREST, developed by GSFC for one Kenyan watershed
- Spatial resolution 1km, run every 3 hours in the Amazon cloud infrastructure
- Uses near real-time satellite-derived rainfall estimates and rainfall forecasts from Kenya Meteorological Service (KMS) to produce streamflow





KMS QPF





Soil Moisture

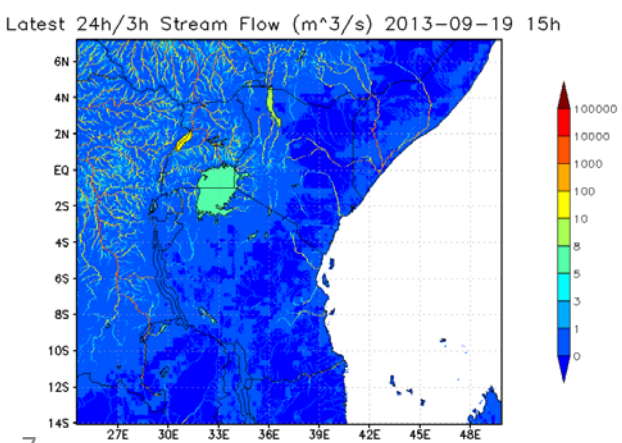
Historical Data Perspective

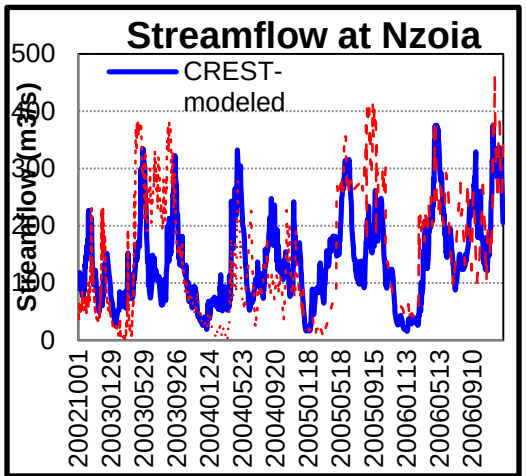
- 10+year historical satellite rainfall data to drive the CREST model, resulting in historical daily streamflow at 1 km resolution.

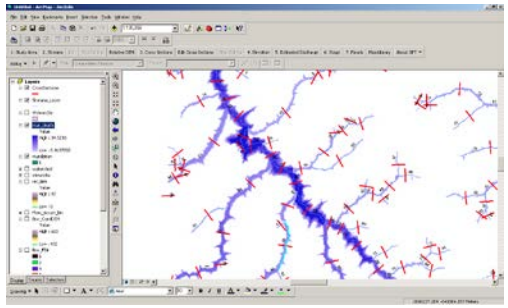
- 5th, 20th, 80th and 95th percentiles using historical data put the real time streamflow in context. Those historical and near real time data are shared with Kenya Department of Water Resources (KDWR).

- SERVIR has created additional tools for better uptake of hydrologic products from CREST. Flood mapping tool, a standalone version of USGS GIS Flood Tool, and CREST Viewer show continued use and interest.

- SERVIR is coordinating a joint working group within Kenya for hydrologic model product generation across government ministries and has resulted in wider use of model products.

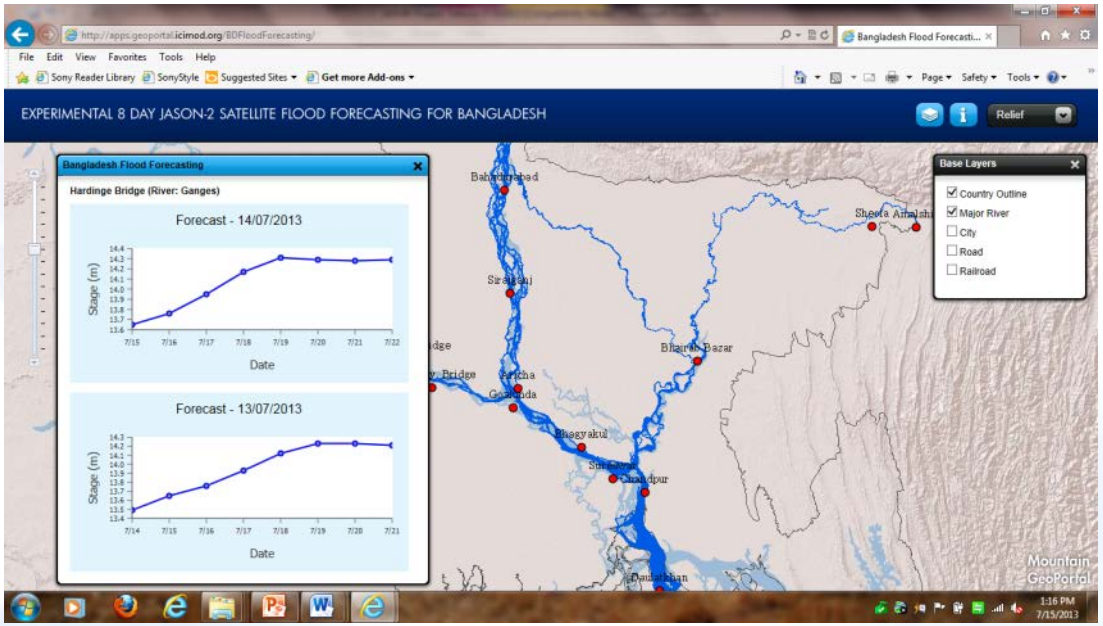






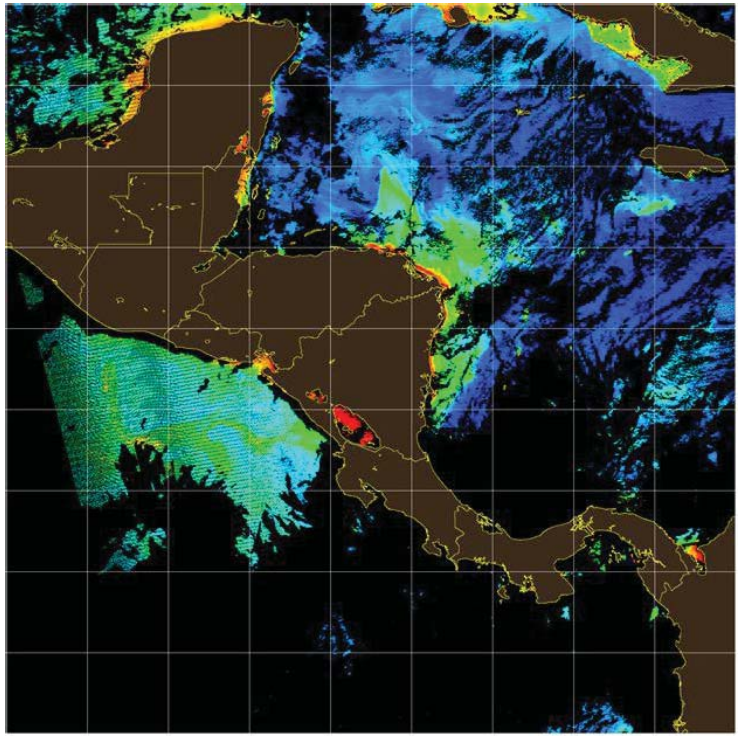
Improved Flood Forecasting in Bangladesh

- **Problem:** Bangladesh's severe flooding affects millions of residents every year. The Flood Forecast Warning Center (FFWC) issues flood forecasts in Bangladesh just 3 days in advance – insufficient time for families and farmers to prepare.
- **What SERVIR did:** A SERVIR AST effort led by Faisal Hossain linked satellite altimetry data (JASON 2) to flood forecasts. SERVIR-HKH has trained FFWC scientists to generate flood forecasts 8 days in advance using this near real time satellite data.



- **Results:** FFWC has begun generating experimental 8-day forecasts representing river levels for the 2014 monsoon season. The satellite-derived system is being run independently by FFWC, and is expected to be adopted as the official forecasting system for the 2015 monsoon season. The 8-day forecasts will provide 160 million impacted citizens with longer lead time for disaster preparedness.

Independent Evaluation shows SERVIR Algal Bloom Monitoring Tool still provides great value



SERVIR MAP FROM 12/07/14 (RED PATCHES INDICATE SURFACE WATER FLUORESCENCE). Source: MSI Report

Preliminary Findings from the External Evaluation:

- The tool is in effect for 10 years
- It is demand-driven created at the request of the Salvadoran Government and still in high demand
- The ministry of environment checks the results daily
- The data provided by this tool are vital in helping to determine if further testing of shellfish is needed and influences government response

SERVIR Red Tide monitoring systems is the first input in a complex decision-making process directly connected to markets and human health outcomes

SERVIR Product Catalog

SERVIR GLOBAL | PRODUCT CATALOGUE

Search

Welcome to the SERVIR Global Product Catalogue, a searchable collection of user-tailored products and tools utilizing Earth Observations and NASA Products to inform resilient development.

LIST VIEW | MAP VIEW

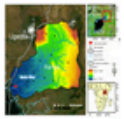
NARROW BY:

- Region
- Theme
- Status
- Data Source
- Type

PRODUCT CATALOGUE

63 Results

Agricultural Monitoring to Support Food Security in the Eastern Himalaya
Theme: Agriculture, Climate
Region: Himalaya
Status: Active



CREST Hydrologic Modeling Tool
Theme: Adaptation, Agriculture, Climate, Disaster, Water, Weather
Region: Eastern/Southern Africa, Himalaya

CREST Streamflow Viewer – Eastern Africa and Bhutan
Theme: Adaptation, Agriculture, Climate, Disaster, Water, Weather
Region: Eastern/Southern Africa, Himalaya

Flood Mapper for African Basins
Theme: Agriculture, Climate, Disaster, Water, Weather
Region: Eastern/Southern Africa

Forest Fire Detection and Monitoring System
Theme: Disaster
Region: Himalaya

Frost Monitoring and Forecasting in Africa
Theme: Agriculture, Weather
Region: Eastern/Southern Africa

SERVIRcatalog.net / SERVIRcatalogue.net

Summary

- SERVIR is a link between research institutions and end user decision making.

- SERVIR efforts are led by the needs of the region. Some examples include hydrological modeling, frost monitoring, fire alert system, and land cover change assessment.

- Presence of SERVIR Hub, a technical institution with regional governmental support, makes the linkage sustainable.

More information:

SERVIR Global: http://www.servirglobal.net

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