GROUP ON EARTH OBSERVATIONS

The Global Earth Observation System of Systems. Ongoing Developments and Priorities.

José Achache
Executive Director

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THE GLOBAL EARTH OBSERVATION SYSTEM OF SYSTEMS

GROUP ON EARTH OBSERVATIONS

- Connect Observing Systems and Ensure Access to Data

- Integrate Observations to Develop Information Systems
(Water, Carbon, Biodiversity)

- GEOSS for AFRICA

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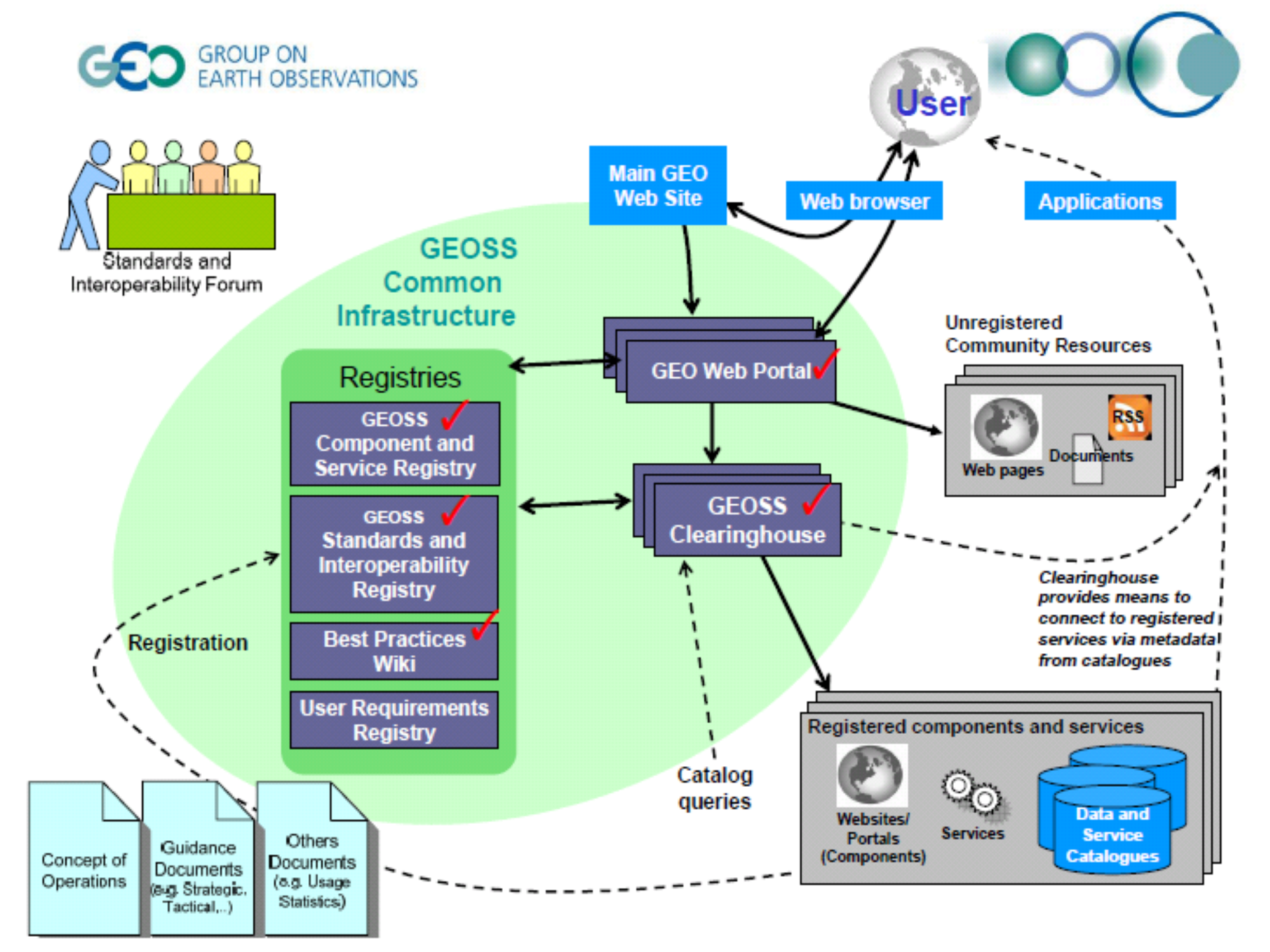
Connect Observing Systems and Ensure Access to Data


GROUP ON EARTH OBSERVATIONS
User
Standards and Interoperability Forum
Main GEO Web Site
Web browser
Applications
GEOSS Common Infrastructure
Registries
GEOSS Component and Service Registry
GEOSS Standards and Interoperability Registry
Best Practices Wiki
User Requirements Registry
GEO Web Portal
GEOSS Clearinghouse
Unregistered Community Resources
Web pages
RSS
Documents
Clearinghouse provides means to connect to registered services via metadata from catalogues
Registration
Catalog queries
Registered components and services
Websites/ Portals (Components)
Services
Data and Service Catalogues
Concept of Operations
Guidance Documents (e.g. Strategic, Tactical,..)
Others Documents (e.g. Usage Statistics)

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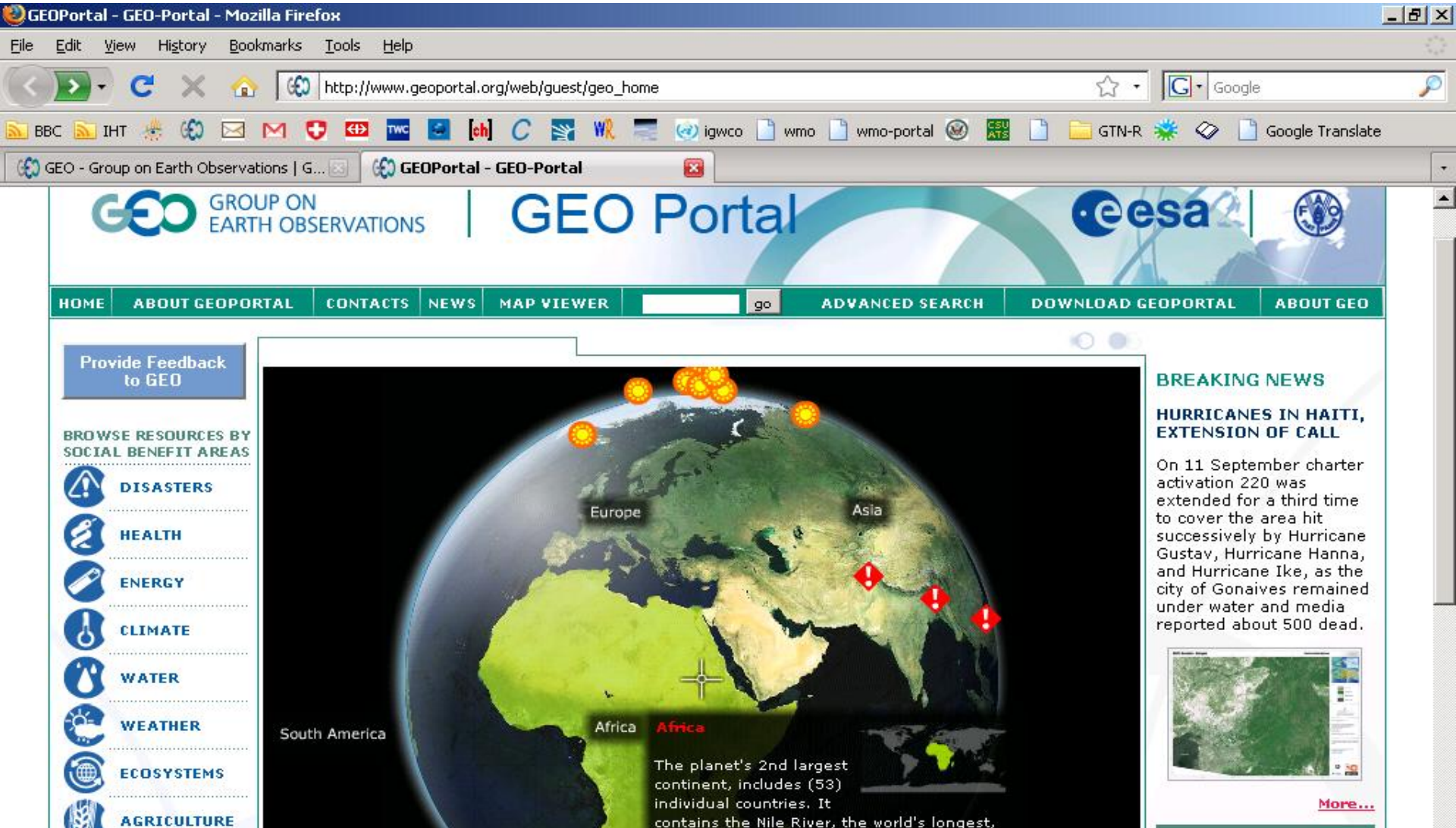
GEO Portal (ESRI, Compusult, ESA)



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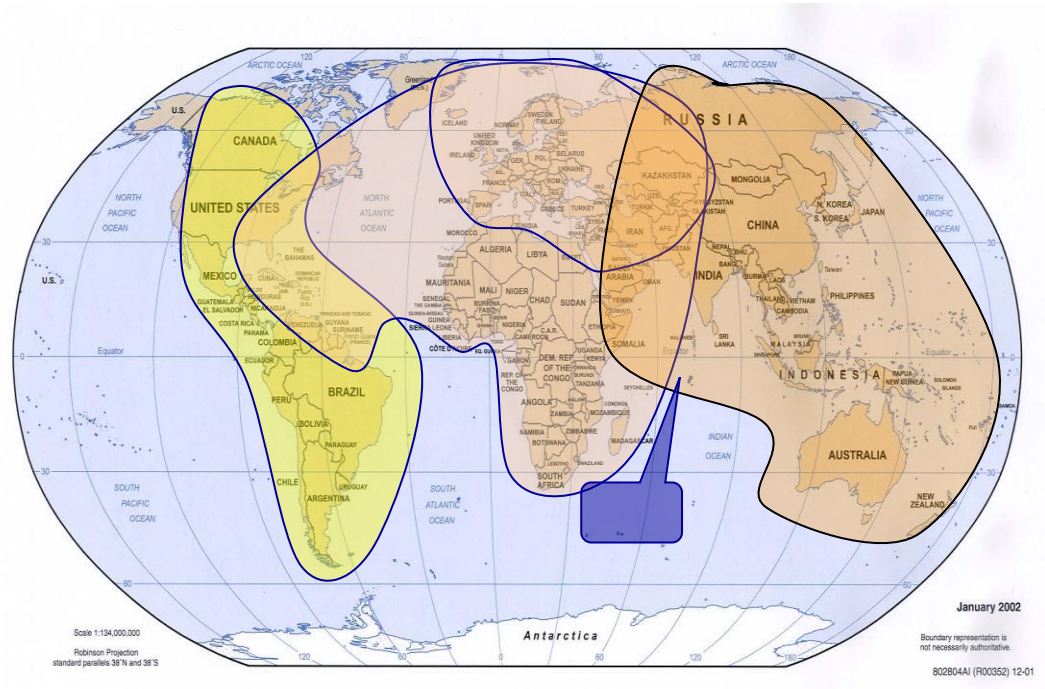
GEONETCast

A Space-based Dissemination System for Data, Products, Services and Early Warning



Global Coverage

Contributors

EUMETSAT

CMA

中国气象局
www.cma.gov.cn

NOAA

ROSHYDROMET

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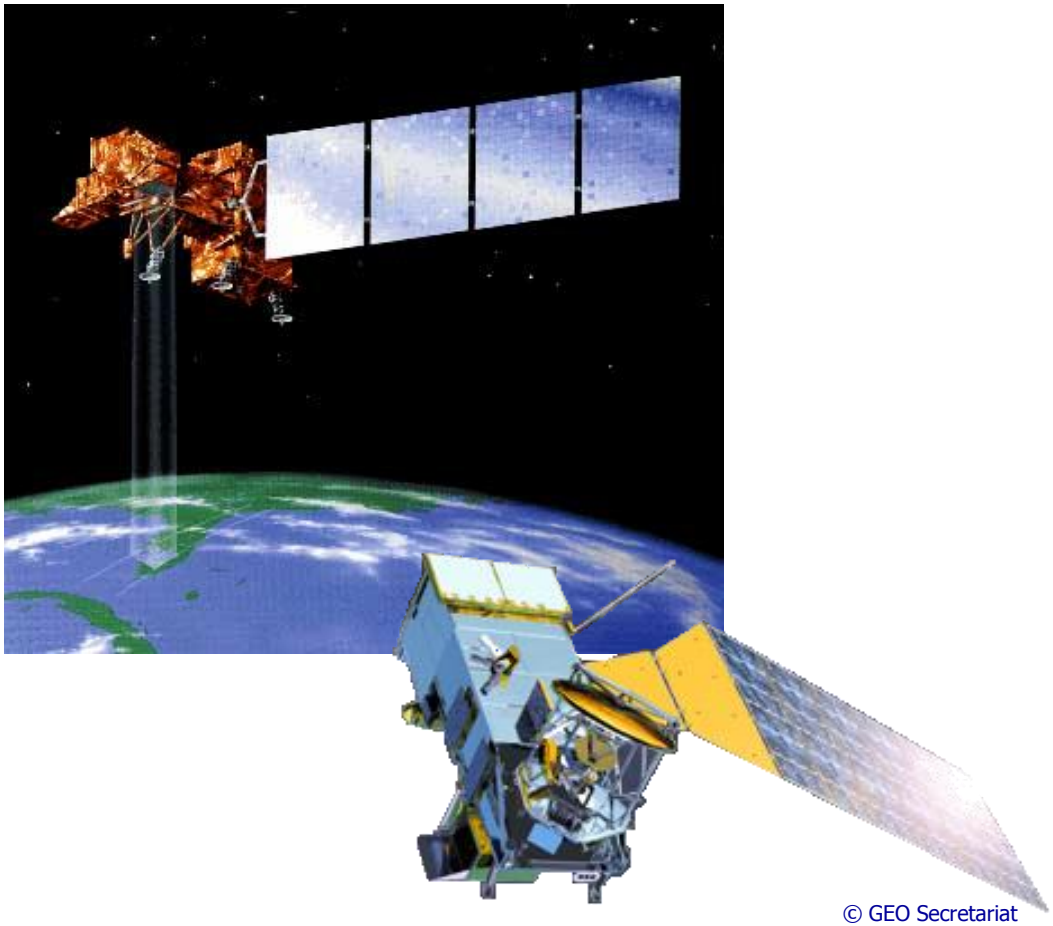
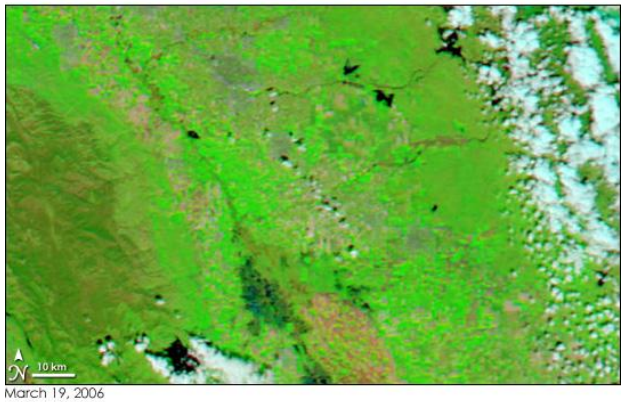
Free and Open Access to the LANDSAT Archive (USGS - USA)



April 13, 2006



March 19, 2006

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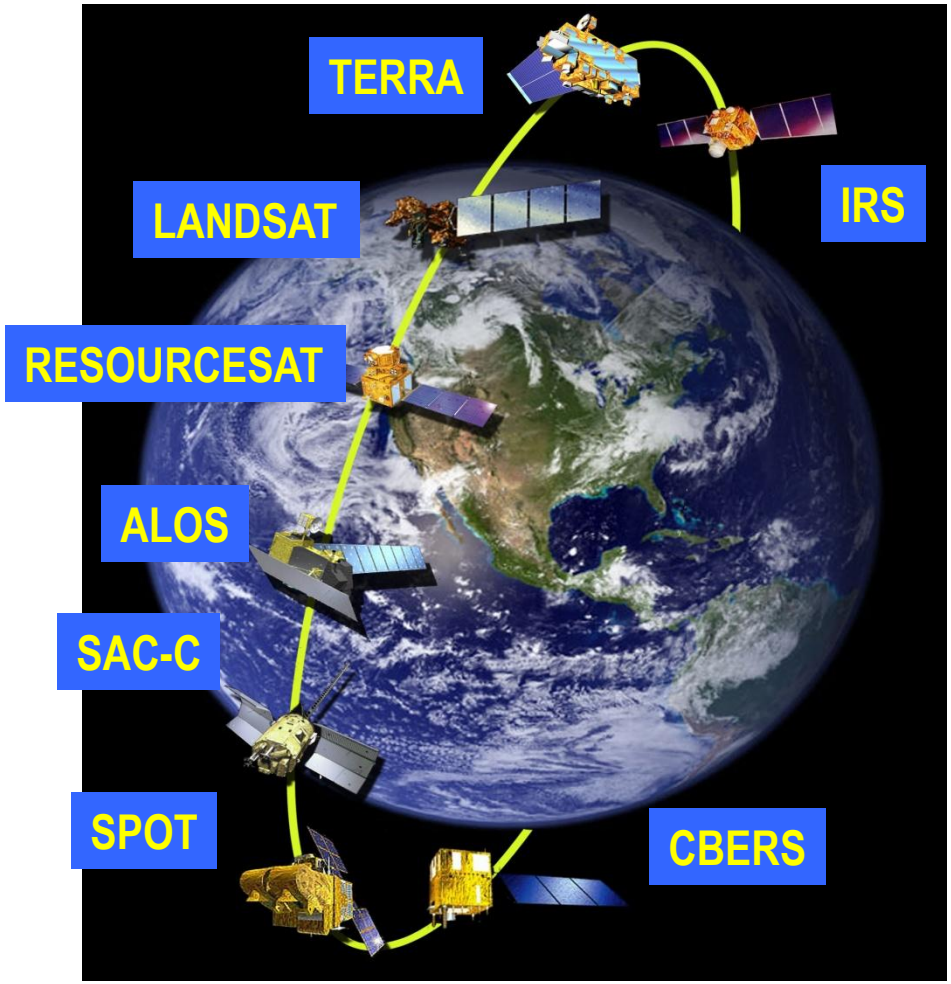
Access to Imagery with the Land Surface Imaging Constellation (CEOS)



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Free and Open Access to CBERS Data in Africa and the Caribbean (China, Brazil, RSA, Spain, Egypt)

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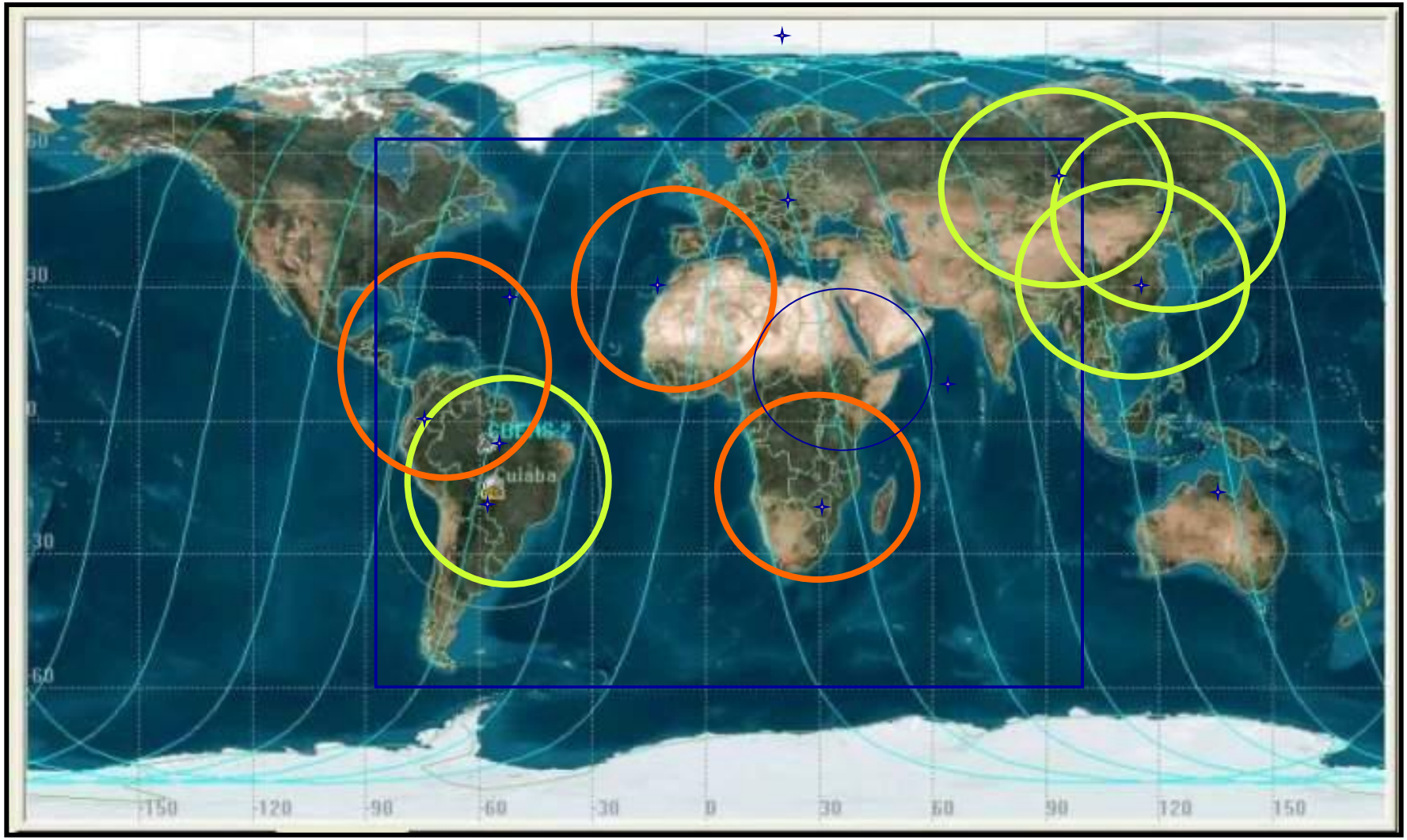


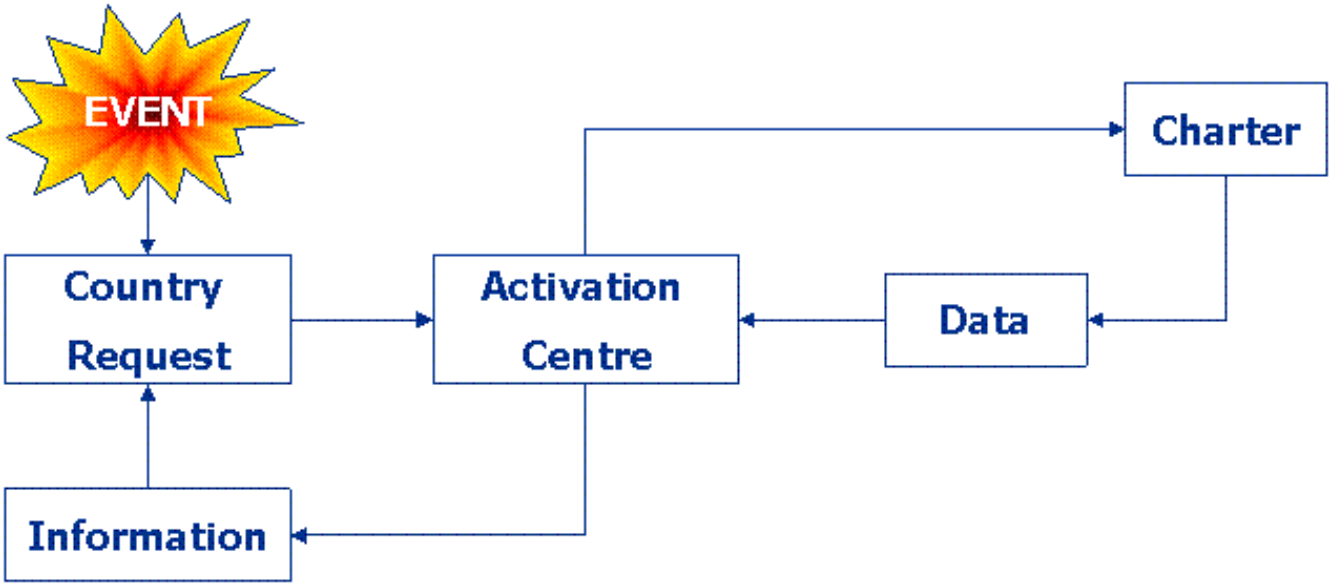
Extending Charter on Space and Major Disasters Access

In response to GEO request for access for all GEO Members to Charter, the Charter Board unanimously endorsed the principle of « universal access » for all states.

GEO is working to define the mechanisms for providing Charter access to all GEO Members (47 GEO Members do not have an Authorized User to activate the Charter).

A Regional Hub Approach: Sentinel Asia

The Regional Center will activate the Charter on behalf of Countries in the region. Regional Center could offer Project management and value adding.



Disaster Management Clearinghouse (DLR – Germany, UN-SPIDER)

A centralized source of information for disaster management providing *integrated* and *interoperable* observations and derived maps for:

1. **Vulnerability/Risk assessment:** Relevant observations and derived maps will be made available.
2. **Crisis Management:** Users will be able to make requests on-line. The GEO Disaster Management Clearinghouse will generate maps and other products and publish them through the GEO Portal.
3. **Related Forecasts:** Products in support of disaster management will be made available through the Clearinghouse (i.e. weather, population migration, fire risk etc).

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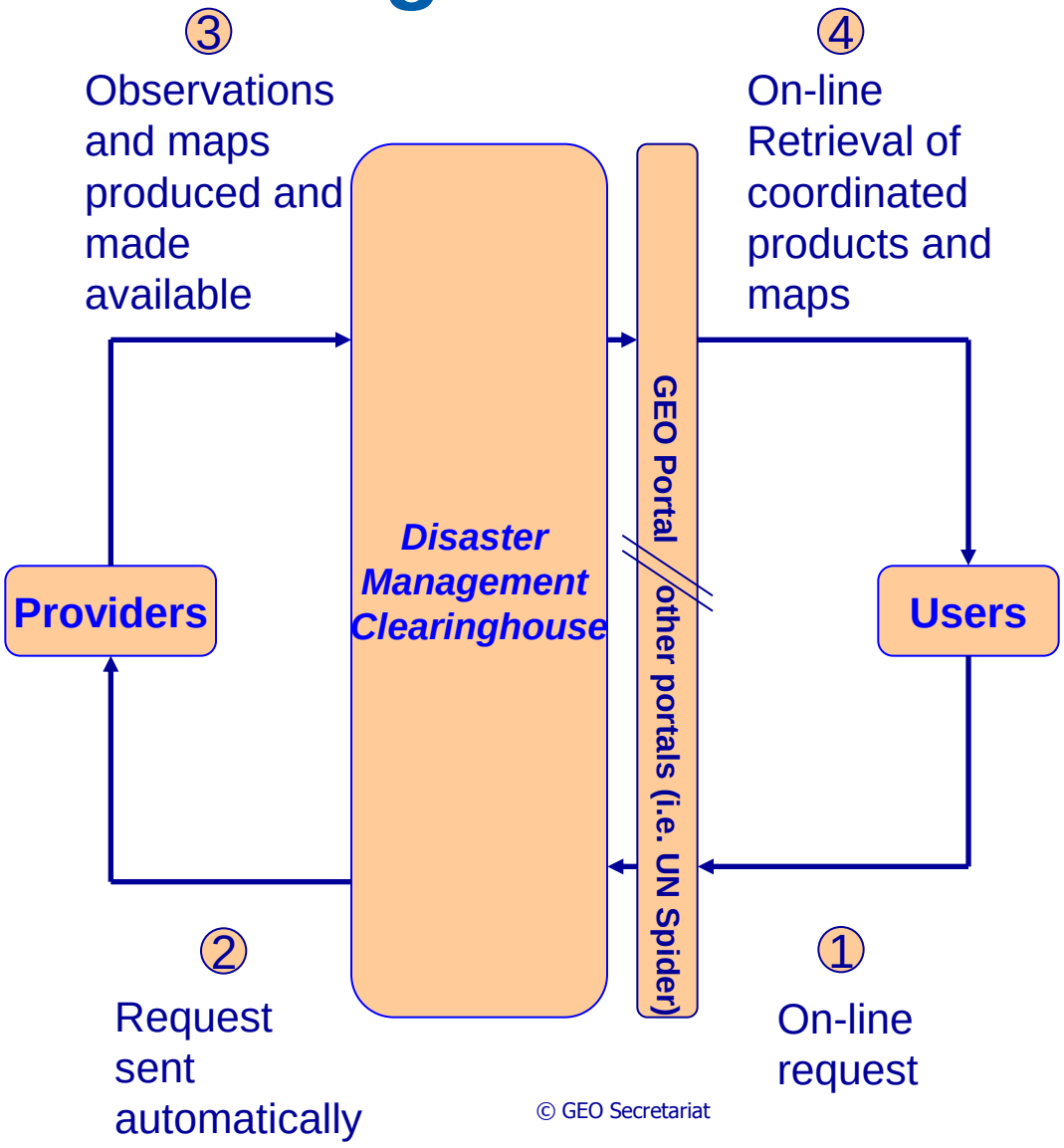
Disaster Management Clearinghouse



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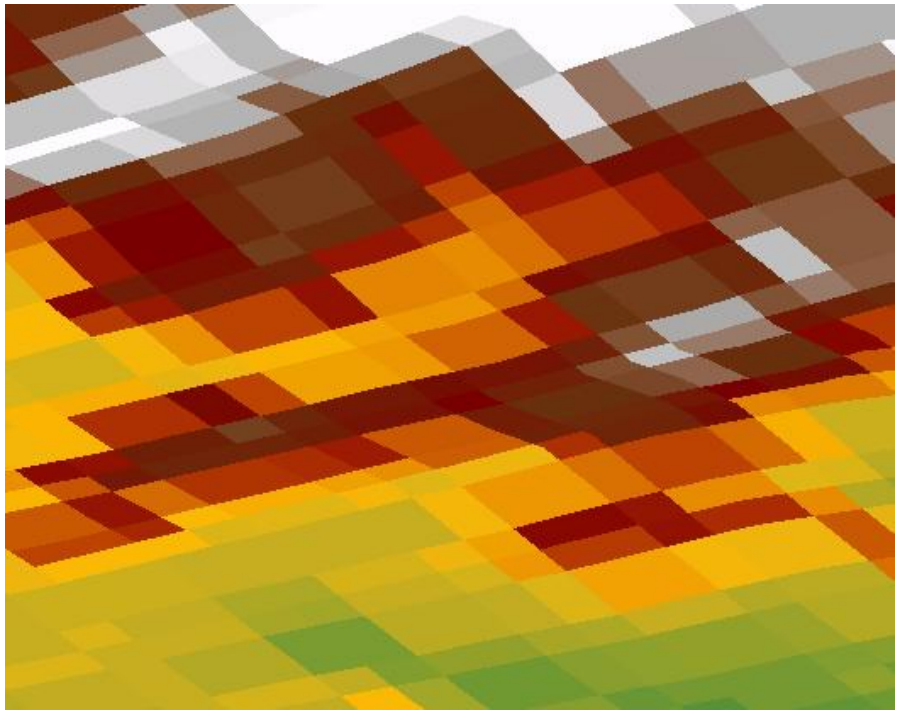
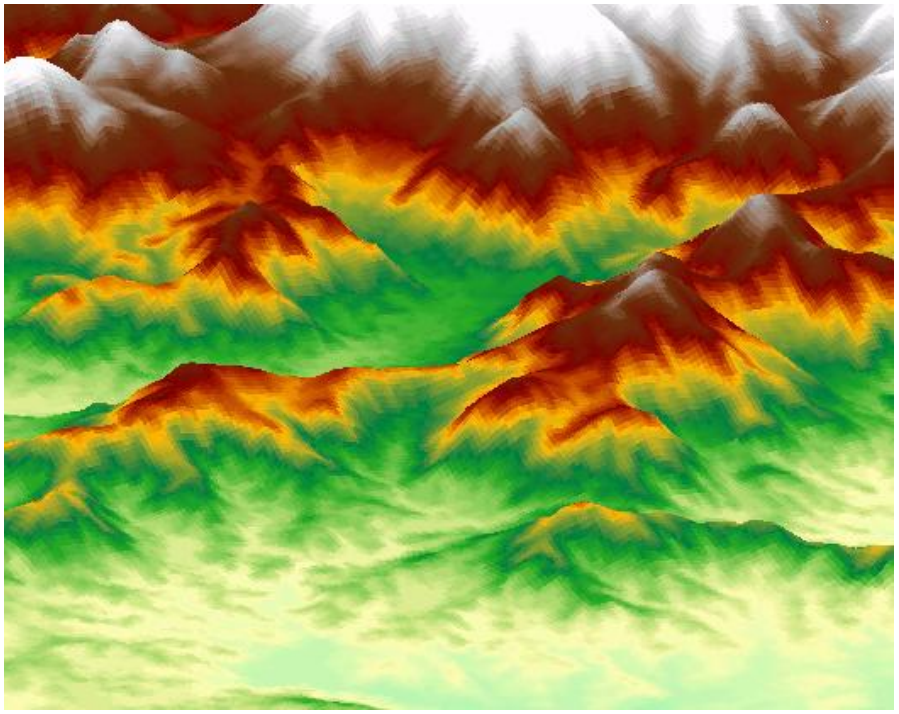
A global DEM at 30 meter resolution derived from ASTER data, by US and Japan, by end of 2008



90 m



30 m

Comparison courtesy of V. Gorokhovich, CIESIN

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Integrate Observations to Develop Information Systems

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G8 Toyako Summit, July 7-9 2008

…we will accelerate efforts within the **Global Earth Observation System of Systems (GEOSS)**, ... in priority areas, inter alia, climate change and *water resources management*, by strengthening observation, prediction and data sharing. ... capacity building for developing countries … interoperability and linkage …

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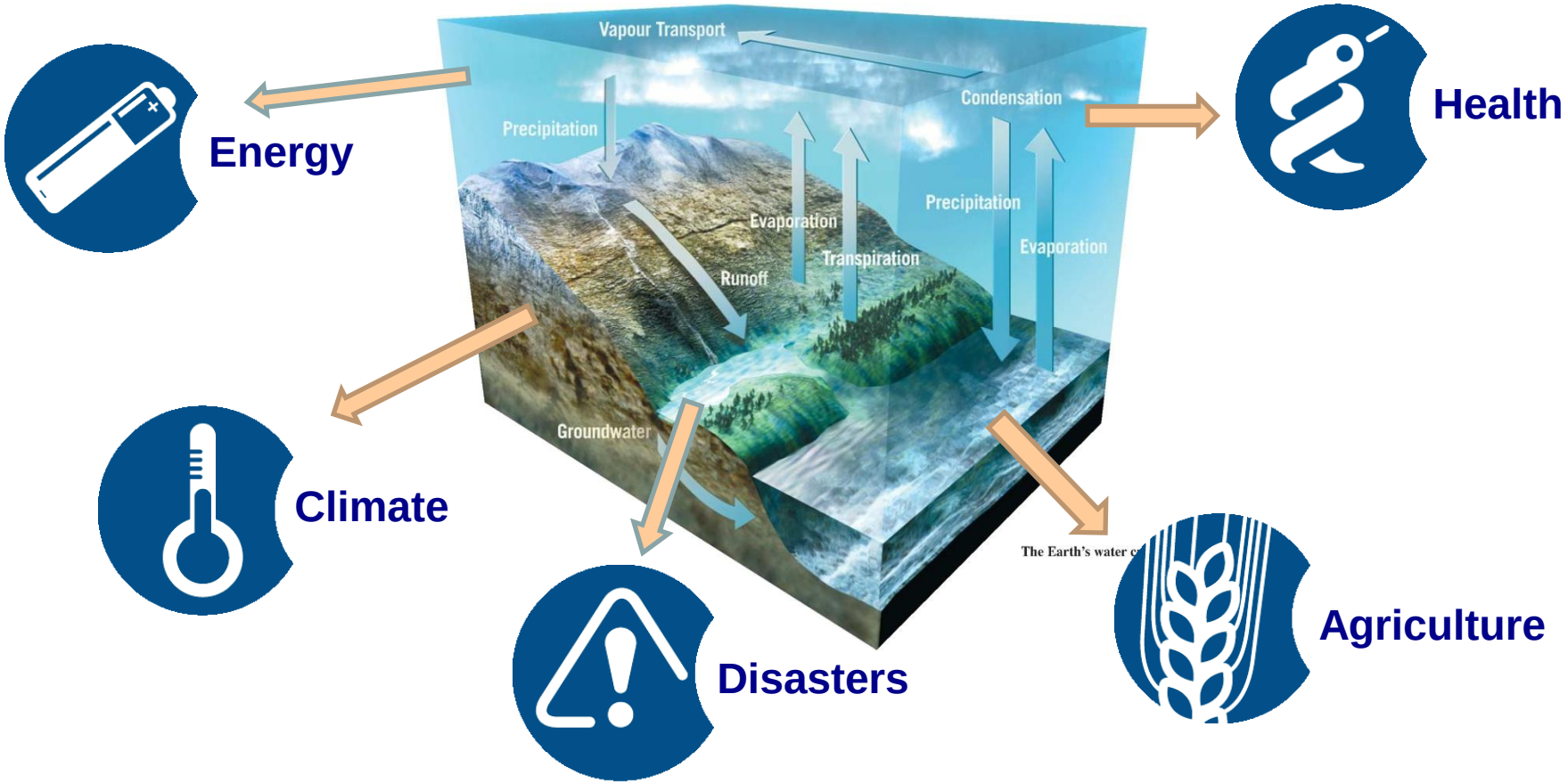
Integrated Water Cycle Management (WMO, Gewex, France, Japan, …)



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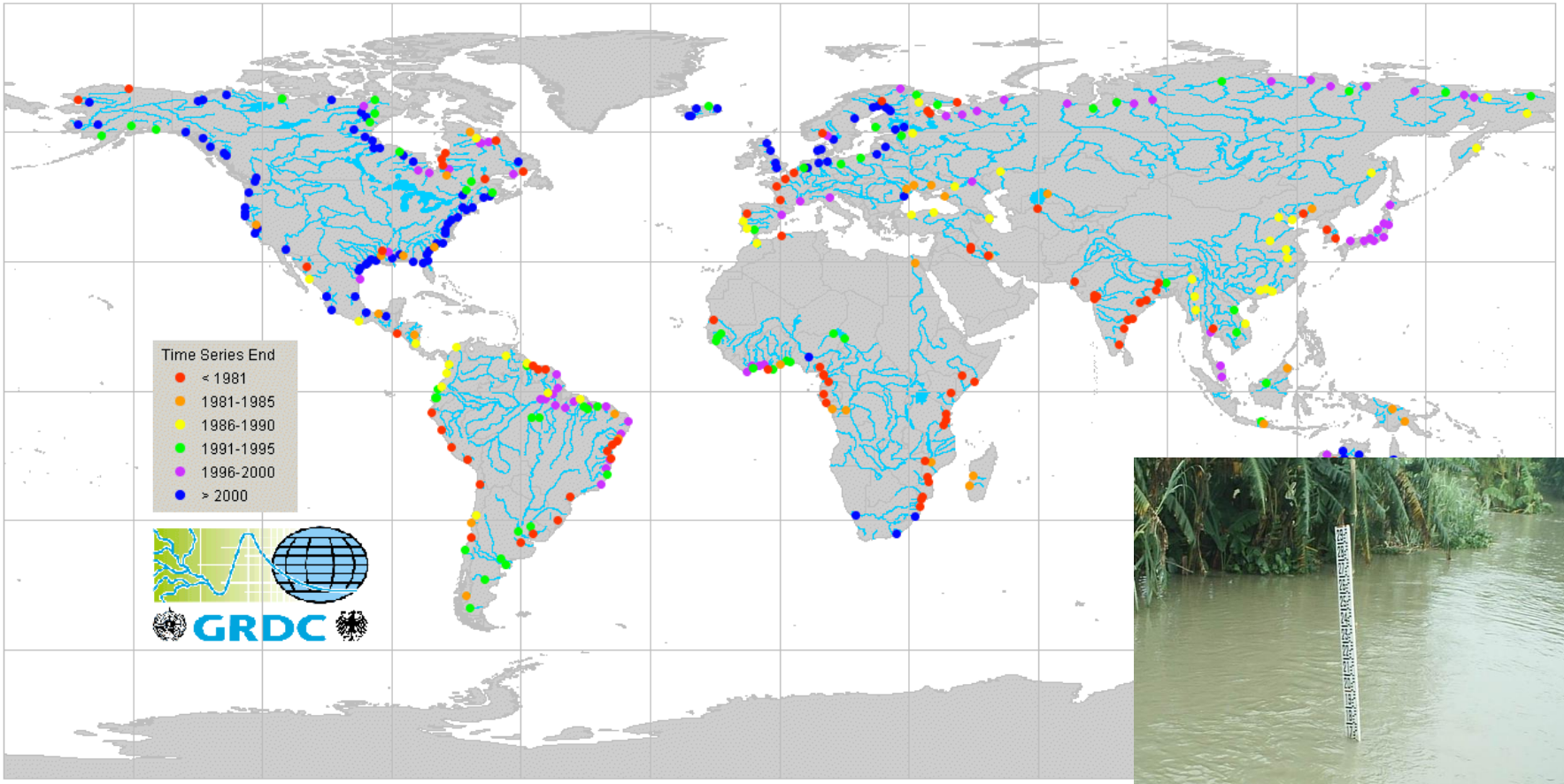
Upgrade in-situ stations for river discharge



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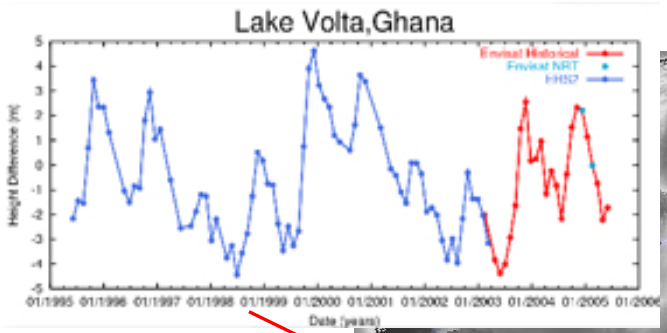
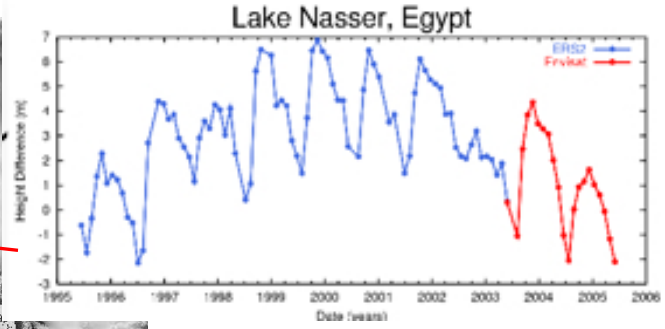
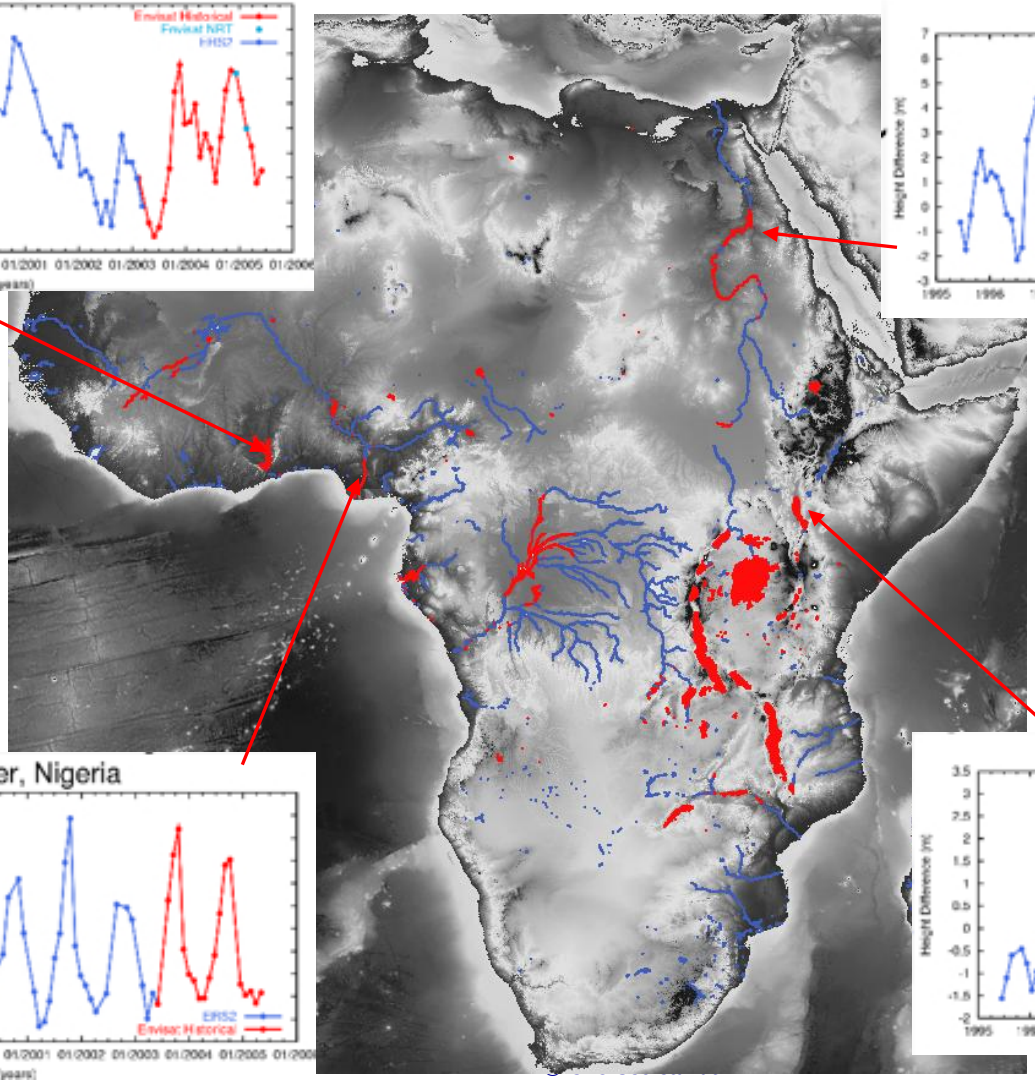
Integrate Space Observations

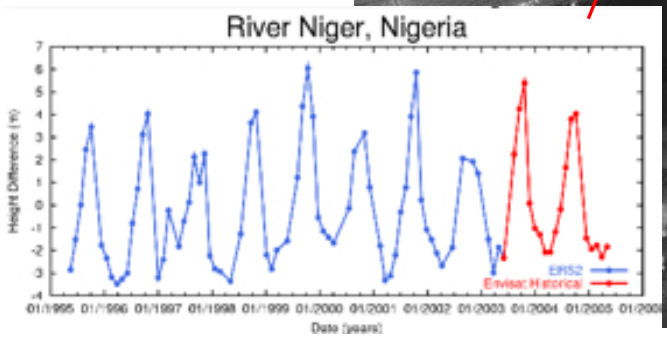


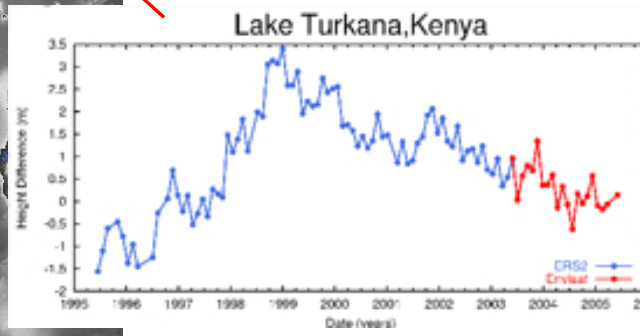




Red indicates area where NRT products are currently generated

Blue indicates area where products may be generated in the future.





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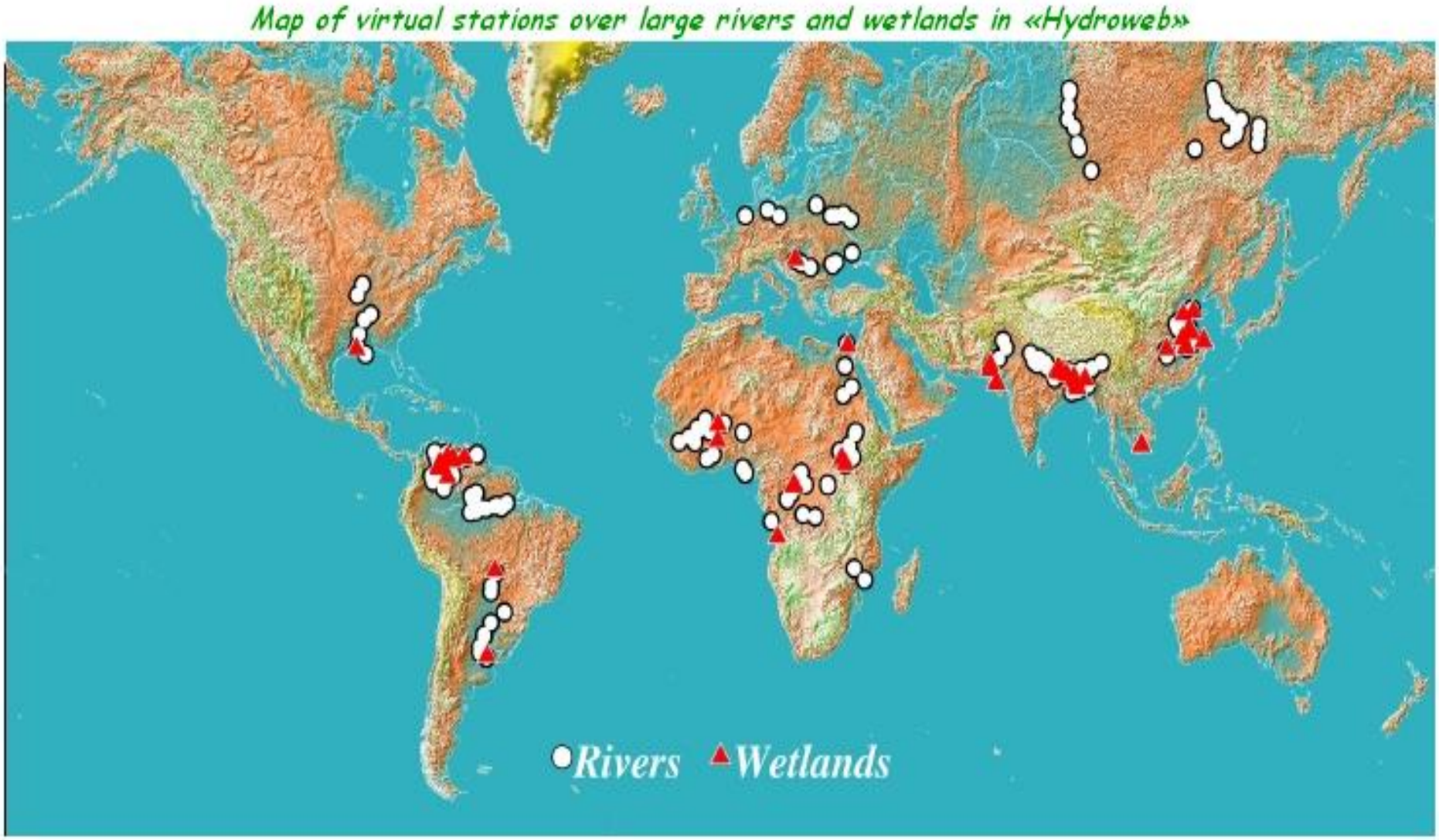
Hydroweb (France)



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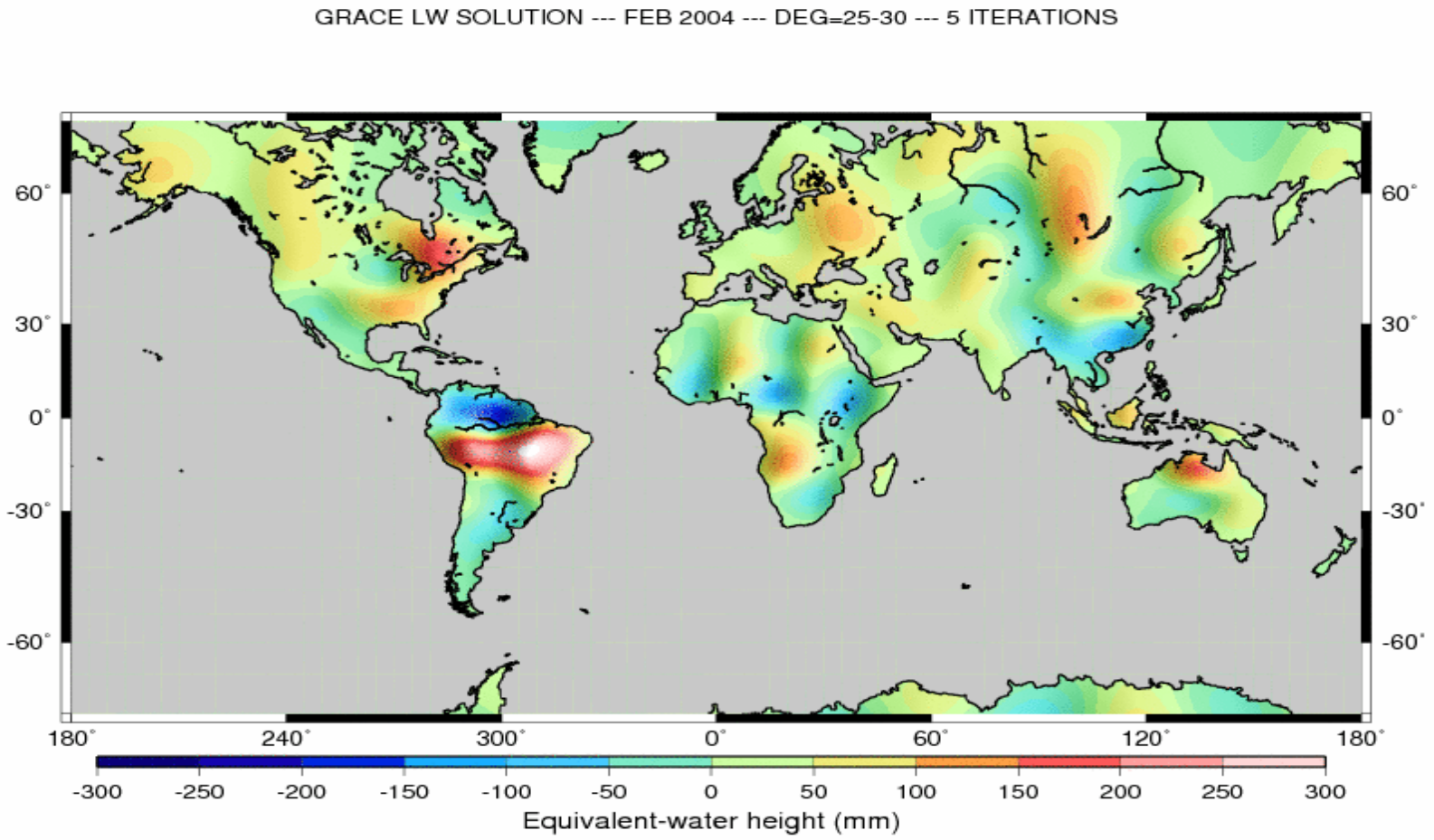
GRACE Subsurface Water Variations (USA, Germany)



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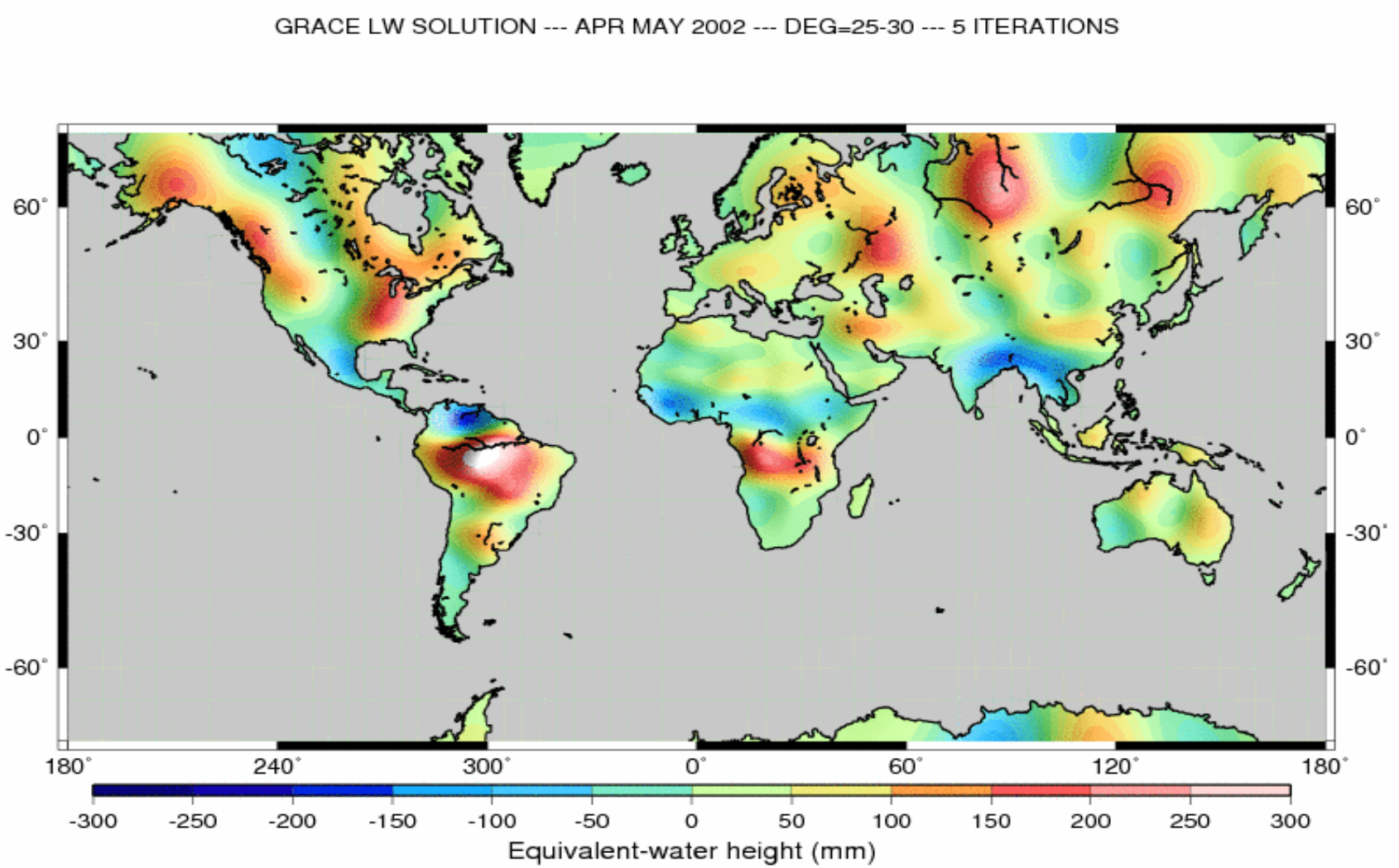

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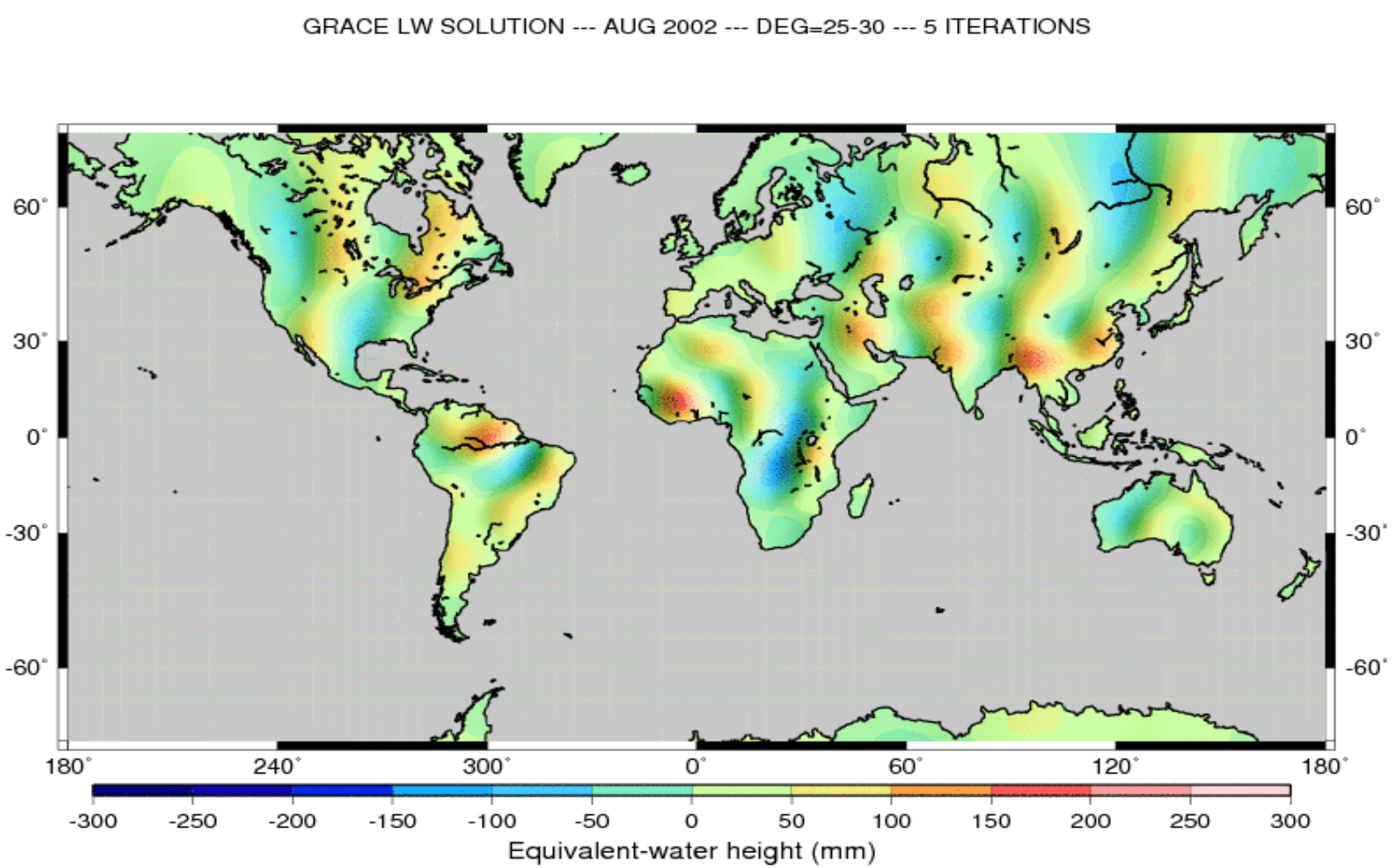

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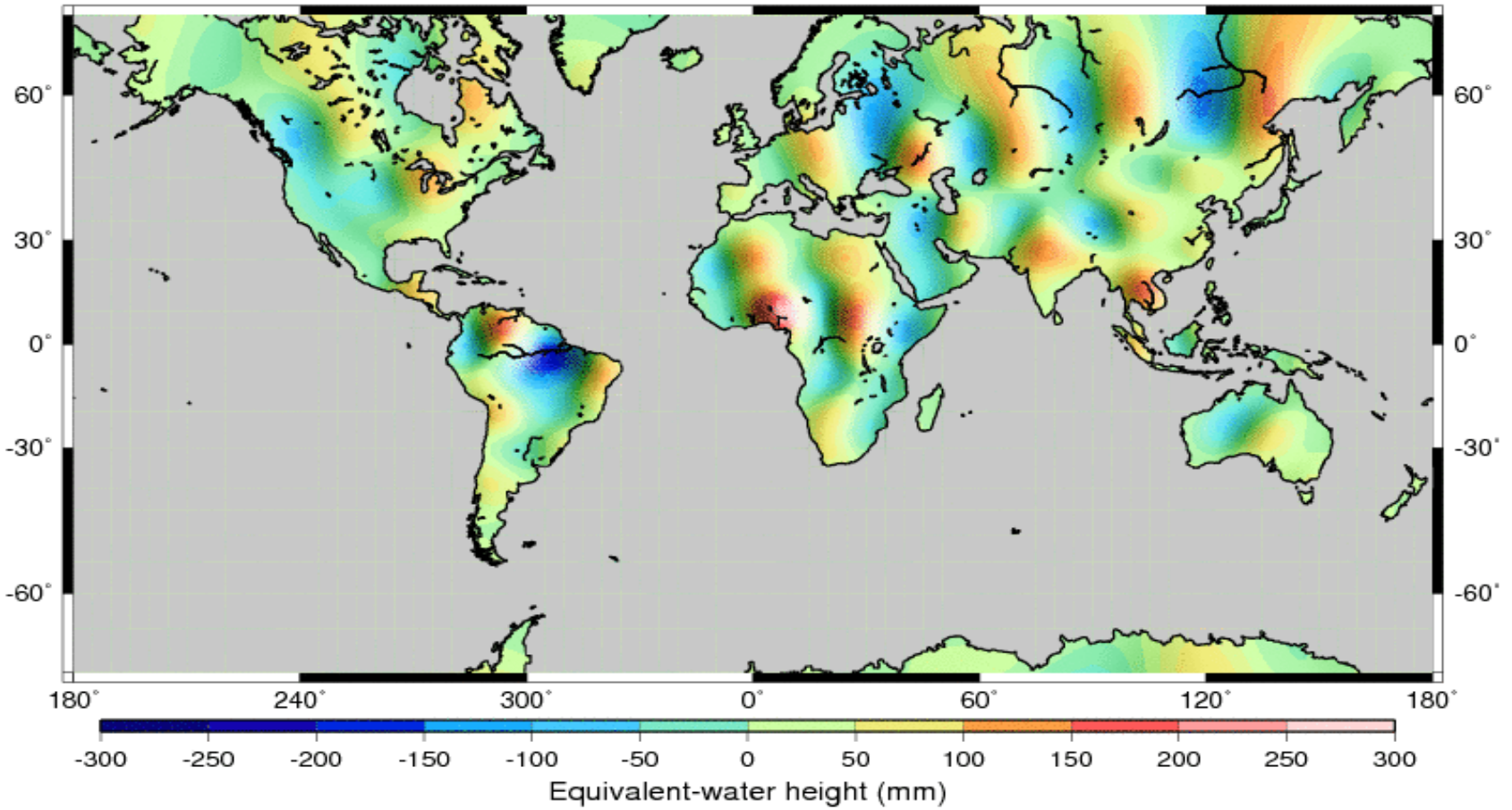

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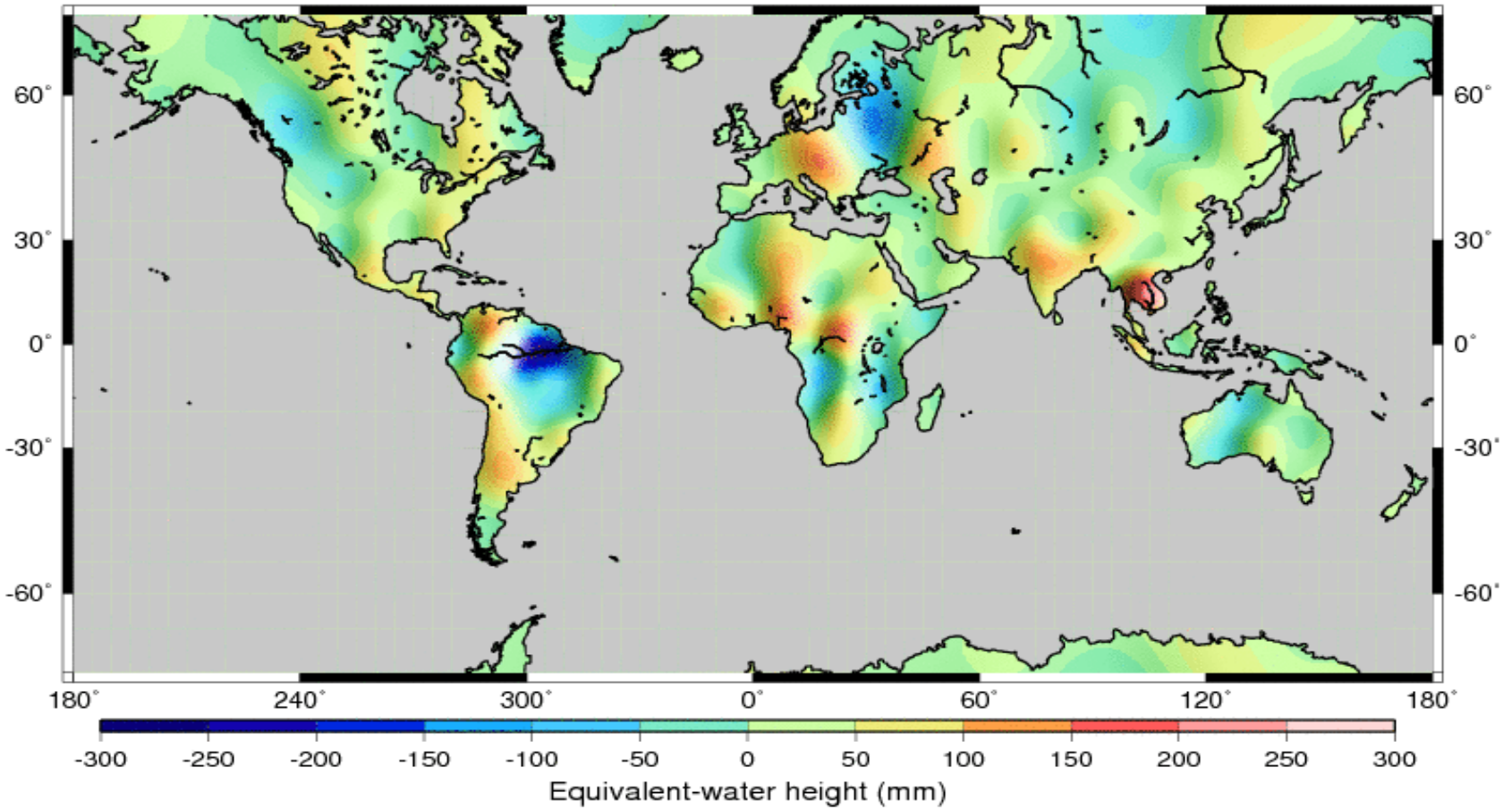

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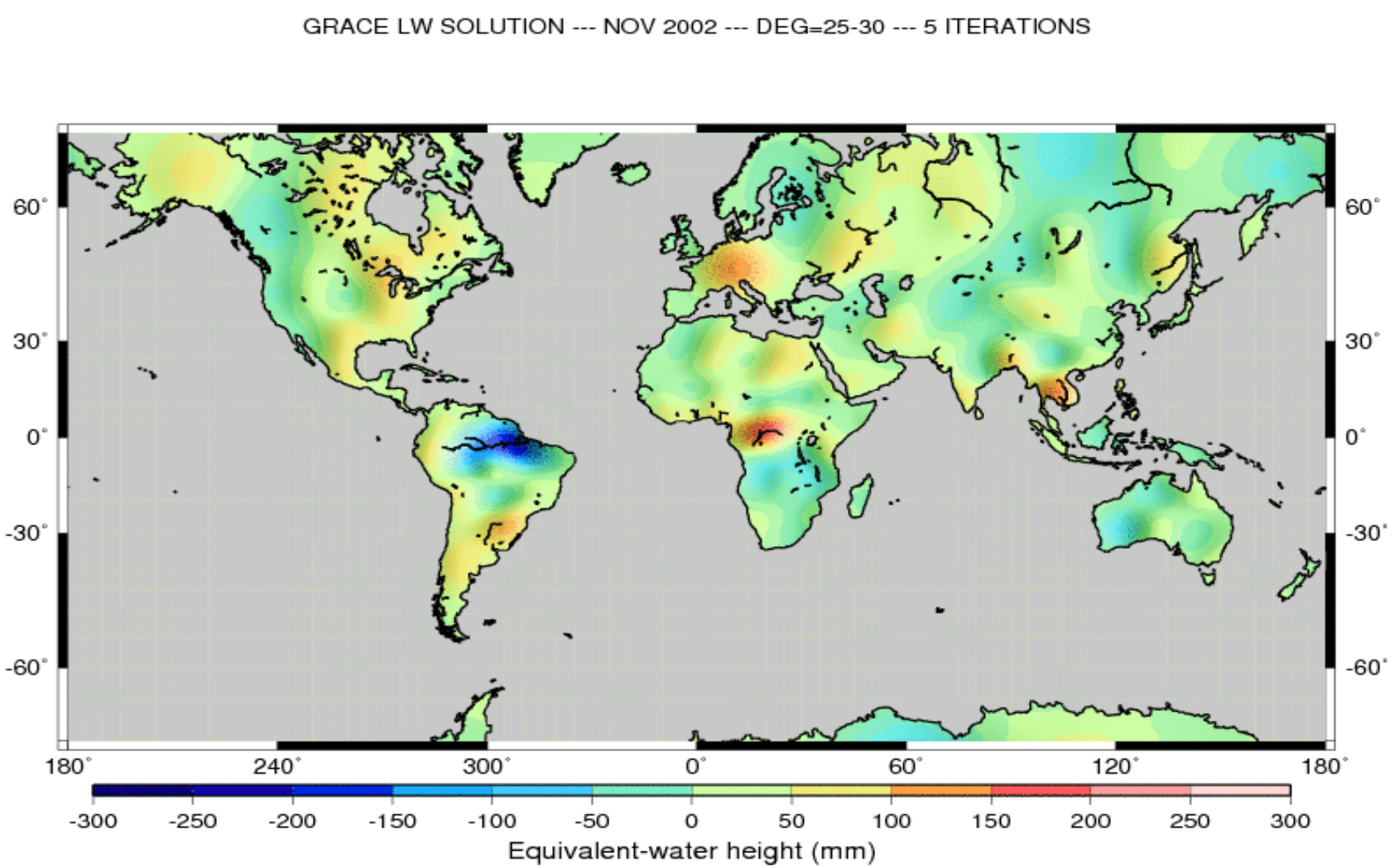

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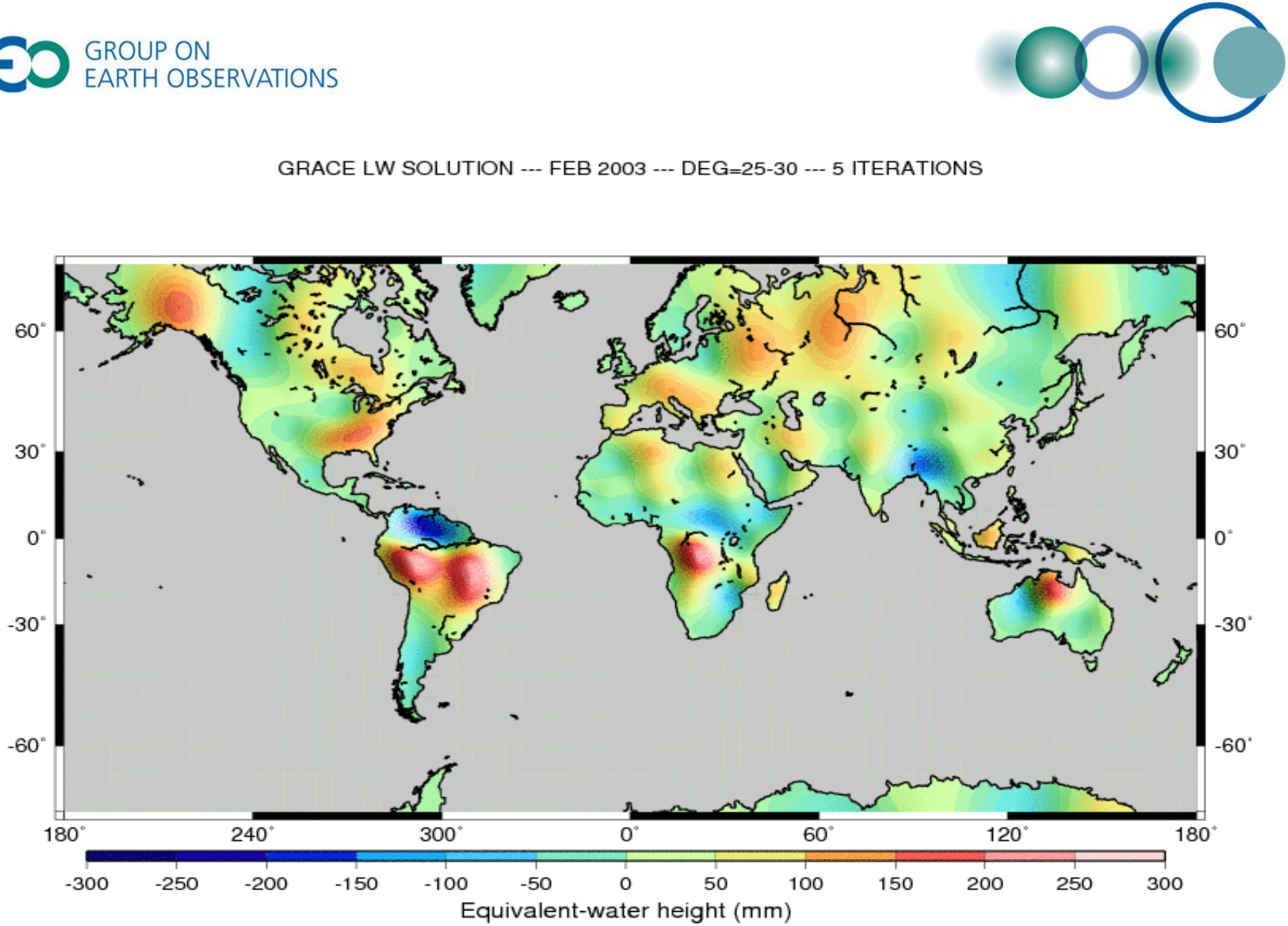

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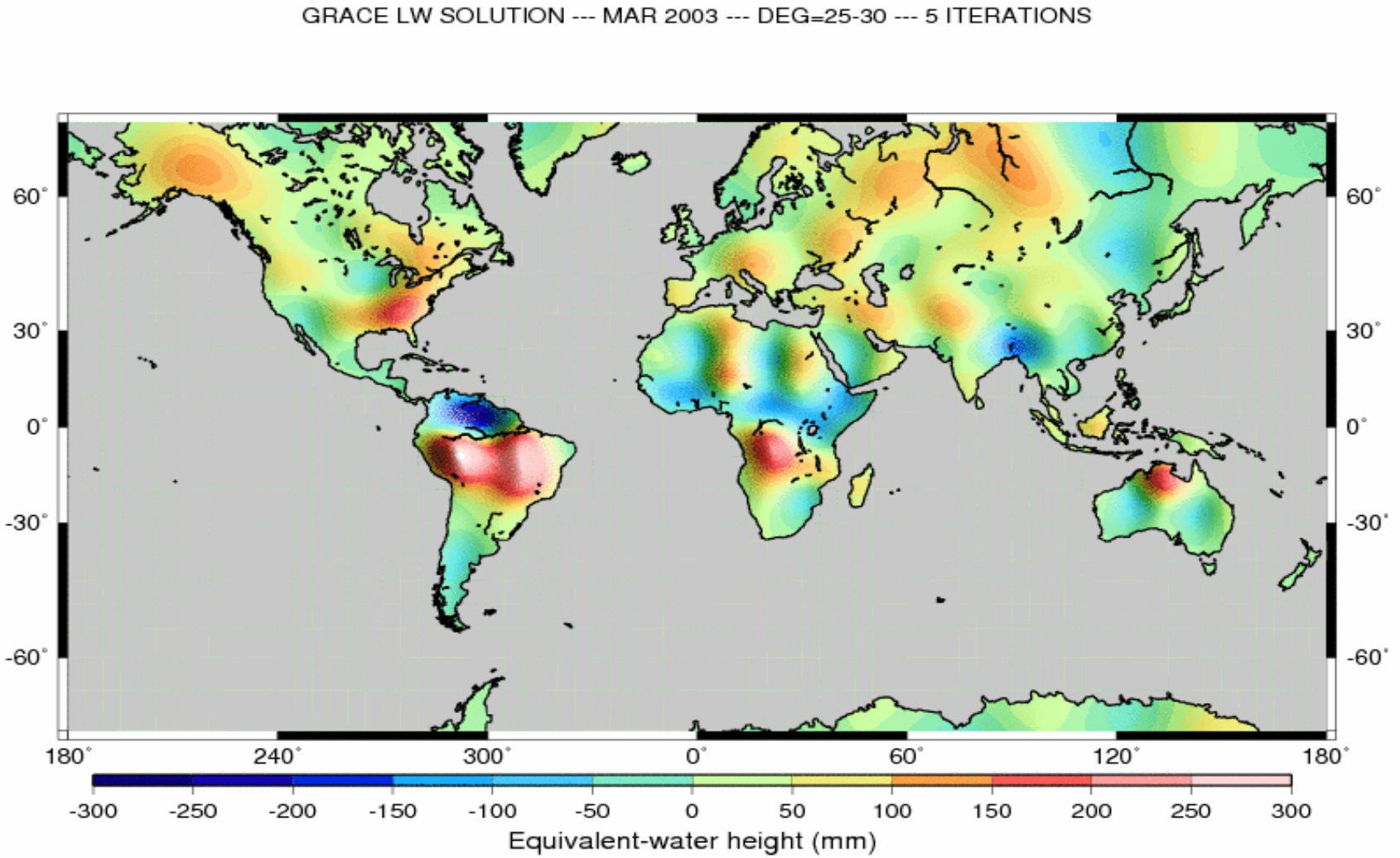

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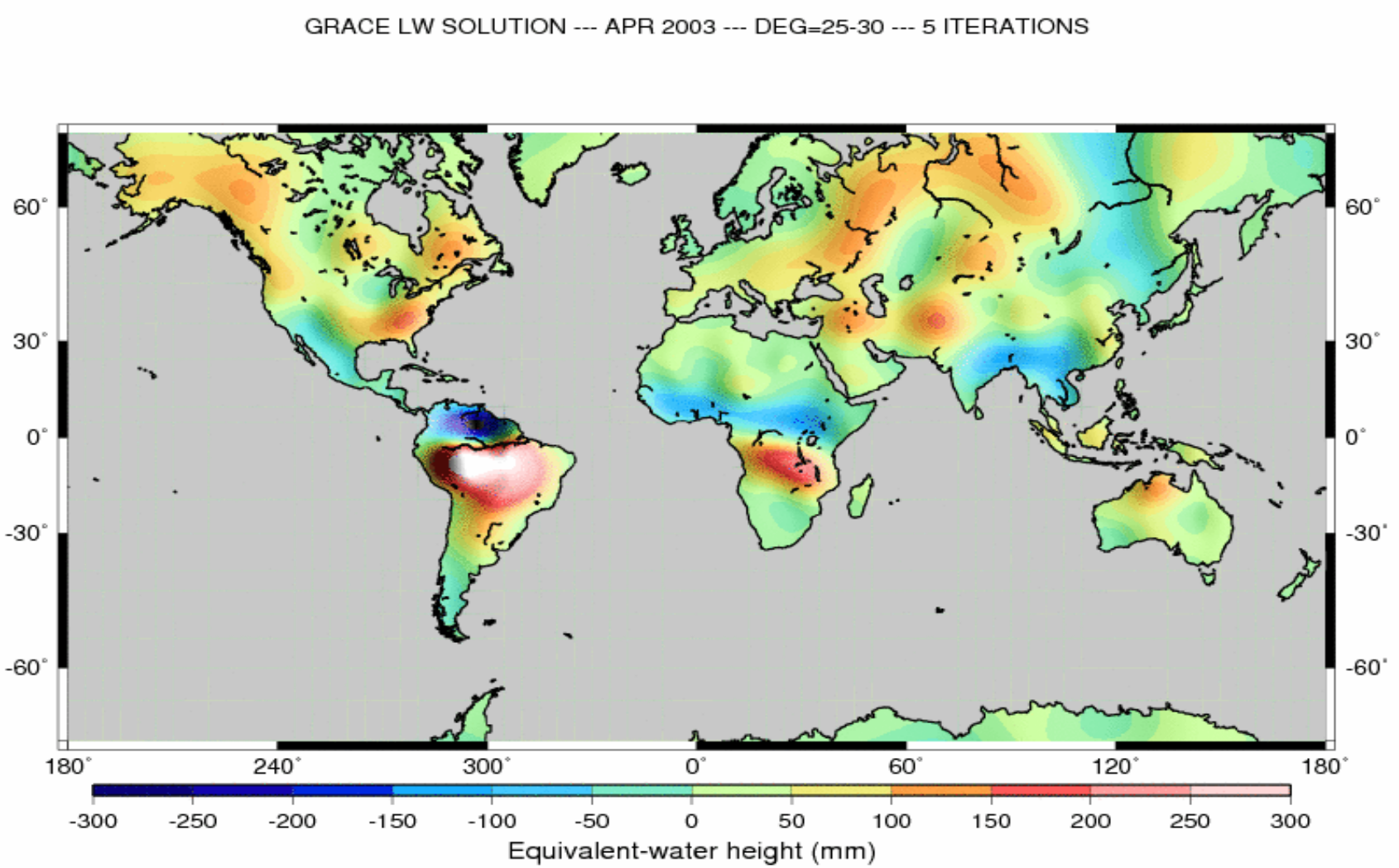

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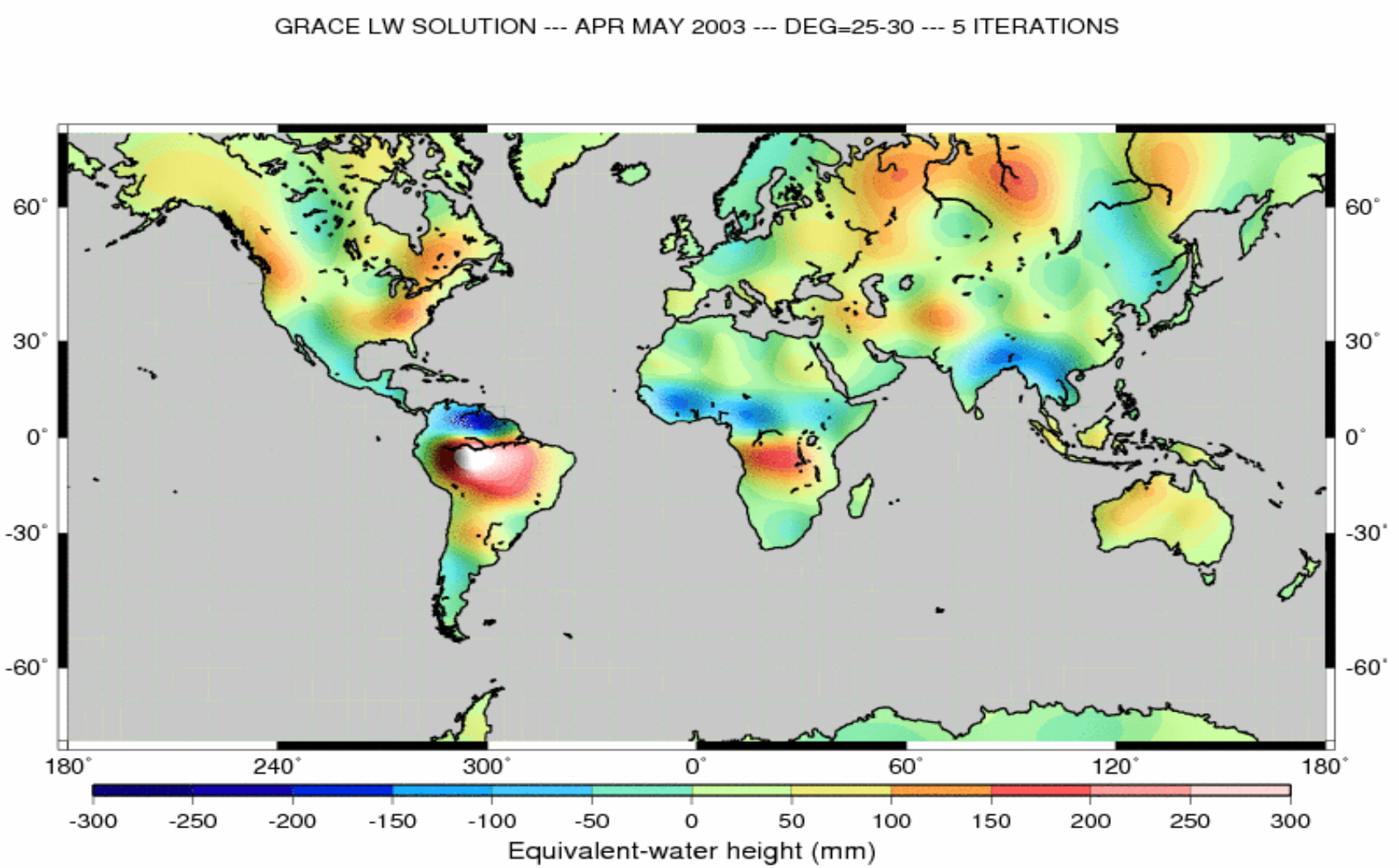

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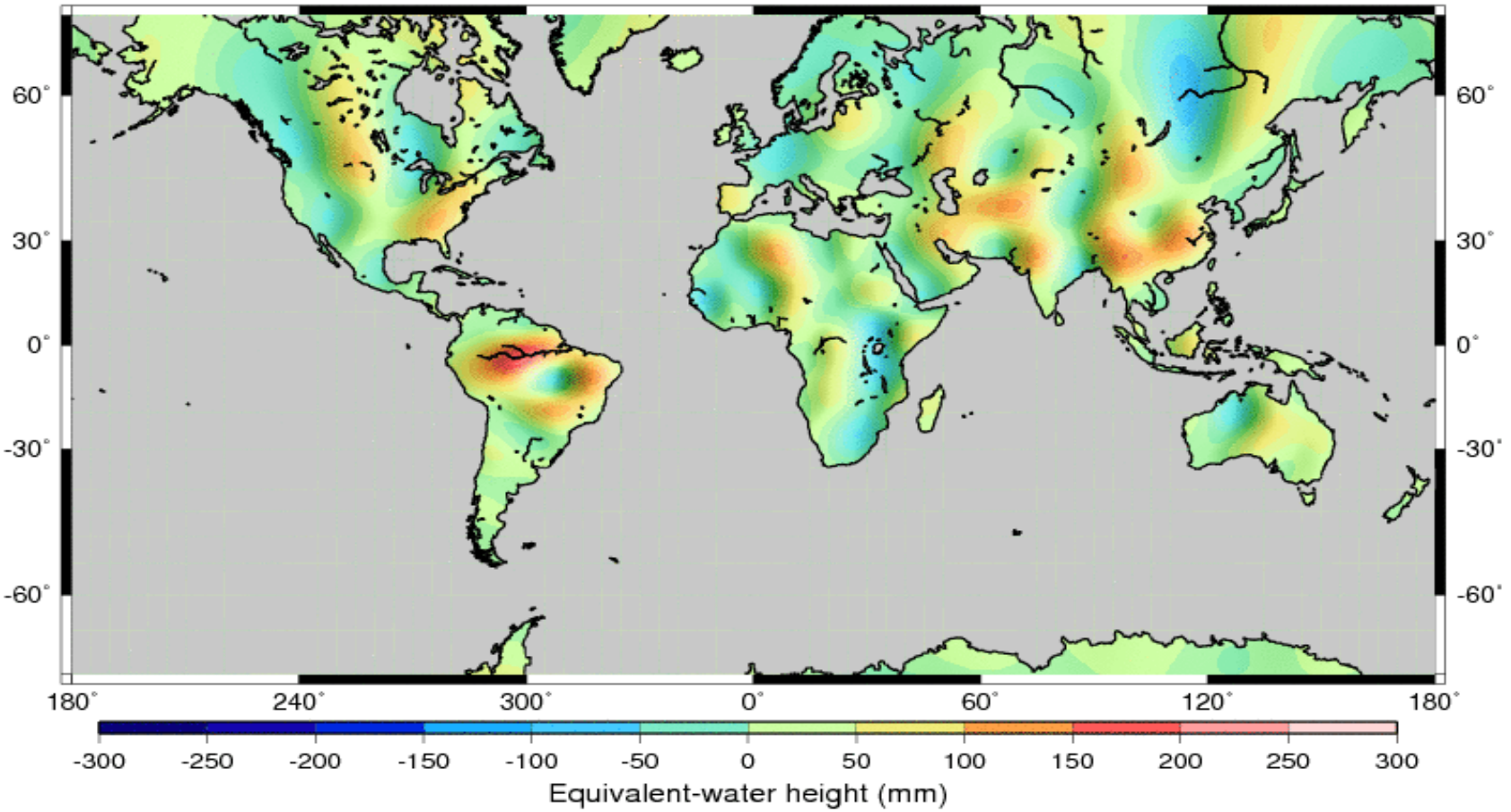
GRACE LW SOLUTION --- JUL 2003 --- DEG=25-30 --- 5 ITERATIONS



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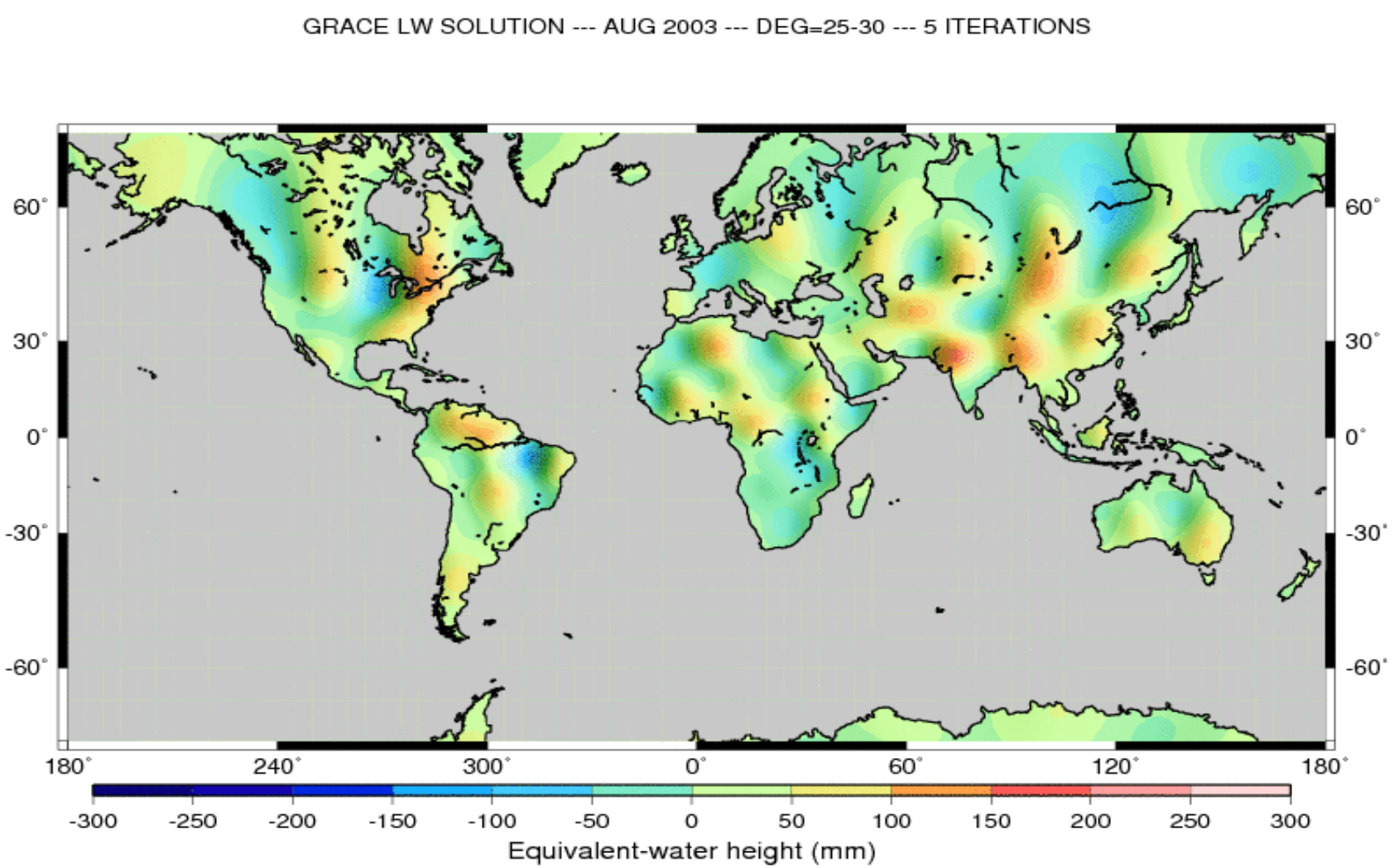

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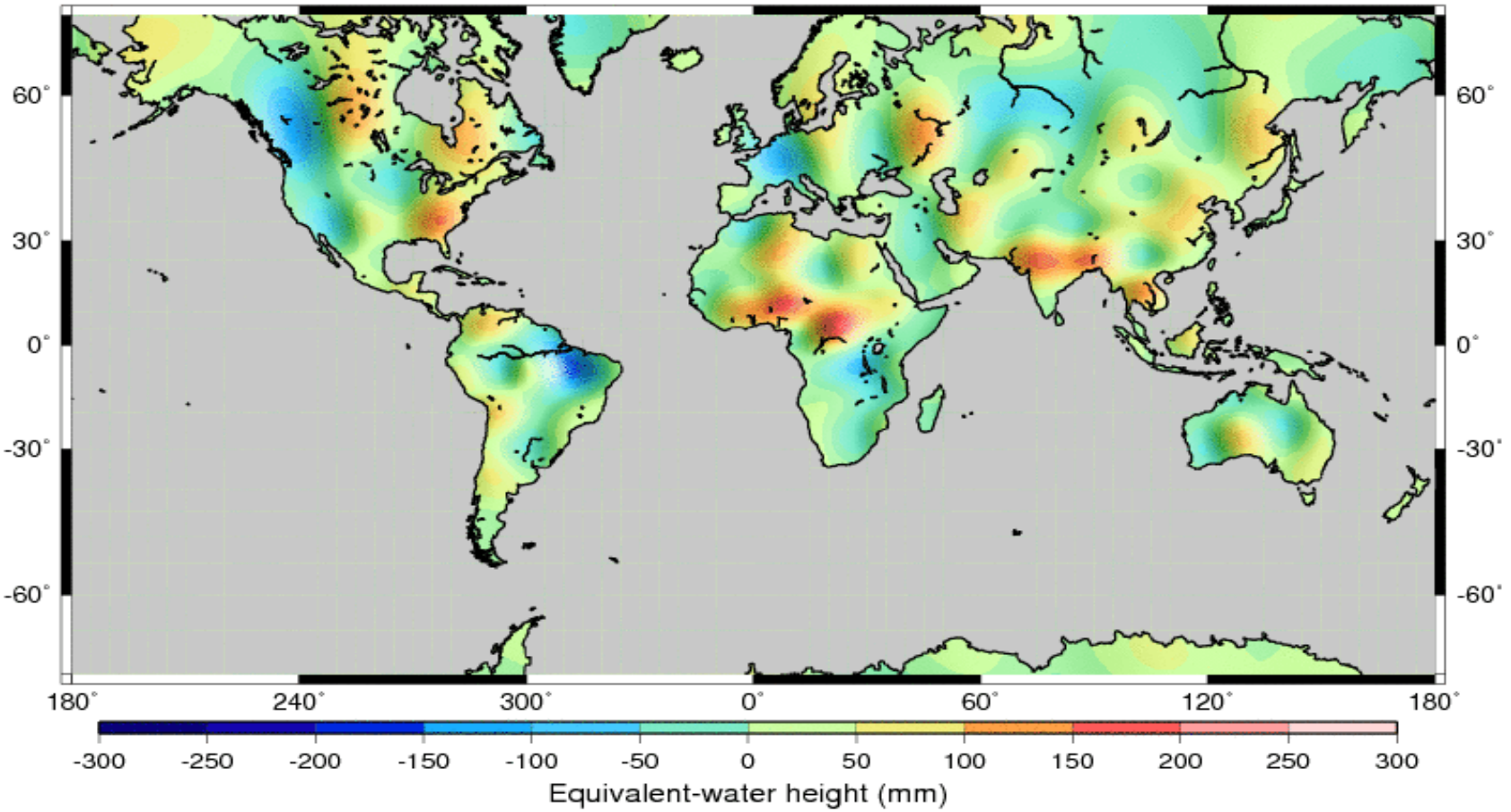
GRACE LW SOLUTION --- SEP 2003 --- DEG=25-30 --- 5 ITERATIONS



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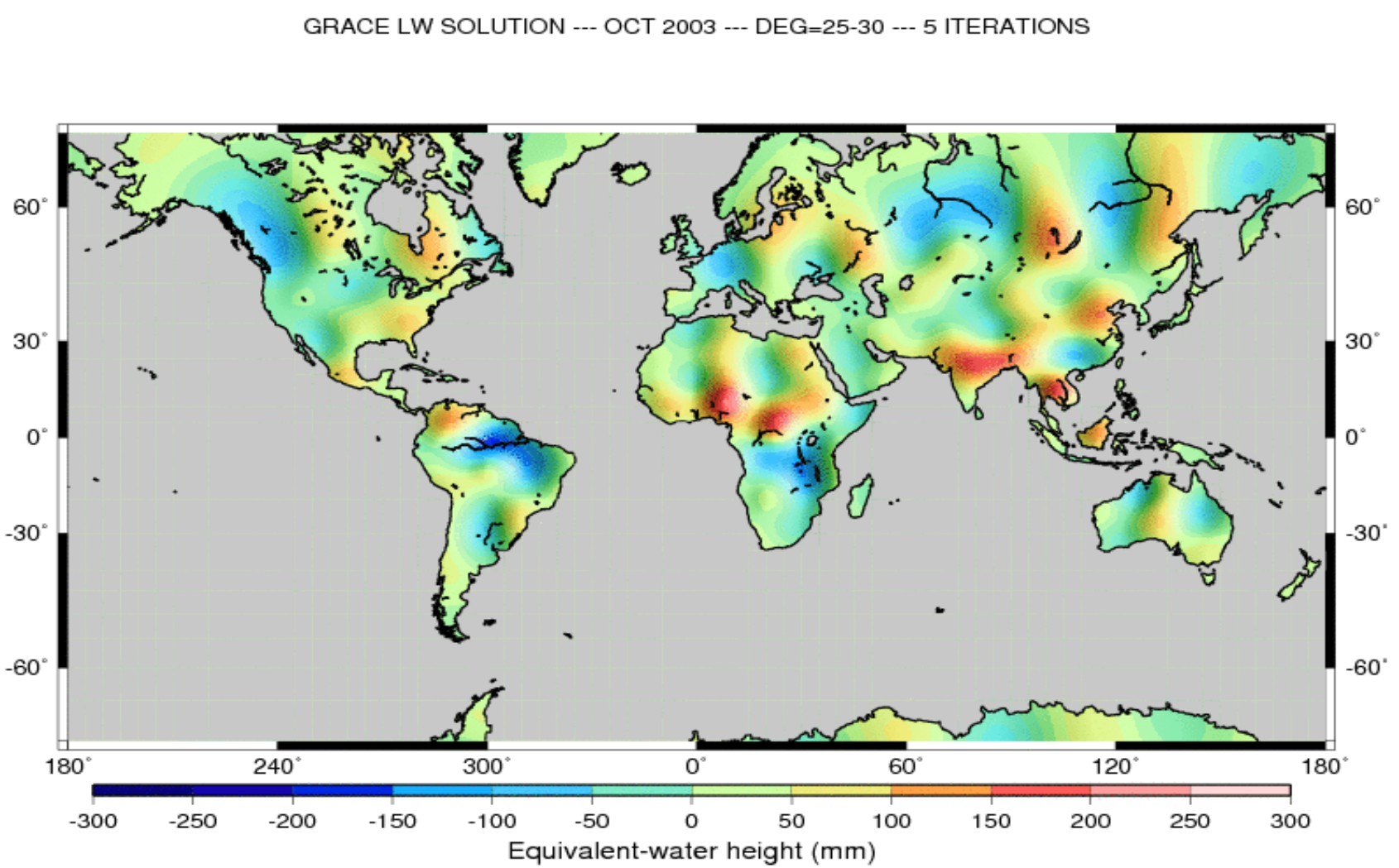

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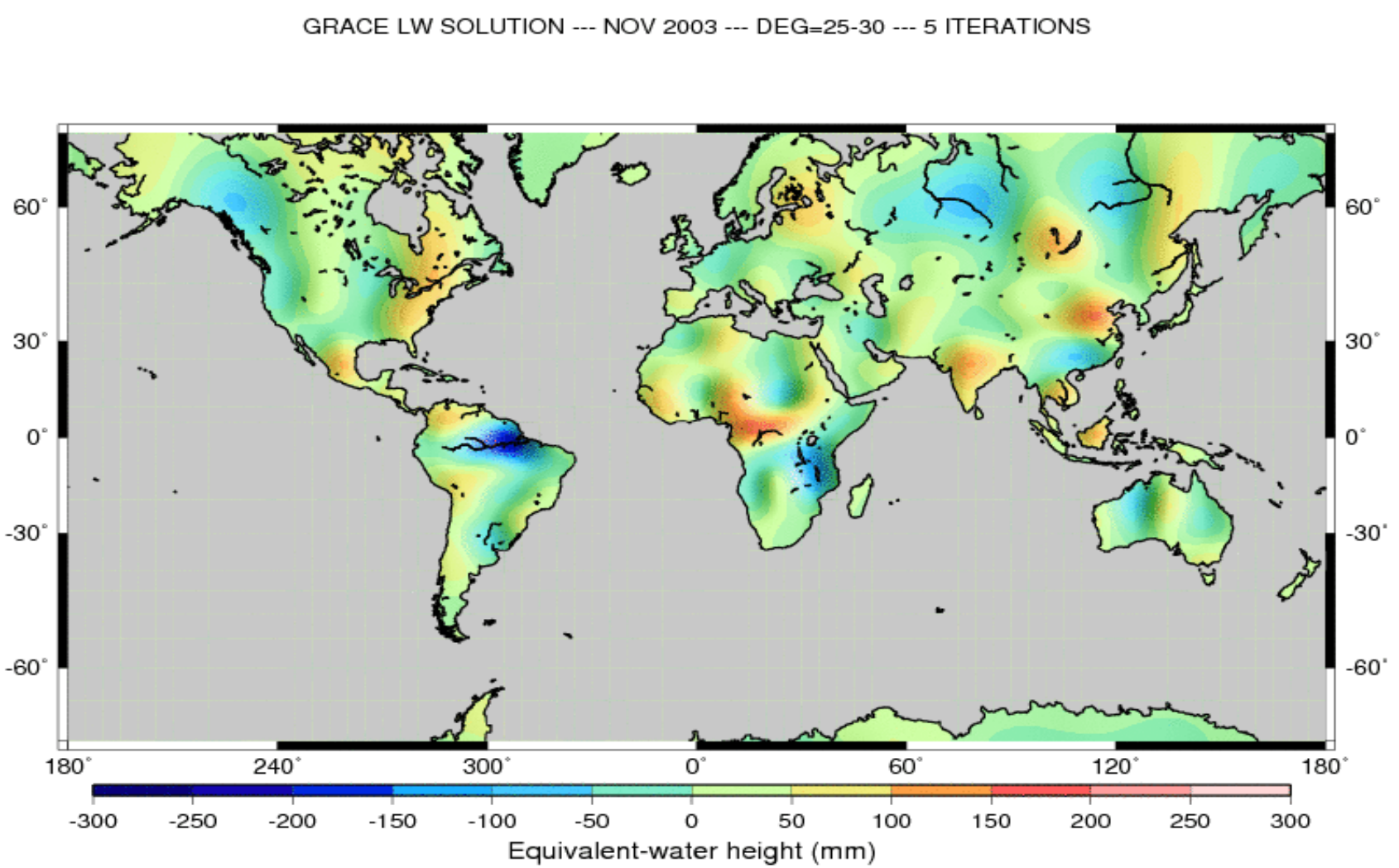

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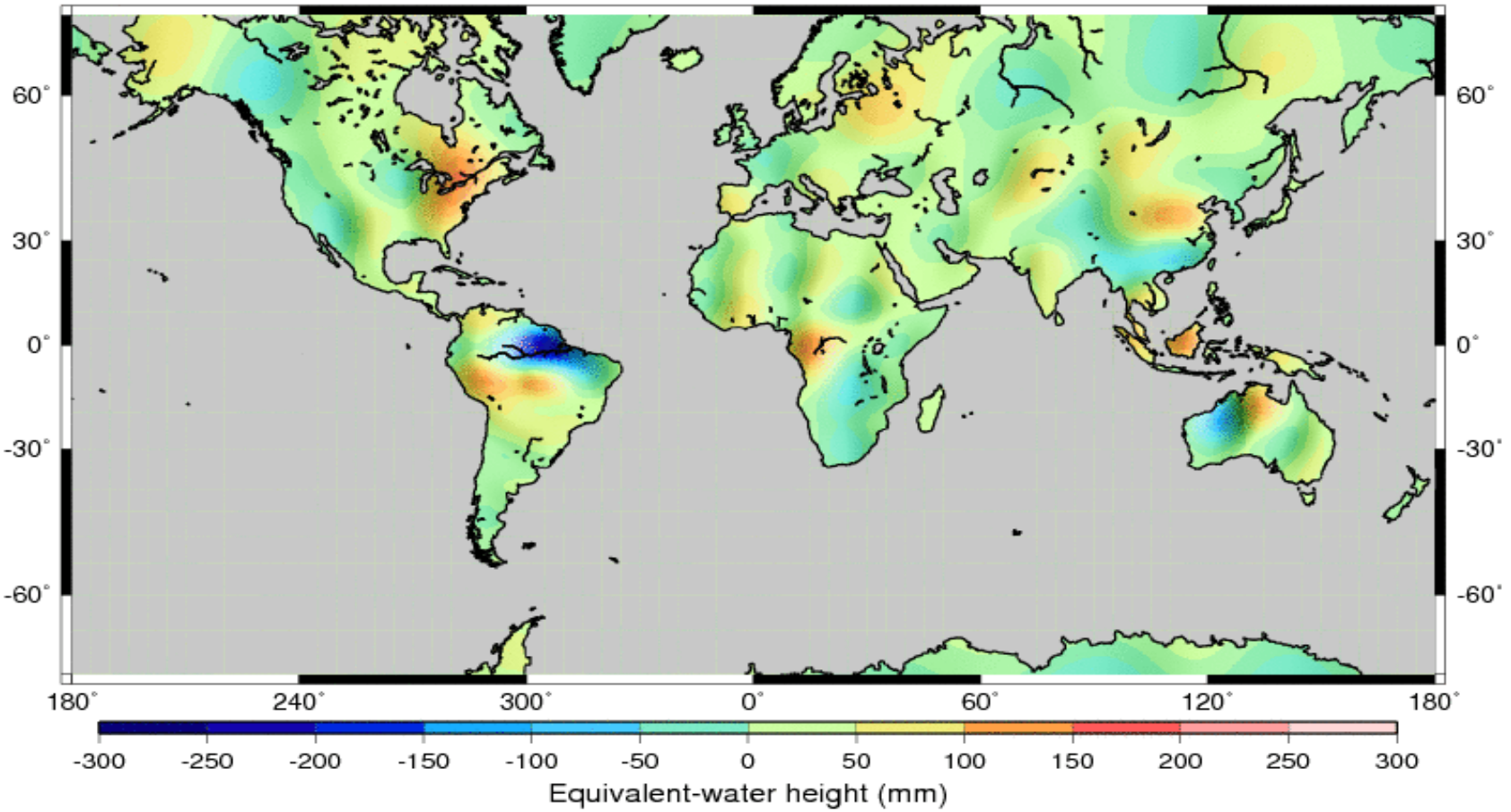
GRACE LW SOLUTION --- DEC 2003 --- DEG=25-30 --- 5 ITERATIONS



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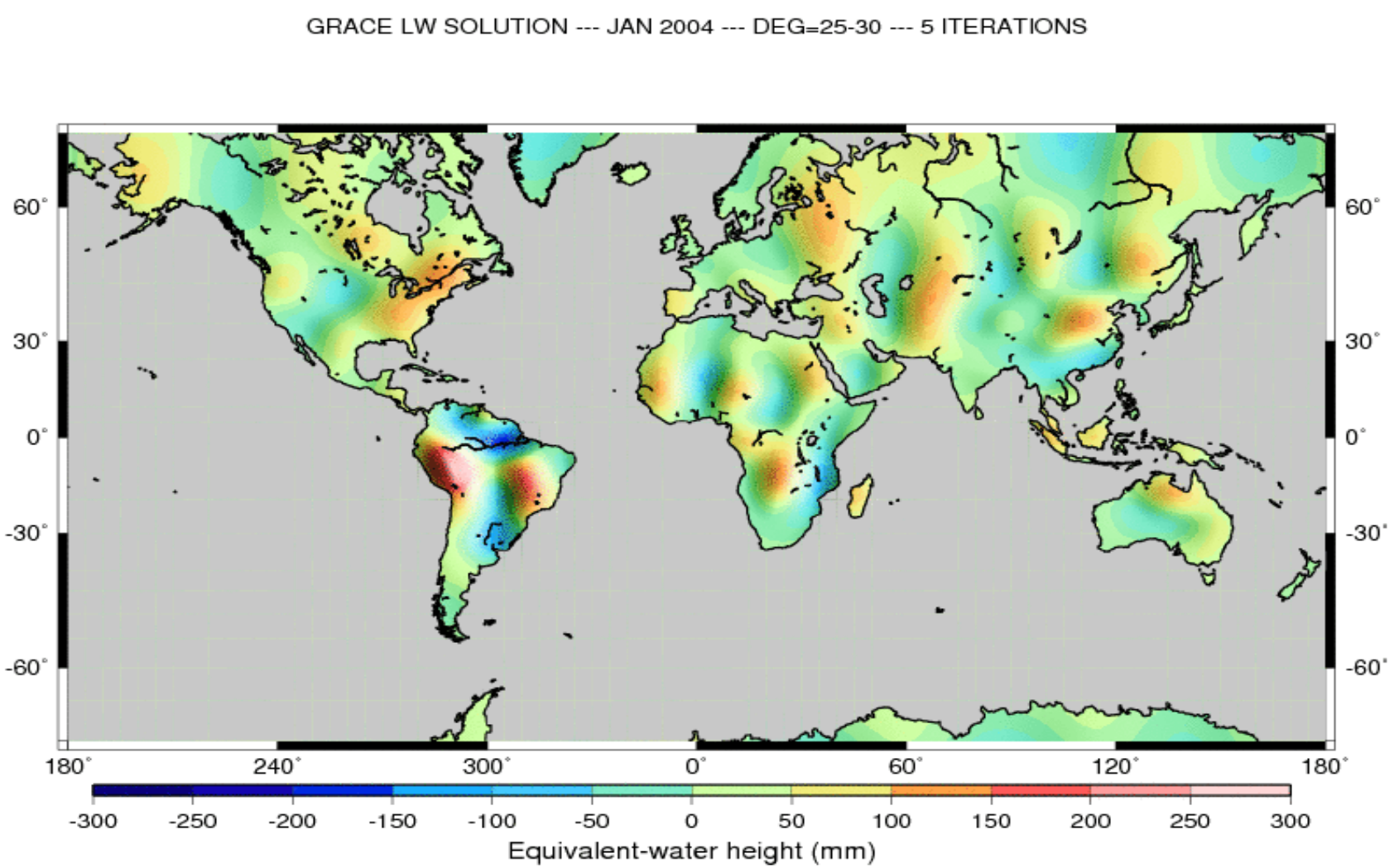

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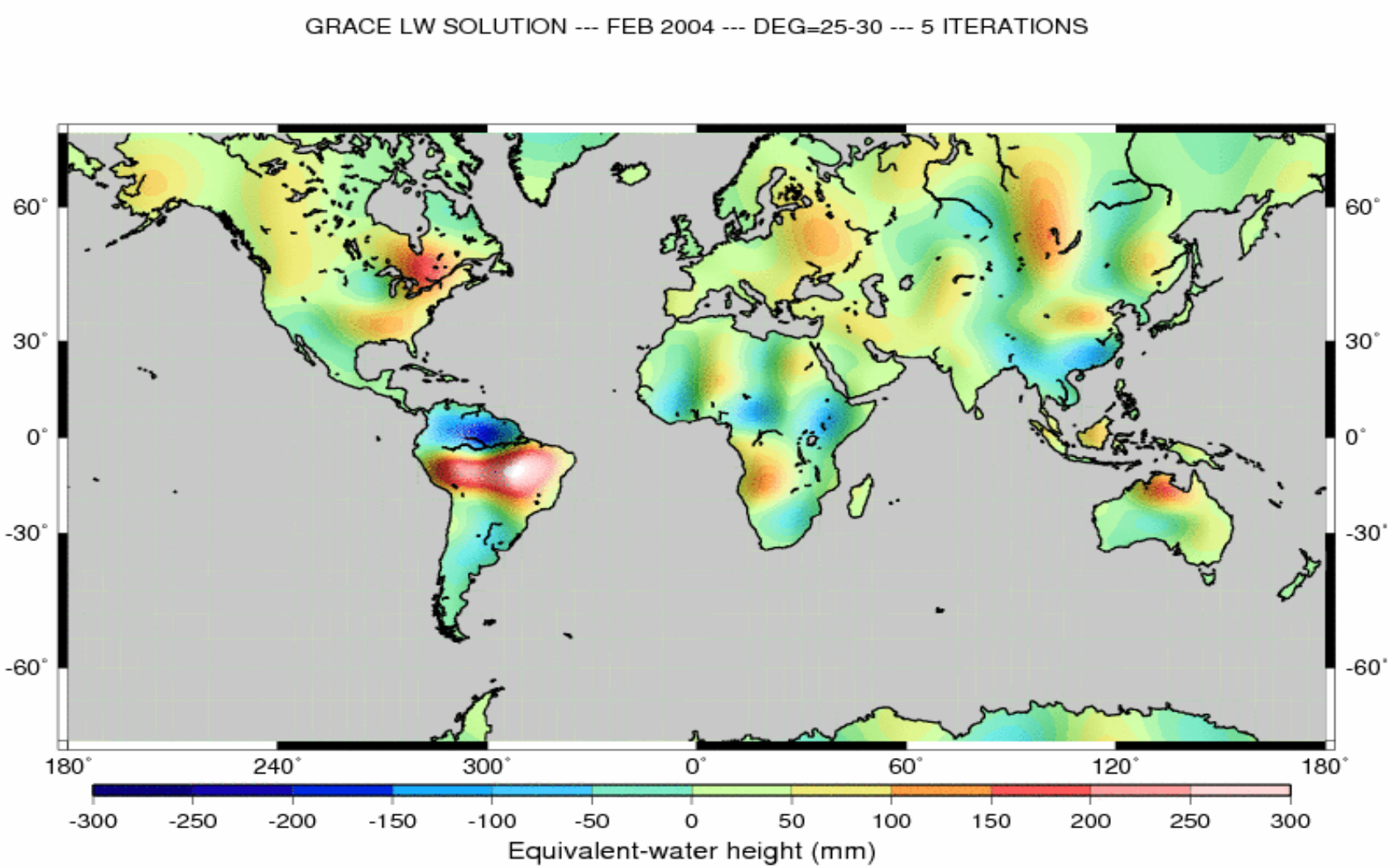

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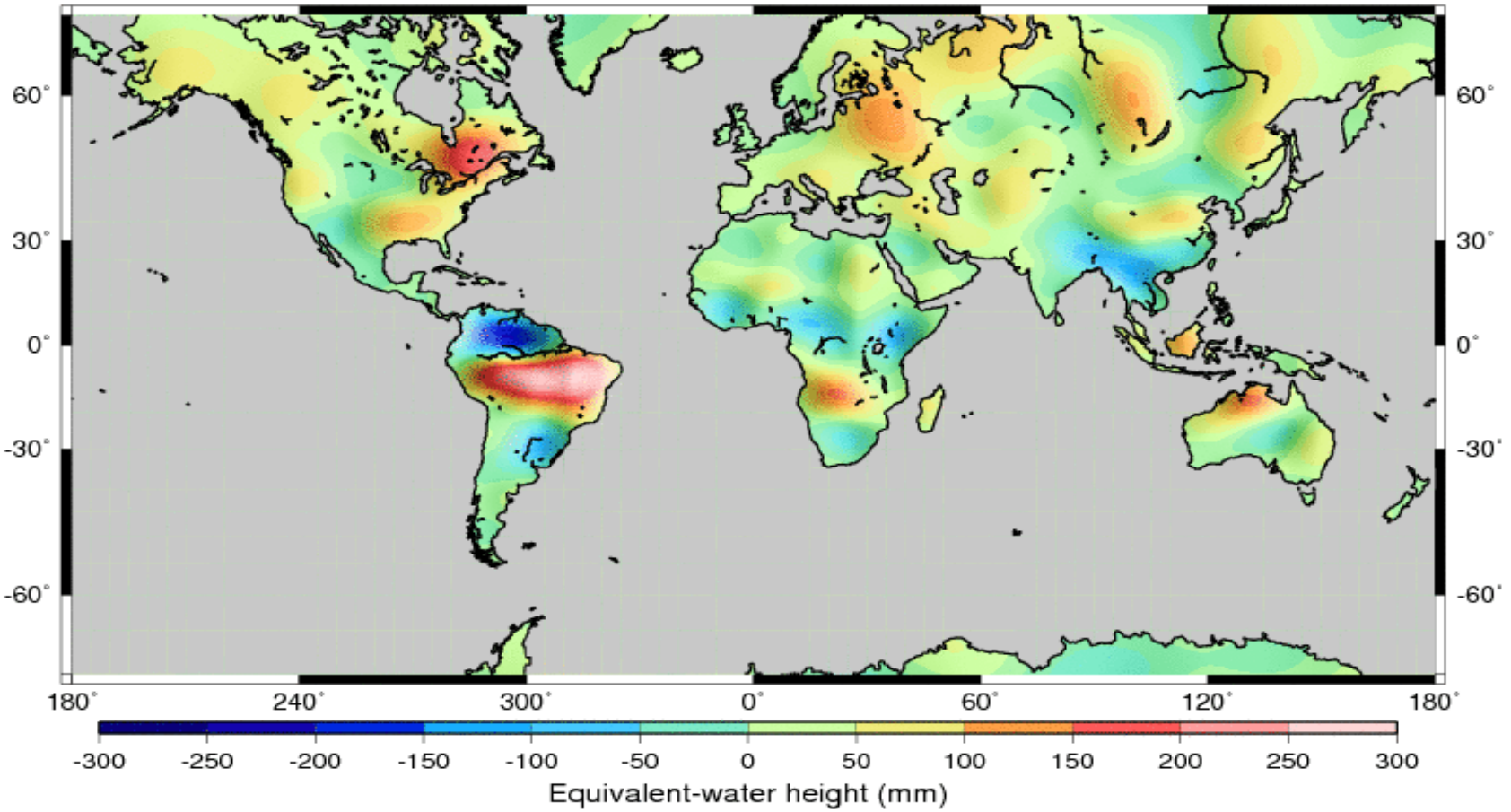
GRACE LW SOLUTION --- MAR 2004 --- DEG=25-30 --- 5 ITERATIONS



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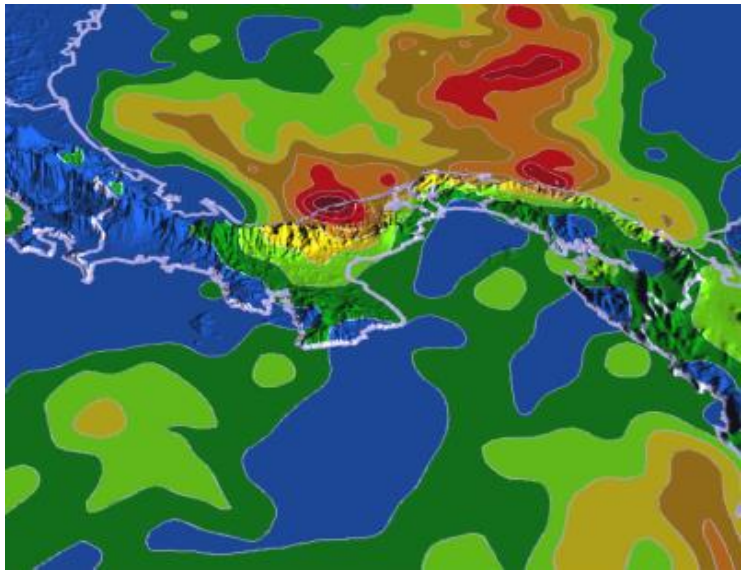
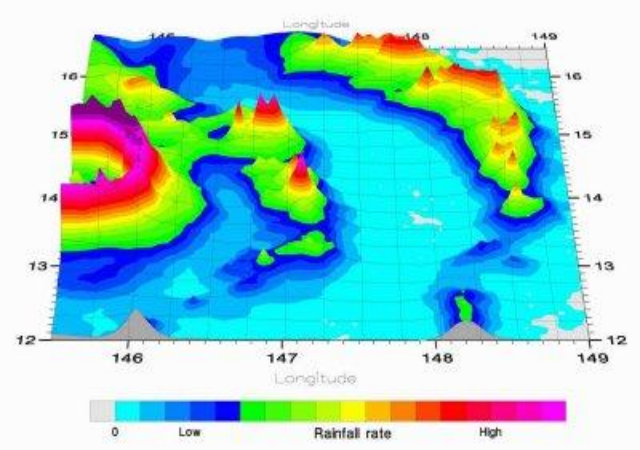
Precipitation (USA, Japan)



TRMM

GPM



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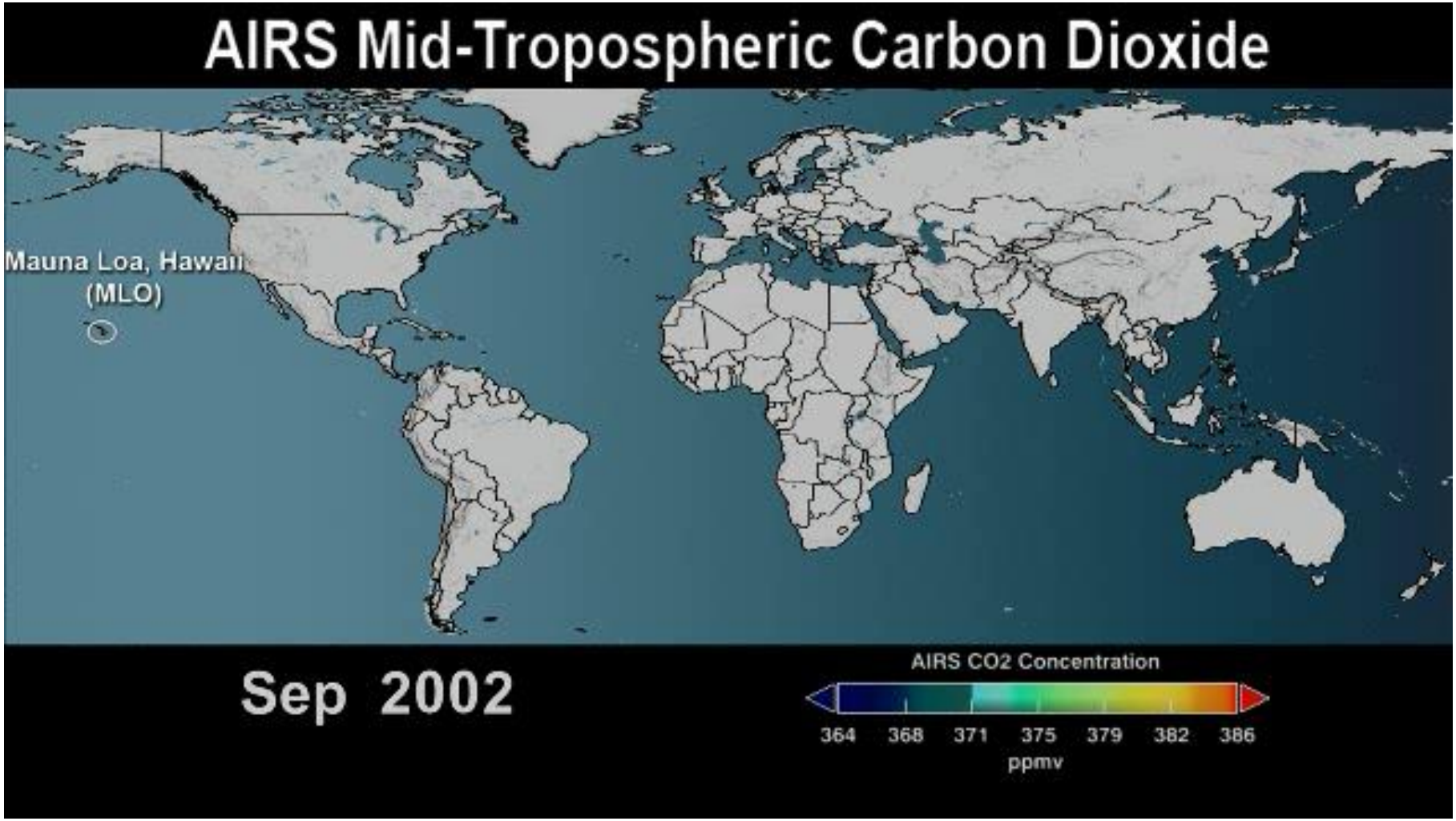
Atmospheric Water Vapor (NASA)



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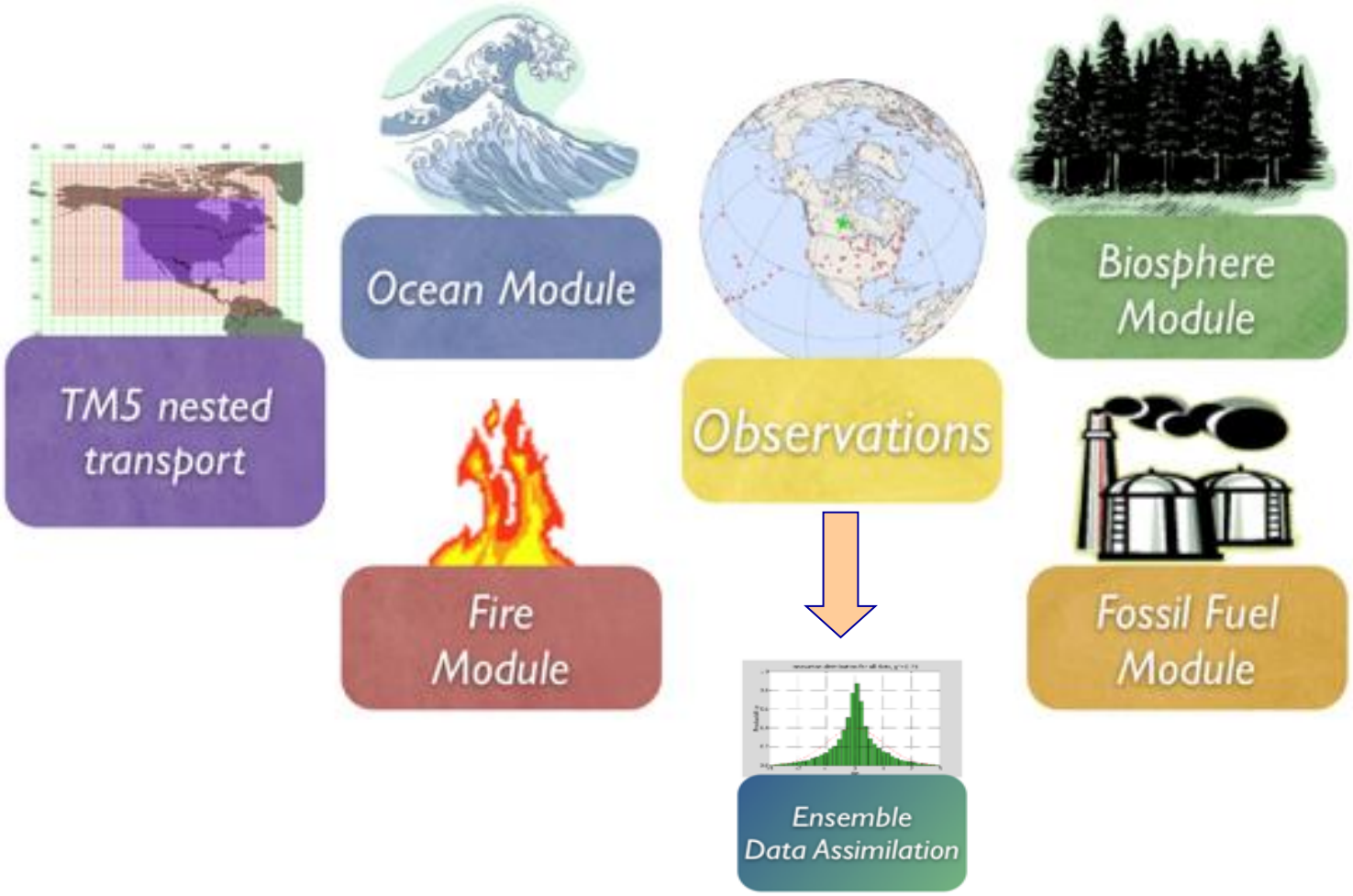
A global carbon monitoring system



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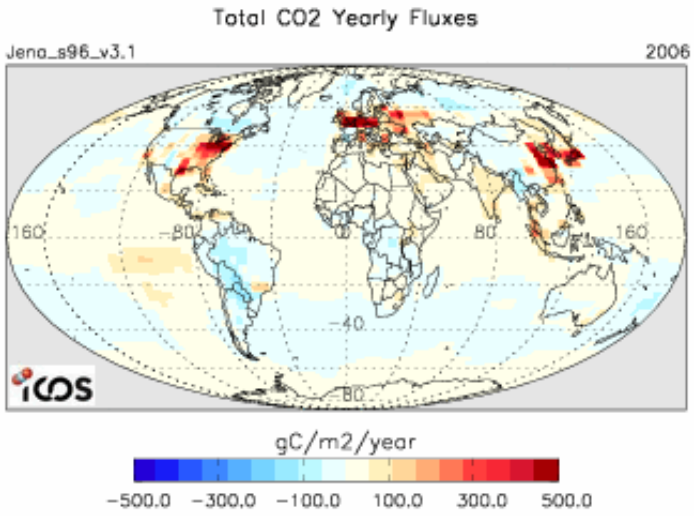
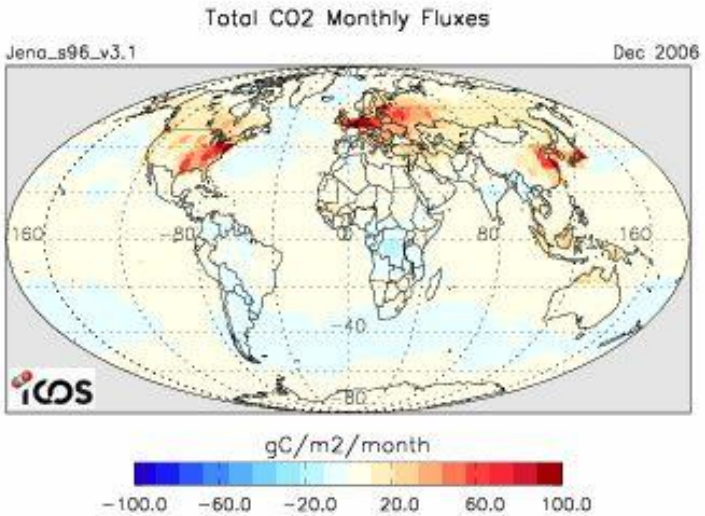
Yearly fluxes 1996-2006



Monthly fluxes 2006



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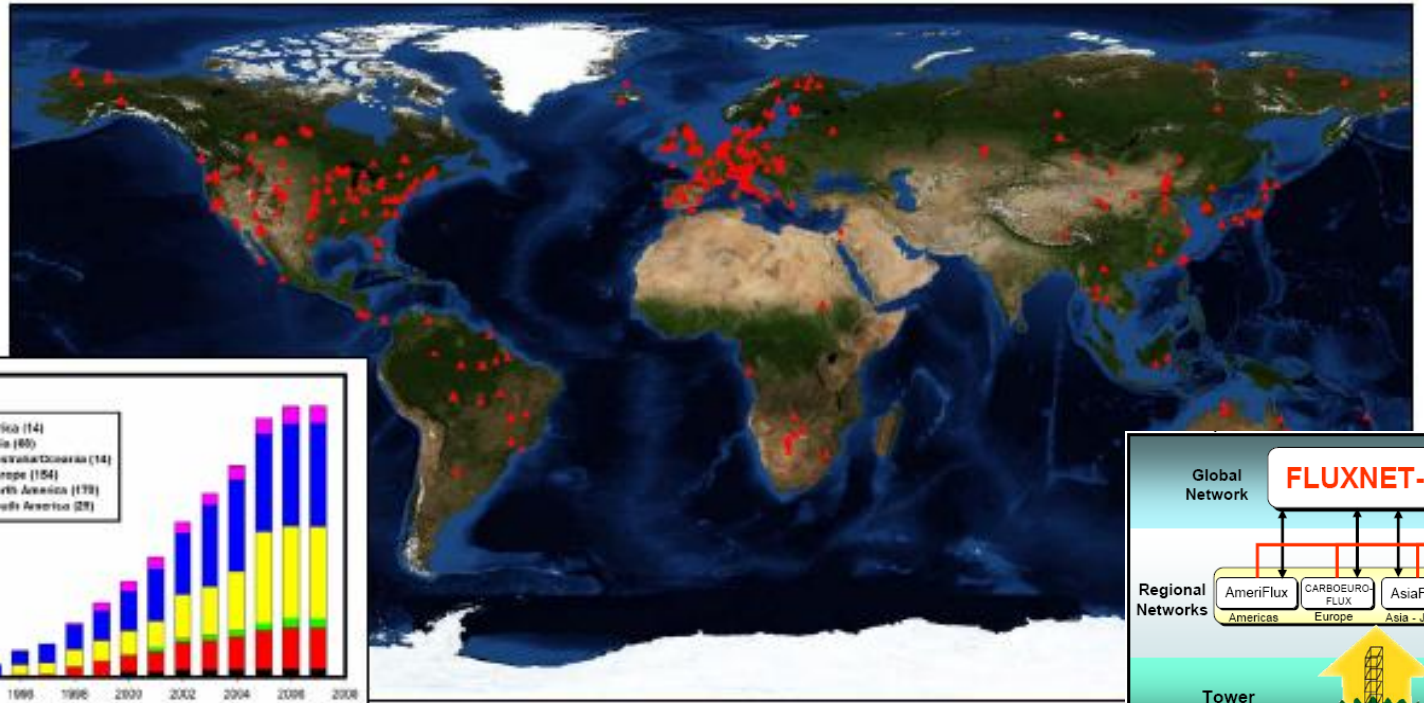
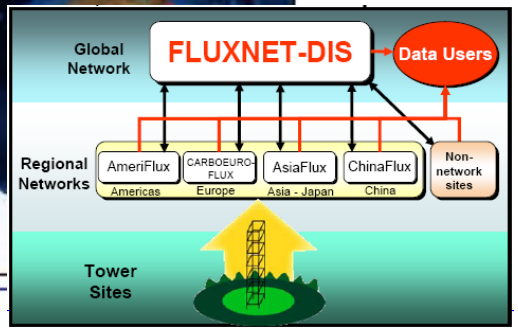
Fluxnet: A Global Network of Flux Tower Networks

More than 550 towers from >10 regional networks and 46 countries worldwide





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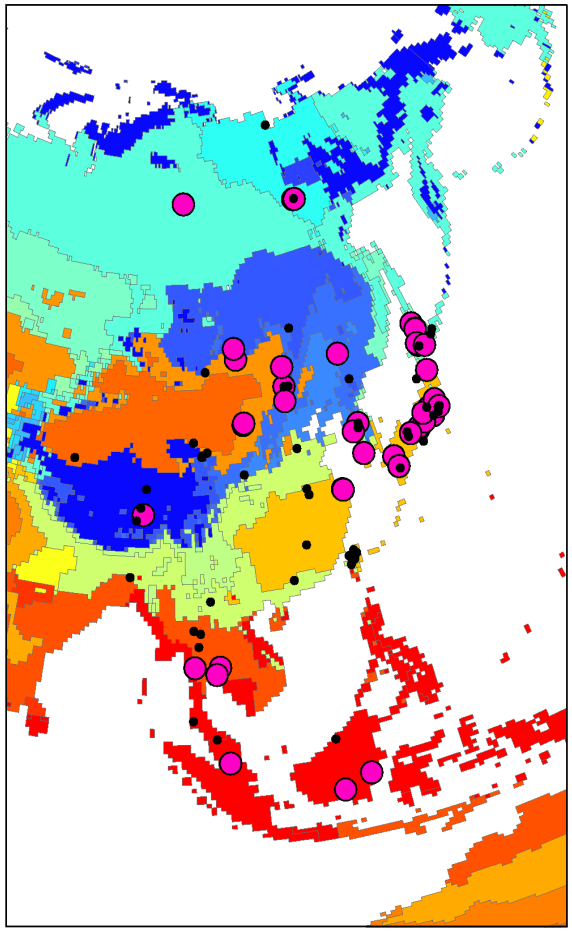
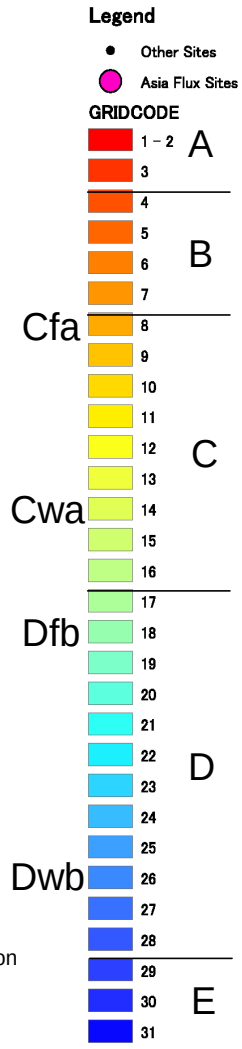
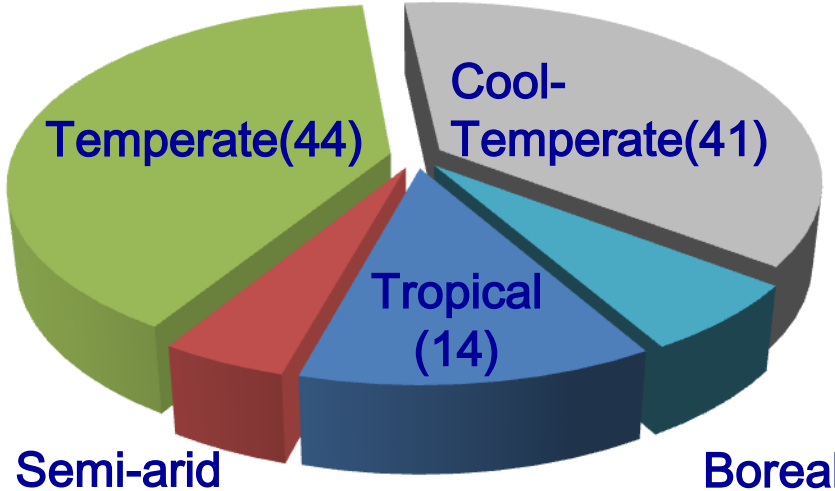
AsiaFlux "Science Frontier"





Tower Flux Sites on the Koeppen-Geiger Climate classification
(Kottek et al., 2006)
Mapping by courtesy of Dr.H.Daimaru
(Data version: Sep.04,2007)

Number of sites: 111 (68)*
Number of sites listed in the AsiaFlux web page: 45 (39)*
* currently continuing



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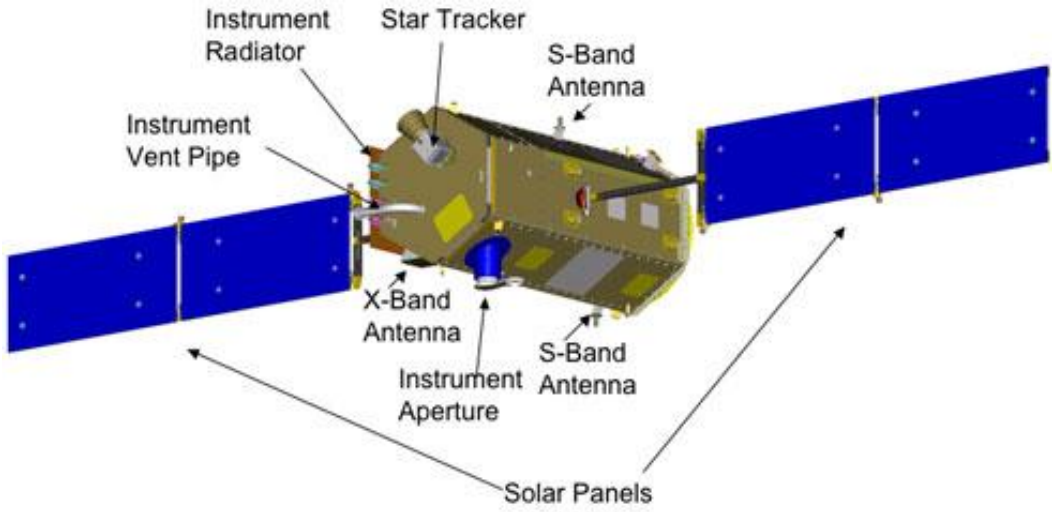
Space Observation: The Present

Space Observations: The Future

GOSAT (JAXA)
Launched on 23 January

OCO (NASA)
Launch failure
☹



Forest Mapping and Carbon Tracking (Australia, Finland, Japan, Norway, USA, EC, FAO, GOFC-GOLD,CEOS)

GEO is developing a collaborative forest monitoring system which will

- consolidate observation requirements and reference products;
- coordinate the provision of remote sensing data and integrate data from different sources in order to ensure operational observations and relevant products;
- define and activate a limited number of test sites for pilot projects focused on in situ observation, validation of methodologies and tools, and capacity building.

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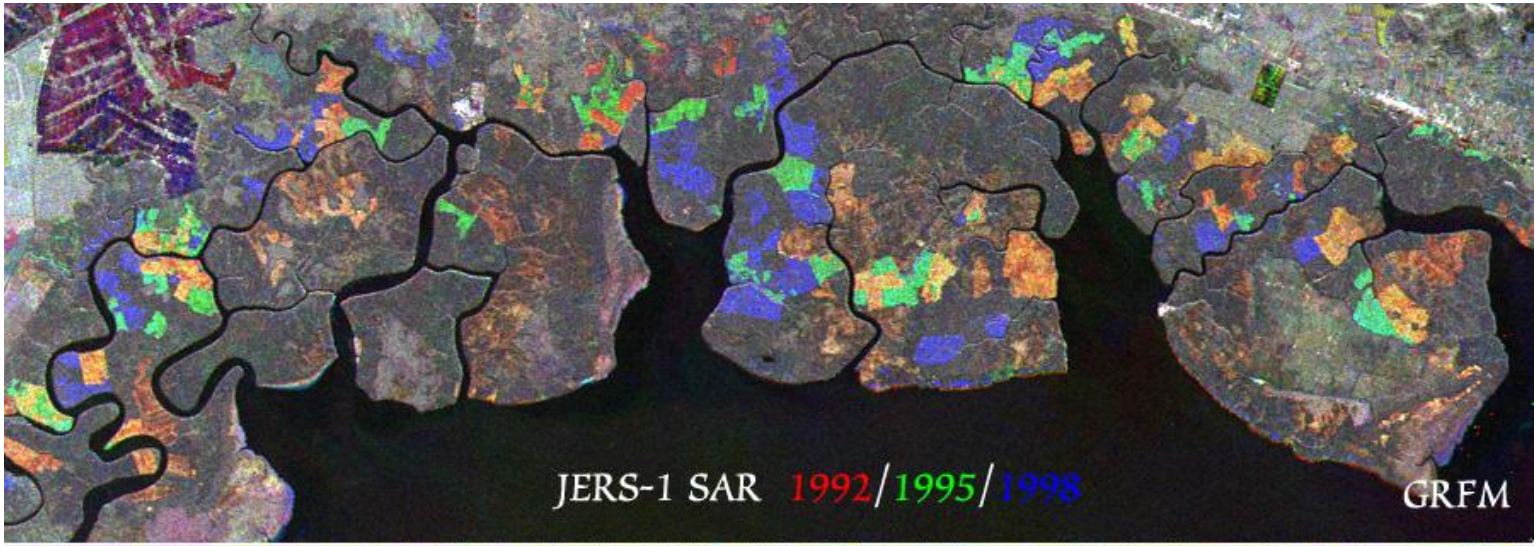
Forest Mapping and Carbon Tracking



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GEO BON : A Biodiversity Observation Network

- Provide a global, robust framework for observations of biodiversity changes

- Coordinate the data gathering and delivery of biodiversity change information

GROUP ON EARTH OBSERVATIONS

Develop GEOSS for AFRICA through the Coordination of International Initiatives

SERVIR Africa (under development)

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http://www.servir.net/africa/

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SERVIR

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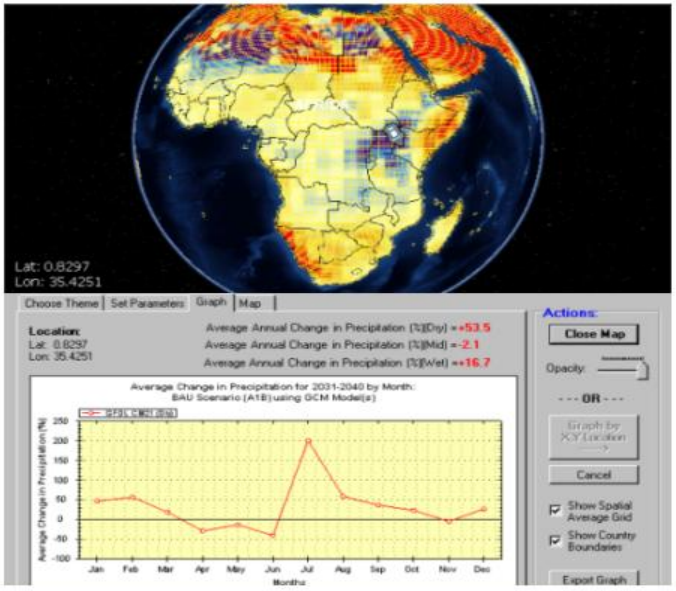
The SERVIR-Africa website is under development.

Over the next few weeks, we will continue to add new content and functionality. Please check back soon, or sign up to receive notification of changes.

Coming Soon - Online Map Tools

Featured Map | Viewer 2D | Viewer 3D

Title: **SERVIR-Viz Climate Mapper** More info...
Source: SERVIR
Date: Future decadal scenarios



SERVIR Mission

Enabling the use of Earth observations and predictive models for timely decision making to benefit society

Latest Community News

- Latest SDI-Africa newsletter (January 2009)
- Launch of African Soil Information Service (AfSIS)
- Lake Chad Basin Commission advancing geospatial data infrastructure
- Artificial light causing night time stresses to coral reefs
- University Buea (Cameroon) Remote Sensing Centre goes operational

More...

Latest SERVIR News

- Introductions to SERVIR-Africa facility
- SERVIR-Africa launches at RCMRD
- East and southern African Land Ministers put their support behind SERVIR-Africa
- Use of NASA satellite rainfall data for flood modeling
- SERVIR-Africa team members to attend AARSE 2008

More...

Done

Start | Novell GroupWis... | AfWCI | presentations | AfWCS.new.ppt | 8.CBC at STC De... | HARON.igrac.pp... | SERVIR AFRIC... | wwdr2_ch_4.pdf... | 2:28 PM

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SERVIR Africa

Implementing Agencies

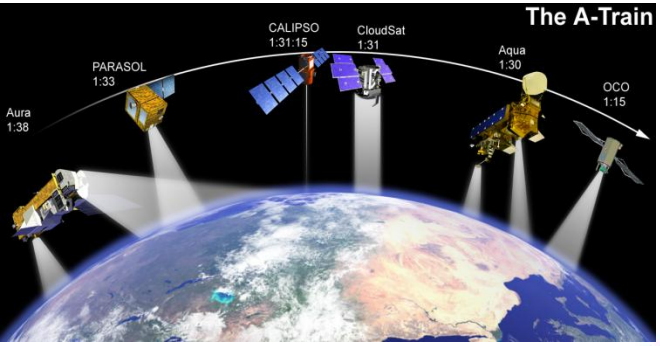

Government agencies


NGOs/Non-Profits

Universities


Business/Industry

The WMO Sand and Dust Storm Warning System



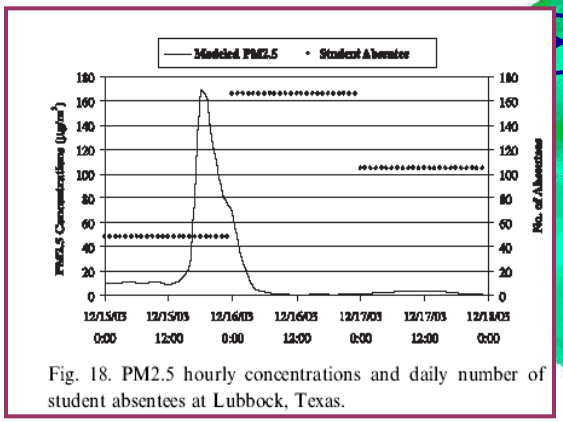
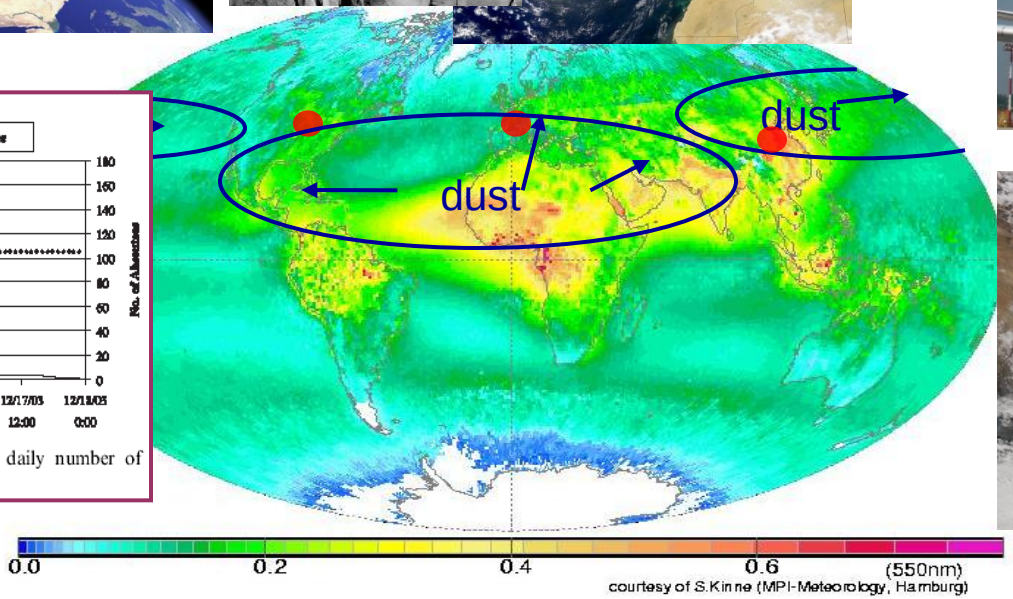
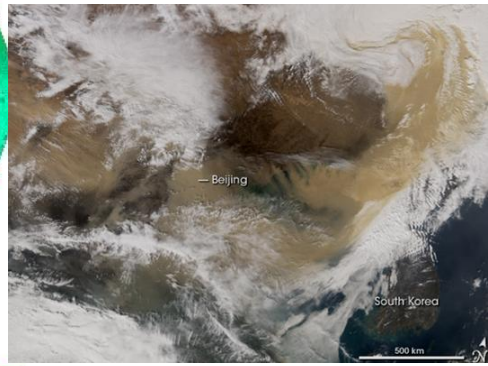


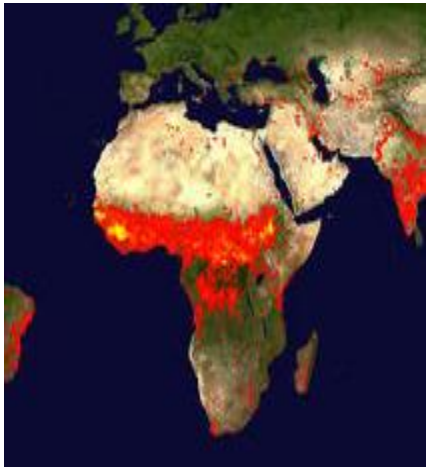
Fig. 18. PM2.5 hourly concentrations and daily number of student absentees at Lubbock, Texas.

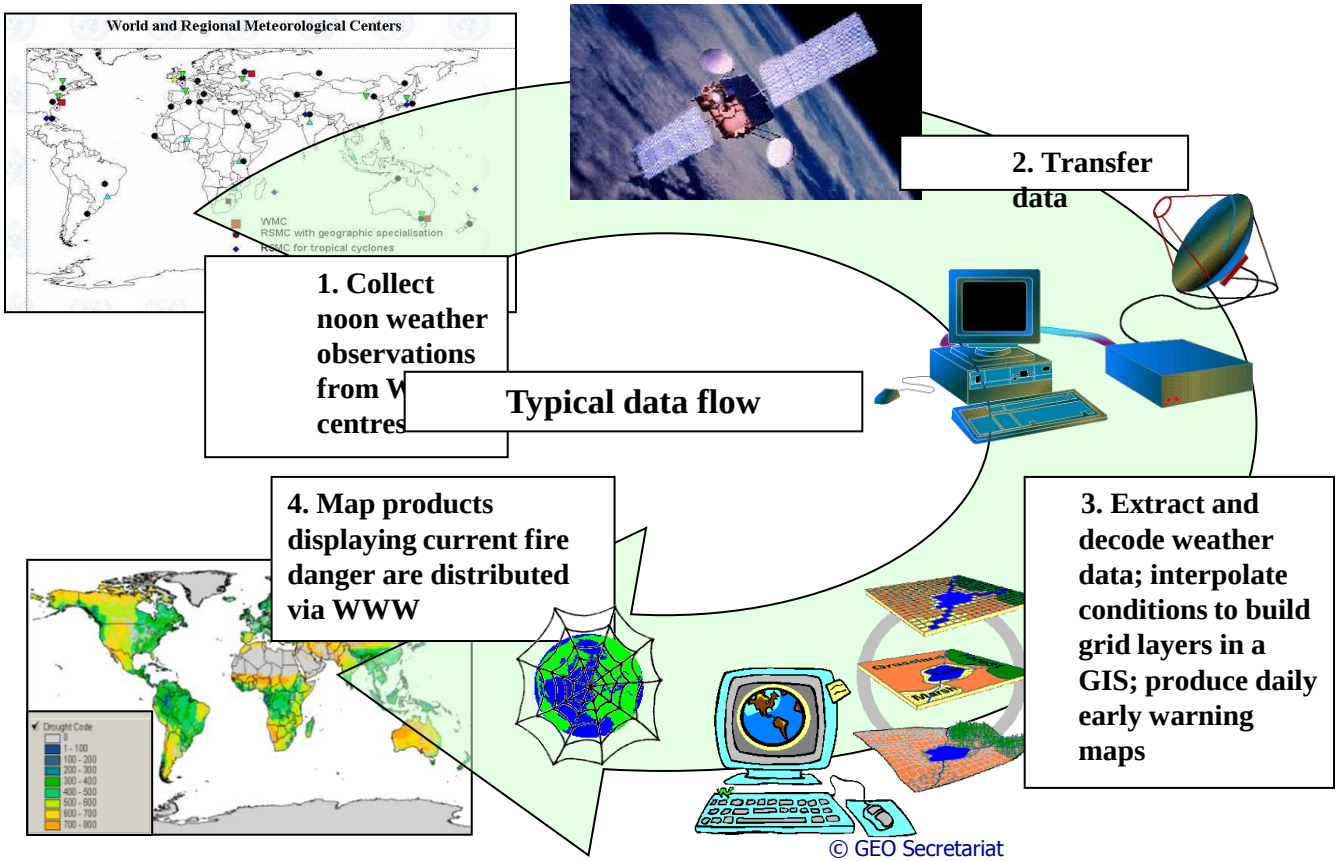




Eleven Institutions With SDS Forecasts Available on the Internet: Three Major Nodes in the System

Wildland Fire Early Warning

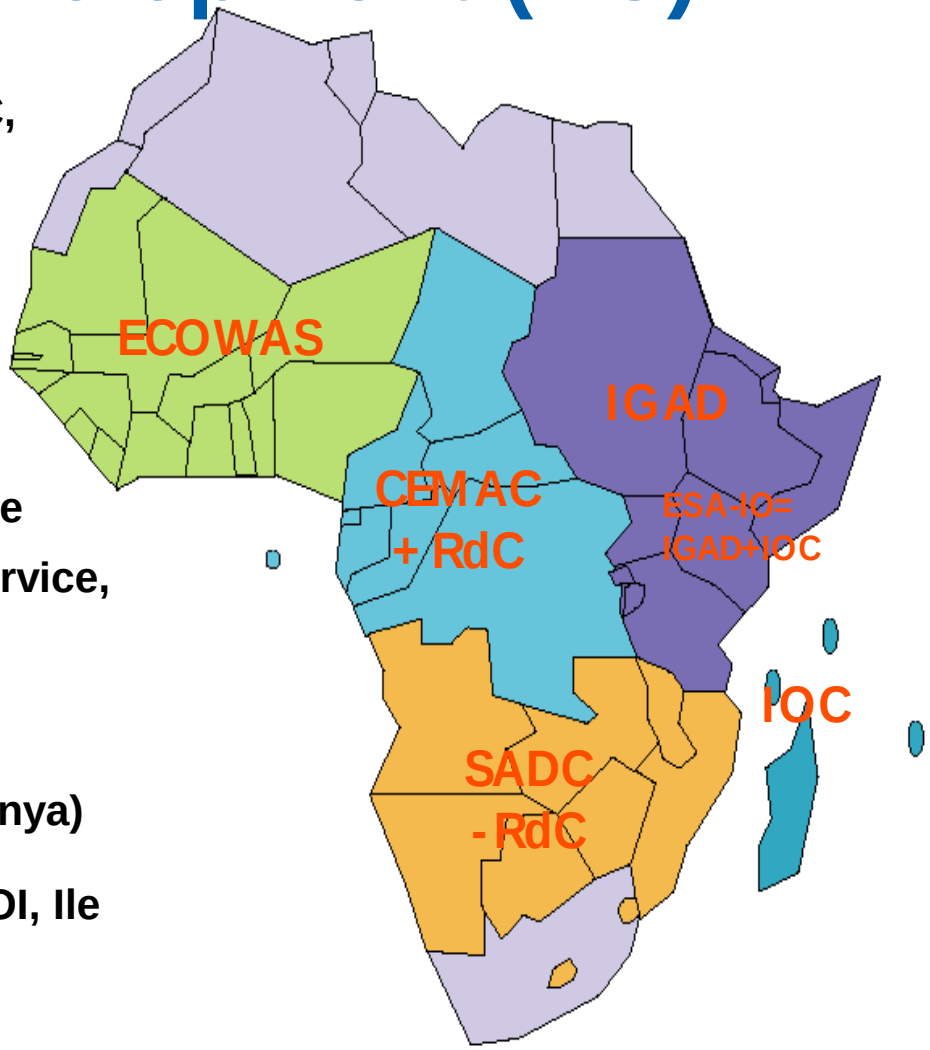




GROUP ON EARTH OBSERVATIONS

African Monitoring for Environment and Sustainable Development (EC)

- Water Resource Management, (CEMAC, CICOS, RDC)
- Water Management for Cropland and Rangeland Management (ECOWAS, AGRHYMET, Niger)
- Agricultural & Environmental Ressource Management (SADC, Meteorological Service, Botswana),
- Land Degradation, Mitigation & Natural Habitat Conservation (IGAD, ICPAC, Kenya)
- Marine & Coastal Management (IOC, MOI, Ile Maurice)



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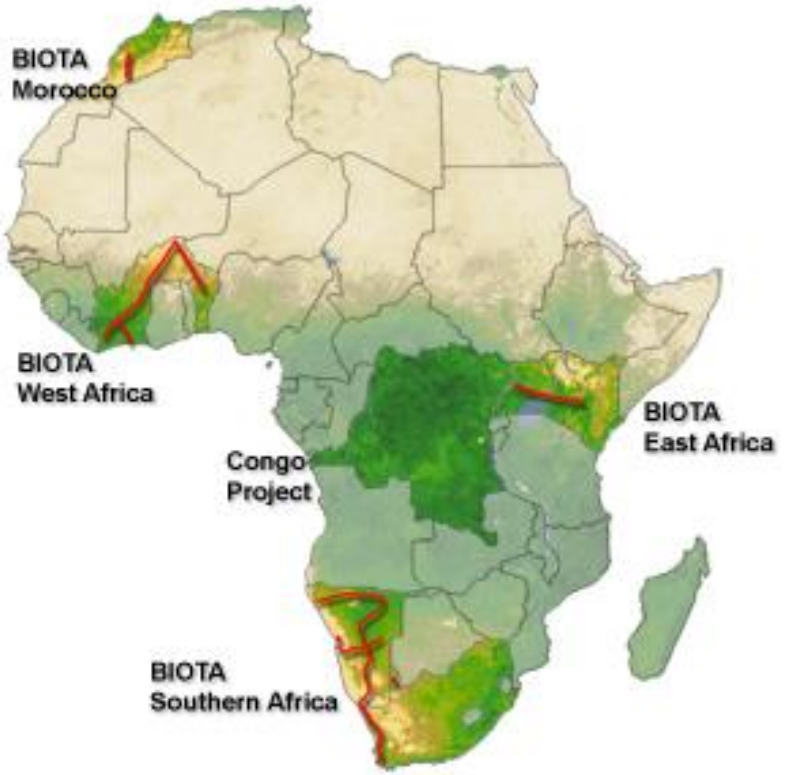
BIOTA AFRICA

A Contribution to GEOBON

BIOdiversity monitoring **T**ransect analysis in **A**frica



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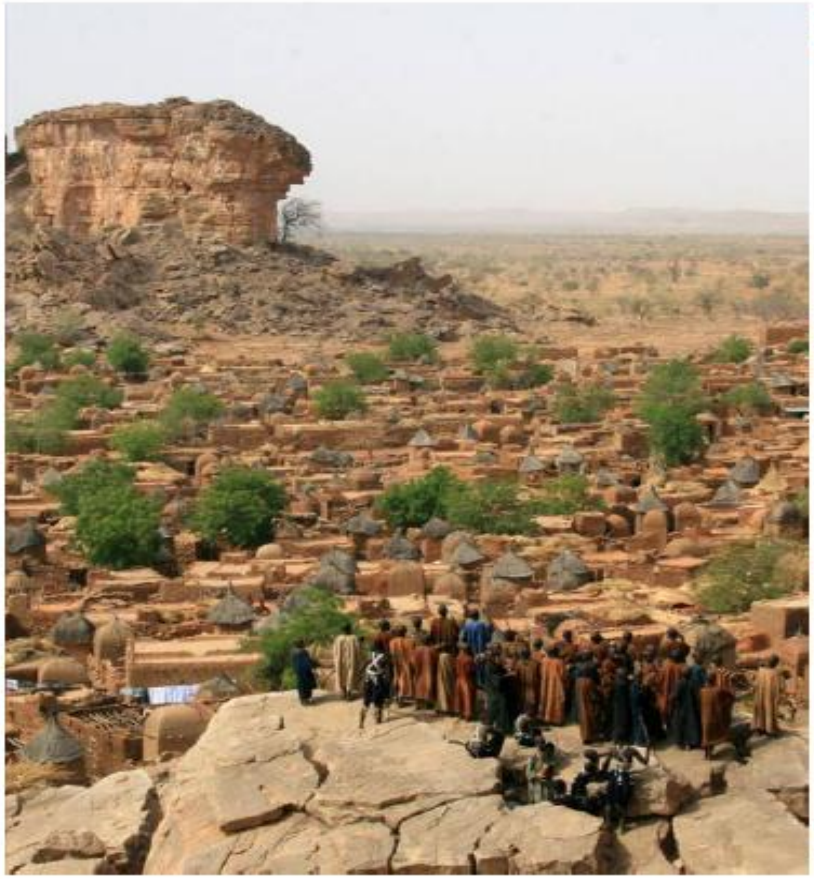
AEGOS (EC)

AEGOS objectives

African-European Georesources Observation System



- Design a pan-African infrastructure of interoperable data and user-oriented services to strengthen the sustainable use of georesources in Africa
- Safeguard, share, valorise the knowledge and data archived in African and European geological surveys
- Support geoscientific communities and institutional decision-makers for sustainable development public policies
- Create a network of contributing partners

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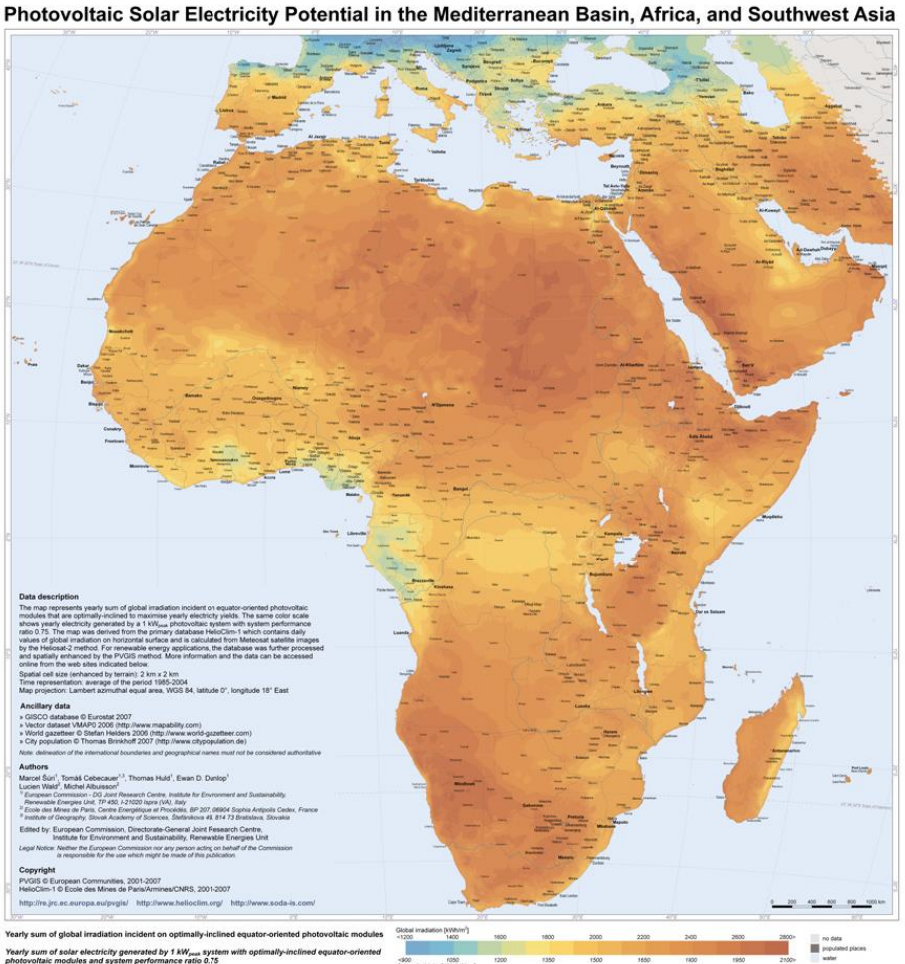
ENVISOLAR – Environmental Information for Solar Energy from Space (France, EC)



Solar electricity potential (JRC/Armines)

ecretariat

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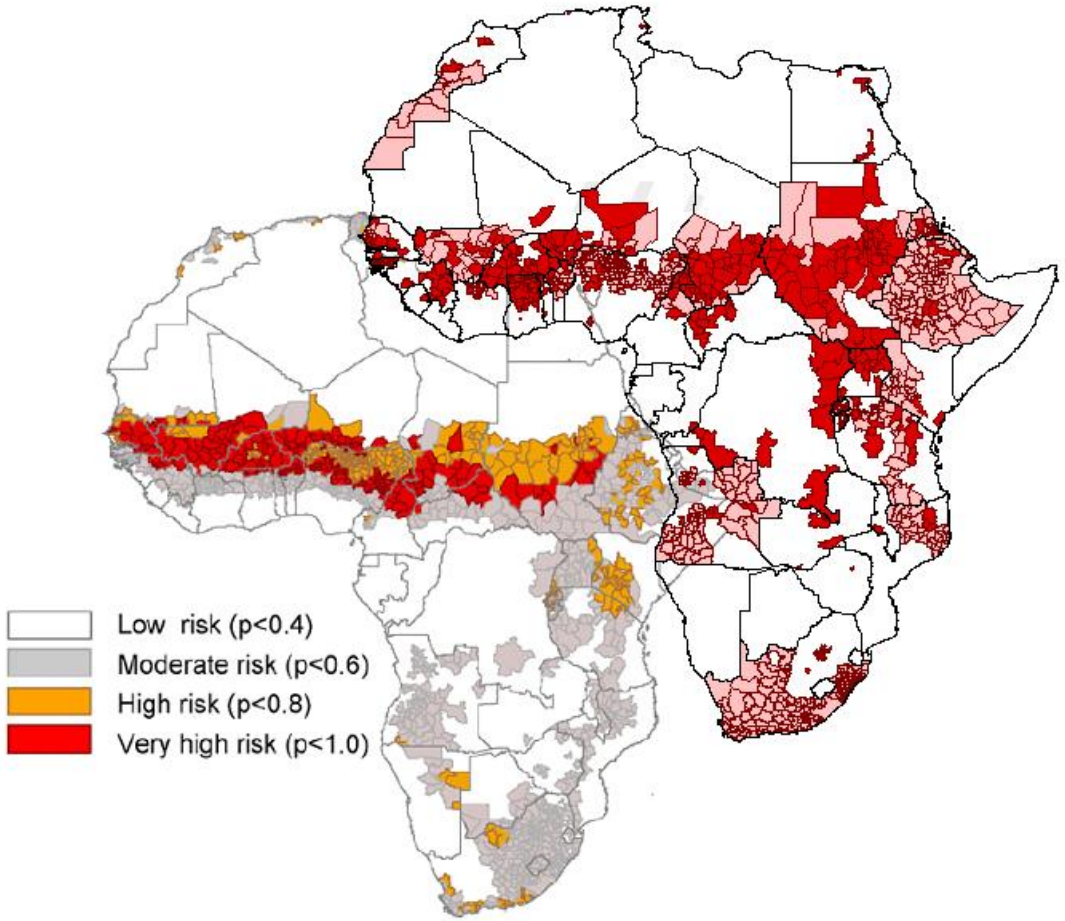
MERIT: Meningitis Environmental Risk Information Technologies (USA, WMO, Switzerland)



Plan WHO Meningitis Vaccination Campaigns

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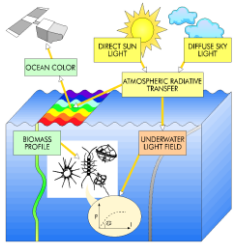
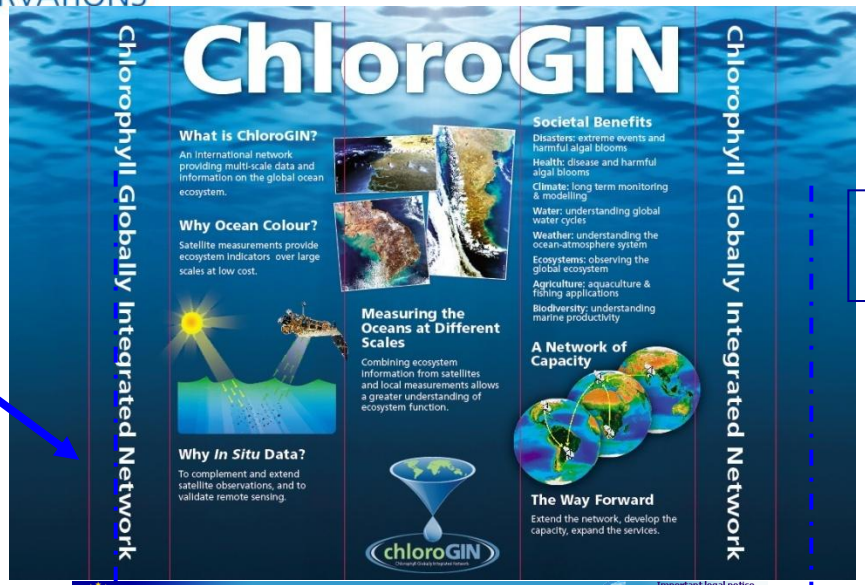
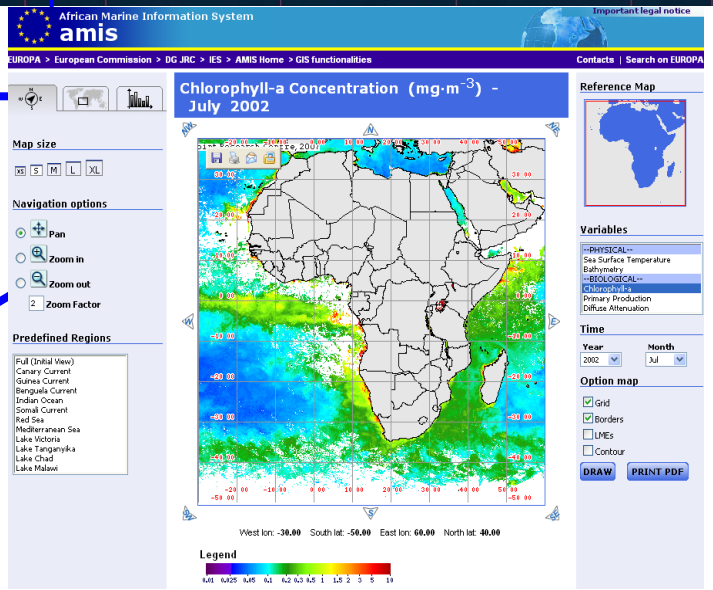
Satellite derived products

Models data

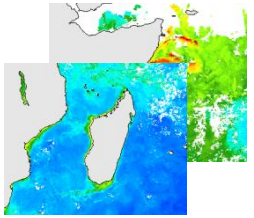


Environmental variables (e.g. Bathymetry)

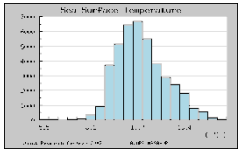




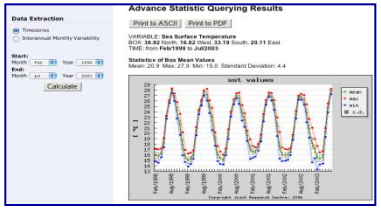
Maps Navigation



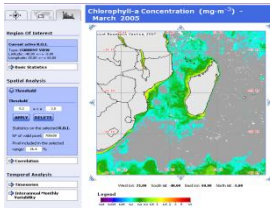
Basic Statistics



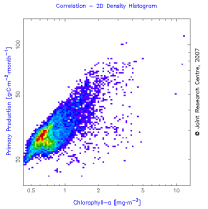
Time-series



Threshold analysis



Multivariate analysis



GROUP ON EARTH OBSERVATIONS

- GEO Web Portal and GEOSS Clearinghouse
- GEONETCast: a Global Environmental Information Delivery System
- CBERS for Africa
- SERVIR – Africa, in cooperation with RCMRD
- Sand and Dust Storm Warning System
- Global Wildland Fire Early Warning System – African Component
- Puma, AMESD and GMES Africa
- GEOBON – GEO Biodiversity Observation Network
- TIGER - Towards an African Water Observation System
- SoDa - Solar Data for Developing Countries
- MERIT- Meningitis Environmental Risk Information Technologies
- Evaluating African Protected Areas
- ClimDev Africa - Climate for Development in Africa Programme
- ChlorOGIN Building a Chlorophyll Ocean Global Integrated Network
- GeoAFRICA

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Thank you!