Bringing Climate Data to East Africa and Beyond

The SERVIR Regional Visualization and Monitoring System

Daniel Irwin
NASA
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
Pioneering Observations of the Earth
International Boundary From Space

MEXICO

GUATEMALA
Strengthen capacity of governments and other key stakeholders to integrate earth observation information and geospatial technologies into development decision-making.
Science and Technology – renewed focus on integrating science, technology, and innovation in the practice of development to solve today’s most pressing development challenges around the globe.
SERVIR Network

SERVIR Coordination Office NASA/MSFC

CATHALAC Mesoamerica

RCMRD East Africa

ICIMOD Himalaya
SERVIR-Mesoamerica @ CATHALAC
City of Knowledge, Panama

Dedicated on February 3, 2005
SERVIR-Africa @ RCMRD
Nairobi, Kenya

Dedicated on
November 21, 2008
SERVIR-Himalaya @ ICIMOD
Kathmandu, Nepal

Dedicated on October 5, 2010
‘South-South’ Collaboration

Centers are exchanging ideas and sharing experiences
SERVIR Products and Services

- SERVIR Geospatial “One Stop”
- Capacity Building
- Regular Environmental Information
- Post-Disaster Earth Observations Analyses
- Land Management & REDD+
SERVIR “One-Stop”
SERVIR “One-Stop”

Geospatial Catalog

Interactive Web Maps
“One Stop” Clip and Ship Tool
Earth Observation and Geospatial Capacity Building
Rapid Land Cover Mapping Training
MyCOE-SERVIR Initiative

- Building capacity to protect biodiversity using GIS, RS, and geospatial analytical techniques.
- Strengthening collaboration amongst universities, government environmental authorities, and NGOs.
- Students & mentors competitively selected; both receive modest stipends to conduct 6-month long projects and travel support.
Detecting Fires from Space
Guatemala Fire Forecast System

Fire forecasting uses MODIS Rapid Response System, a collaborative effort between GSFC and University of Maryland.
Cyanobacteria Outbreaks
Real time monitoring of Harmful Algal Blooms (HAB) using remotely sensed data products
• Spatially distributed hydrologic model CREST, developed under ROSES-funded NASA/GSFC effort by University of Oklahoma (based on the state of the science Variable Infiltration Capacity (VIC) model).

• Model being run operationally at a spatial resolution of 1km at 3-hr frequency. Output products from CREST are streamflow, soil moisture, actual evapotranspiration.

• Working closely with Kenya Meteorological Department (KMD). We incorporate their near real-time rainfall and temperature forecasts to streamflow and other products. KMD intends to use CREST model products in their simulations.
Rift Valley Fever in Africa

Rift Valley Fever Risk Map
(Livestock and human disease transmitted by mosquito)

Uses NDVI, Precipitation and Temperature information

Sensors: MODIS and AVHRR
Coral Reef Bleaching Monitoring Tool

Objectives:
- Global database on coral reefs and their status with visualization interface
- Coral reef bleaching monitoring tool and user manual, integrated into SERVIR-Africa portal
Mapping Floods in Africa
Lake Liambezi Area

LAKE LIAMBEZI AREA – NASA EO1 BAND 6 SCENES FOR 01, 09 and 14 APRIL 2009
(false colours based on preliminary classification without ground verification)
Flooding in Pakistan

Analysis on Flood Affected Areas along the Indus River, Parts of Sindh Province, Pakistan

This map presents an preliminary analysis of flood affected areas along the Indus river, Pakistan and is based on Enhanced Thematic Mapper Plus (ETM+) satellite imagery acquired on August 9, 2010.

The flood extent is represented as a 30 meter grid. For more details, contact USAID.

Legend
- Flooded Areas
- Flood Extent
- Non-Flooded Areas

Map prepared by
ICIMOD
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FROM THE AMERICAN PEOPLE
Lights at Night

Defense Meteorological Satellite Program (DMSP)
Operational Linescan System
Rondônia, Brazil (1975 to 2009)
SERVIR is working on providing consistent, reliable, relevant Land Use Land Use change and Forestry (LULUCF) information by harmonizing data compilation at national and regional levels.

Participating Countries: Botswana, Malawi, Mauritius, Namibia, Rwanda, South Africa, Tanzania, and Zambia

We are using 30m satellite data for assessing the land cover change maps in 1995, 2000, 2005 and 2010. The land cover change statistics will enable us to quantify the changes in greenhouse gas inventory.
Space Station Utilization

- Agriculture
- Air Pollution
- Rainforest Destruction
- Disaster
- Biomass Estimate