IRI Map Rooms for Disaster Monitoring

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Outline

- About IRI
- The IRI Data Library
- IRI Map rooms for monitoring
  - Desert Locust
  - Health
  - Forest fire
- Capacity **building** for improved climate data

About IRI: iri.columbia.edu

Topics:

50%

Climate

Environmental Monitoring

50%

- Agriculture / Food Security
- Health
- Water Resources
- Natural Ecosystems
- Disasters / Livelihoods

Mission

Enhance society's capability to **understand, anticipate and manage the impacts of climate** in order to improve human welfare and the environment, especially in developing countries

Regions

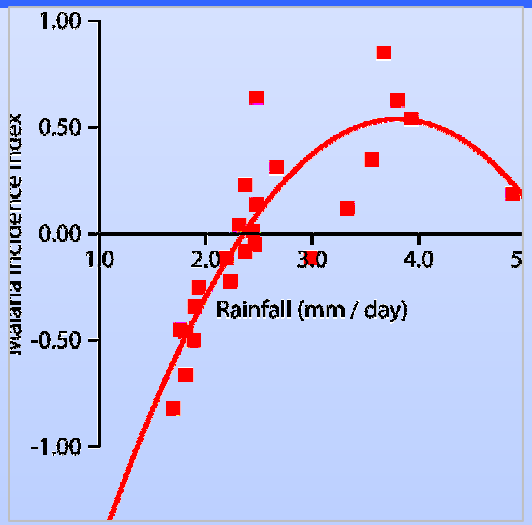
Africa

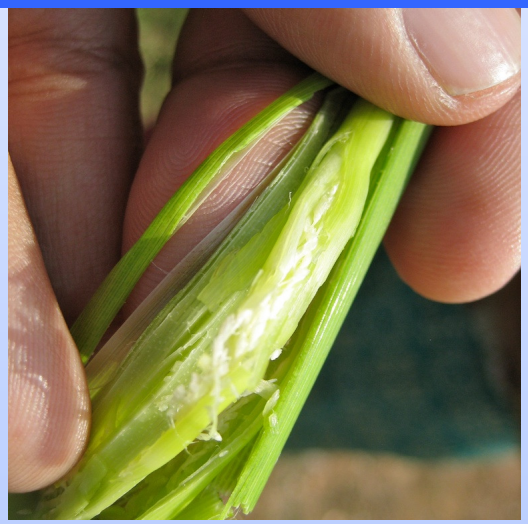
Asia / Pacific

Latin America / Caribbean

About IRI: Objectives

Innovate.





Demonstrate.

Reach out.

Train/Educate.

The IRI Data Library: iridl.ldeo.columbia.edu

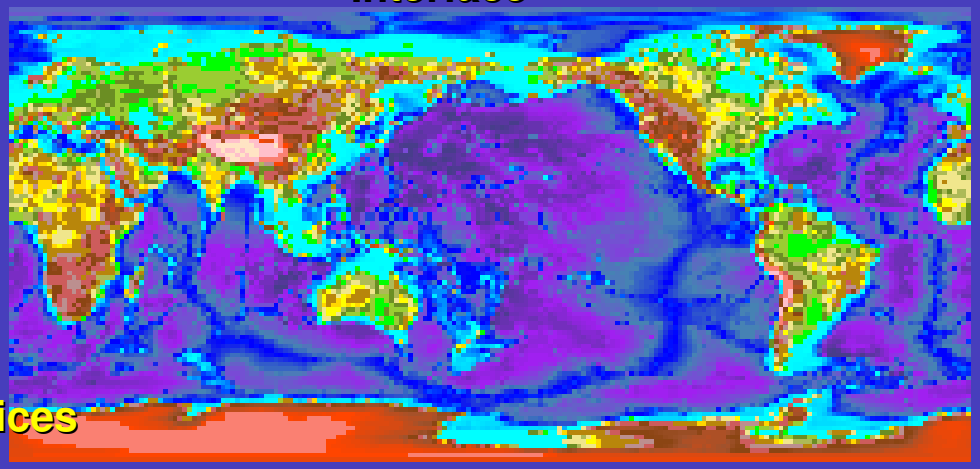
Making Data Accessible for Climate Applications

Over 300 datasets providing a thorough image of Earth's past, present, and near-future climate

Air-Sea Interface

Historical Model Simulations

Topographic and Land Characteristics



Hydrology

Atmosphere

Atmospheric Indices

Radiation Budget

Oceanography

Seasonal Forecasts

File Edit View Go Bookmarks Tools Help

http://iridl.ldeo.columbia.edu/

Red Hat Network | Training | Support | Software | Hardware | Developers | Embedded | Search | Documentation | Downloads

Data Library

expert

Finding Datasets

By Category

By Source

By Search

Help Resources

Tutorial

Questions and Answers

help@iri

IRI/LDEO Climate Data Library

The IRI/LDEO Climate Data Library contains over 300 datasets from a variety of earth science disciplines and climate-related topics. It is a powerful tool that offers the following capabilities at no cost to the user:

- access any number of datasets;
- create analyses of data ranging from simple averaging to more advanced EOF analyses;
- monitor present climate conditions with maps and analyses in the Maproom;
- create visual representations of data, including animations;
- download data in a variety of commonly-used formats, including GIS-compatible formats.

Are you new to the world of climate data? Check out our Introduction to Climate Data page.

What's New

Mar 08 - Shapes for climate zones in Sri Lanka have been added as a new Features data set

Mar 08 - A new "International Federation" Map Room has been added to the IRI Map Rooms and is accessible from the Map Room front page. It contains a forecast precipitation map tool developed in collaboration with the International Federation of Red Cross and Red Crescent Societies that features analyses to provide context for global precipitation forecasts.

Mar 08 - A new "linked pdf" image option has been added to the Figure Viewer pages of the Data Library. Clicking on the "linked pdf" button will produce a clickable PDF version of the image you are viewing that links back to the Figure Viewer page for the image in the Data Library. The following link provides an example: February 2008 SSTA

Feb 08 - A k-means cluster analysis named k-means136 has been added to the Data Library as a new function

Finding Data

Datasets by Category

Datasets by Source

Dataset Search

Browse/Search Datasets

Browse/Search Maproom

Help Resources

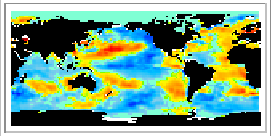
Introductory Tutorial

Statistical Analysis Tutorial

Ingrid Function Documentation

Questions and Answers

Monitoring Global Climate



Map Room

A collection of maps and analyses used to monitor climate conditions. Click on any of the maps to modify the figures or access the source data.

Climate Information Digest

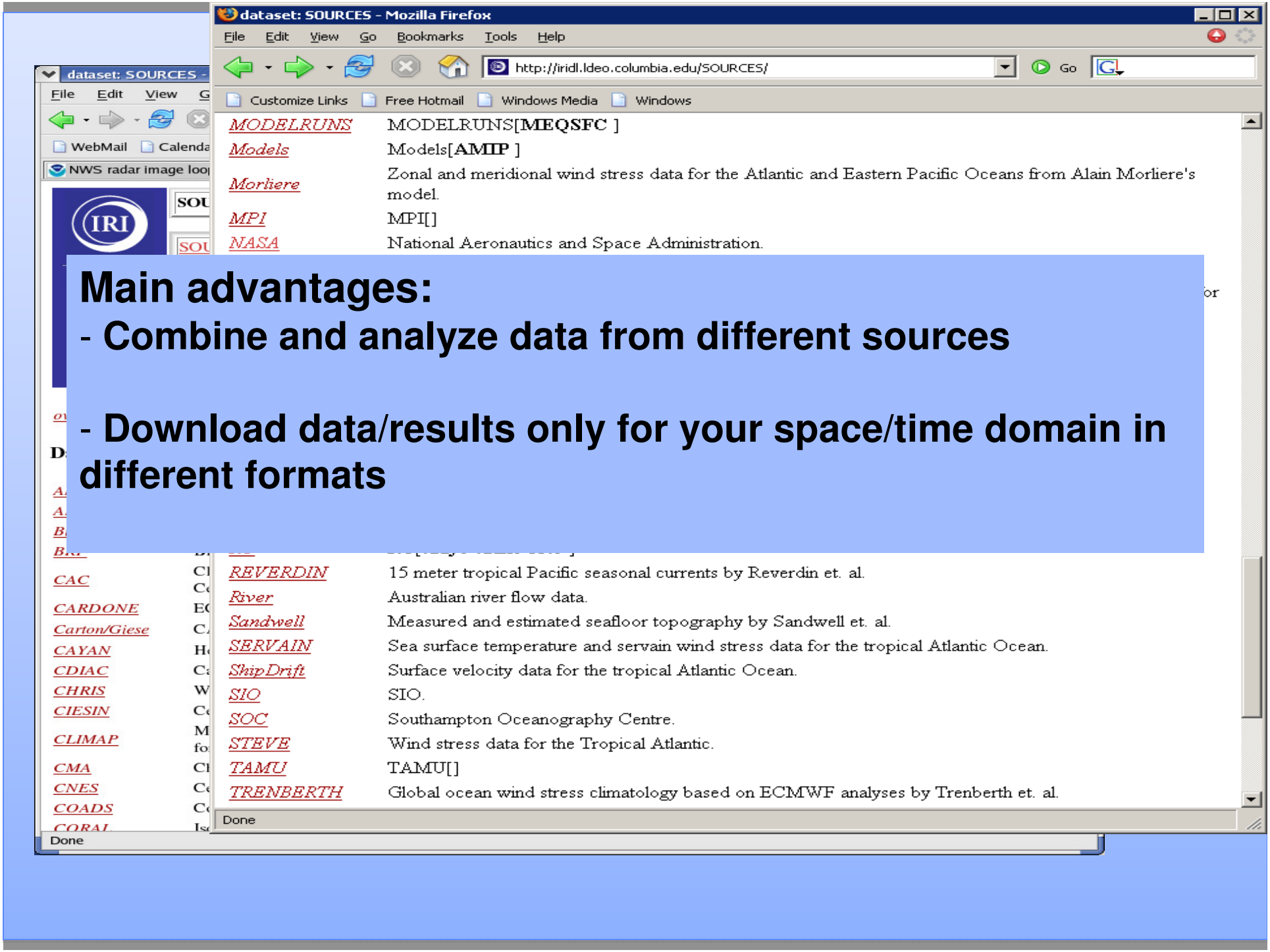
A monthly publication covering global climate events, their impacts and the seasonal forecast.

ENSO Web

Information about El Niño-Southern Oscillation.

Climate Highlights

Done



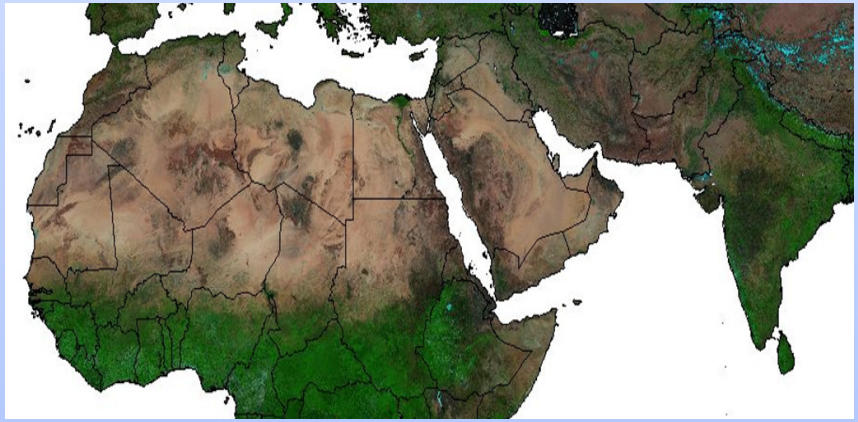
Main advantages:

- Combine and analyze data from different sources

- Download data/results only for your space/time domain in different formats

Map Room1: Desert Locust Monitoring

If not destroyed early, Desert Locust can damage crops and cause famine across multiple countries

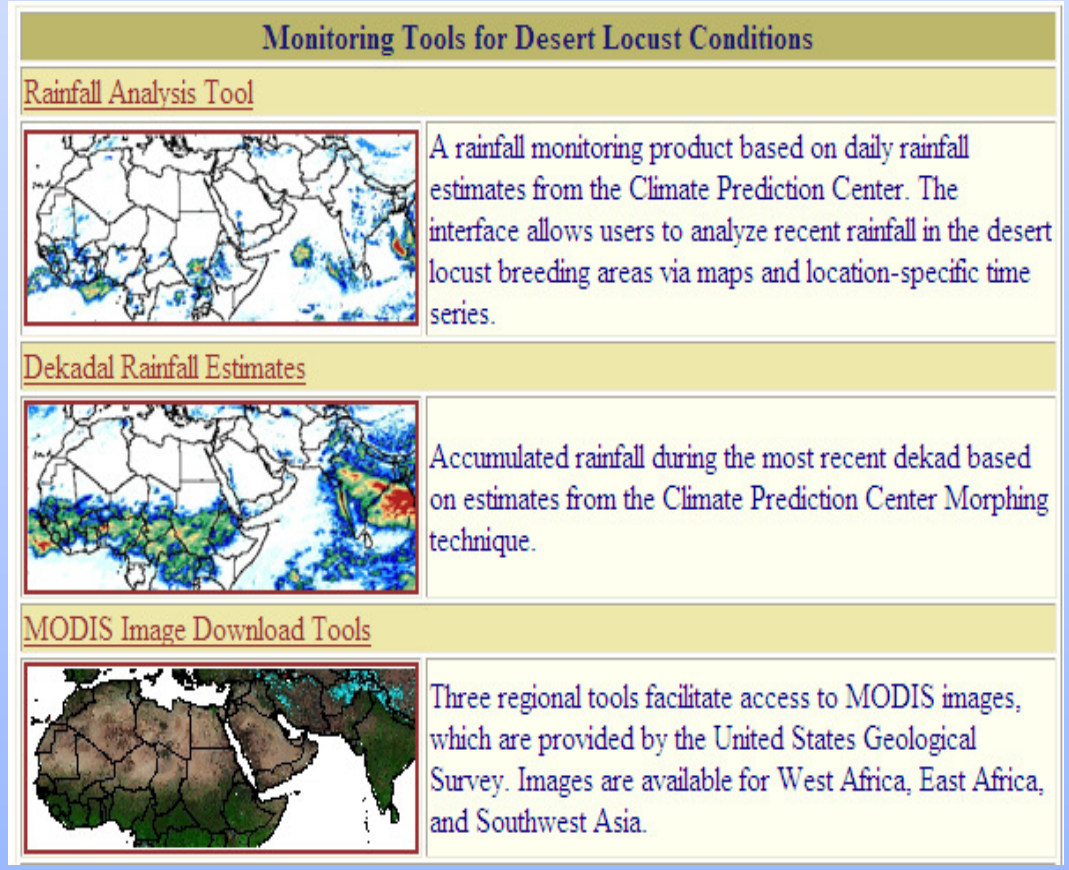


Monitoring rainfall and vegetation in desert areas is required

Map Room1: Desert Locust Monitoring

At the request of the UN FAO, a web-based tool was created to support Desert Locust management and control

- *Eliminates NDVI-based error for identification of locust habitat*
- *Adds daily and 10-day CMORPH rainfall estimates for identification of potential breeding areas*



Michael Bell, Benno Blumenthal

Map Room1: Desert Locust Monitoring

Food and Agriculture Organization of the United Nations — *Helping to build a world without hunger*

Locust watch

Locust and Other Migratory Pests Group

Sear

français

Information | Mapper | Activities | Publications | Archives

- *Information*
  - Latest additions
  - News/Events
  - Links
  - Locust FAQs
- EMPRES
- Emergency operations

Situation update 3 March 2008

Locust swarms move from Oman through Yemen, Saudi Arabia and UAE to Iran

A few small immature swarms from southern and central **Oman** moved during the second half of February north to the Jabal Akhdar mountains in Dhahira and Dakhiliya regions. Other swarms moved to eastern **Yemen** and then crossed the Empty Quarter to farms in eastern **Saudi Arabia** and southern **UAE**. Most of the swarms continued to the Musandam Peninsula, passing over Abu Dhabi and Dubai. At least one swarm crossed the Strait of Hormoz on 20 February to the southern coast of **Iran** where it settled near Minab and laid eggs. Control operations were carried out in **Oman**, **Saudi Arabia** and **Iran**.

Remnants of the swarms in **Oman** and **Saudi Arabia** could lay eggs in or near agricultural areas. Eggs that have already been laid in **Iran** will hatch in about a week and small hopper bands are likely to form. Control operations should be carried out to prevent new swarms from forming later in the spring.

All countries in the Region should remain alert and take the necessary steps to monitor the situation carefully and undertake control operations as needed.

In the Horn of Africa, small immature Desert Locust swarms are still present in southern **Ethiopia**. Survey and control operations are hampered by the mountainous and rugged terrain. Most of the swarms are expected to move to the Ogaden region in eastern **Ethiopia** and lay eggs when the long rains start later this month or in April. A few swarms could also move to northern **Somalia** and perhaps to the southern coast of the Red Sea in **Eritrea**.

In **Sudan**, locust populations continue to decline on the Red Sea coast in the **Tokar Delta**.

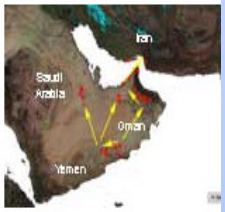
Latest Desert Locust Bulletin (No. 353, February 2008)

Arabic English Français

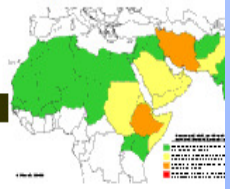
Previous Desert Locust Bulletin (No. 352, January 2008)

Arabic English Français

situation THREAT



Swarms moved from southern and central Oma through Yemen, Saudi Ara and UAE to southern Iran late February (click for lar view)



The current risk level (clic for larger map)

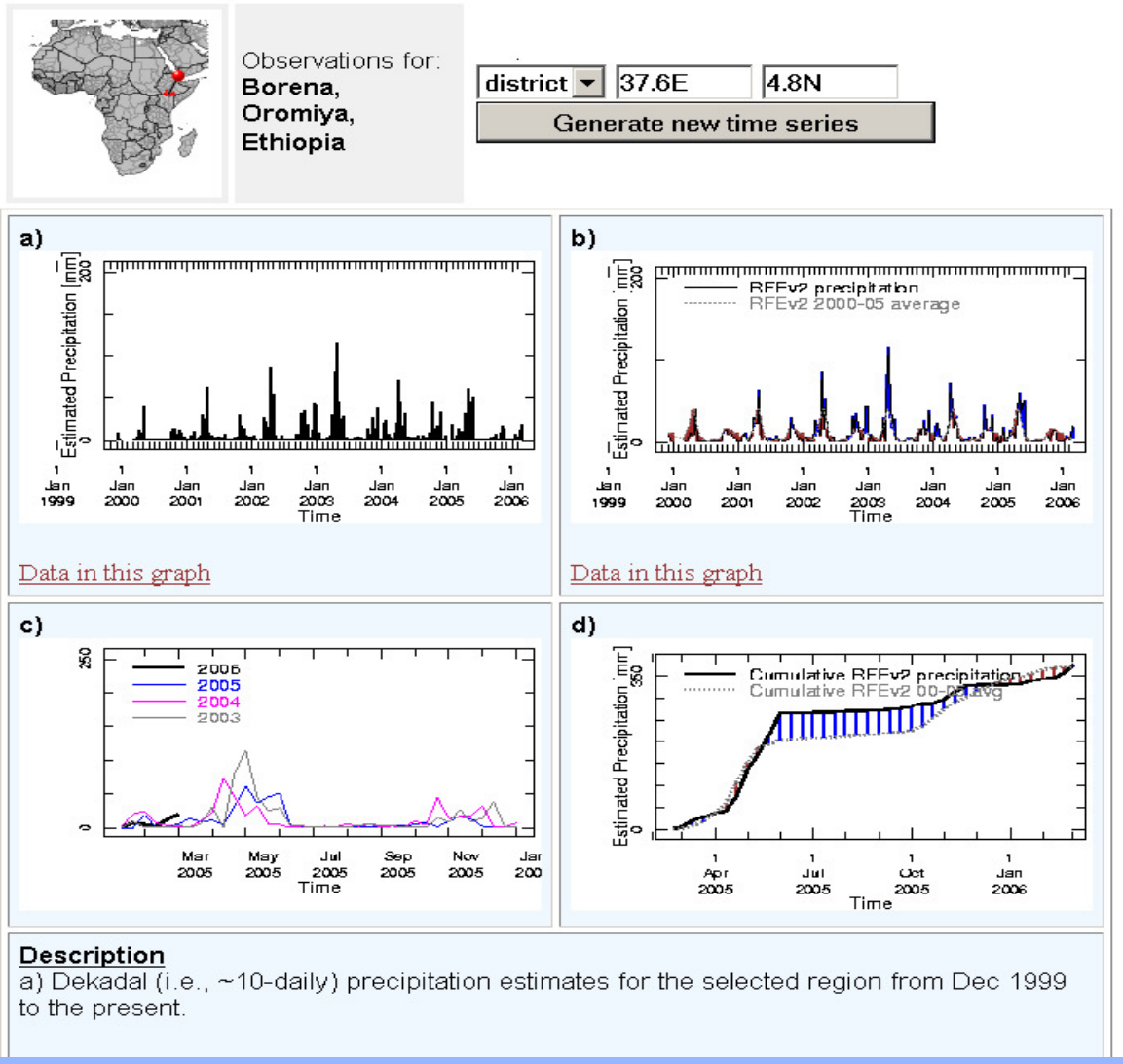
Map Room2: Health

MODIS images: composite and NDVI are now available through IRI Health Maproom

Ministry of Health in Eritrea follows NDVI indices on regular basis and provides warnings to the sub-districts

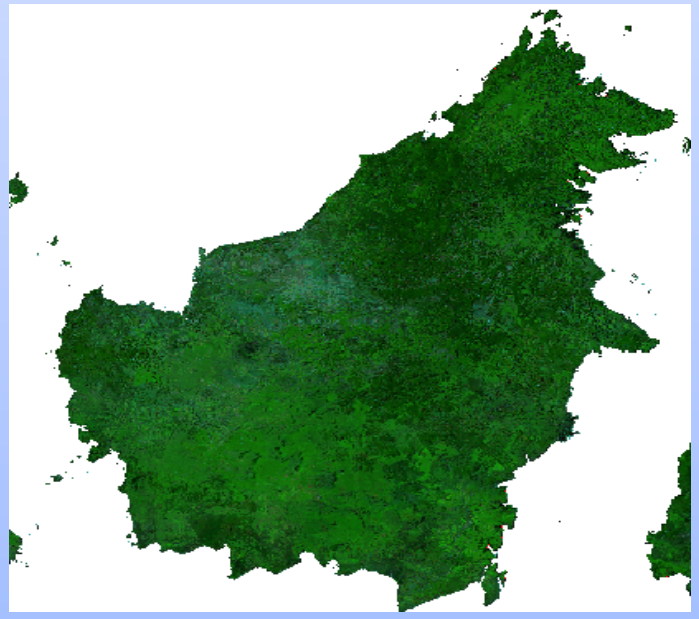
Map Room2: Health

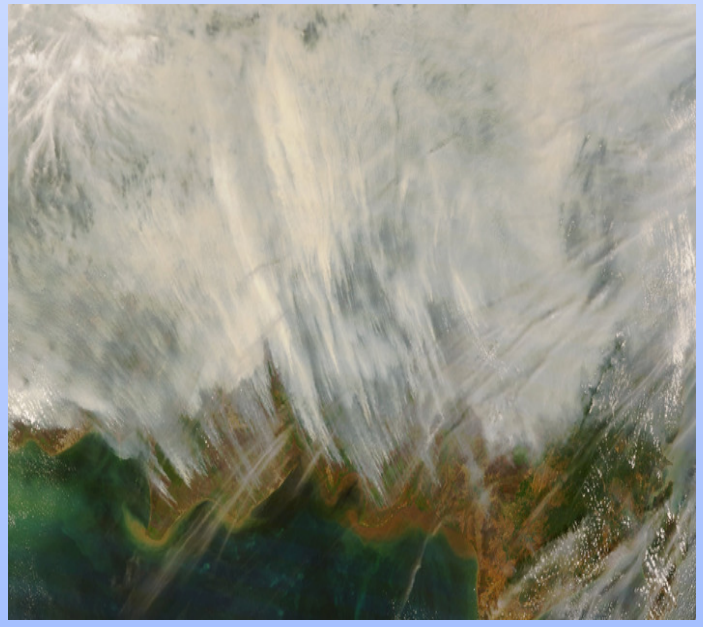
Extracting Information



Map Room3: Forest Fire

Fires in Kalimantan release CO_2 and smoke creating human health respiratory and air traffic problems



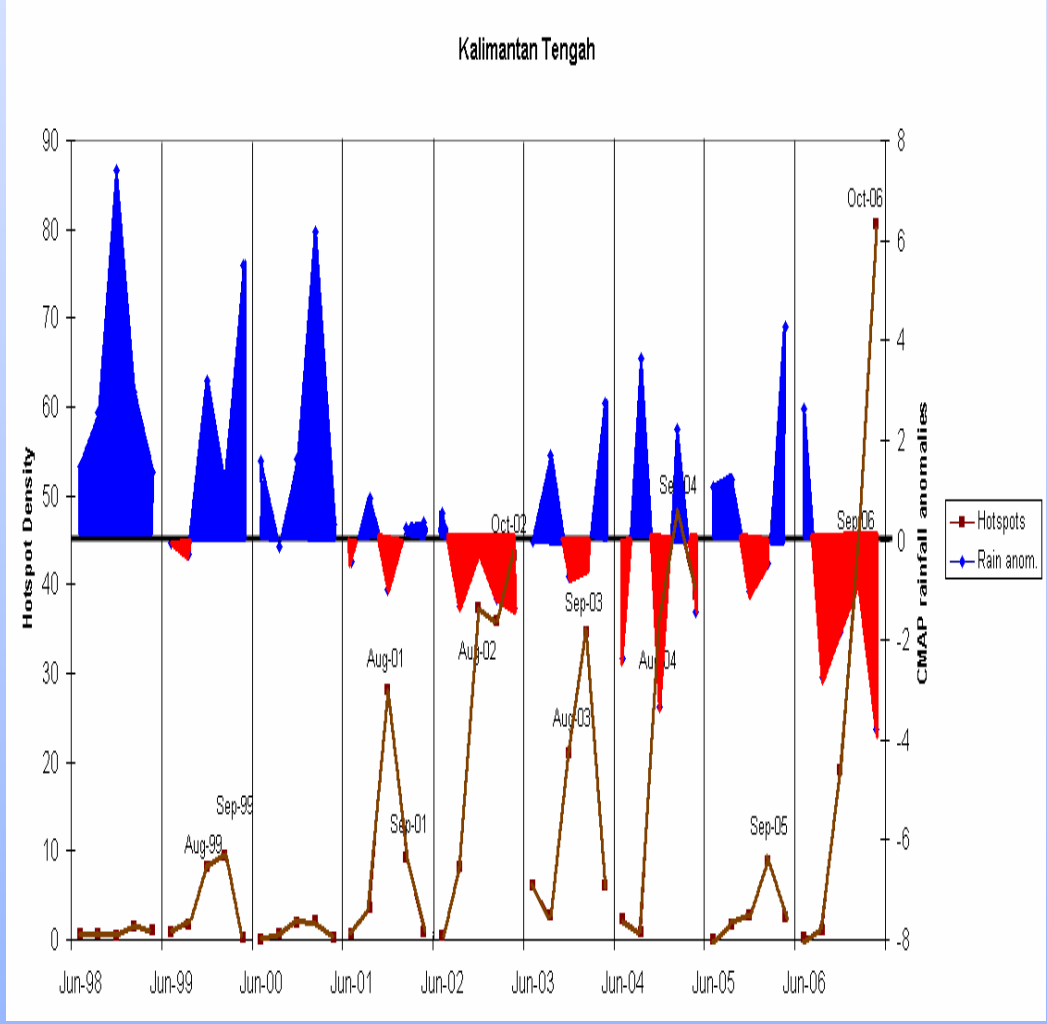


CARE Indonesia funded IRI to create Early Warning and Early Action Systems to manage Fires in peatland areas

Map Room3: Forest Fire

Studied rainfall impact on fire activity

Rainfall anomalies during June to October of each year influence the fire activity

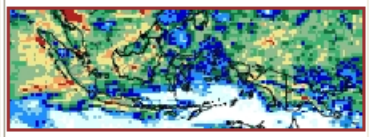


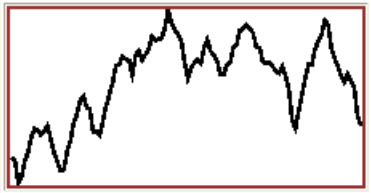
Map Room3: Forest Fire

Climate and Fire Resource Room

Working with researchers at Bogor Agricultural University in Indonesia and CARE Indonesia, IRI has investigated links between climate anomalies, biophysical indicators, and fire hotspots in Kalimantan. Project research has uncovered a close correlation between satellite rainfall data and fire hotspot activity. Rainfall during the dry season from June to October is particularly critical in determining fire activity.

IRI has developed an online tool to enable stakeholders to view satellite rainfall data and rainfall anomalies over Central Kalimantan, which are in turn linked to fire activity. An exploratory prediction tool based on the NINO 4 index is then used to forecast, one to two months in advance, the likelihood of high or low fire activity. It is our intention to improve the forecasting method and increase the content of the resource room by including analyses that focus on fire activity in other regions where the link between climate and fire activity has been demonstrated.

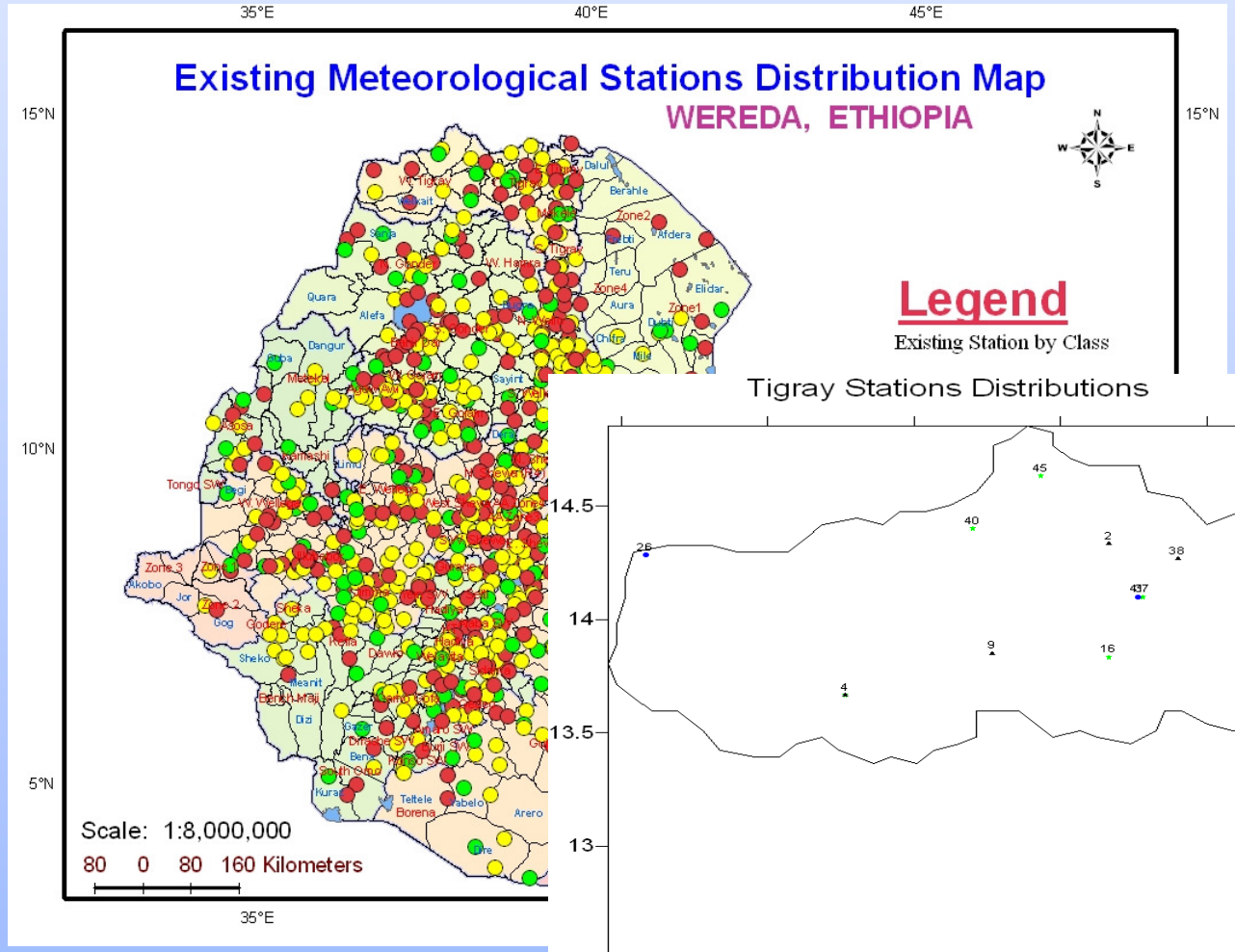
Rainfall Monitoring Tool	
Rainfall Analysis Tool	
	A rainfall monitoring product based on CMORPH data from the most recent dekad from the U.S. Climate Prediction Center. The interface allows users to analyze recent rainfall in Indonesia via maps and location-specific time series. Rainfall anomalies are correlated with fire activity in Kalimantan. Negative anomalies during June to October are associated with high fire activity.

Exploratory Predictive Tool for Fire Activity in Kalimantan	
NINO4	
	By monitoring the NINO 4 index from April to September it is possible to estimate the fire activity one to two months in advance in Kalimantan.

For any feedback or comments, please Contact Us

Building NMA's Capacity to Provide Improved Climate Information

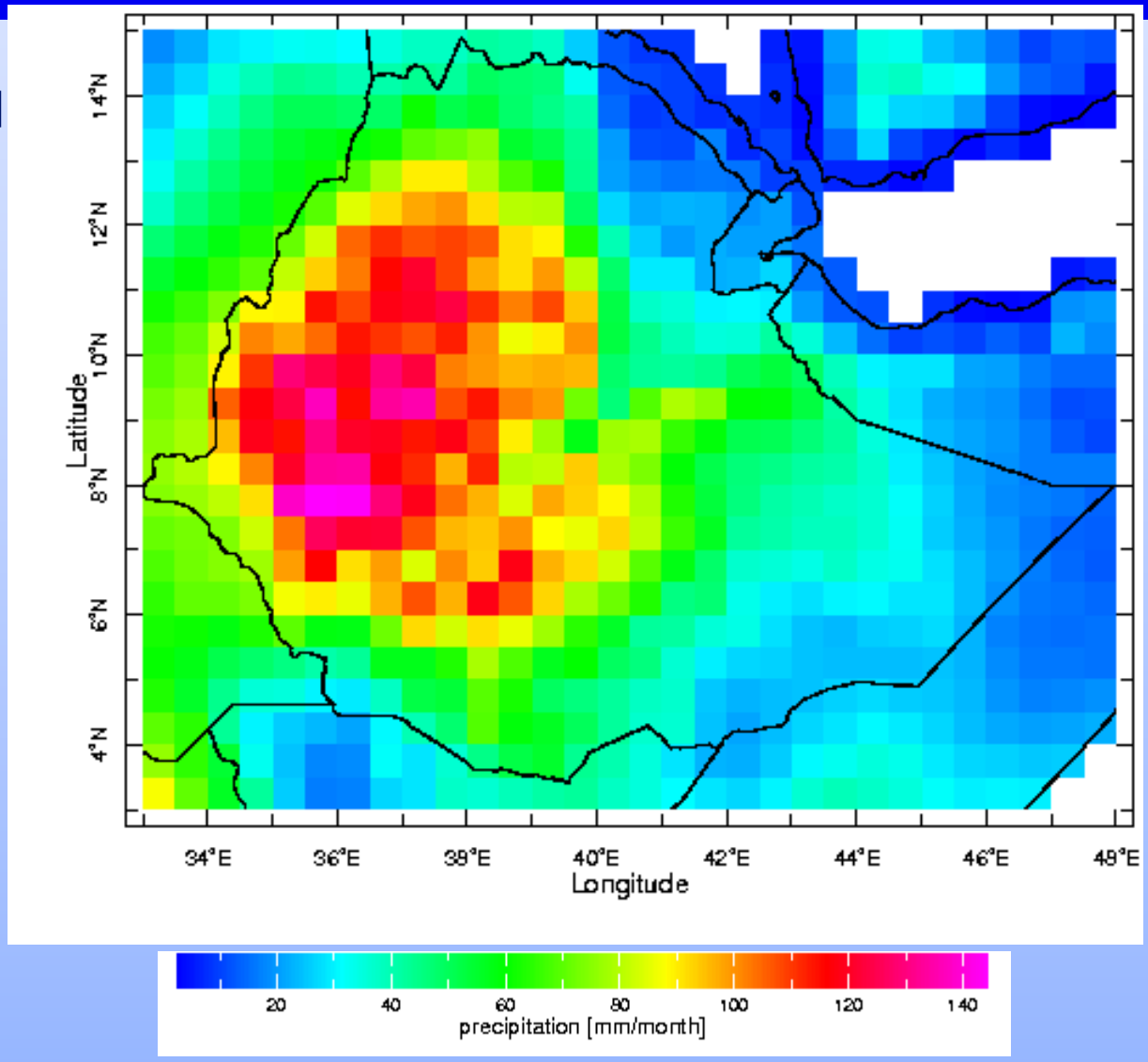
Data situation in Ethiopia



Source: NMA

To overcome data gaps …

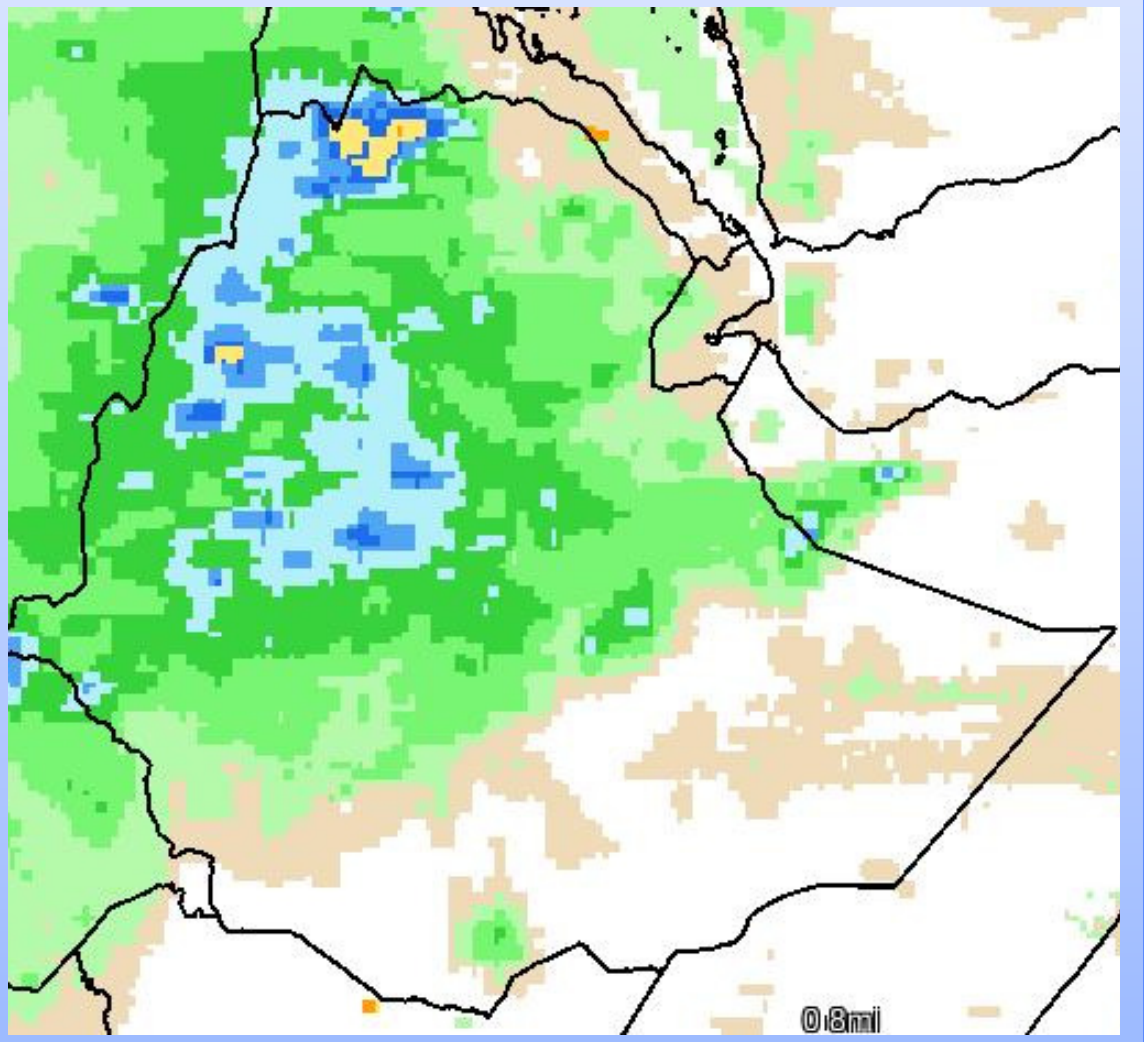
Gridded data could help, but its quality is limited by station distribution



To overcome data gaps …

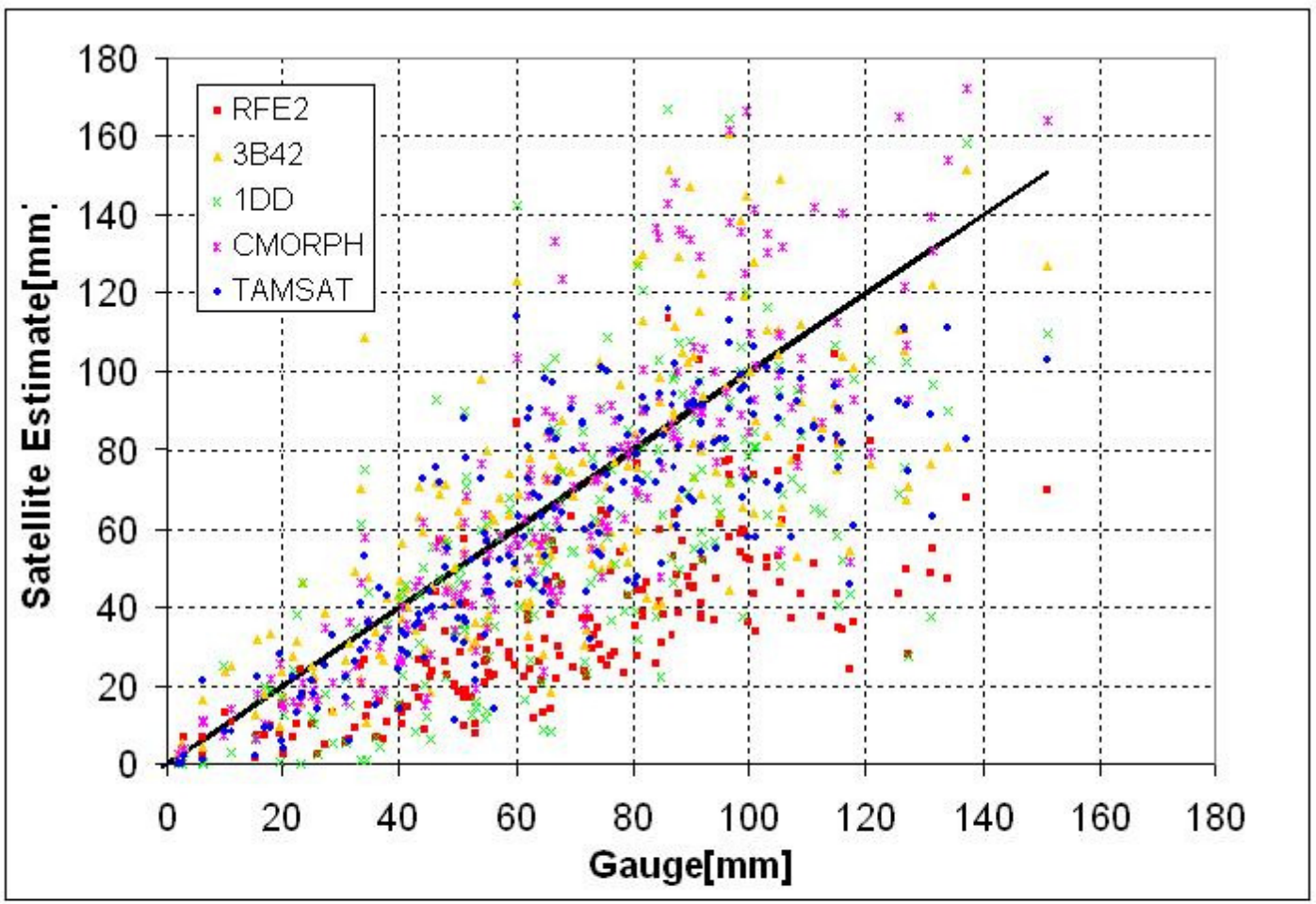
Satellite data have **excellent** spatial converge

But …

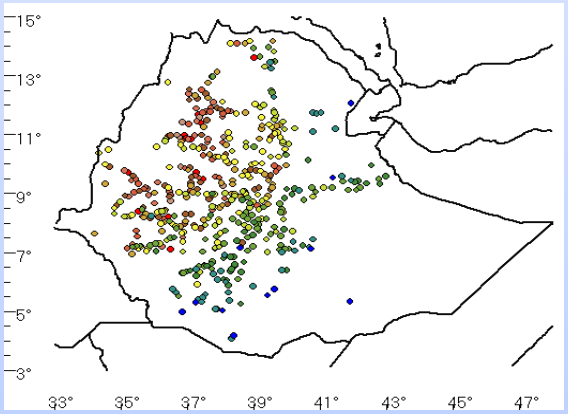


Accuracy of satellite rainfall estimates

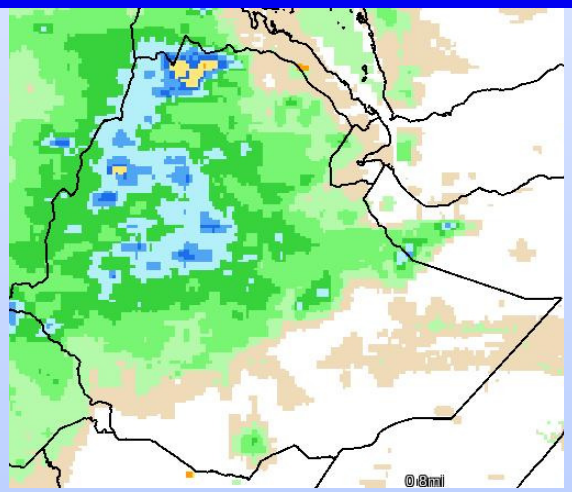
… there are problems with the accuracy



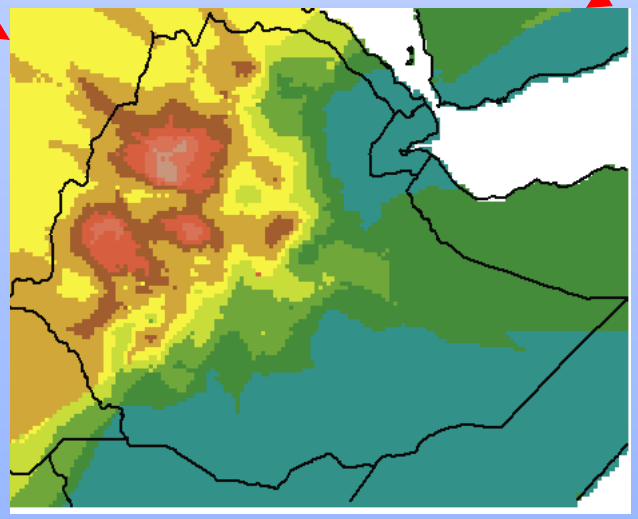
Blending Satellite Estimates with Observation



Observation



Satellite



Blended

IRI-NMA Project

***Output:* Ten-daily time series at 10 km resolution:**

- ***Thirty-year time series of Gridded RR/TTT***
- ***Thirty-year time series of Satellite estimates***
- ***Thirty-year time series of Blended products***

Beyond data

- *Online Climatology*
- *Digital Climate Atlas*

IRI-NMA Project

Capacity Built:

- Improved climate data/information
- Calibration and validation of satellite data
- QC and gridding of RR/TT data
- Merging satellite and station data

➔ NMA will continue generating the products and update the digital maps

Thank You