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
Pioneering Observations of the Earth
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 Network
Dedicated on February 3, 2005
SERVIR-Africa @ RCMRD
Nairobi, Kenya

Dedicated on
November 21, 2008
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 Regional Visualization and Monitoring System

SERVIR Success Stories

What's New on SERVIRGlobal.NET

Announcement: SERVIR Himalaya Youth Forum in Pakistan (15 Nov 2011)

FOR IMMEDIATE RELEASE: 'Connecting from Space to Village' enhancing understanding of climate change in the Himalayas (15 Nov 2011)

SERVIR-Himalaya Science Applications to be demonstrated at Bhutan Climate Summit (15 Nov 2011)

Tropical Storm Maria and weather for Central America and the Caribbean. September 2011 (09 Nov 2011)
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.
Guatemala Fire Forecast System

Fire forecasting uses MODIS Rapid Response System, a collaborative effort between GSFC and University of Maryland.
Cyanobacteria Outbreaks

Imagen LANDSAT del Lago de Atitlán - Octubre 30 2009
Departamento de Sololá, Guatemala

Imagen EO-1 del Lago de Atitlán - Noviembre 13 del 2009
Departamento de Sololá, Guatemala

Lago de Atitlán, Departamento de Sololá, Guatemala
Área Afectada por Cyanobacteria

Sistema Hídrico de la Cuenca Endorreica del Lago de Atitlán
Visualización en SERVIR-Viz

www.servir.net

Elaborado por CATHALAC, 16 de Noviembre 2009
Crédito de las Imágenes: SERVIR/CATHALAC/NASA/USAID/GEO
Harmful Algal Blooms

Real time monitoring of Harmful Algal Blooms (HAB) using remotely sensed data products

High Chlorophyll Concentration
Air Quality

Air Quality in Mesoamerica

CATHALAC/BAMS CMAQ forecast values (PPM)

August 18, 2009 12:00:00
Min= 0.014 at (146,70), Max= 0.042 at (18,20)
• 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
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 a preliminary analysis of flood affected areas along the Indus River in Pakistan as a result of flooding on August 20, 2010. This analysis is based on an early analysis of the flood extent using Moderate Resolution Imaging Spectroradiometer (MODIS) data acquired on August 20, 2010. The analysis was performed using the Flood Event Detection System (FEDS) and flood vulnerability data from the University of Georgia. The data is intended to provide an initial assessment of flood affected areas and can be used for preliminary flood management and response.
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

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