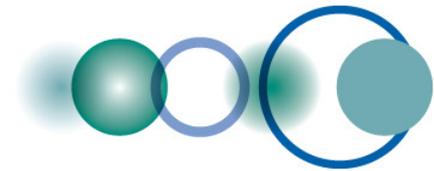


AfriGEOSS: An initiative to reinforce GEOSS in Africa

***GMES & Africa Workshop
9-10 October 2012
Mombasa, Kenya***

**Douglas Cripe
GEO Secretariat**

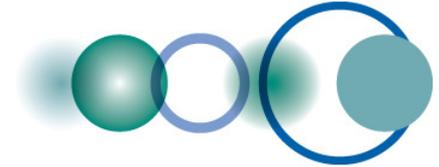




GEO, the Group on Earth Observations

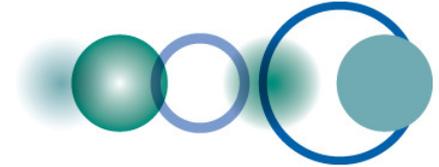
An Intergovernmental group with 89 Members and 64 Participating Organizations





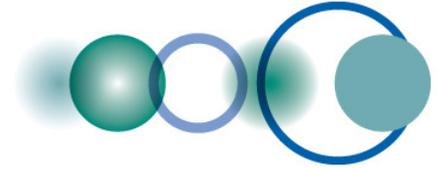
What is GEO?

- launched in **response to calls for action** by the 2002 World Summit on Sustainable Development, Earth Observation Summits, and by the G8 (Group of Eight) leading industrialized countries
- **voluntary partnership** of governments and international organizations
 - 88 member governments + EC
 - 64 Participating Organizations (PO)
- provides a **framework** within which these partners can develop new projects and coordinate their strategies and investments
- charged with **developing GEOSS**



What is GEOSS?

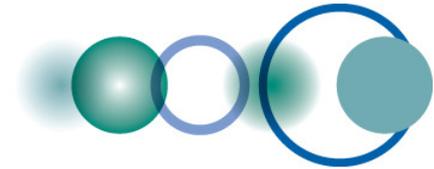
- the Global Earth Observation System of Systems
- an **integrating public infrastructure**, interconnecting a diverse, growing array of Earth observing instruments and information systems for monitoring and forecasting changes in the global environment
- supports policymakers, resource managers, science researchers and other experts to **support informed decision making for society**
- 10-year implementation plan
- 2015: Global, Coordinated, Comprehensive and Sustained System of Observing Systems



GEOSS Implementation requires: *Data Sharing Principles*

- **Full and Open Exchange of Data...**
 - Recognizing Relevant International Instruments and National Policies and Legislation
- **Data and Products at Minimum Time delay and Minimum Cost**
- **Free of Charge or Cost of Reproduction for Research and Education**

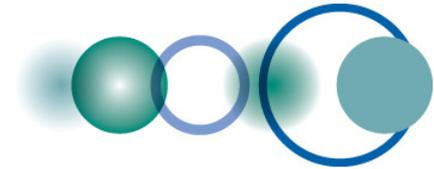




G8-2008

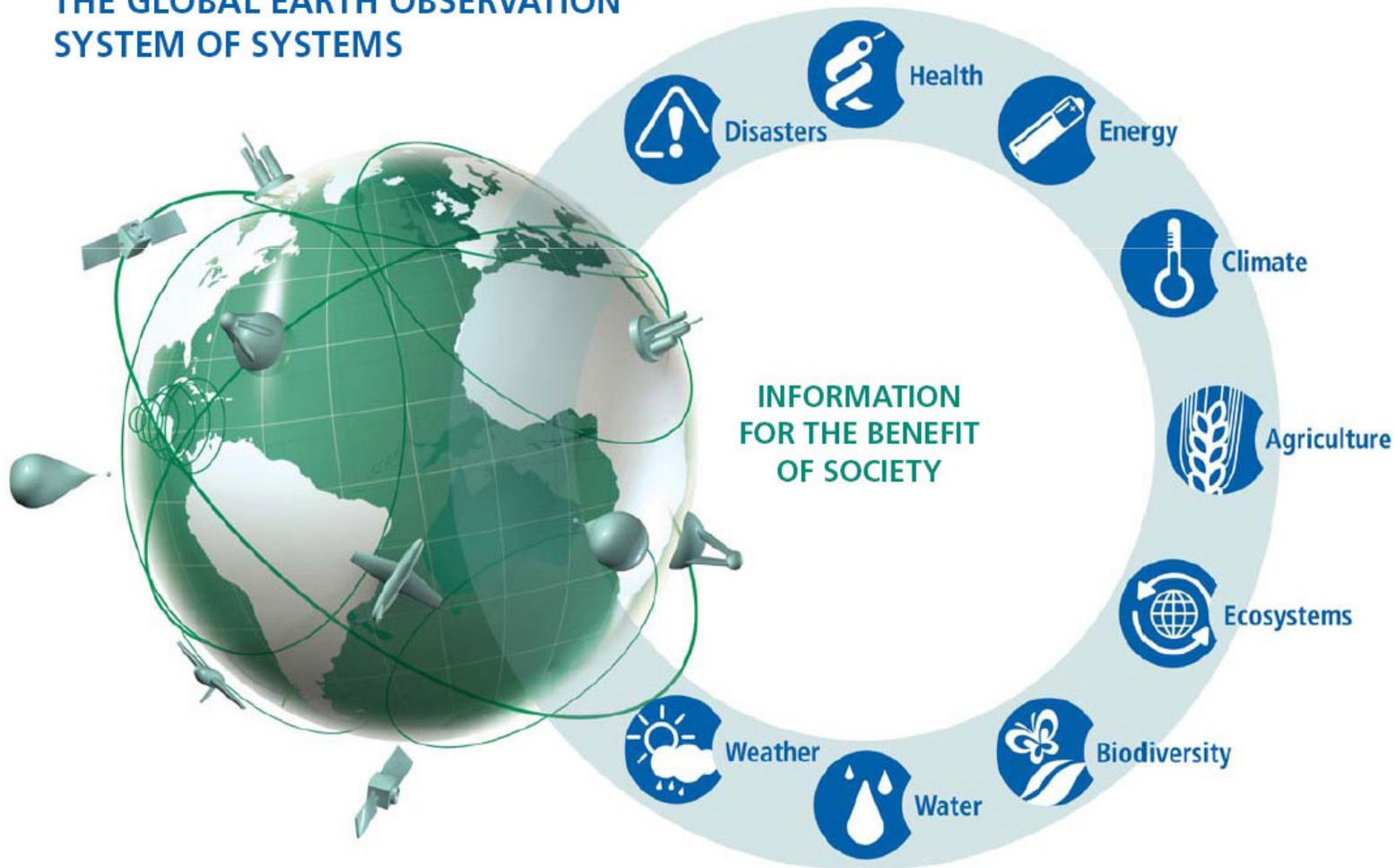


“...we will accelerate efforts within the Global Earth Observation System of Systems (GEOSS), ... in priority areas, inter alia, climate change and water resources management, by strengthening observation, prediction and data sharing. ... capacity building for developing countries ... interoperability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



GEOS: A Global, Coordinated, Comprehensive and Sustained System of Observing Systems

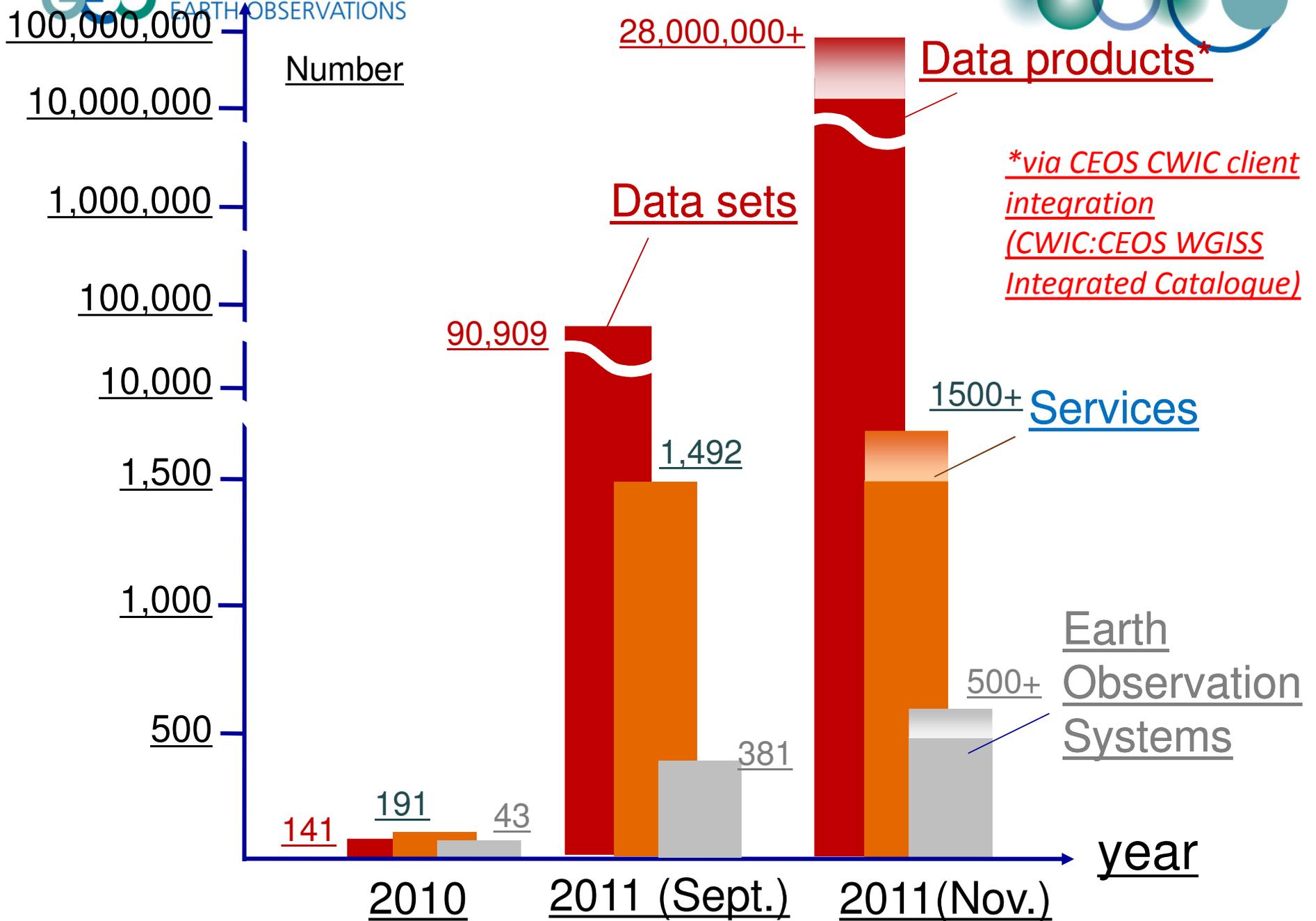
THE GLOBAL EARTH OBSERVATION
SYSTEM OF SYSTEMS

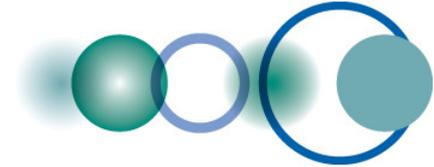




GEOSS Provides Coordinated Access to Information from Various Sources







African Participation in GEO

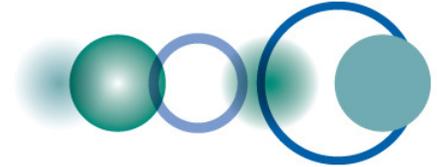
Member Nations:

- Algeria
- Burkina Faso
- Cameroon
- Central African Republic
- Congo, Republic of the
- Egypt
- Ethiopia
- Gabon
- Ghana
- Guinea-Bissau
- Guinea, Republic of
- Ivory Coast
- Mali
- Mauritius
- Morocco
- Niger
- Nigeria
- South Africa
- Sudan
- Tunisia
- Uganda
- Ivory Coast

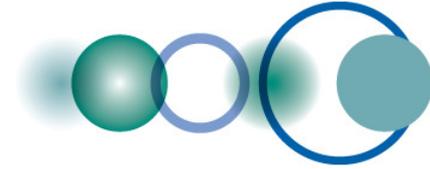
Participating Organizations:

- AARSE
- ACMAD
- EIS-Africa
- RCMRD
- UNECA

AFRICA IN CONTEXT

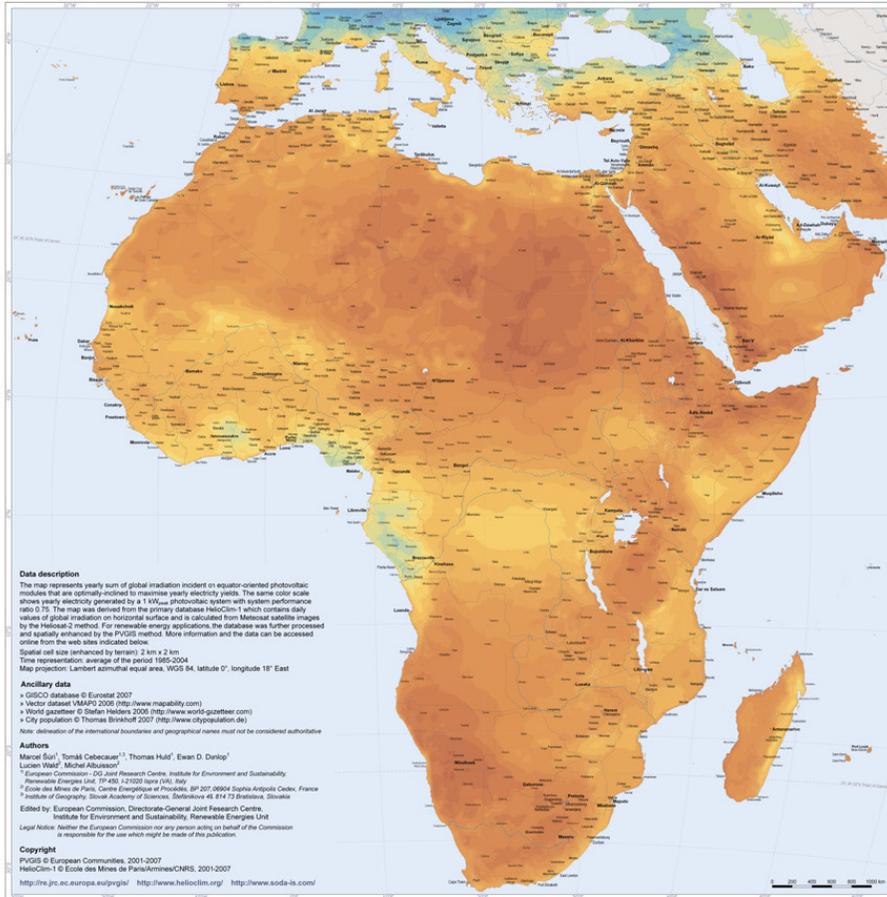


- Africa is 2nd largest continent, and it is about 30.3m Km²
- It accounts for 15% of the total world population
- Key issues include: poverty, food insecurity, water scarcity, disasters, environmental degradation, climate change, peace and security
- Currently over 1,1 billion people
- Per capita land has fallen from 13,5ha in 1950 to 3,2 ha in 2005
- Population expected to reach 2 billion in 2050
- Per capita land expected to fall to 1,5ha
- Average life expectancy 45,8 yrs (Sept 2004)
- Africa second driest continent
- Energy remains a big challenge



AfriGEOSS: GEOSS for AFRICA

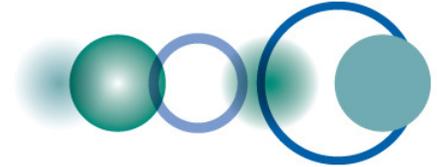
Photovoltaic Solar Electricity Potential in the Mediterranean Basin, Africa, and Southwest Asia



GEONETCast, CBERS, SERVIR, Sand and Dust Storm Warning System, AEGOS, Wildland Fire Early Warning System, Puma, AMESD and GMES Africa, BIOTA, TIGER, SoDa, MERIT, African Protected Areas, ClimDev Africa, ChlorOGIN,

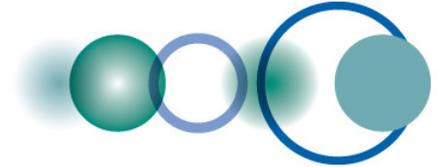
Yearly sum of global irradiation incident on optimally-inclined equator-oriented photovoltaic modules
Yearly sum of solar electricity generated by 1 MW_{nom} system with optimally-inclined equator-oriented photovoltaic modules and system performance ratio 0.75





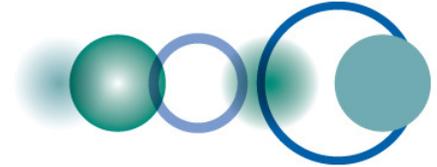
Three of the GEOSS Strategic Targets are particularly relevant to the AfriGEOSS initiative:

- **Capacity building:** Enhance the coordination of efforts to strengthen individual, institutional and infrastructure capacities, particularly in developing countries, to produce and use Earth observations and derived information products.
- **Architecture:** Achieve sustained operation, continuity and interoperability of existing and new systems that provide essential environmental observations and information, including the GEOSS Common Infrastructure (GCI) that facilitates access to, and use of, these observations and information.
- **Data Management:** Provide a shared, easily accessible, timely, sustained stream of comprehensive data of documented quality, as well as metadata and information products, for informed decision-making.



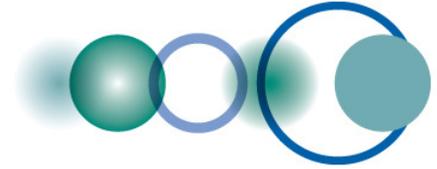
AfriGEOSS objectives

- Coordinate and bring together relevant stakeholders, institutions and agencies across Africa that are involved in GEO and other Earth observation activities;
- Provide a platform for countries to participate in GEO and to contribute to GEOSS;
- Assist in knowledge sharing and global collaborations;



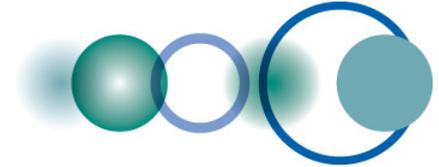
...Objectives

- Identify challenges, gaps and opportunities for African contributions to GEO and GEOSS;
- Leverage existing capacities and planned assets and resources; and
- Develop an appropriate strategy and participatory model for achieving the above goals.



Priority Actions

- **Engage with regional agencies and training centres**
- **Coordinated satellite infrastructure pilot projects**
 - Coordinate data acquisition strategy for Africa.
 - African Resources and Environmental Management Constellation (ARMC)
 - AfricaGeoSat-1 Project
 - African Monitoring of the Environment for Sustainable Development (AMESD) and Monitoring of Environment and Security in Africa (MESA)



SB-01 Oceans and Society: Blue Planet

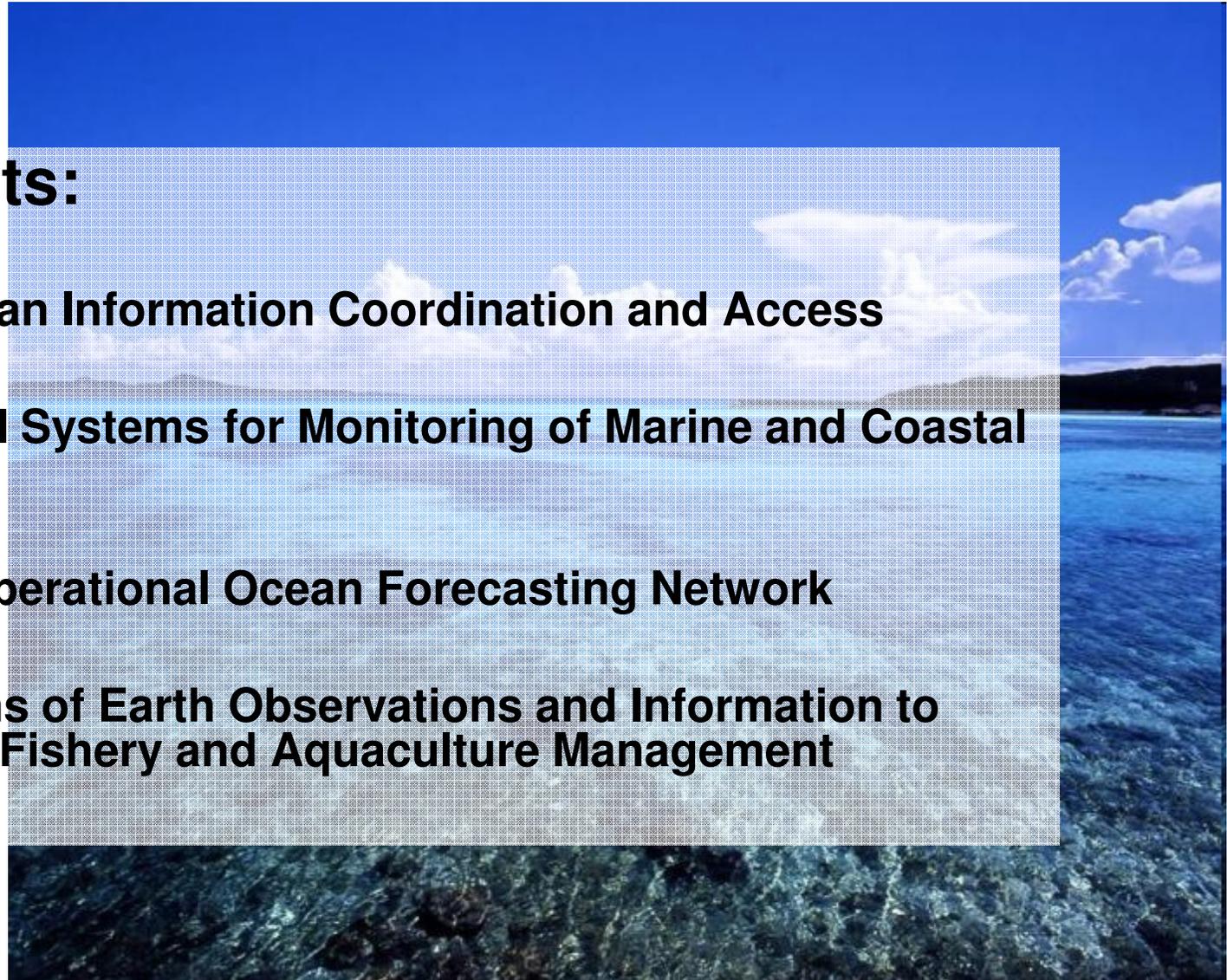
Components:

C1: Global Ocean Information Coordination and Access

C2: Operational Systems for Monitoring of Marine and Coastal Ecosystems

C3: A Global Operational Ocean Forecasting Network

C4: Applications of Earth Observations and Information to Sustainable Fishery and Aquaculture Management



WA-01 Integrated Water Information (incl. Floods and Droughts)

Components:

C1: Integrated Water-cycle Products and Services

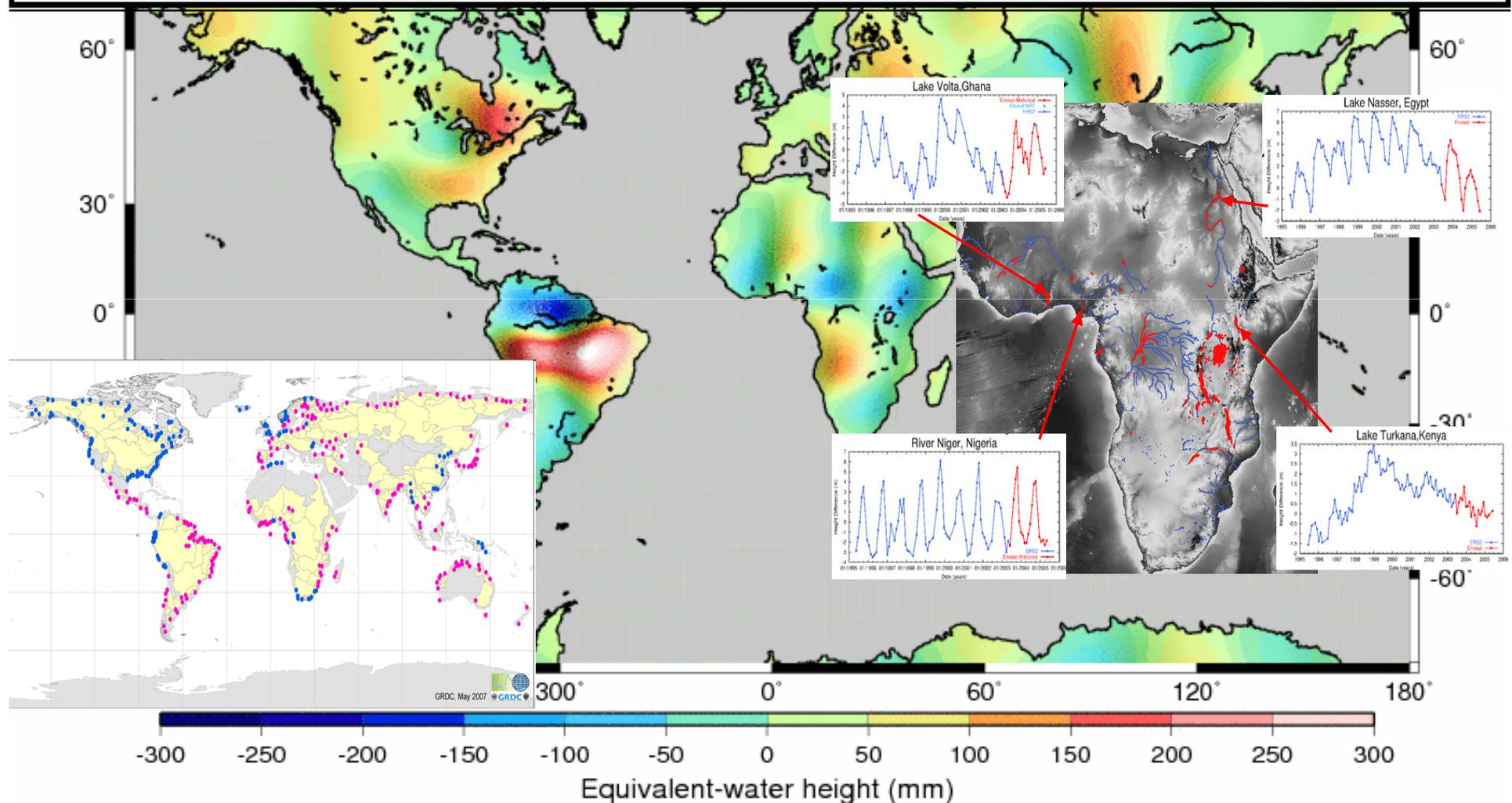
C2: Information Systems for Hydro-meteorological Extremes (incl. Floods and Droughts)

C3: Information Service for Cold Regions

C4: Global Water-Quality Products and Services

C5: Information System Development and Capacity Building

The complete understanding and management of the continental water cycle can be significantly improved through the combination of observations from various disciplines, nations and agencies: **gravity field** changes measured by the GRACE (NASA/DLR) satellite reflecting the redistribution of subsurface water masses stored on continents; level of lakes and rivers measured by **altimetry** satellites Jason (CNES/NASA/EUMETSAT/NOAA) and Envisat (ESA); and observations from networks of **in-situ** water discharge/run-off stations.



Global Drought - Mozilla Firefox

Fichier Édition Affichage Historique Marque-pages Outils ?

http://www.drought.gov/portal/server.pt/community/global_drought/314/regional_drought_monitoring/1097

global drought monitor

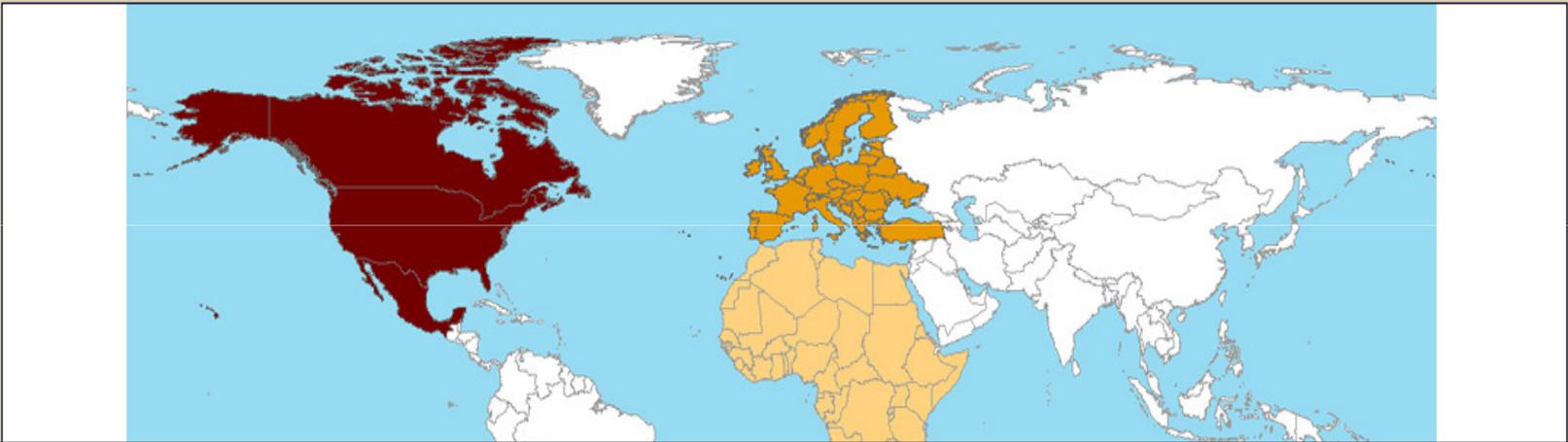
Les plus visités Débuter avec Firefox À la une

Novell WebAccess (Douglas Cripe) drought.gov Global Drought

Beyond Drought

Global Participation for Better Planning and Response

CURRENT CONDITIONS INTERACTIVE MAPS AND DATA REGIONAL DROUGHT MONITORING ABOUT



US National Integrated Drought Information System (NIDIS) hosting global drought portal, bringing together:

- North American Drought Monitor
- Princeton University drought monitor for Africa
- European Drought Observatory
- China, Argentina, and Australia to join soon...

www.drought.gov

3:52 AM

1st GEOSS African Water Cycle Symposium Tunis, 6-8 January 2009



109 participants from **12** from Africa
16 countries **2** from Europe
4 UN Agencies **1** form North America
2 Space Agencies **1** from Asia
2 GEO Secretary

Maroc

- Data & information system for river management

Senegal

- GIS and urban flood management

Cote d'Ivoire

- Lagoon environment

Ghana

- Volta-regional project

Benin

- PROJET OUEME2025
- Met service
- Realism of Water resources prediction

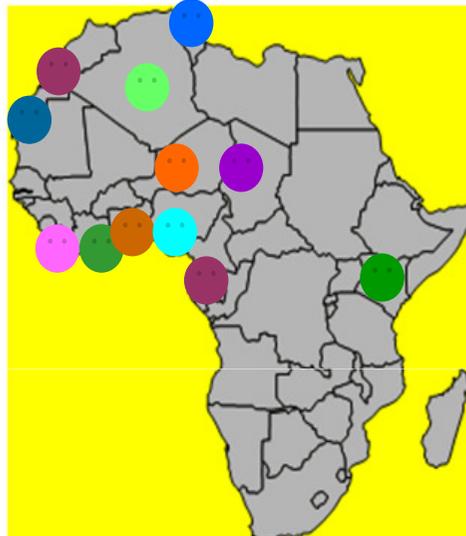
Nigeria

- Climate change & Moisture Availability

Reports from 12 African Countries

Algeria

- Data acquisition, planning, protection



Niger

- ACMAD, AGRHYMET

Tchad

- Lake Chad variability

Cameroun

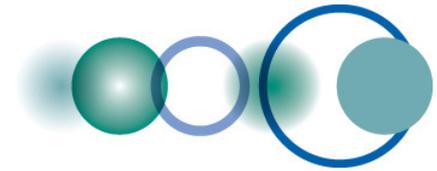
- Climate Modification

Tunisia

- Water for agriculture
- Met service
- Data & Information system for water Res.
- Drought analysis
- Water pollution
- Sustainable water management
- Ground water & its salinization
- Water diversion management system
- Water balance

Kenya

- Downscaling of climate/Met info. for river management
- Flood management & mitigation



African Water Cycle Coordination Initiative: contributing to GEOSS

Participants considered convergence and harmonization of observational activities, techniques, interoperability arrangements, and effective and comprehensive data management as the most fundamental elements that can be addressed under the GEOSS framework, including activities, programs and guidelines under UN agencies and non-UN agencies (AfDB, ESA, JAXA, NASA etc.).

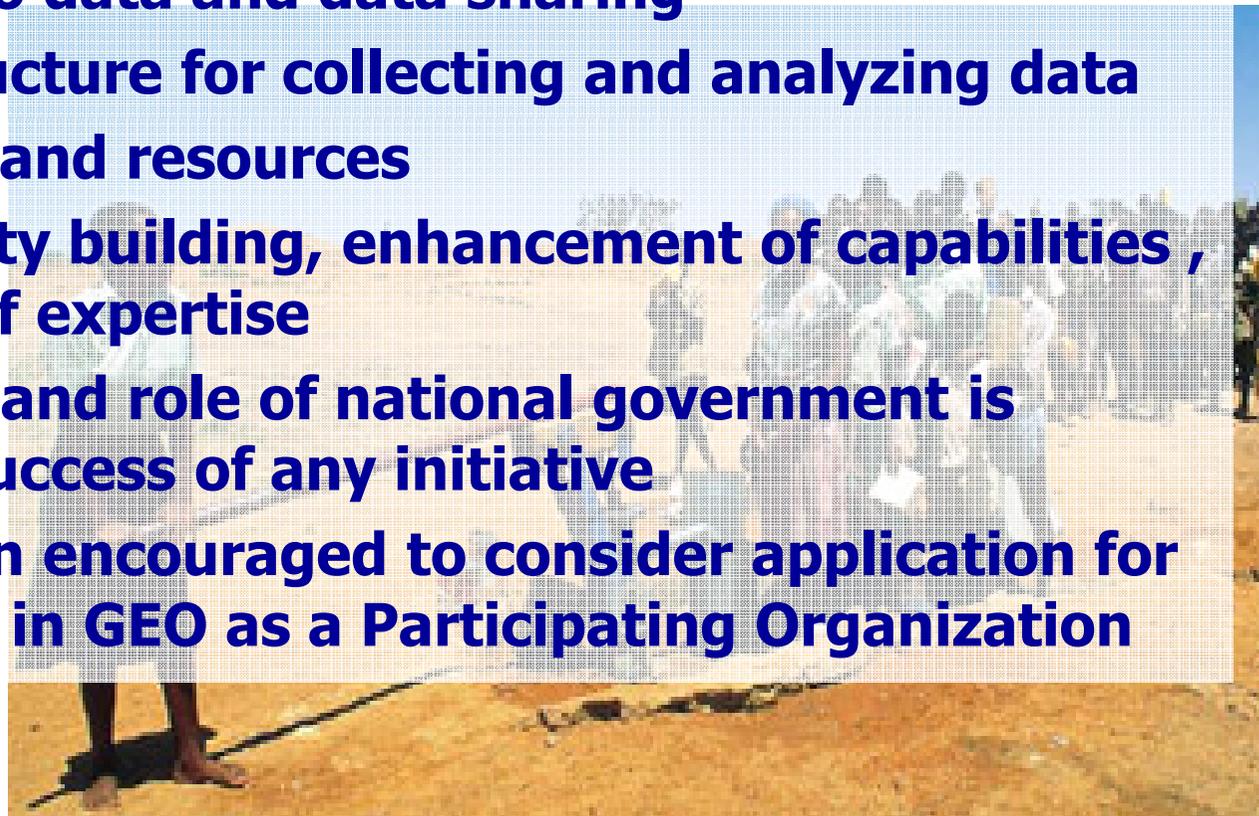
from the 1st African Water Cycle Symposium in Tunis



2nd GEOSS African Water Cycle Symposium

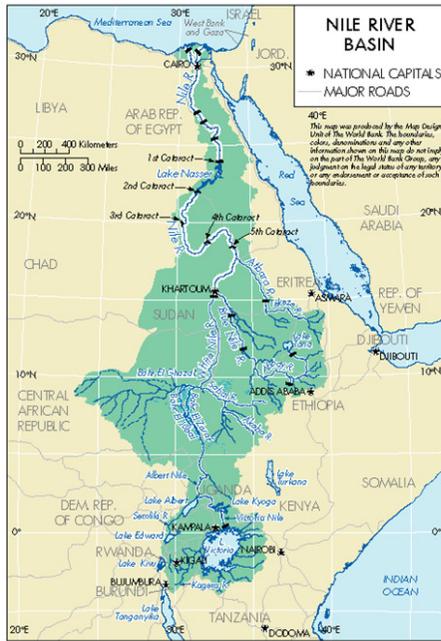
Key messages regarding challenges facing Africa in the water sector:

- **lack of access to data and data sharing**
- **lack of infrastructure for collecting and analyzing data**
- **lack of funding and resources**
- **need for capacity building, enhancement of capabilities, and retention of expertise**
- **political buy-in and role of national government is critical to the success of any initiative**
 - **African Union encouraged to consider application for membership in GEO as a Participating Organization**



The Nile Basin

- ♦ Burundi
- ♦ D.R. Congo
- ♦ Egypt
- ♦ Eritrea
- ♦ Ethiopia
- ♦ Kenya
- ♦ Rwanda
- ♦ Sudan
- ♦ Tanzania
- ♦ Uganda



Characteristics

- ♦ Population 300 million,
- ♦ Poverty,
- ♦ Rapidly growing Population – stress on land
- ♦ Env. Degradation,

Opportunities

For win-win Cooperative development (food production, energy, transport, industrial growth, envir. Conservation,...

Drainage Network, Watersheds, Monitoring Stations

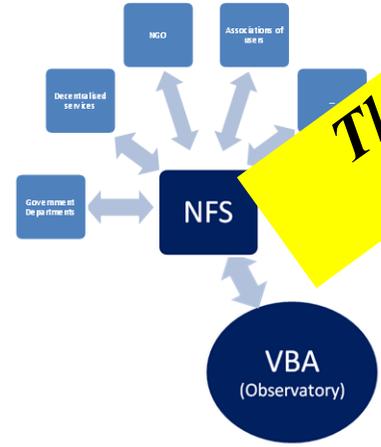


The GEO-UNESCO River Basin/IWRM Workshop
Nairobi, Kenya, January 2012

HYCOS PROJECT Achievements

OBSERVATORY = MEANINGFUL DATA

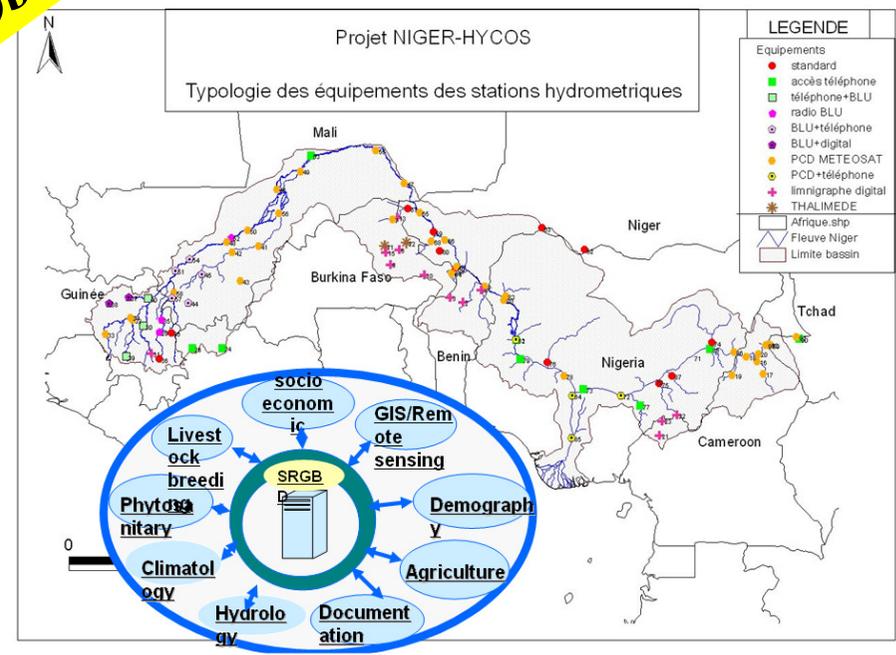
Network of data collection and dissemination of information and useful data

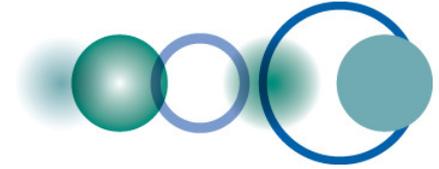


MoUs for exchange of:
 • Information
 • Data
 • Results

Standardised scientific and technical tools

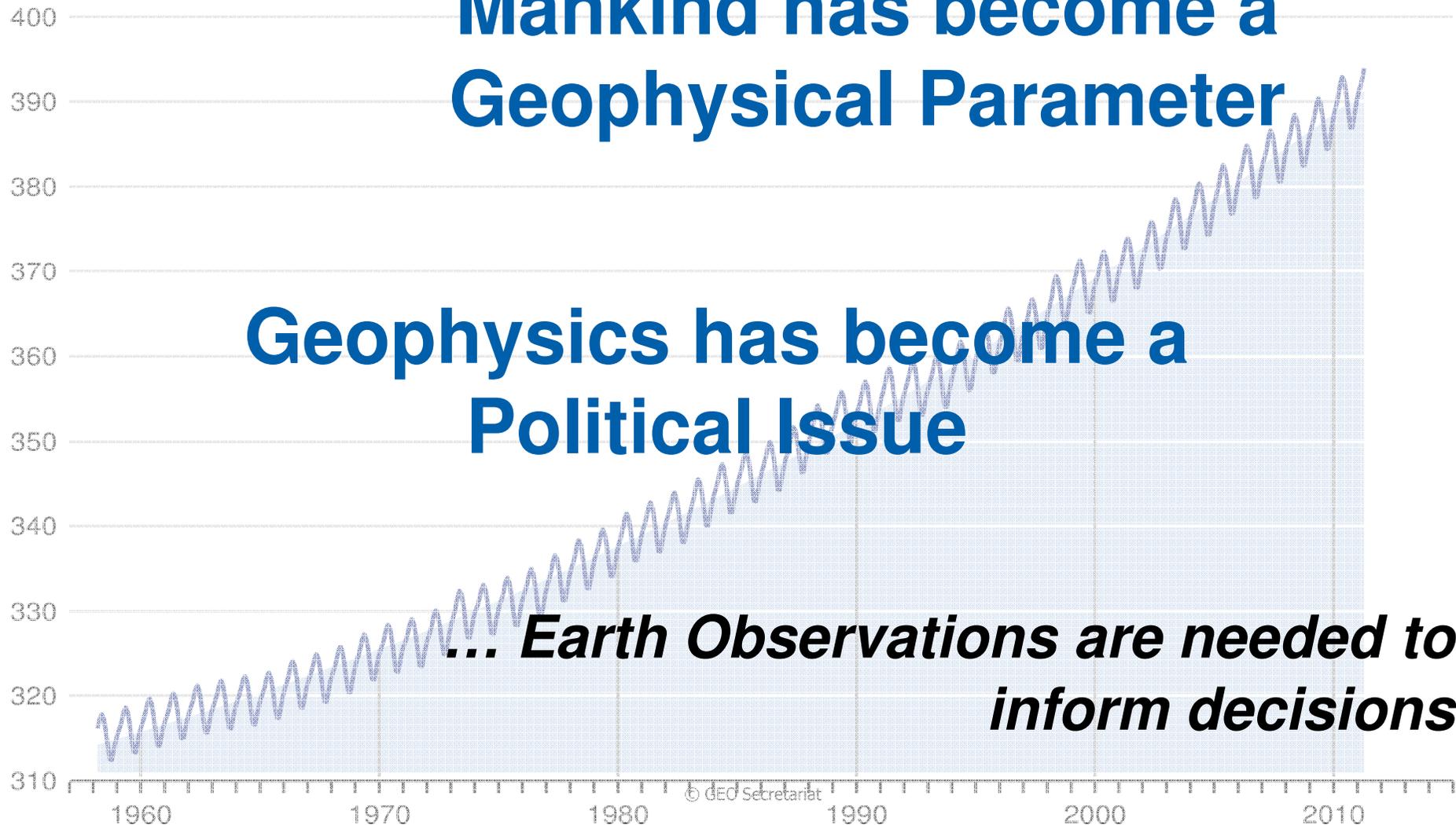
Human Resources

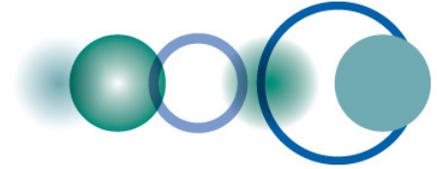




Monthly Carbon Dioxide Concentration

parts per million





“The Global Earth Observation System of Systems (GEOSS) is a **coordinating and integrating network of Earth observing and information systems, contributed on a voluntary basis by Members and Participating Organizations of the intergovernmental Group on Earth Observations (GEO).”**

•To support informed decision making for society, including the implementation of international environmental treaty obligations.

Thank you!

earthobservations.org

dcripe@geosec.org

