Climate Information for Public Health Action: from data to development

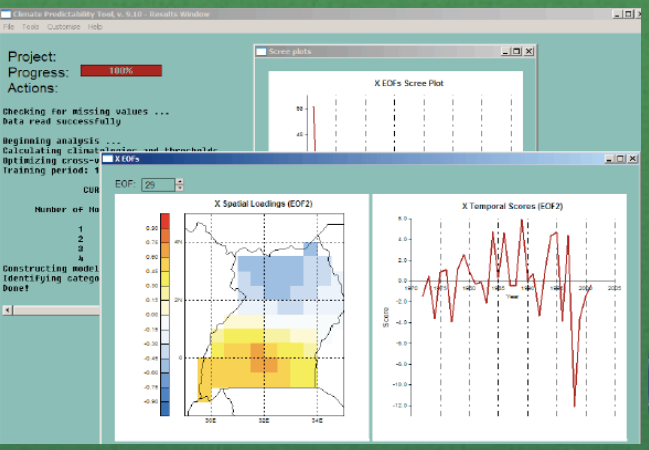
Extreme Weather, Climate, and Health: Putting Science into Practice

The Hubert H. Humphrey Building

Washington, D.C. January 30-31, 2011

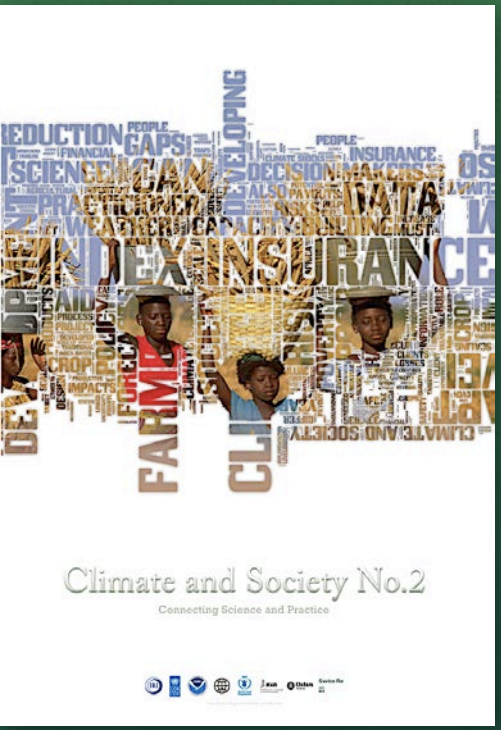
Madeleine C. Thomson,
International Research Institute for Climate and Society,
Columbia University, New York

PAHO/WHO Collaborating Centre on early warning systems for malaria and other climate sensitive diseases



Innovate

Demonstrate



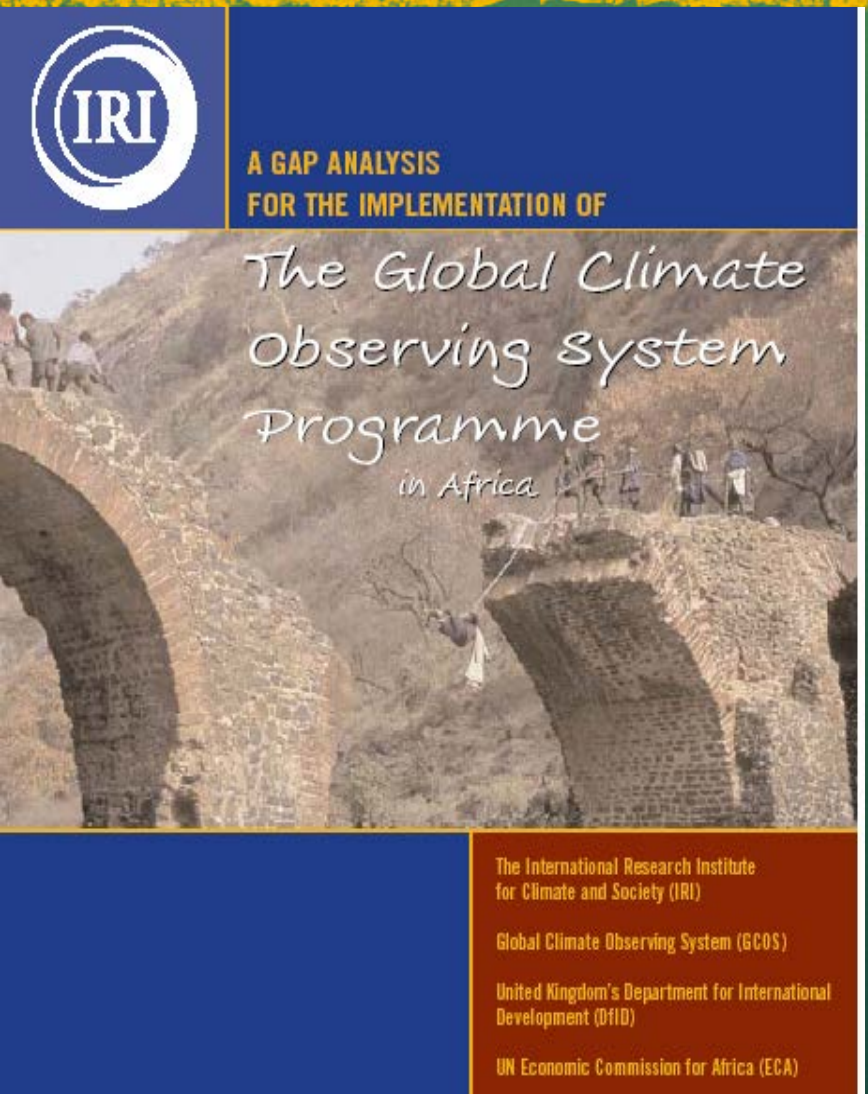
Advocate

IRI's mission

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

Educate

Why is Climate Information so rarely used in support of development interventions?



Gaps in:

- policy
- practice
- services
- data

Market atrophy - negligible demand coupled with inadequate supply of climate services

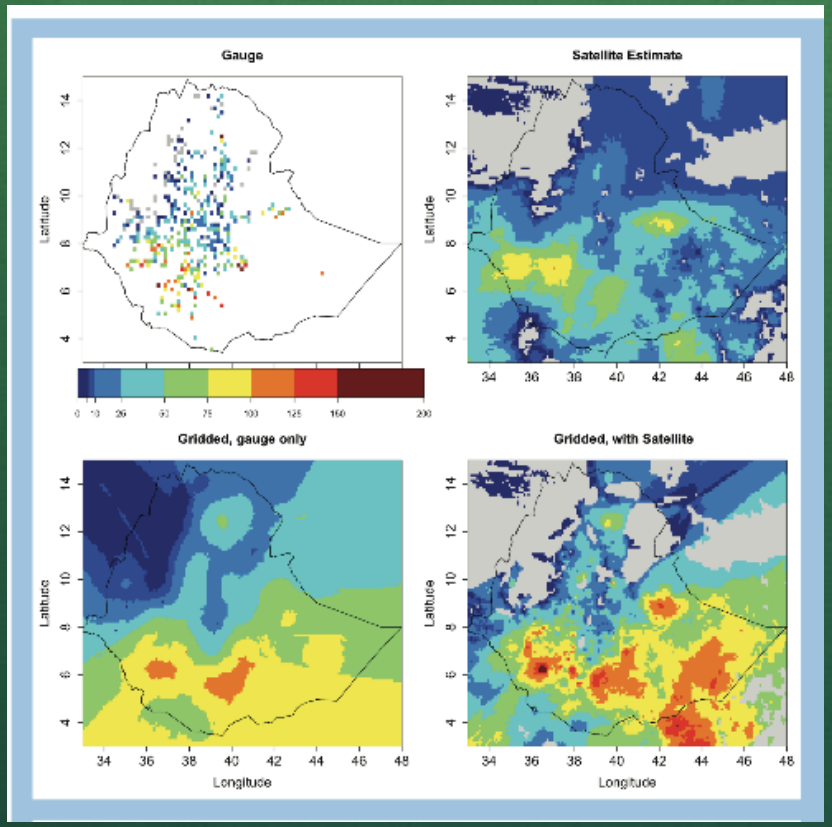
Overcoming the information gap in Africa

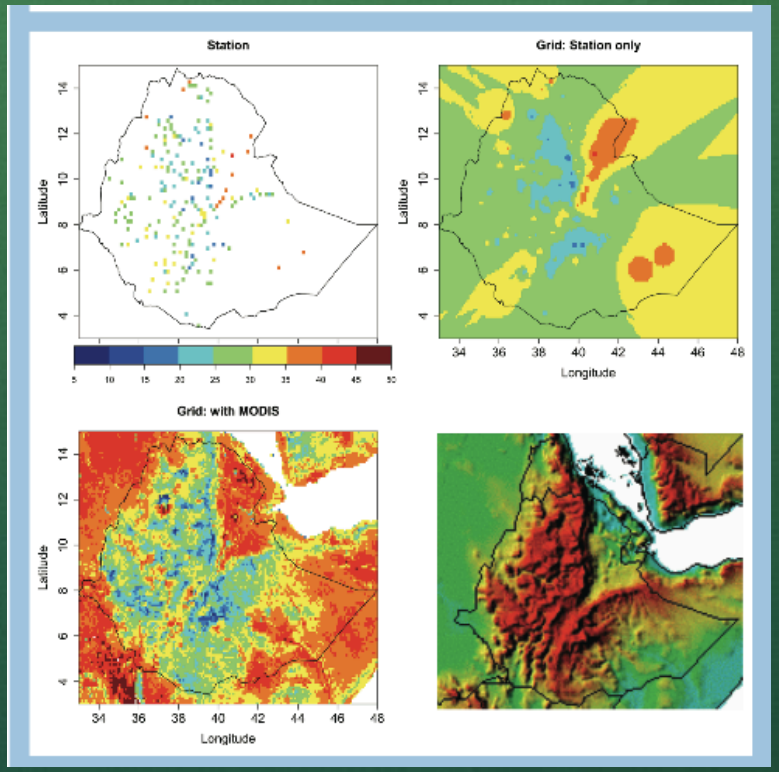
Improving availability, access and use of climate information

by Tufa Dinku[1], Kinfe Hilemariam[2], David Grimes[3], and Stephen Connor[4]

Bulletin World Meteorological Society 2011

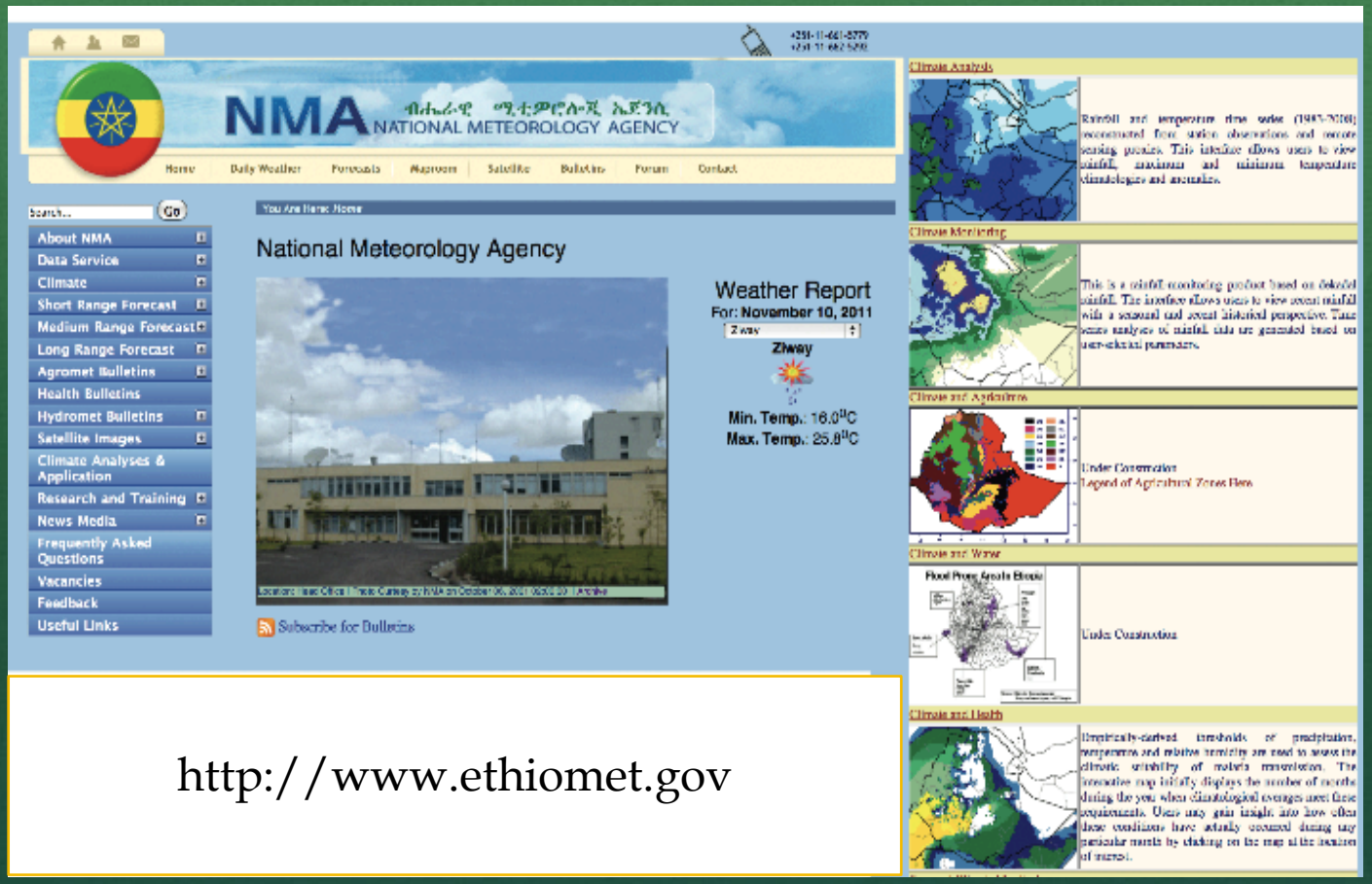
Enhanced National ClimaTe Services (ENACTS): Availability





Tufa Dinku[1], Kidane Asefa[2], Kinfe Hilemariam[2], David Grimes[3] and Stephen Connor[4]
Improving availability, access and use of climate information, Bull WMO 2011

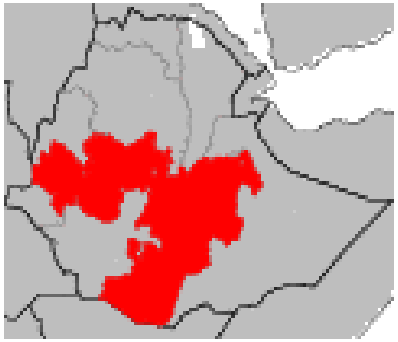
Disseminate to local and global users



http://www.ethiomet.gov

Improving availability, access and use of climate information. Dinku et al., 2011 World Meteorological Bulletin

Climate Analysis tool exploring ENACTS data for Oromia



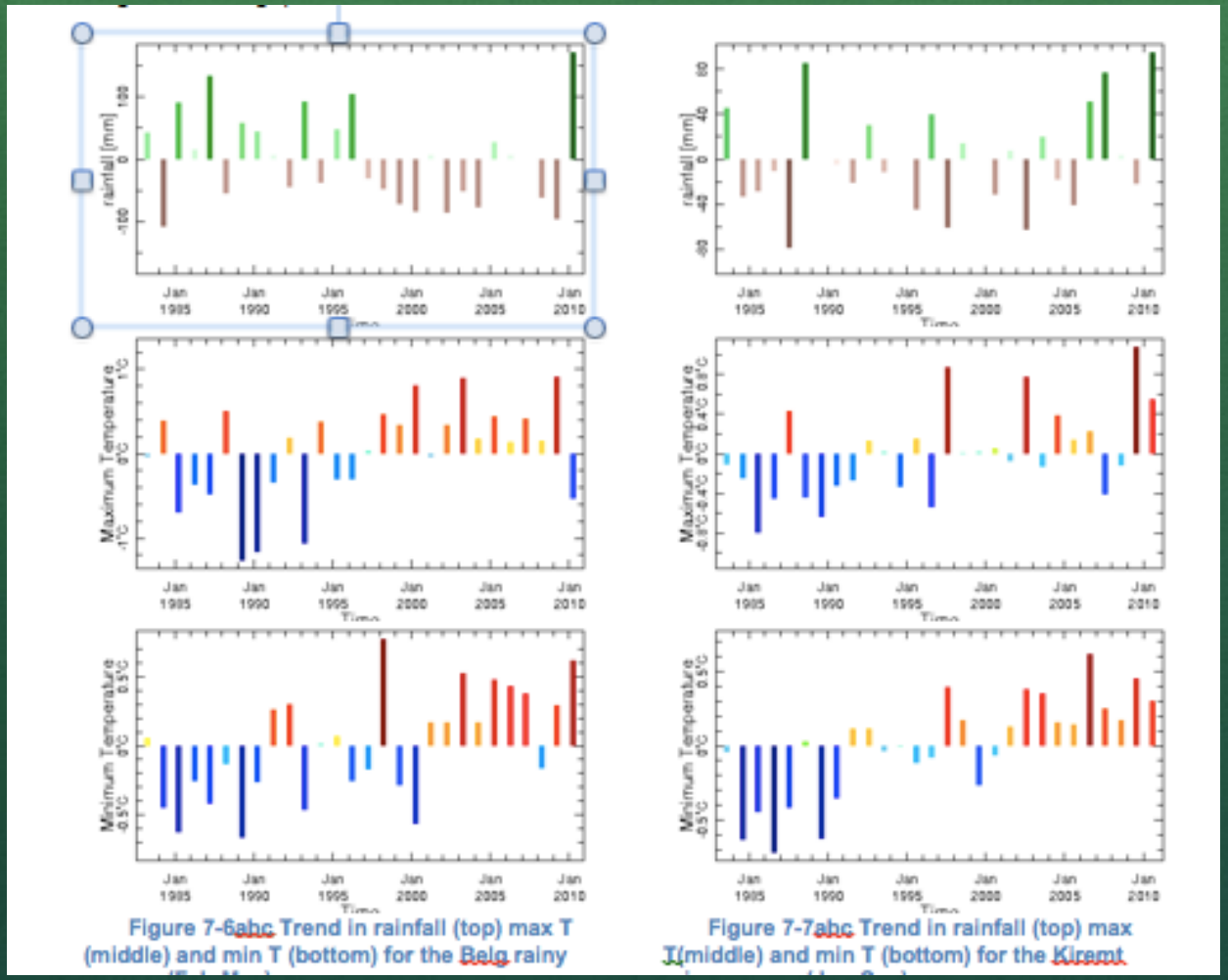
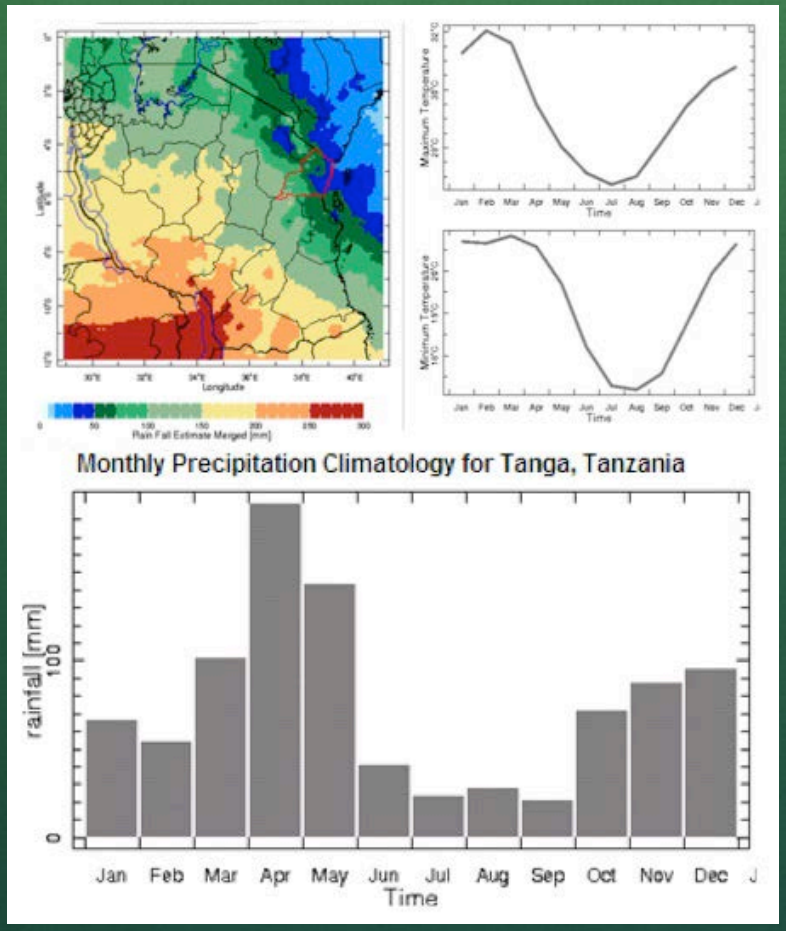
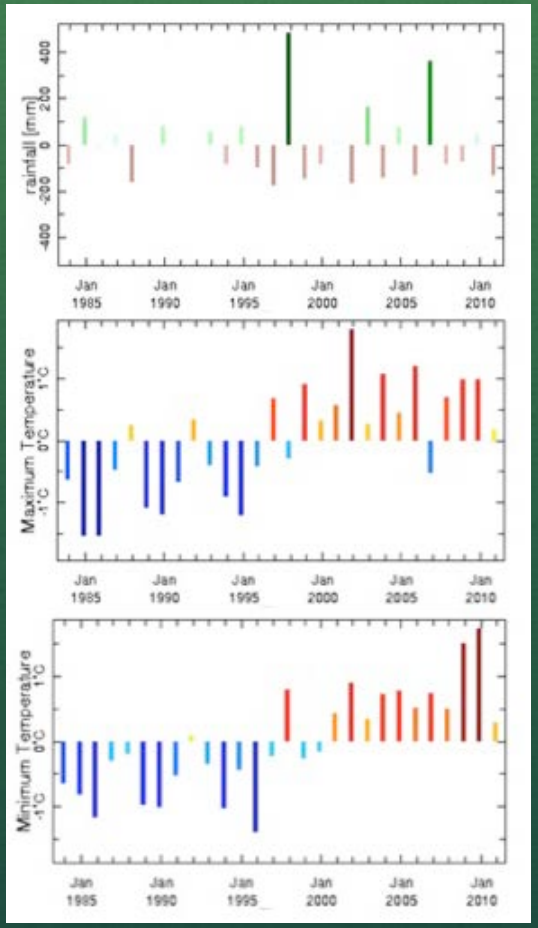


Figure 7-6abc Trend in rainfall (top) max T (middle) and min T (bottom) for the Belg rainy

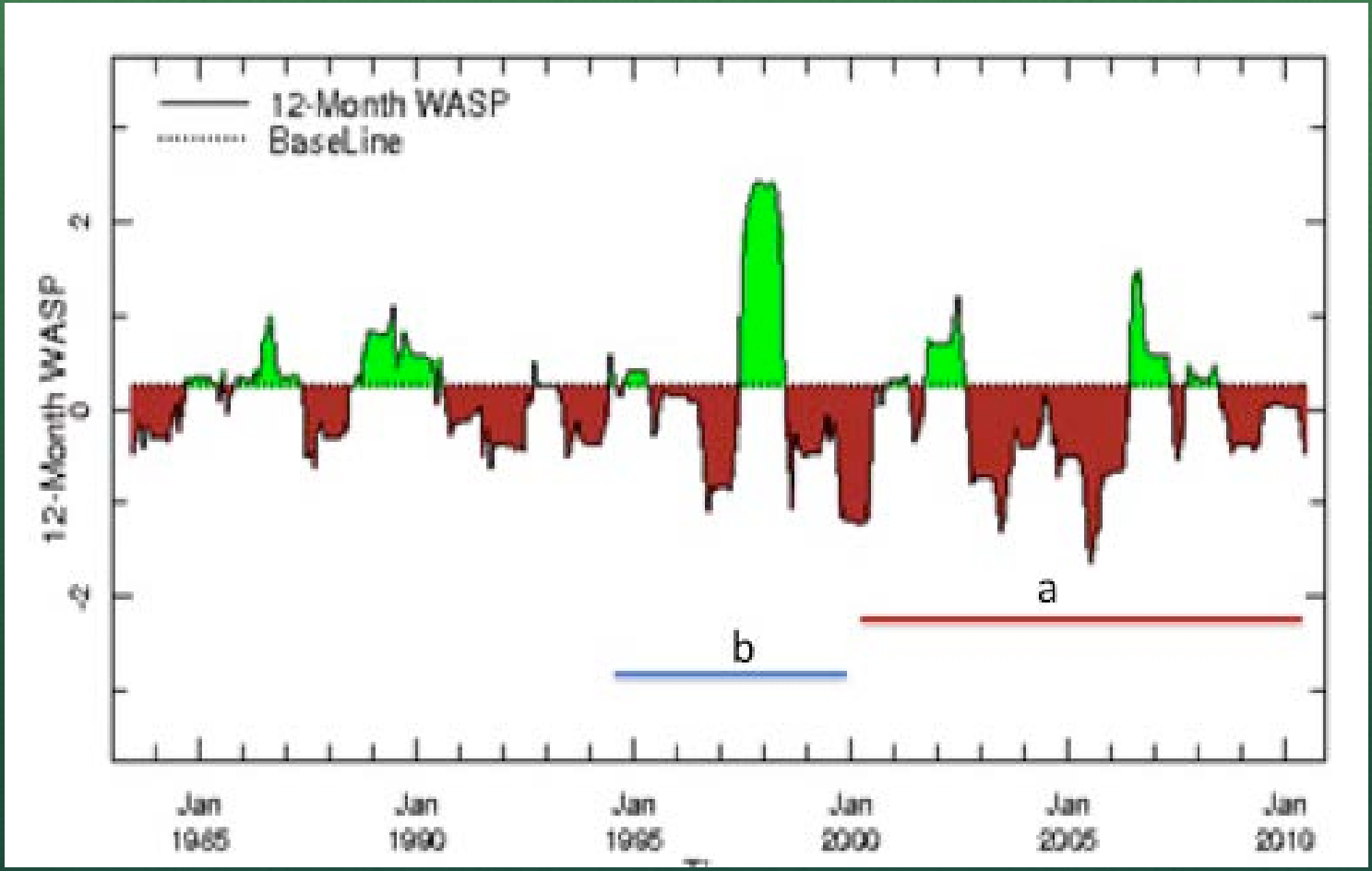
Figure 7-7abc Trend in rainfall (top) max T(middle) and min T (bottom) for the Kiremt

ENACTS Tanzania





Tanzania WASP Analysis for PMI



IRI/LDEO Climate Data Library - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://iridl.ldeo.columbia.edu/
Go
Red Hat Network Training Support Software Hardware Developers Embedded Search Documentation Downloads

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

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

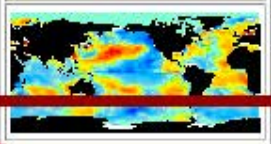
Finding Data

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

What is The IRI Data Library?

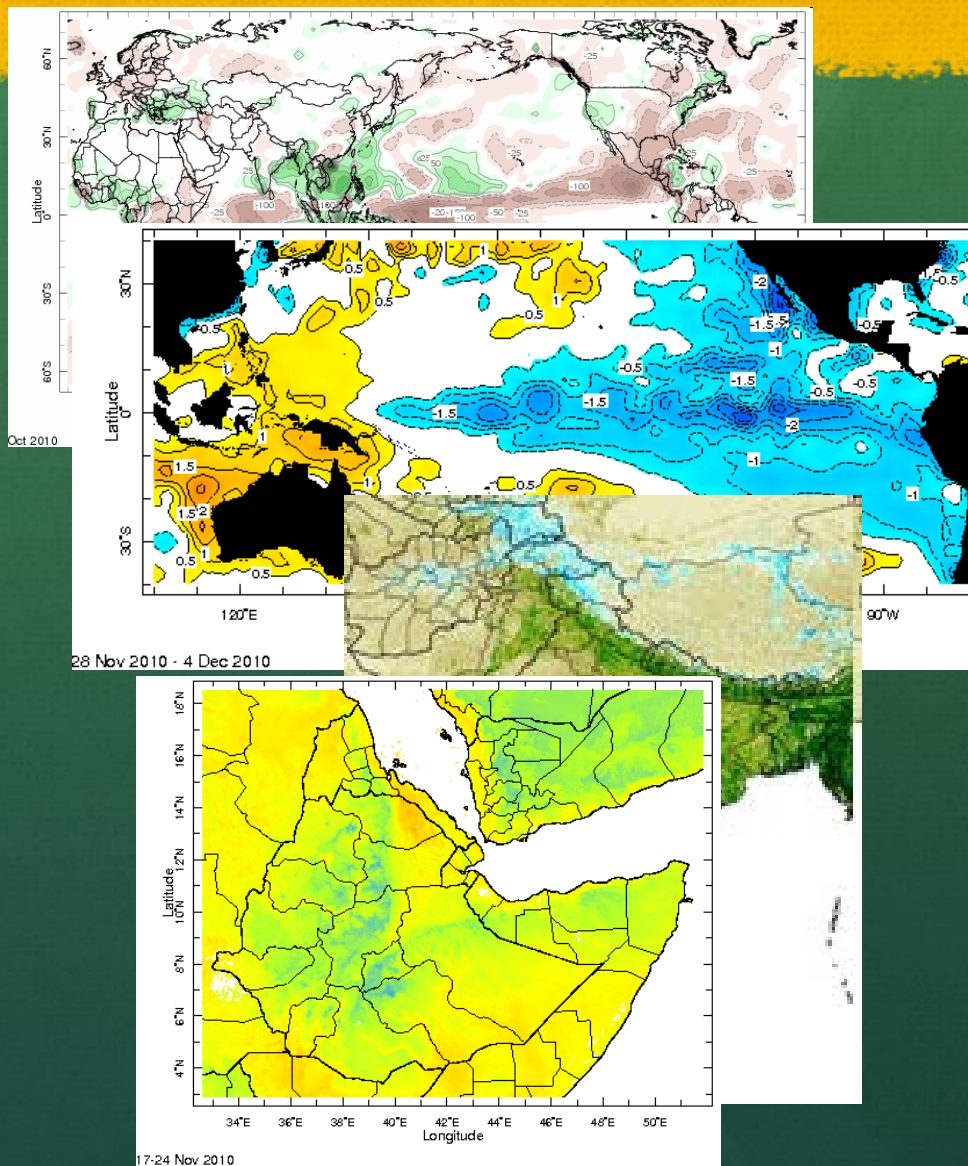
- Data repository
- Data analysis tool
- Data visualization tool
- Data download resource

Data Repository

The IRI Data Library is a powerful and freely accessible online data repository and analysis tool that allows a user to view, manipulate, and download over 400 publically available climate-related data sets.

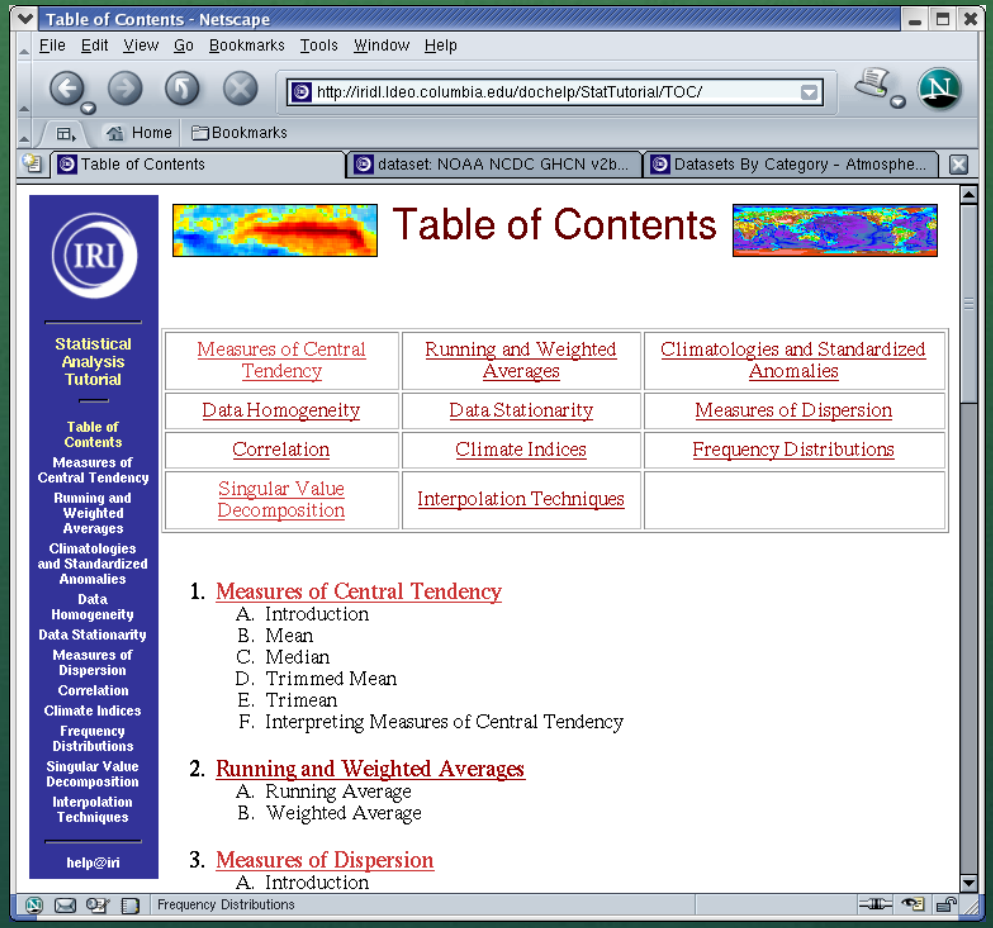
Many of the data sets are available in

'near real time'



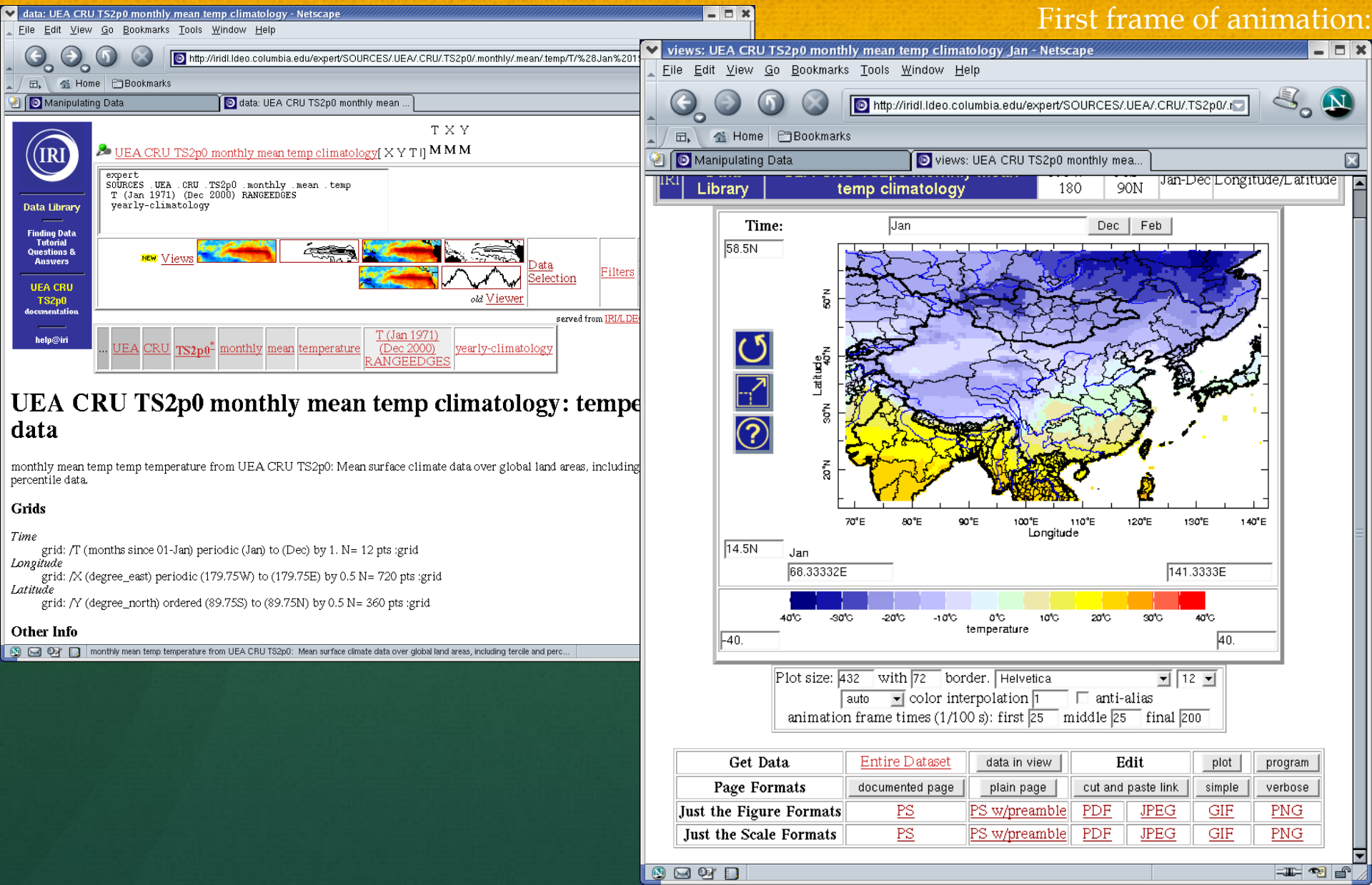
Data Analysis Tool

- The Data Library is also a powerful computational engine that can perform analyses of varying complexity using an extensive array of statistical analysis tools.
- Overcomes limitations of GIS



Example of expert mode

First frame of animation:



U. S./Mexico Drought Analysis Tool

Drought Index Selection

3-Month SPI

Optional Overlay Maps

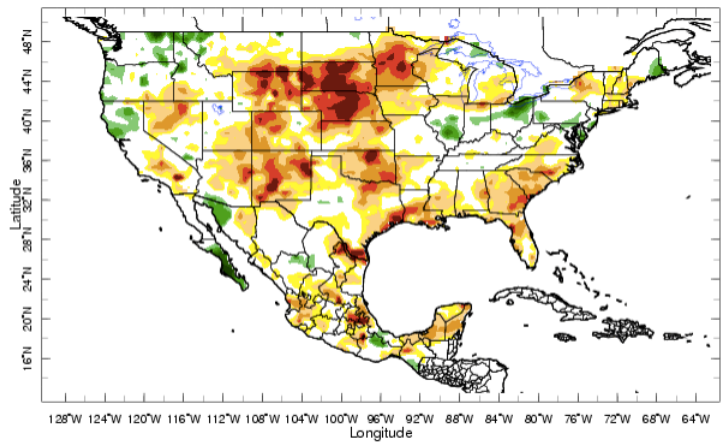
Boundaries
- ☑ Coasts
- ☑ Countries
- ☑ States
- ☐ U.S. Counties

Time Series Region

Click on the map to generate time series for a
- ◉ 0.5°x0.5° box

Time: Nov 2012 | Oct 2012 | Dec 2012

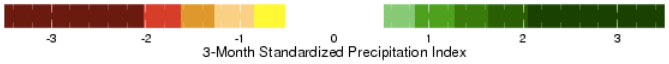
50.5N



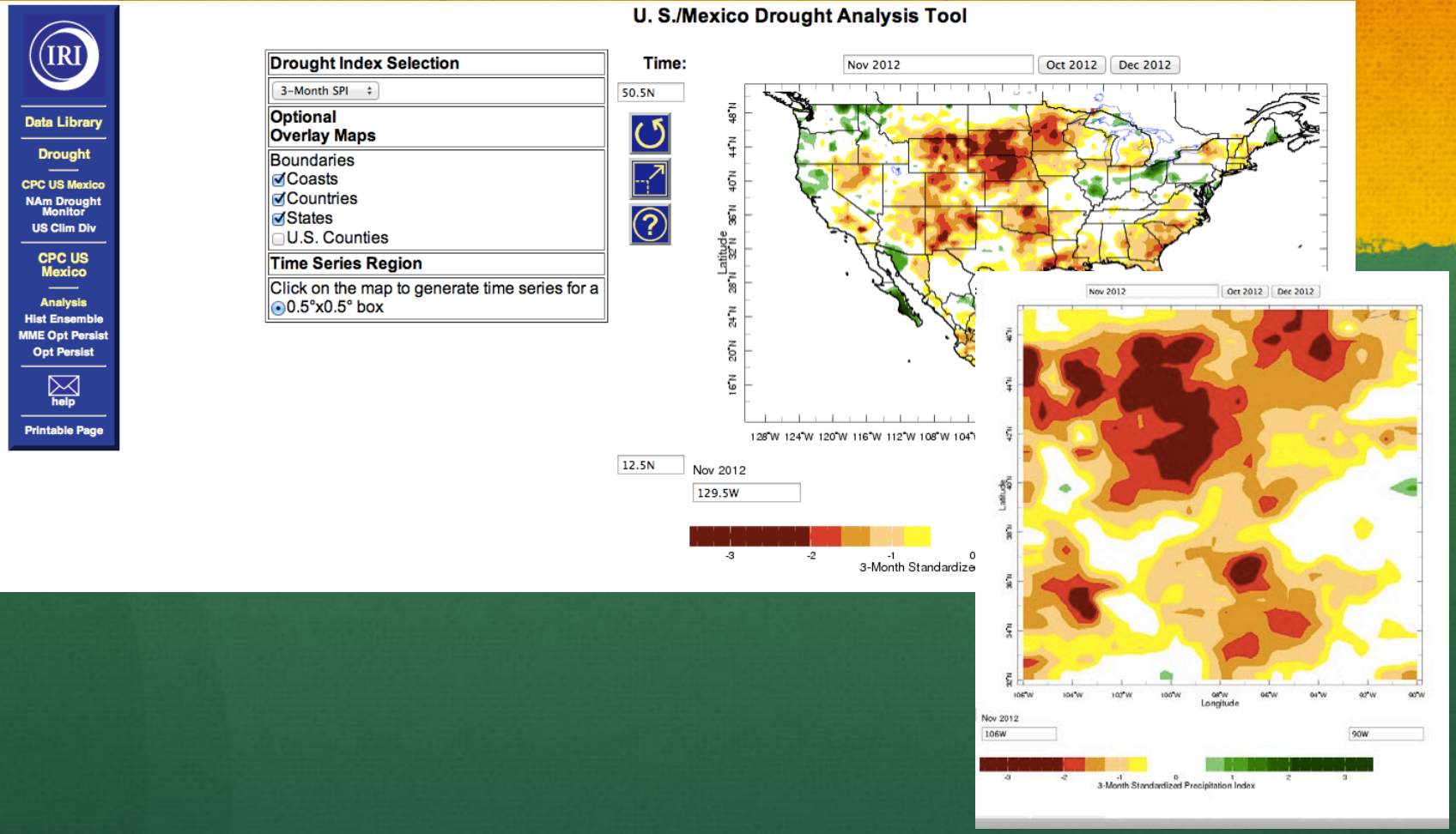
12.5N

Nov 2012

129.5W 62.5W



U. S./Mexico Drought Analysis Tool



U. S./Mexico Drought Analysis Tool

IRI

Data Library

Drought

CPC US Mexico

NAm Drought Monitor

US Clim Div

CPC US Mexico

Analysis

Hist Ensemble

MME Opt Persist

Opt Persist

help

Printable Page

Drought Index Selection

3-Month SPI

Optional Overlay Maps

Boundaries
- ☑ Coasts
- ☑ Countries
- ☑ States
- ☐ U.S. Counties

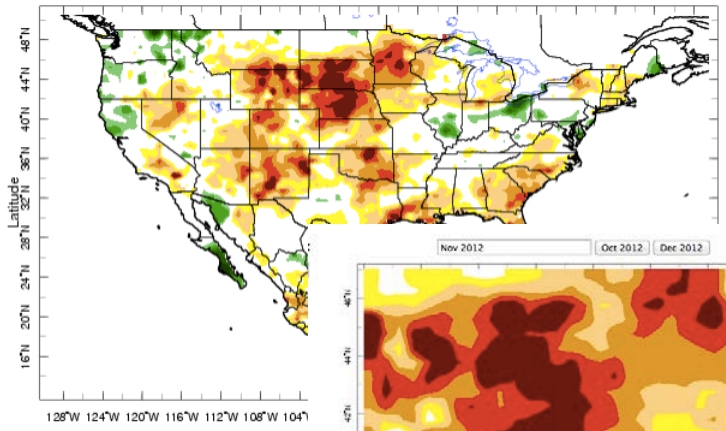
Time Series Region

Click on the map to generate time series for a
- ◉ 0.5°x0.5° box

Time:

Nov 2012 | Oct 2012 | Dec 2012

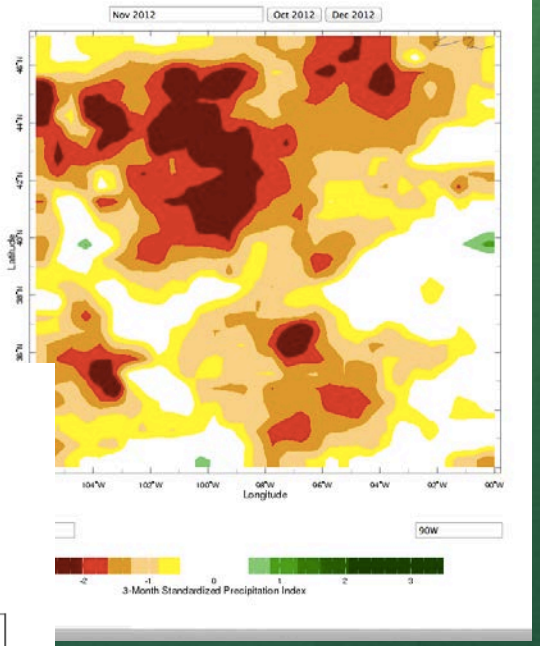
50.5N



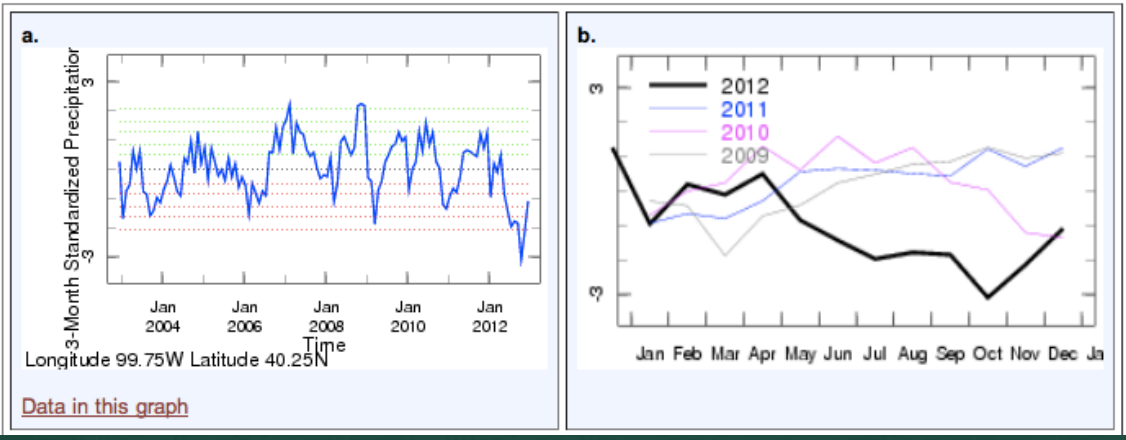
12.5N

Nov 2012

129.5W

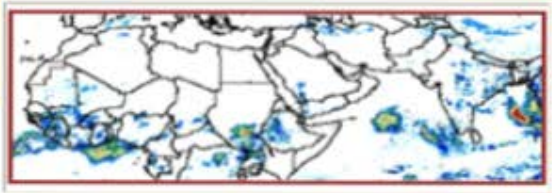


Data for:
99.75W, 40.25N
0.5 x 0.5 deg.



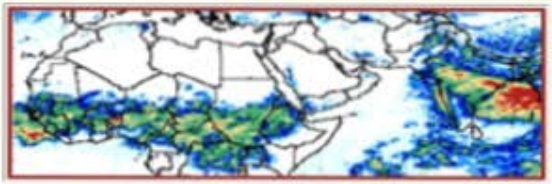
Monitoring Tools for Desert Locust Conditions

Rainfall Analysis Tool



A rainfall monitoring product based on daily rainfall estimates from the Climate Prediction Center. The interface allows users to analyze recent rainfall in the desert locust breeding areas via maps and location-specific time series.

Dekadal Rainfall Estimates

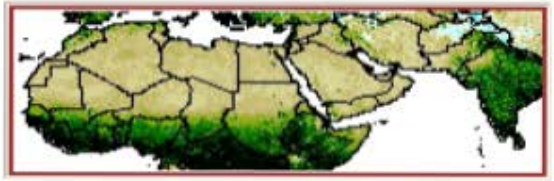


Accumulated rainfall during the most recent dekad based on estimates from the Climate Prediction Center Morphing technique.

MODIS Image Download Tools

Three regional tools facilitate access to MODIS images, which are provided by the United States Geological Survey. Images are available for West Africa, East Africa, and Southwest Asia.

NDVI Analysis Tools



Interactive maps of the Normalized Difference Vegetation Index for West Africa, East Africa, and Southwest Asia. Time series analyses of NDVI are generated based on user-selected parameters.

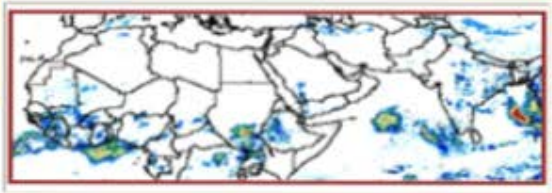
EVI Analysis Tools

Interactive maps of the Enhanced Vegetation Index for West Africa, East Africa, and Southwest Asia. Time series analyses of EVI are generated based on user-selected parameters.

DESERT LOCUST INFORMATION SERVICE
of the MIGRATORY PESTS GROUP

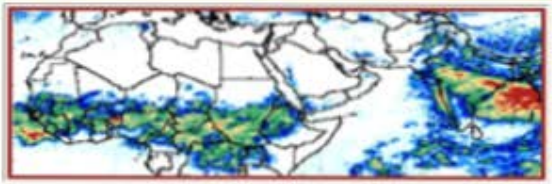
Monitoring Tools for Desert Locust Conditions

Rainfall Analysis Tool



A rainfall monitoring product based on daily rainfall estimates from the Climate Prediction Center. The interface allows users to analyze recent rainfall in the desert locust
series.

Dekadal Rainfall Estimates

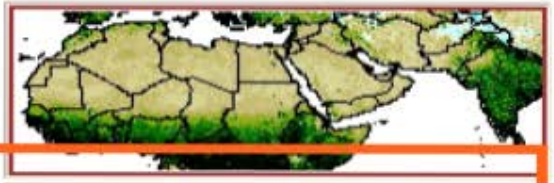


Accun
on esti
technic

MODIS Image Download Tools

Three
which
Survey
and Sc

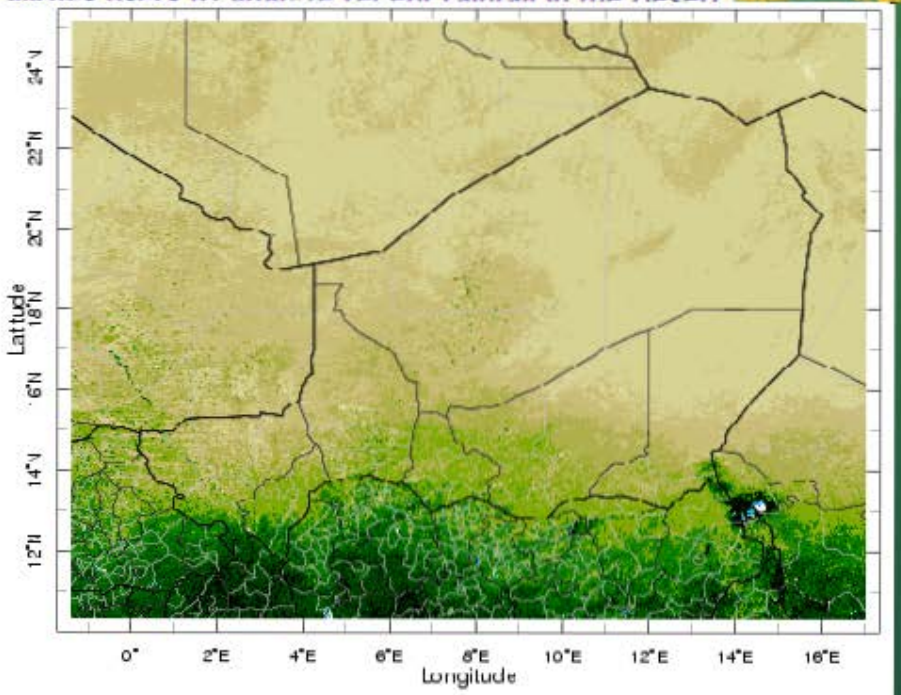
NDVI Analysis Tools



Interac
Index
Time s
user-selected parameters.

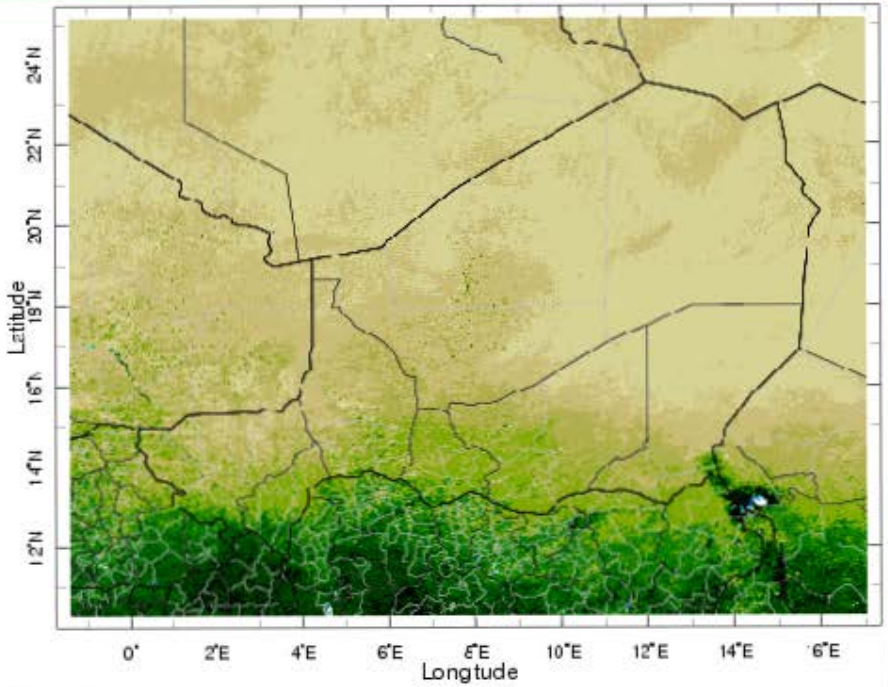
EVI Analysis Tools

Interactive maps of the Enhanced Vegetation Index for West Africa, East Africa, and Southwest Asia. Time series analyses of EVI are generated based on user-selected parameters.



DESERT LOCUST INFORMATION SERVICE

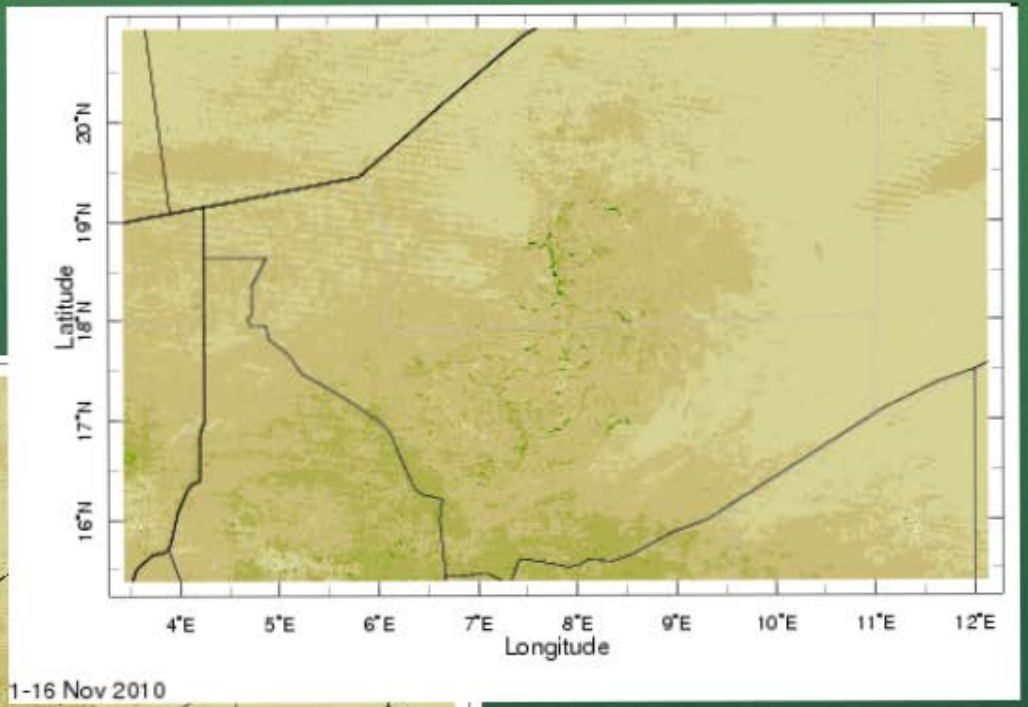
of the MIGRATORY PESTS GROUP



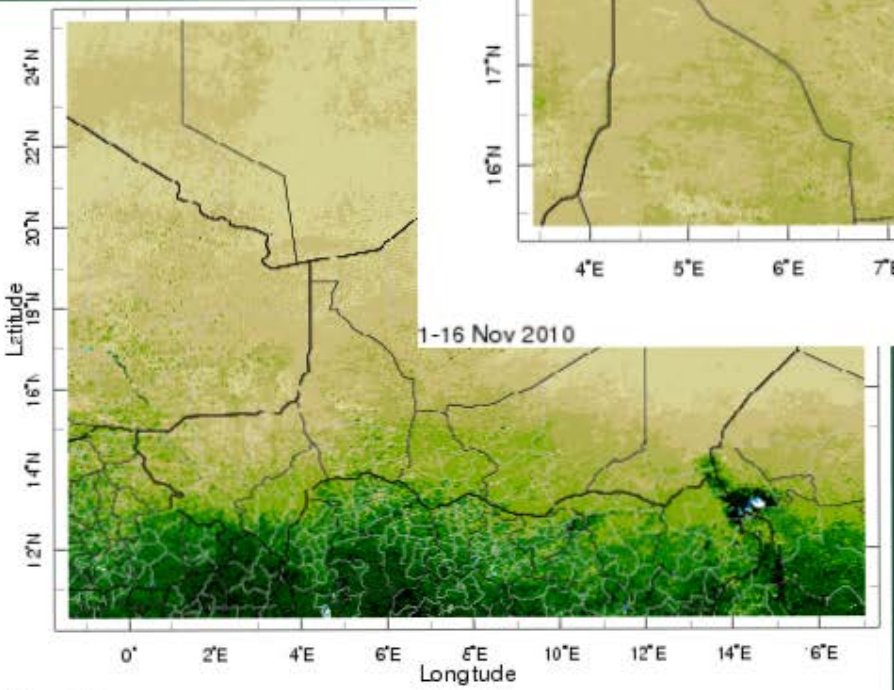
1-16 Nov 2010

DESERT LOCUST INFORMATION SERVICE

of the MIGRATORY PESTS GROUP



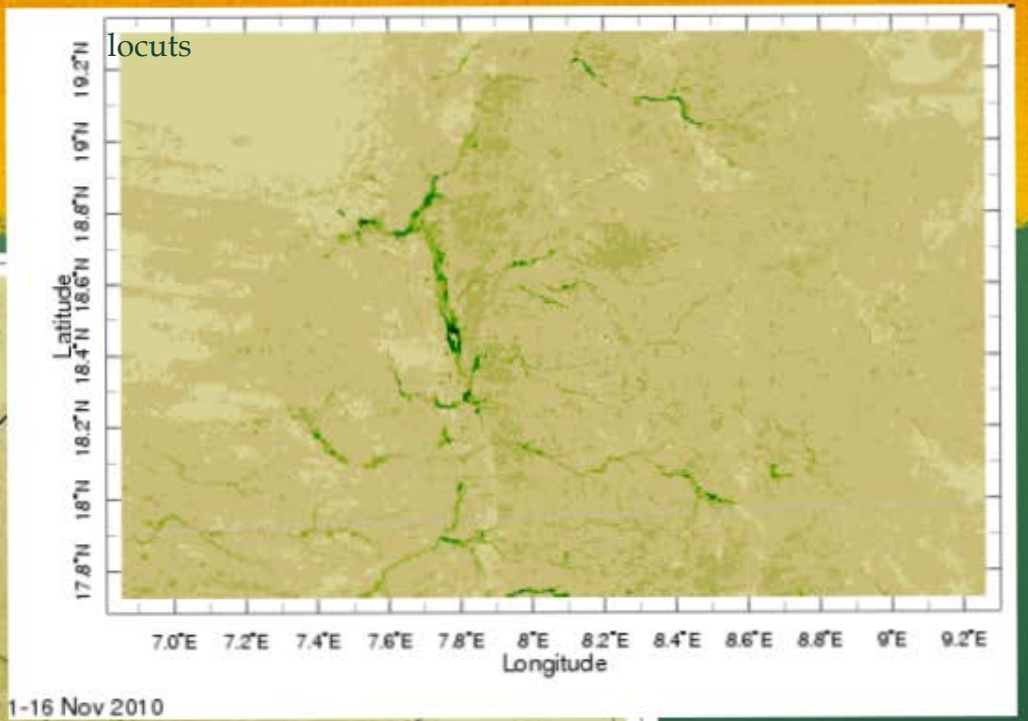
1-16 Nov 2010

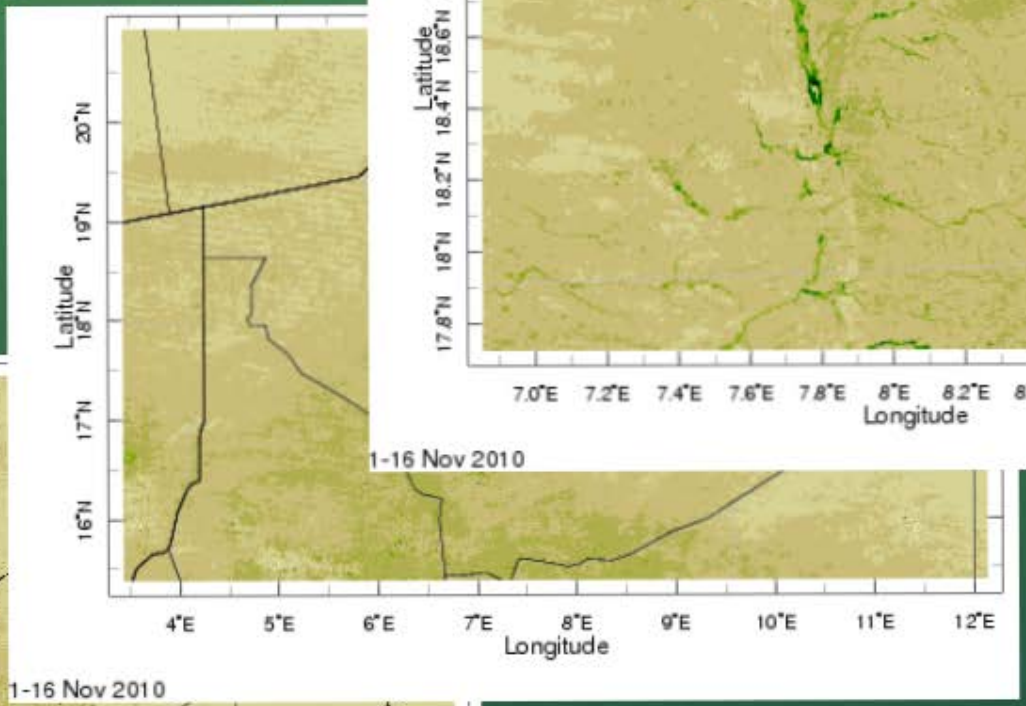


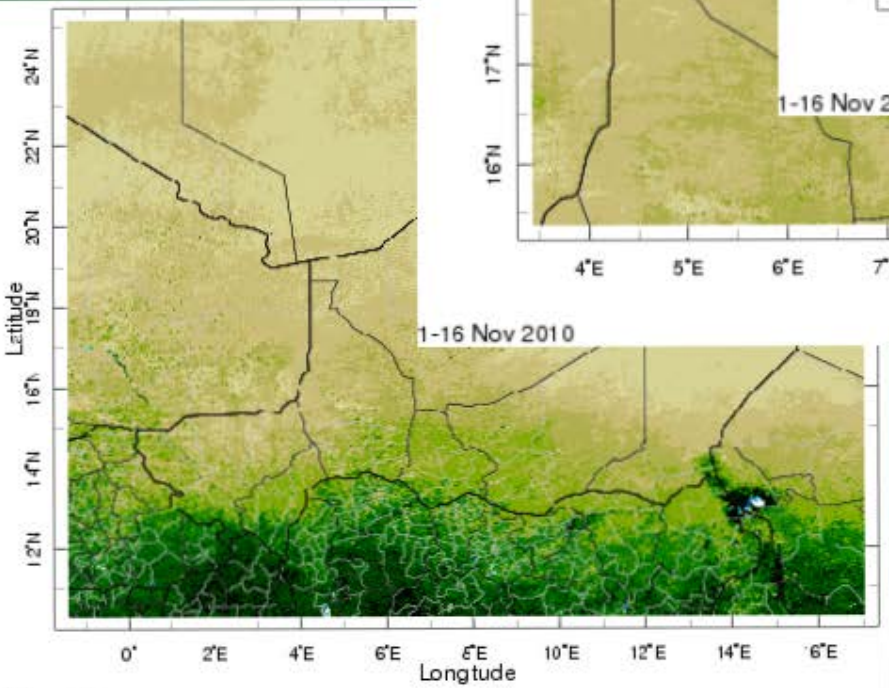
1-16 Nov 2010

DESERT LOCUST INFORMATION SERVICE

of the MIGRATORY PESTS GROUP



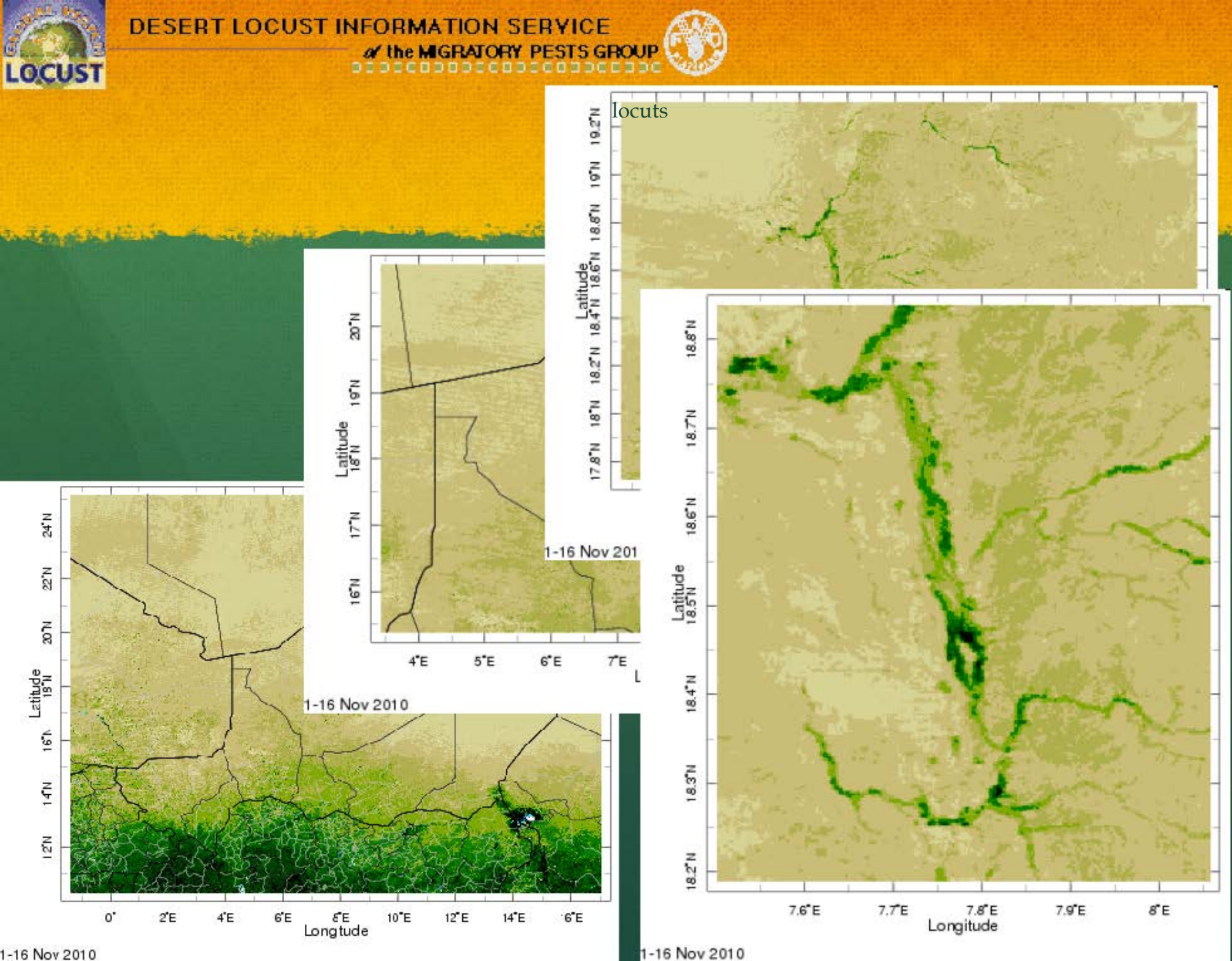




1-16 Nov 2010

DESERT LOCUST INFORMATION SERVICE

of the MIGRATORY PESTS GROUP



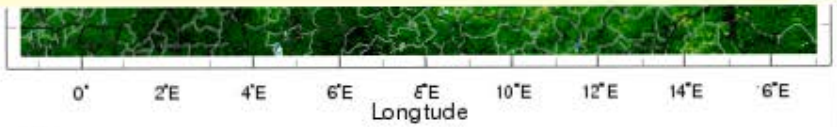
DESERT LOCUST INFORMATION SERVICE

of the MIGRATORY PESTS GROUP

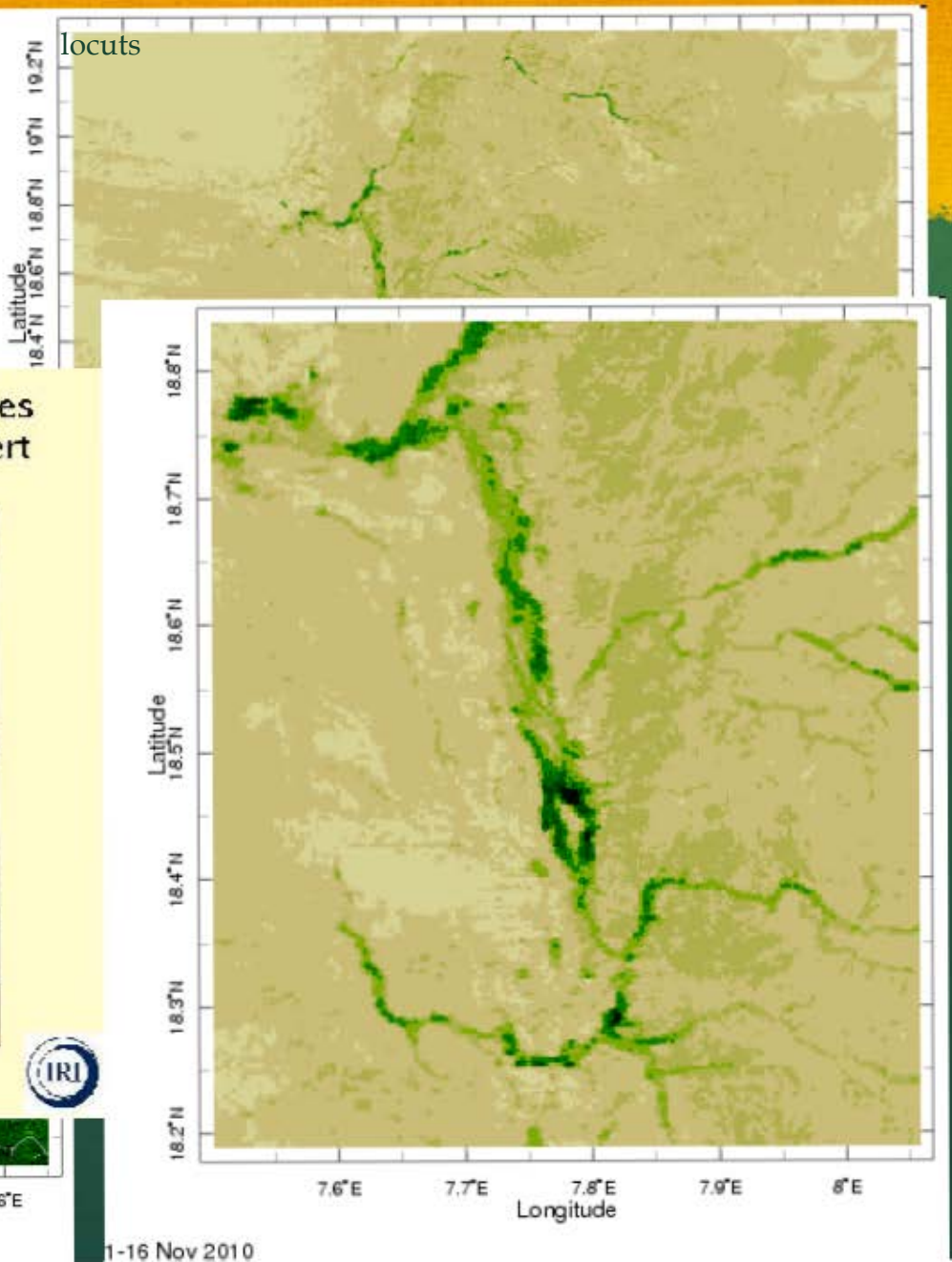
locuts

IRI data library is used by UN FAO and Ministries of Agriculture to monitor and control the Desert Locust

itesy of LIUS, UN FAO

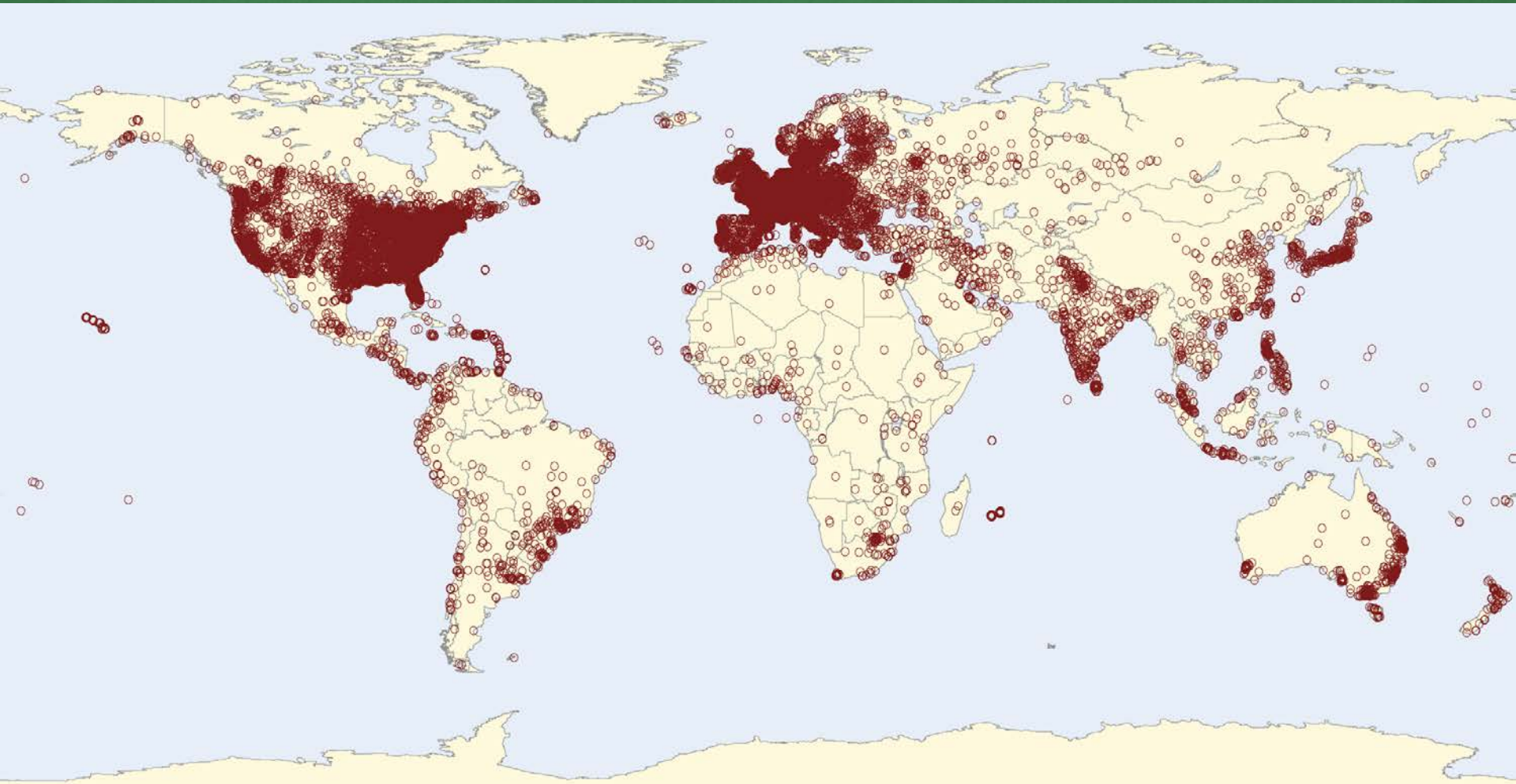


1-16 Nov 2010



1-16 Nov 2010

Who uses the IRI Data Library?



CLIMATE INFORMATION FOR PUBLIC HEALTH

SUMMER INSTITUTE 2008

Now that the world's atte
is increasingly focused on cli
change adaptation, it is essen
for the health community to
understand the role that clim
plays in driving disease burd
and affecting human health.

The International Research I
for Climate and Society (IRI)
partnership with the Center
International Earth Science I
mation Network (CIESIN) a
Mailman School of Public H
is pleased to announce the Su
Institute 2008 course on Clim
Information and Public Heal
The training course offers pu
health decision makers and t

CLIMATE INFORMATION FOR PUBLIC HEALTH

SUMMER INSTITUTE 2009

NOW THAT TH
is focused on climate chan
essential for the health com
climate plays in driving dis

The International Research
partnership with the Cente
Network (CIESIN) and the
announce the Summer Inst
Public Health.

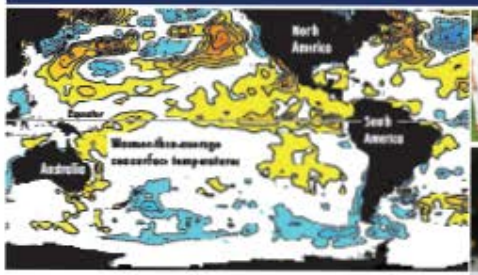
The training course offers p
partners the opportunity to
knowledge into decision m
seminars, focused discussi

The IRI is the premier glob
focused on the use of clima
making. It is a collaboratin
diseases and has active inte
diseases. The institute also

The International Re
for Climate and Soci

CLIMATE INFORMATION FOR PUBLIC HEALTH

SUMMER INSTITUTE 2010



NOW THAT THE WORLD'S ATTENTION

is focused on climate change and climate variability adaptation, it is essential for the health community to better understand the role that climate plays in driving disease burdens and affecting public health.

The International Research Institute for Climate and Society (IRI), in partnership with the Center for International Earth Science Information Network (CIESIN) and the Mailman School of Public Health, is pleased to announce the Summer Institute 2010 course on Climate Information for Public Health.

The training course offers public health decision makers and their partners the opportunity to learn practical methods for integrating climate knowledge into decision making processes through expert lectures, special seminars, focused discussions and practical exercises.

The IRI is the premier global research and capacity building institution focused on the use of climate information in public health decision making. It is a collaborating Centre with WHO-PAHO on climate sensitive diseases and has active international partnerships concerning malaria, meningococcal meningitis, Rift Valley Fever and other diseases. The institute also has an interest in dengue, influenza, diarrheal diseases and leishmaniasis.

Course Dates
May 17-28, 2010

Venue
The summer institute will be held at the International Research Institute of Climate and Society (IRI), which is located at the Earth Institute's Lamont Campus in Palisades, New York, USA.

Deadline
Application deadline is January 31st, 2010. The course will be limited to 32 participants. Early registration is recommended.

Cost
US$ 7750
(include tuition, hotel, ground transportation, meals). Limited scholarships are available.

The International Research Institute for Climate and Society

Columbia University MAILMAN SCHOOL OF PUBLIC HEALTH

CLIMATE INFORMATION FOR PUBLIC HEALTH

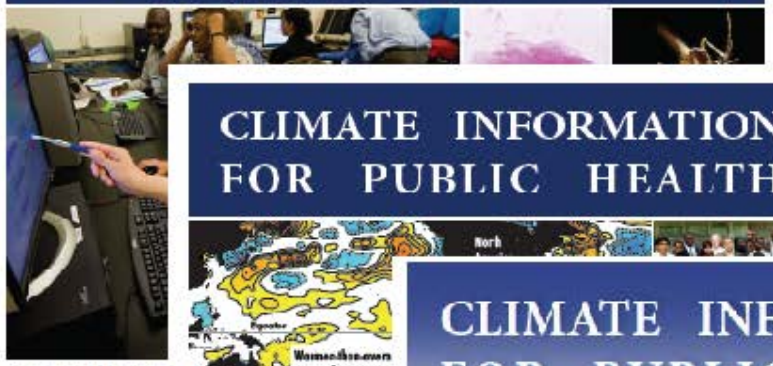
SUMMER INSTITUTE 2008

Now that the world's atte
is increasingly focused on cli
change adaptation, it is essen
for the health community to
understand the role that clim
plays in driving disease burd
and affecting human health.

The International Research I
for Climate and Society (IRI)
partnership with the Center f
International Earth Science I
mation Network (CIESIN) ar
Mailman School of Public He
is pleased to announce the Su
Institute 2008 course on Clim
Information and Public Heal
The training course offers pu
health decision makers and t

CLIMATE INFORMATION FOR PUBLIC HEALTH

SUMMER INSTITUTE 2009



NOW THAT TH
is focused on climate chang
essential for the health com
climate plays in driving dis

The International Research
partnership with the Cente
Network (CIESIN) and the
announce the Summer Inst
Public Health.

The training course offers
partners the opportunity to
knowledge into decision m
seminars, focused discussi

The IRI is the premier glob
focused on the use of clima
making. It is a collaborativ
diseases and has active inte
diseases. The institute also

The International Res
for Climate and Soci

CLIMATE INFORMATION FOR PUBLIC HEALTH

SUMMER INSTITUTE 2010

NOW THAT THE W
is focused on climate change
essential for the health communit
plays in driving disease burdens a

The International Research Institu
partnership with the Center for
Network (CIESIN) and the Maili
announce the Summer Institute 2
Public Health.

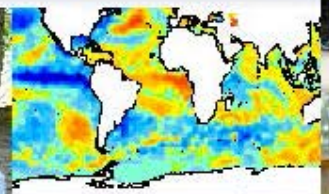
The training course offers public
partners the opportunity to lea
knowledge into decision making
seminars, focused discussions ar

The IRI is the premier global le
focused on the use of climate infor
It is a collaborating Centre with
and has active international partn
cal meningitis, Rift Valley Fever
an interest in dengue, influenza,
ninsis).

The International Res
for Climate and Soci

CLIMATE INFORMATION FOR PUBLIC HEALTH

SUMMER INSTITUTE 2011



WITH THE WORLD'S ATTENTION

focused on mechanisms for adaptation to climate variability and change, it is essential, not only for public health communities, but also for planners in central government, to understand the role climate plays in driving disease burden and impeding economic growth. Public health often emerges as the final common pathway for all impacts of climate variability and change on both individuals and society.

As a contribution to this process, The International Research Institute for Climate and Society, in partnership with the Center for International Earth Science Information Network (CIESIN) and the Mailman School of Public Health initiated this two-week course in 2008. Building on the response of our 2008 – 2009 -2010 alumni and partners, we are pleased

COURSE DATES

May 16 – 27, 2011

VENUE

The Earth Institute, Columbia University Lamont Campus located at:
61 Route 9W, Monell Building, Palisades, New York.

DEADLINES

Application deadline is:
February 11, 2011

Thank you

mthomson@iri.columbia.edu

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

Del Corral, J., Blumenthal., M.B., Mantilla, G., Ceccato, P., Connor, S.J., & Thomson, M.C. (2012). Climate Information for Public Health: the role of the IRI Climate Data Library in an Integrated Knowledge System. Geospatial health 6(3):S15-24

Find it on Researchgate Madeleine Thomson