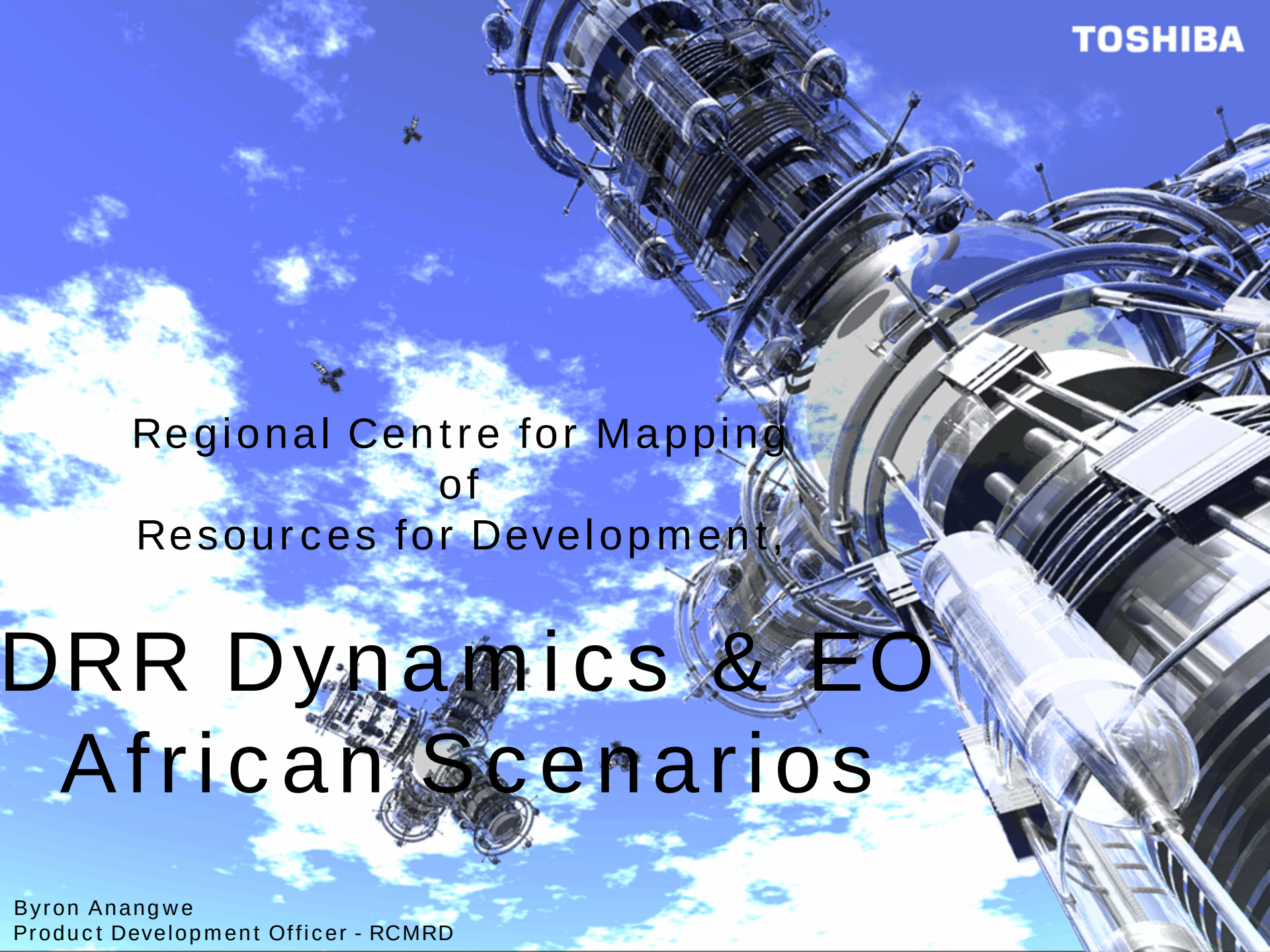


Regional Centre for Mapping
of
Resources for Development,

DRR Dynamics & EO
African Scenarios

Byron Anangwe
Product Development Officer - RCMRD

Questions??

Farmers praying for rain in Allahabad on Thursday. A delay in the arrival of the monsoon in the north has raised fears of a drought. — Reuters (Reports on Page 13)

Questions??

What are the Issues?

- Proper Planning
- sound policy formulation with implementation
- Timely service delivery to people
- Allocation of Resources

POLITICS
BUSINESS
COMPETING INTERESTS

DISASTERS

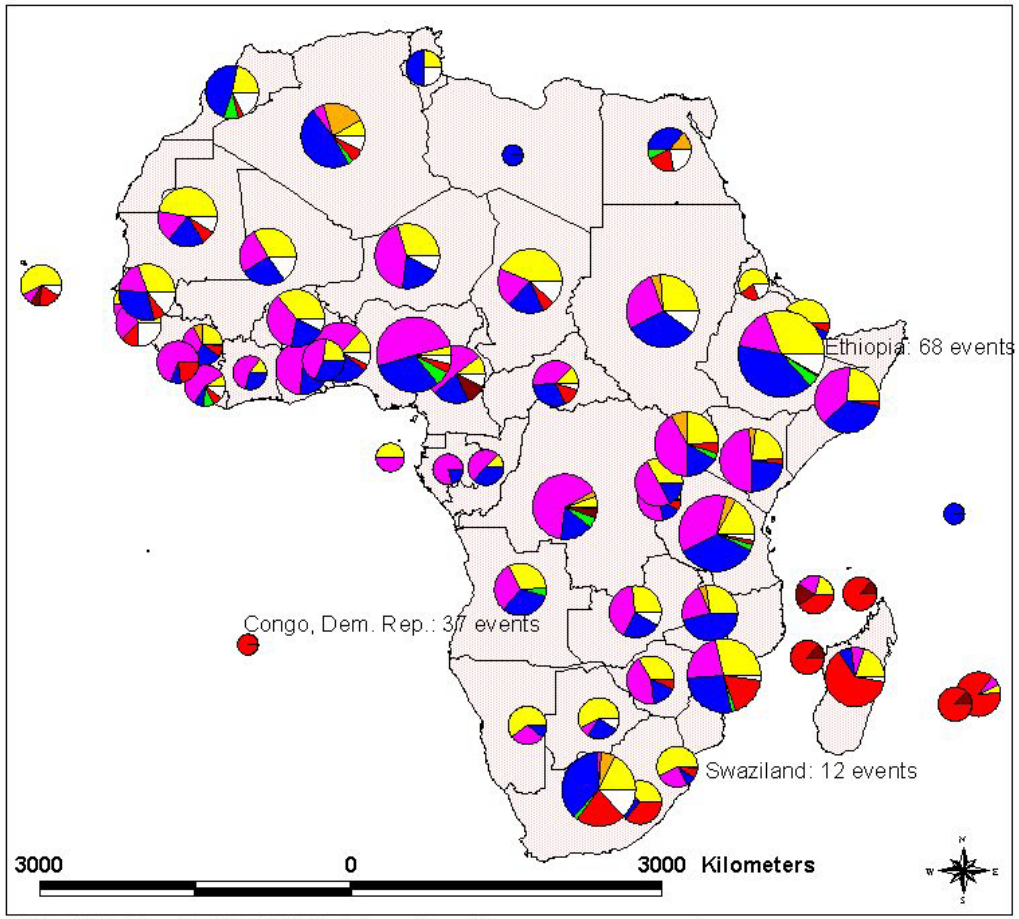
Disasters

- Droughts
- Land degradation
- Floods
- Landslides/Earthquakes
- Locust invasion
- Epidemics/Pandemics
- Other Man-made

Consequences;

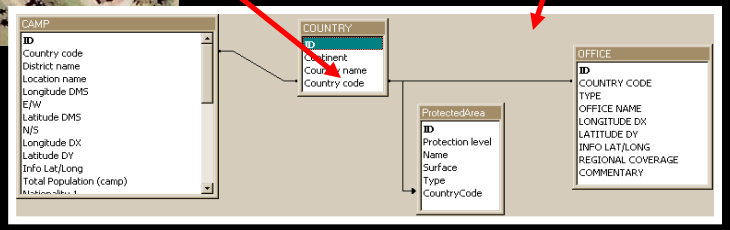
- Famine
- Starvation
- Escalating poverty
- Reduced water availability
- Malnutrition
- Mass migration
- Deaths
- Conflicts
- Diseases

Distribution of natural disasters, by country and type of phenomena, in Africa (1975-2001)



EM-DAT: The OFDA/CRED International Disaster Database
(http://www.cred.be ; email: cred@epid.ucl.ac.be)

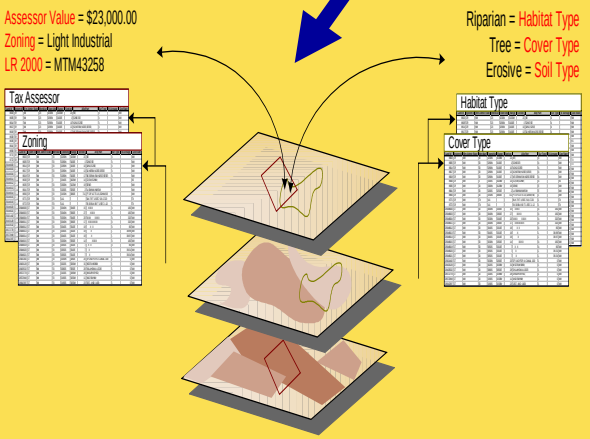
Technology Vs DSS



GIS APPLICATIONS

Multi-concepts

Citizens
GOVERNMENT

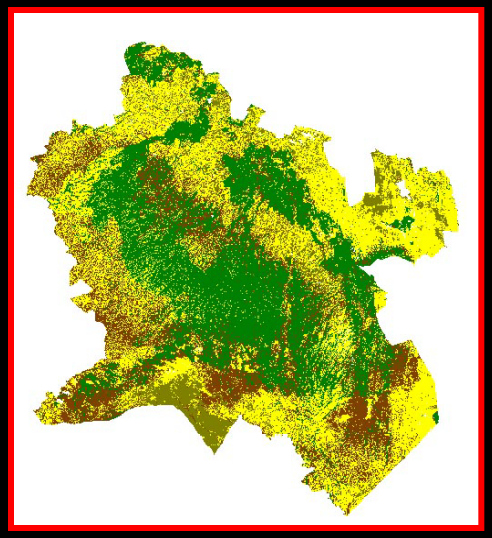


Decision Support

Geographic knowledge / data

Real World

POLITICS & FORESTRY



Mau Forest: 1986

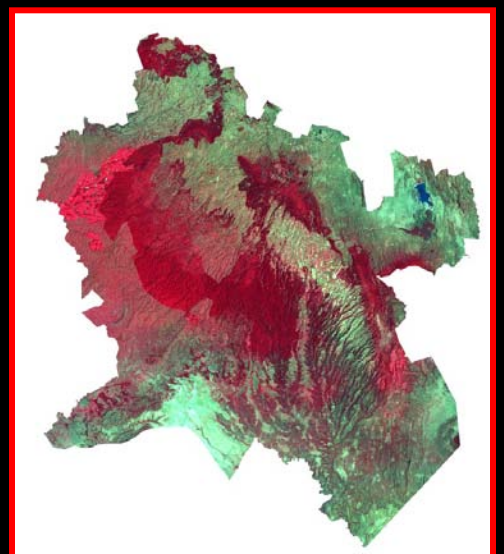
Forest

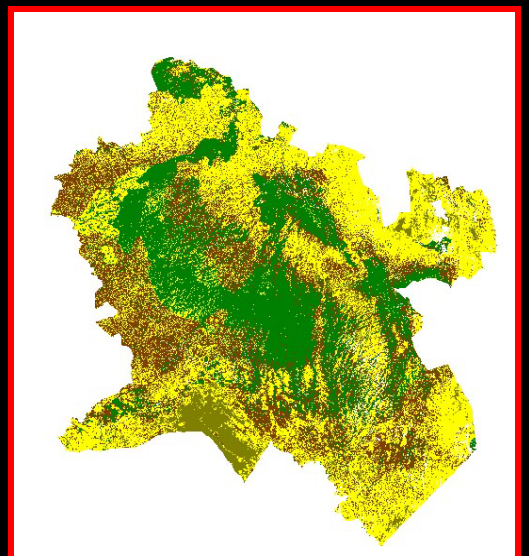
Degraded forest

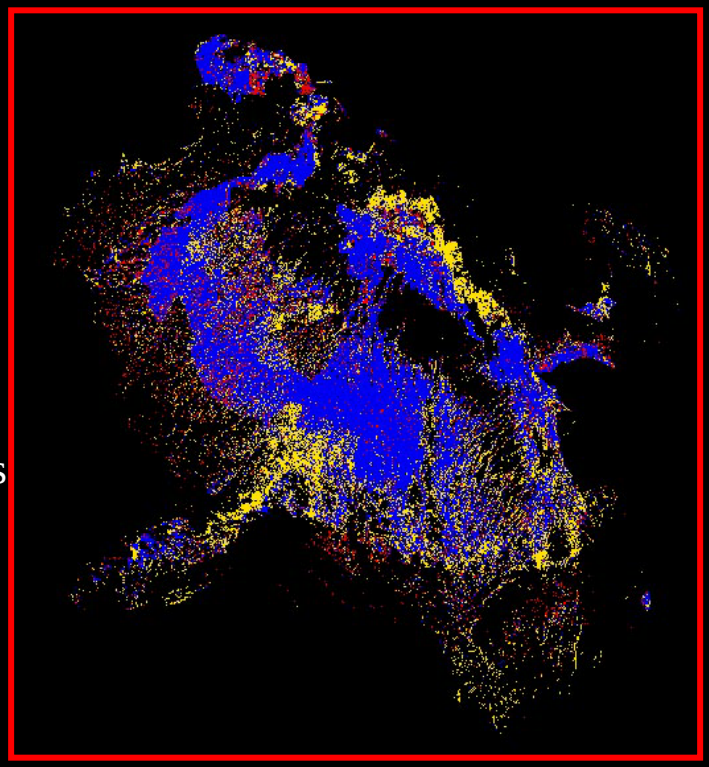
Bare soil

Other cover types

Mau Forest: 2010







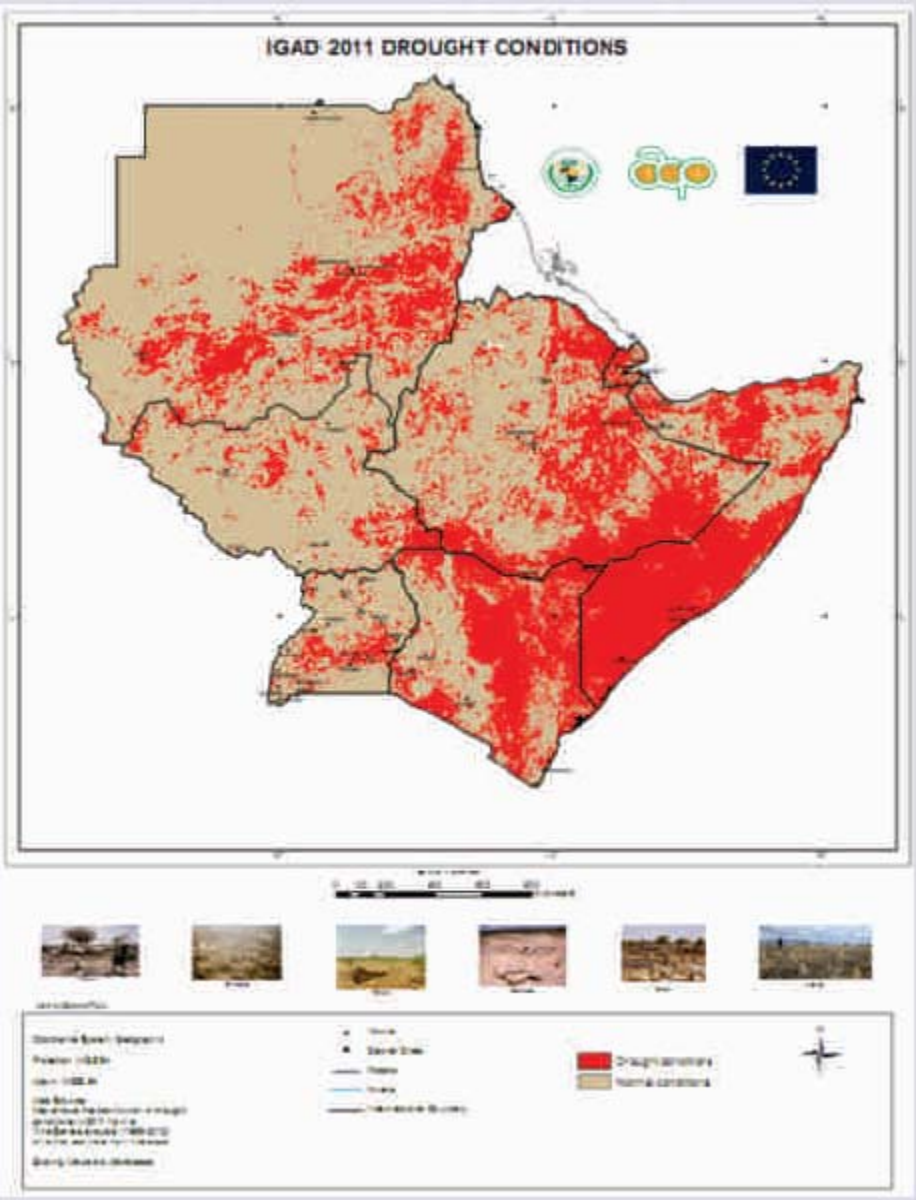
Forest - 292,192.4 Ha (2,921.92 Km^2)

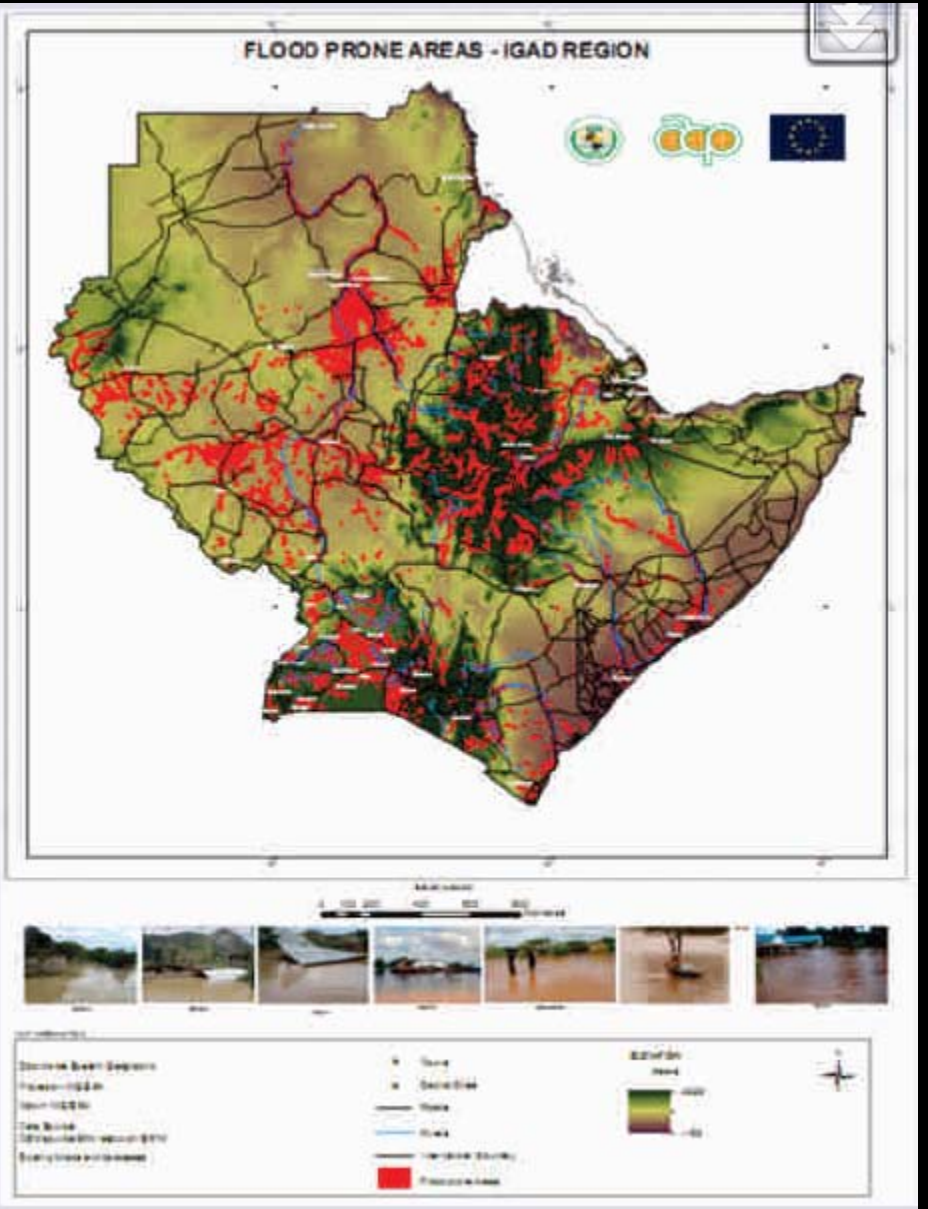
Deforested – 142,879.4 Ha (1,428.794 Km^2)

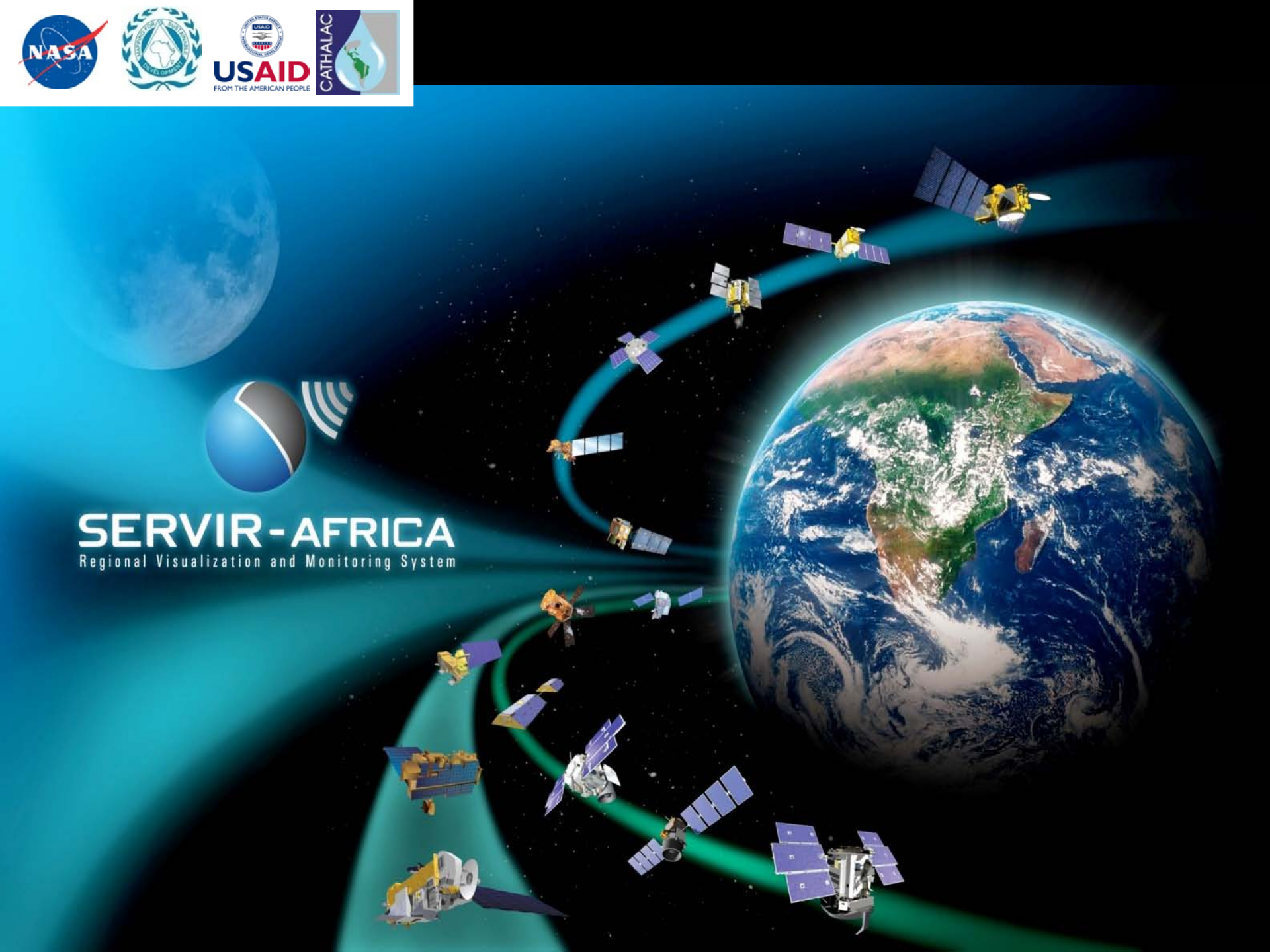
Reforested – 60,411.0 Ha (604.11 Km^2)

Land Movement

Regional Multi-Hazard Atlas & Disaster Mapping Project






NASA
USAID
FROM THE AMERICAN PEOPLE
CATHALAC
SERVIR-AFRICA
Regional Visualization and Monitoring System

SERVIR Applications

SERVIR Applications have several dependencies:

- NASA Applied Science Program

  Agriculture, air quality, climate, disasters, biodiversity, public health, water resources

- GEO

  Agriculture, biodiversity, climate,

  disaster, ecosystems, and human health

- USAID

  Climate change adaptation, carbon

  tracking and GEO focus areas

- Regional Needs Assessment

Wireless Sensor Network (WSN)

- The network is comprised of individual nodes that are part of a peer-to-peer mesh
- Capable of operating for extended periods (weeks, months) with little to no maintenance
- Network can be put to ‘sleep’ ‘Typical’ configuration – soil moisture sensors, rain gauge, temperature sensor, accelerometer, river gauge sensor etc.
- Can be interfaced to any type of sensor to monitor the environment

Application of WSN

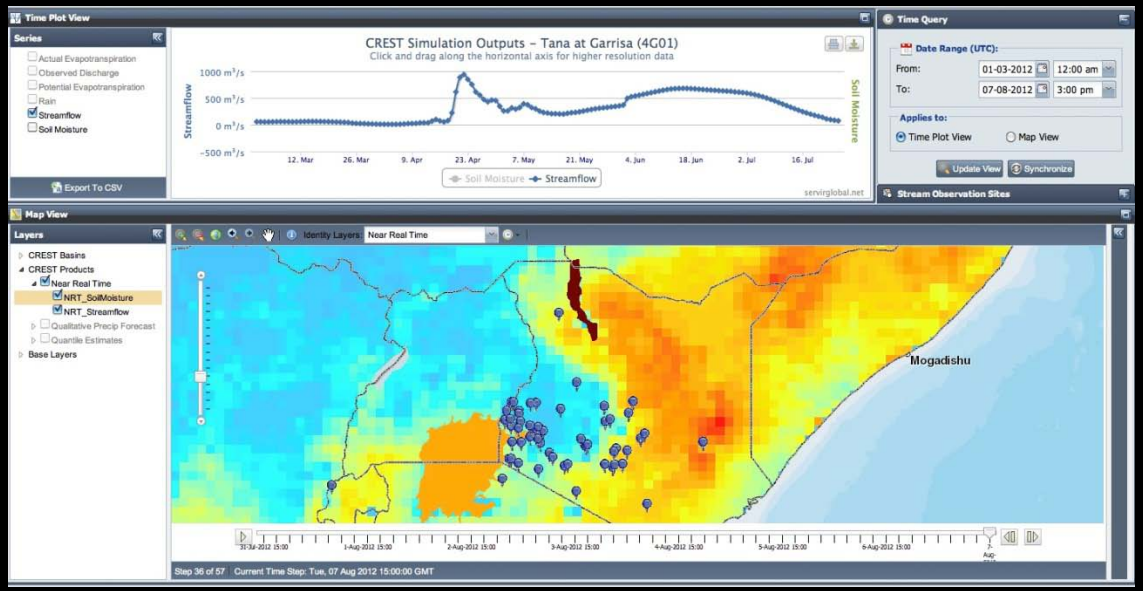
- Network installed at RCMRD and Kericho
  - 3 nodes (RCMRD) and 5 nodes (Kericho Kenya) with temperature, humidity, wind and rainfall Data available at:
- RCMRD Network:
- http://41.206.34.124/wsnrcmrd/SensorGraph.aspx
- Kericho Network:
- http://41.206.34.124/wsn/SensorGraph.aspx

CREST East Africa

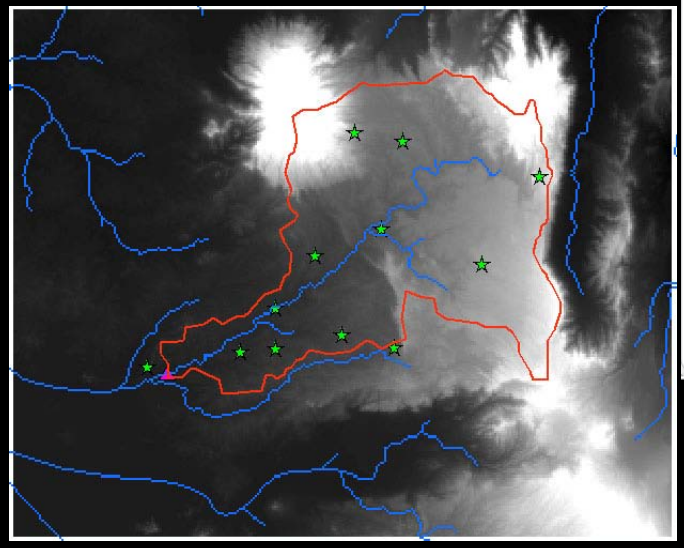
- **SERVIR-East Africa has been running a water resource assessment tool, a distributed hydrologic model called CREST, for a large domain in East Africa using NASA remotely sensed datasets.**

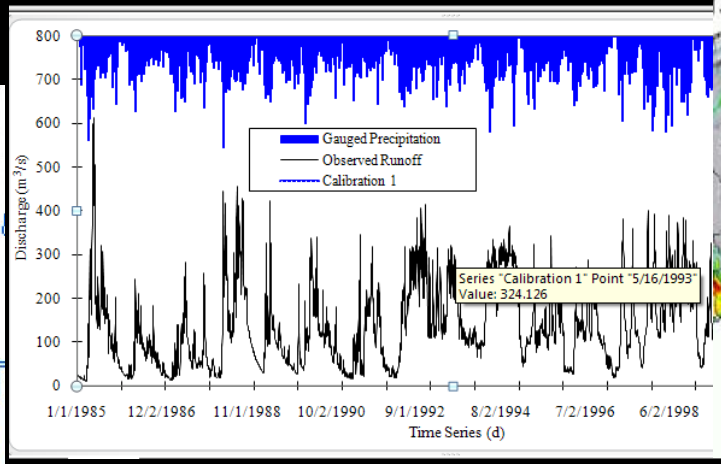
- **The purpose of the modeling effort is to empower the decision makers with timely information about the water resources conditions. SERVIR-East Africa has engaged the Ministry of Water Resources in Kenya and is reaching out to other countries.**

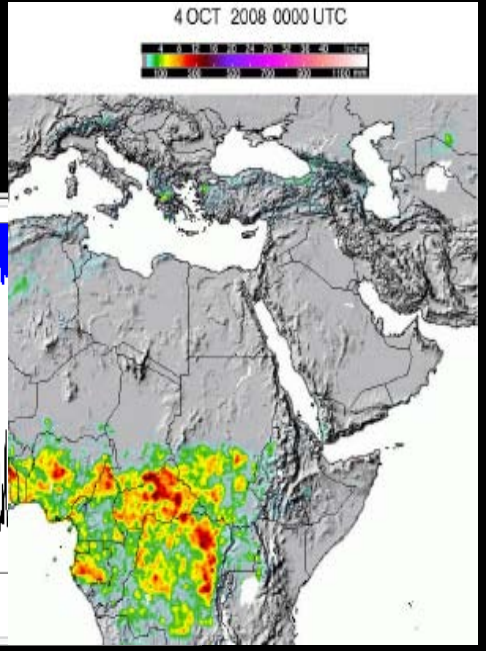
- **SERVIR-East Africa has generated historic hydrologic model runs, is running the model in near real time and is working on getting the seasonal forecasts incorporated .**

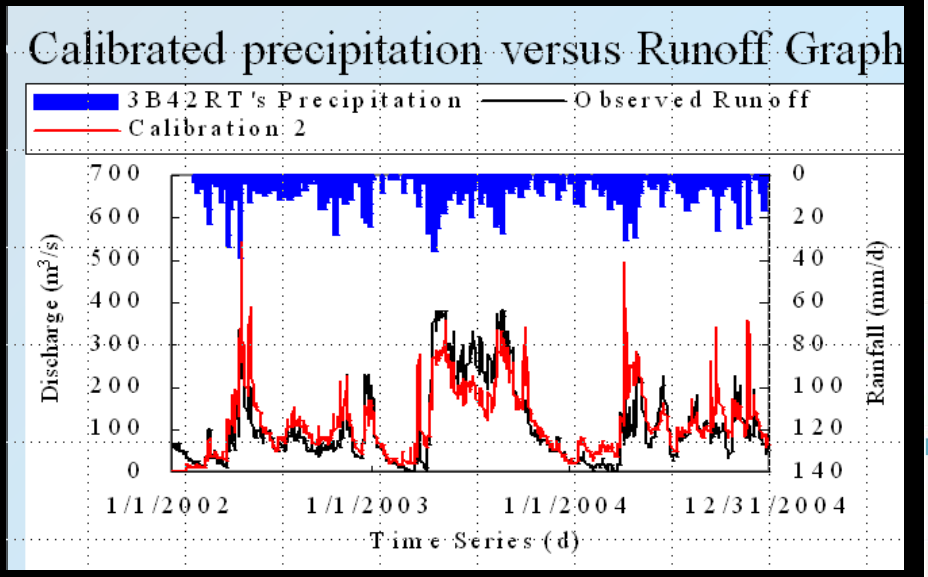


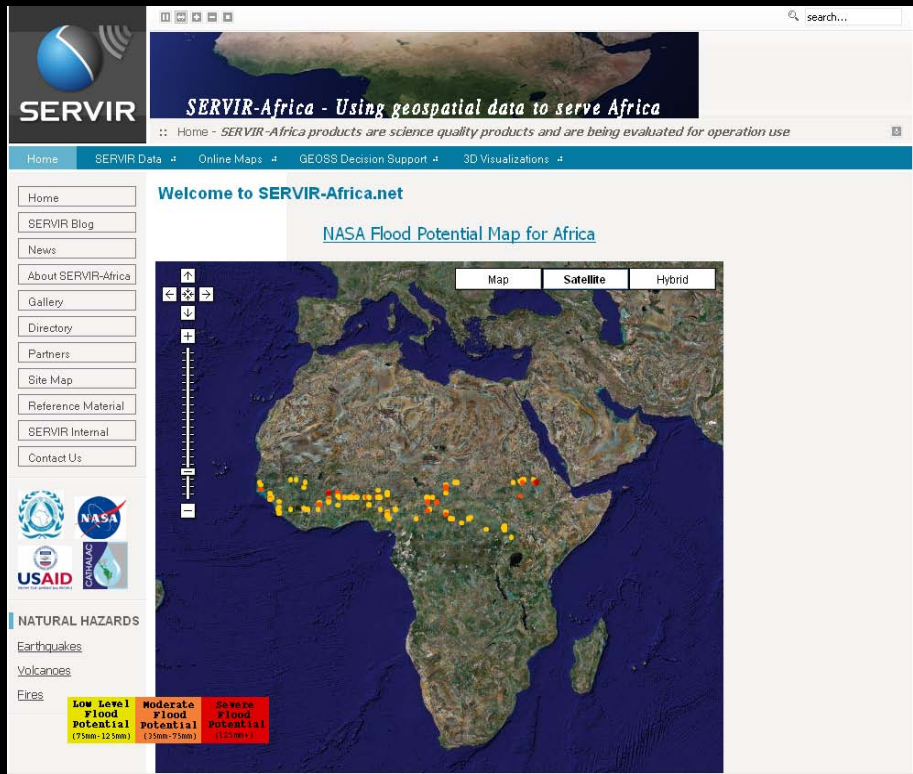
Predicting Flooding: Nzoia River Basin



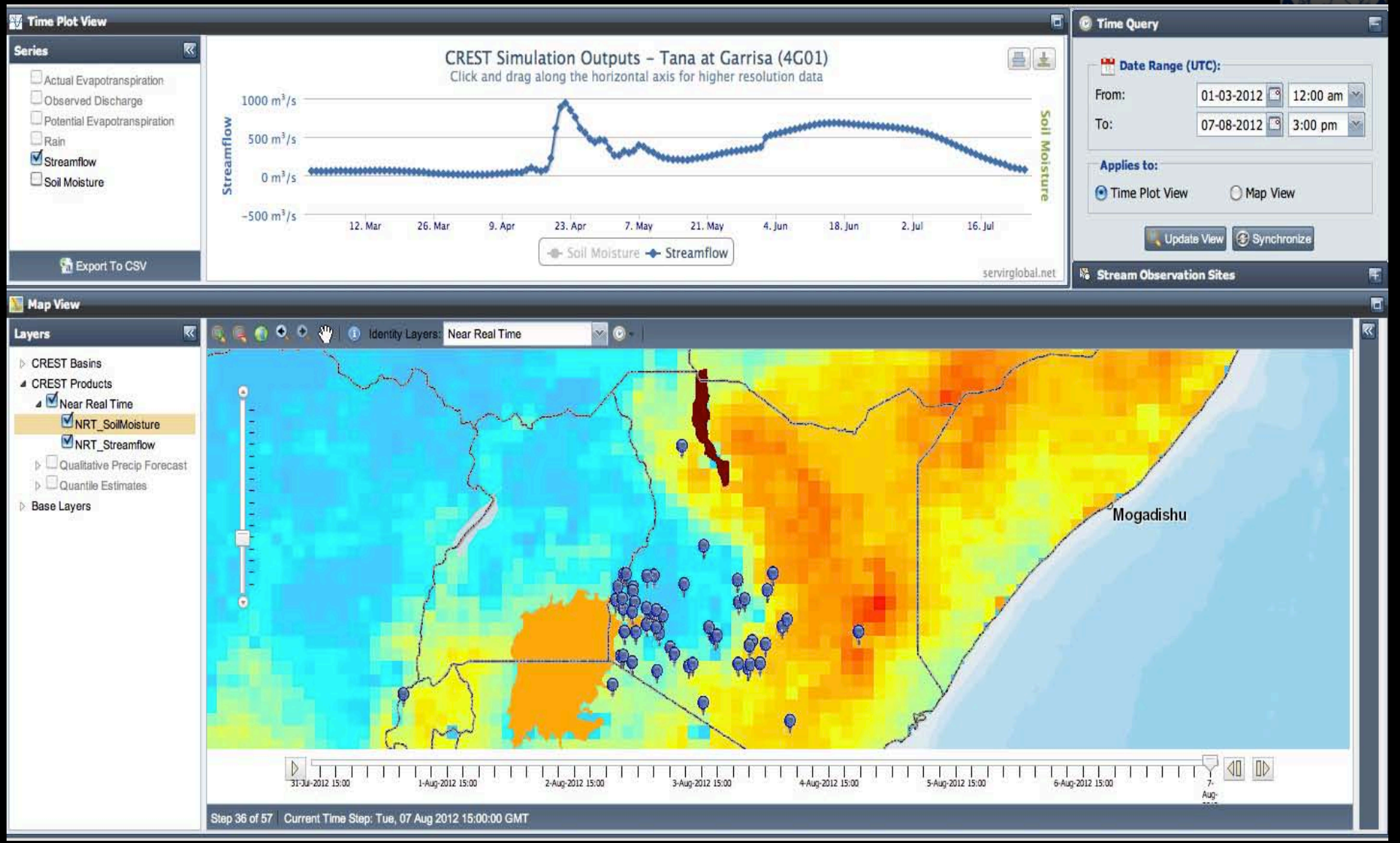








CREST Viewer Interface



CREST Web Access (CREST Viewer)

- http://41.206.34.124/crestviewer/
- Or
- http://ags.servirlabs.net/crestviewer/

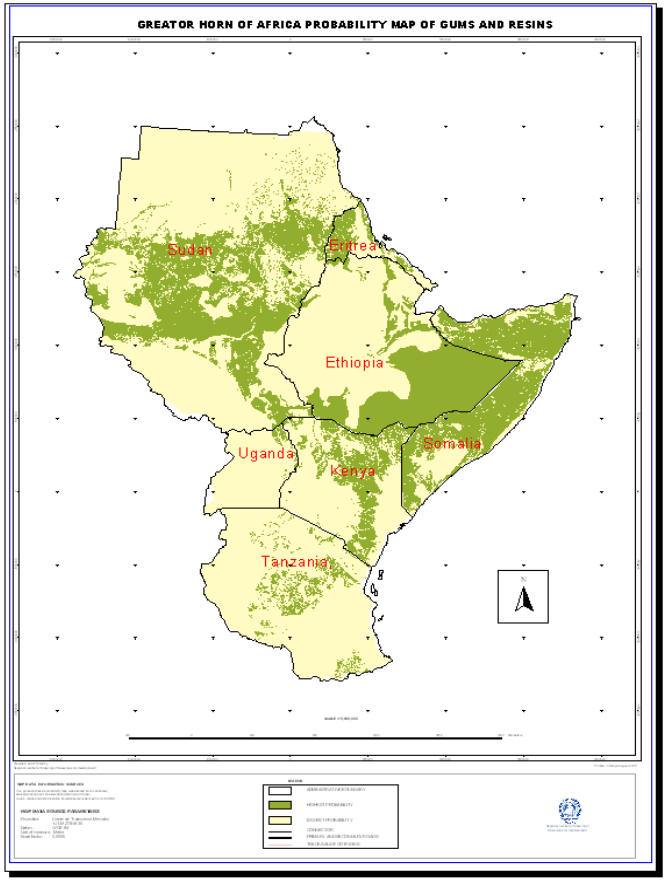
CREST Web Access (Daily CREST Map Books)

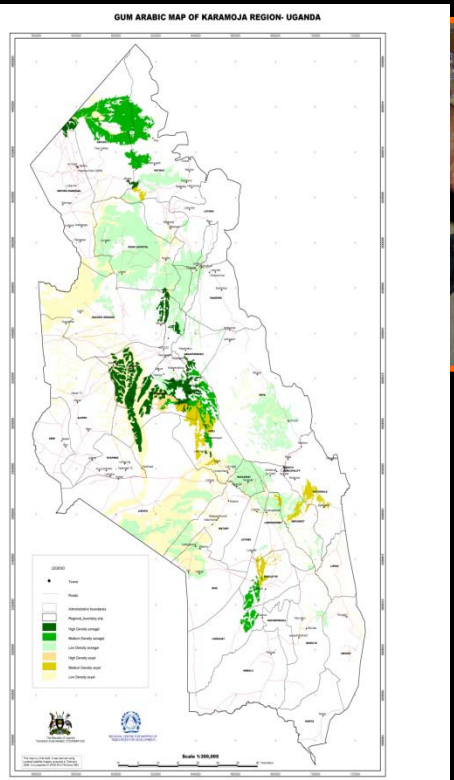
- http://41.206.34.124/crestmaps/
- These map books are available for free download

UNOSAT/IGAD/RCMRD Initiative on DRR & Emergency Preparedness

- Capacity Building in Geo-Information
- Testing of New Technologies
  - UAV
  - Livestock Tagging
- Developing Alternative Livelihoods
- Crowdsourcing & Mapping
  - Geo Tagging
- Satellite Disaster Charter Engagement

Alternative Livelihoods





Disaster Related Space Activities at the RCMRD

Earliest Activities at the RCMRD

Regional Centre for Mapping of Resources for Development

Time	Activity
1988 - 1993	Qualitative analysis of CCD for food security assessment In the IGAD countries. Funded by the Japanese Govt. through FAO in the project GCPS/RAF/231/PJN.
1996 - 1997	Qualitative analysis of CCD and NDVI in the IGAD countries and Rwanda and Burundi. Funded by the French Govt. through FAO in the project GCP/RAF/310/FRA
1995 - 2000	Qualitative end of season crop yield forecasting and environmental analysis in the IGAD countries using ET data derived from Meteosat satellite. Co-executed by RCMRD and EARS and funded by the Dutch Govt. In the REFEWS Project.

RCMRD Activities on DRR

- **Food Security and environmental monitoring**
(USGS/Fewsnet, ICPAC, DLCO, WFP, ILRI, LEWIS, GMFS)

- **DRASTIC Modeling, CREST Modeling, Flood Modeling and Prediction**
(USGS, NASA, EU)

- **Disease Modeling and Prediction**
  – Rift Valley Fever (WRI, AU-IBAR, UoN, USGS)
  - Mapping of HIV/AIDS on the Mombasa – Kampala highway (Manitoba University, UoN)

- **Land Suitability, Land degradation mapping and monitoring**
  - Deforestation (Mau Forest)
  - Land use / Land cover change (Kordofan Region, South Sudan)
  - Uganda

- **Capacity building**
  - Training in the use of modern Geo-information technologies in early warning & food security, disease mapping, land degradation, disaster risk management

- **Monitoring urban sprawl & Camp Mapping** (Informal settlements)

- **Policy Development for Space Applications**

Conclusion

For space technology usage to become operational in resource mapping and assessment and in environmental mapping and disaster management:

- there is need for aggressive and sustained awareness creation among decision makers
- Increasing Capacity at a national level
- Development of a variety of space technology applications
- Research, Development & innovation in space technology applications
- Support of National and Regional Initiatives

REGIONAL CENTRE FOR MAPPING OF RESOURCES FOR DEVELOPMENT

RCMRD

RCMRD

VISION — To be a premier Centre of Excellence in provision of Geo-information services

MISSION — To promote sustainable development through generation, application and dissemination of Geo-information and allied ICT services and products in the Member States and beyond

SERVICES — Geographic Information Systems | Surveying & Mapping | Capacity Building: IT, GIS, RS, GPS etc. Remote Sensing | Repair of Surveying Equipment

APPLICATION — Disaster Management | Health | Energy | Climate Geology | Agriculture Ecosystems | Biodiversity Water

Botswana Burundi Comoros Ethiopia Kenya Lesotho Malawi Mauritius Namibia Rwanda Seychelles Somalia South Africa South Sudan Sudan Swaziland Tanzania Uganda Zambia

RCMRD Roles:

- Promote Awareness of Sat-tech & Applications
- Project Implementation & Building Capacity
- Formulation of spatial policies and data infrastructure
- Creation of national and regional partnerships

END

Regional Centre for Mapping of Resources for Development (RCMRD)

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SCENARIO ANALYSIS

You have 5 seconds to interprete the following scene

You have 3 seconds to interprete the following scene