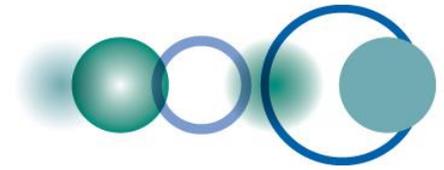


Group on Earth Observations Initiatives

April 20 2015
GEO Water Quality Summit

Dominique Berod
GEO Secretariat

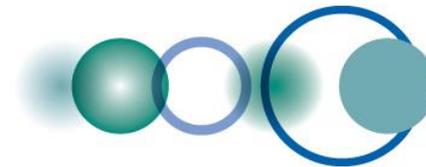




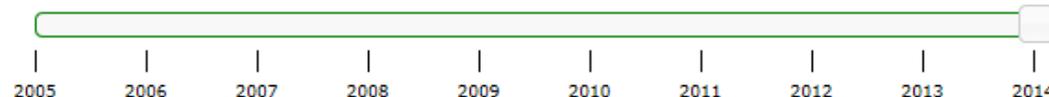
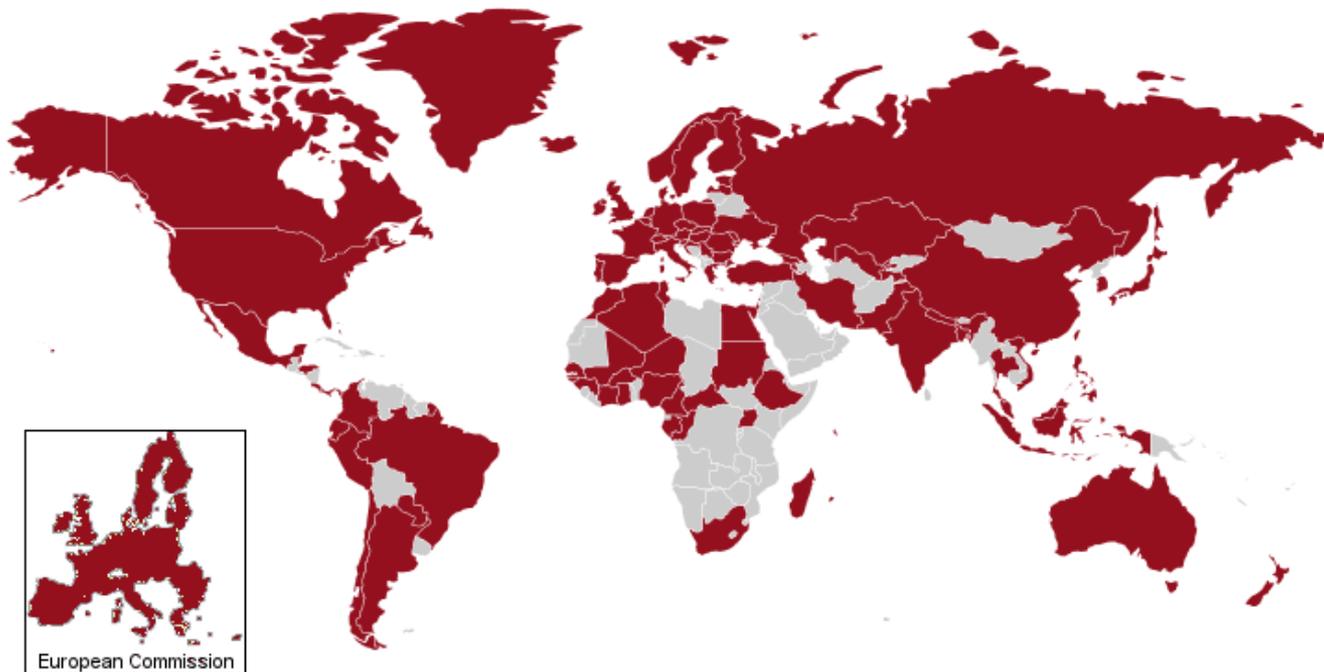
Group on Earth Observations Vision

To realize a future wherein decisions and actions, for the benefit of humankind, are informed by coordinated, comprehensive and sustained Earth observations and information.

⇒ Urgent, global, complex and growing challenges



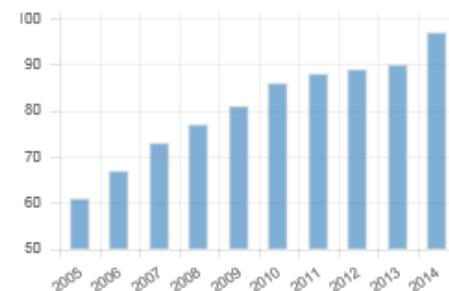
GEO Member Map for the year 2014

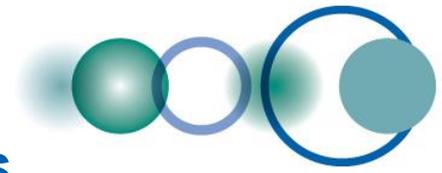


Number of Members (2014)

Total:	97
Africa:	24
Americas:	15
Asia/Oceania:	17
C.I.S.:	7
Europe:	34

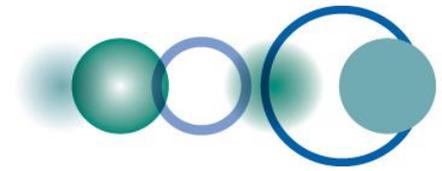
Number of Members by year



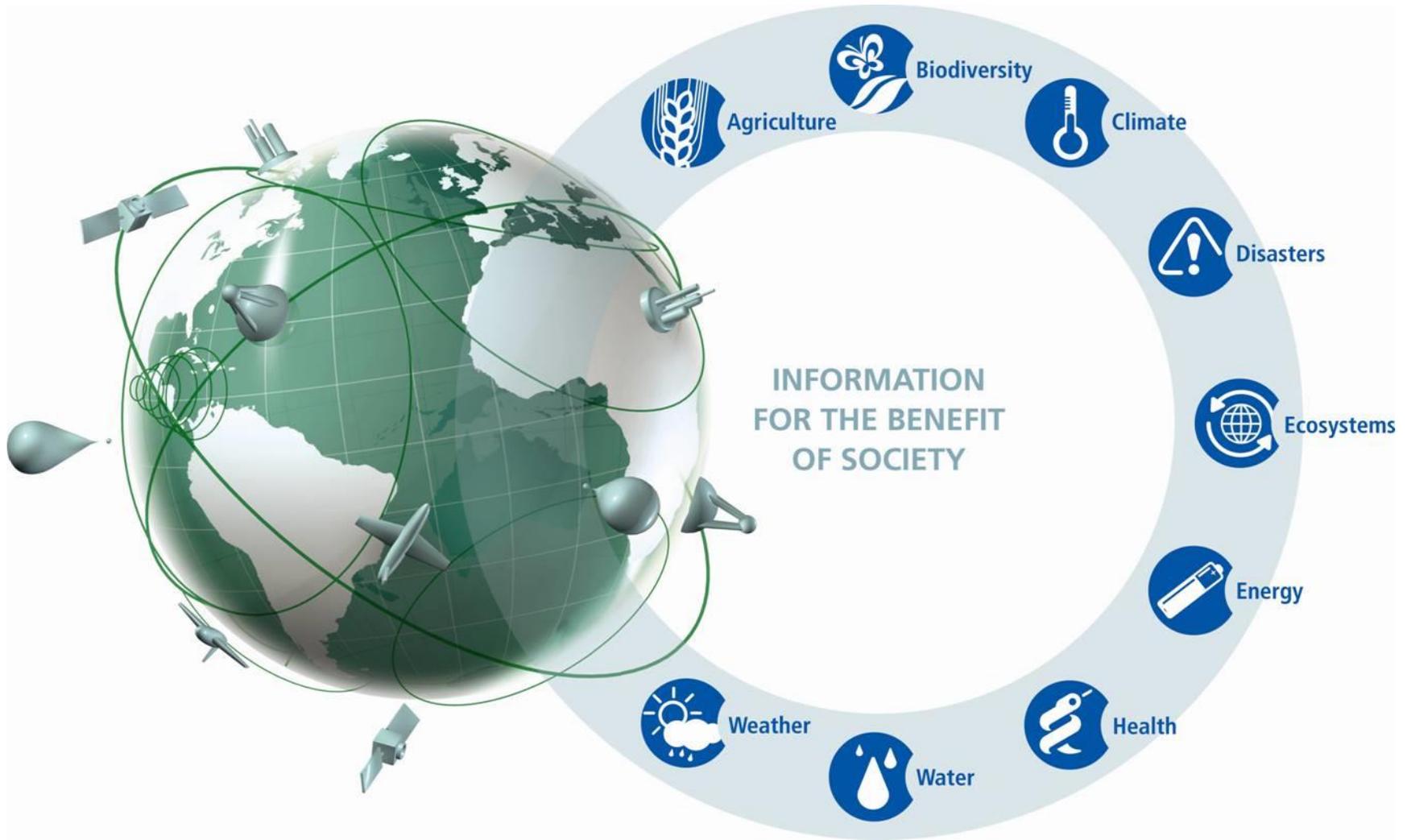


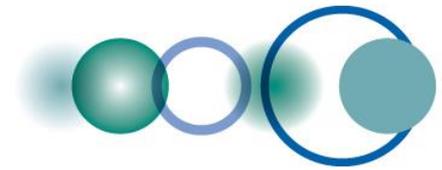
88 Participating Organizations



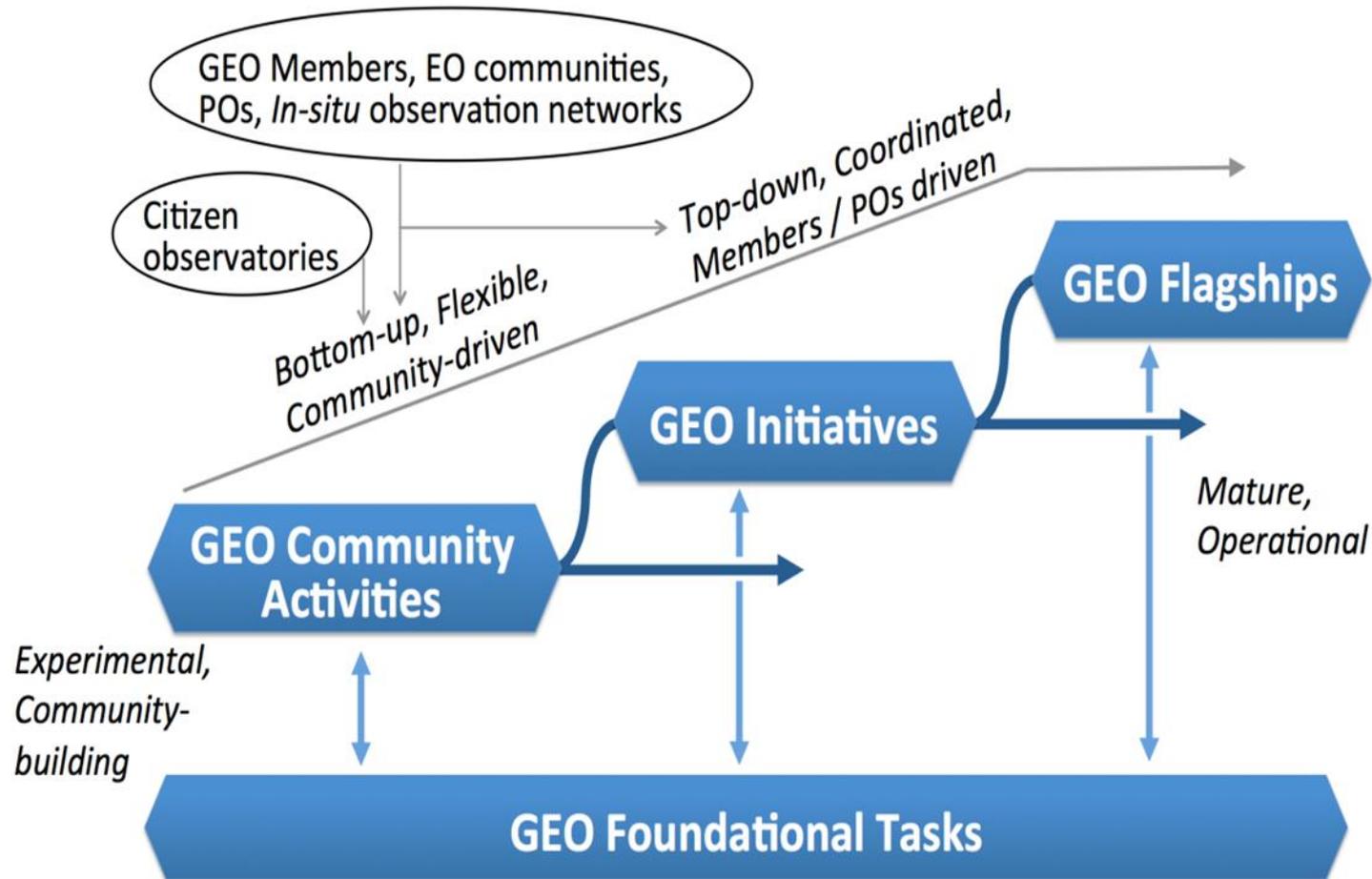


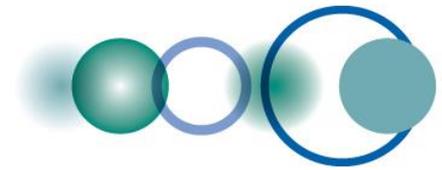
GEOS: A Global, Coordinated, Comprehensive and Sustained System of Observing Systems



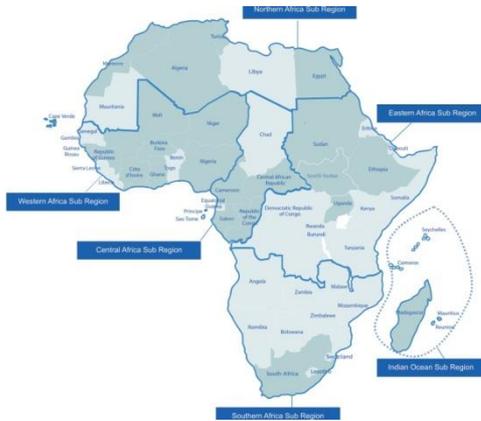


Four types of GEO activities





GEO global initiatives



**GEO Geohazards Supersites
and Natural Laboratories**

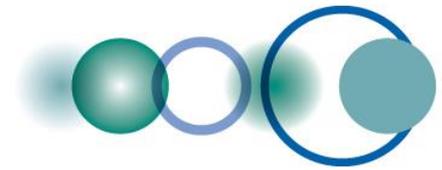
GEO BON



GEOGLAM
Global Agricultural Monitoring



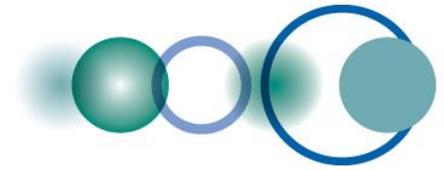
+ GEO Human health



GEOBON: Global Biodiversity Observation

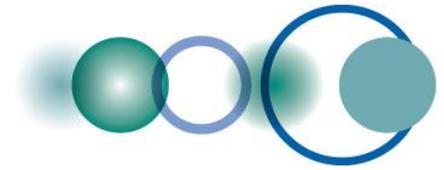
- **Global, scientifically-robust framework for observations designed to detect biodiversity change.**
- **Coordinate data gathering and delivery of biodiversity information, identify key areas of data collection and monitoring.**
- **Work in cooperation with conventions and existing mechanisms.**
- **Promote observations relevant to the Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets.**
- **Additionally, develop and facilitate implementation of Essential Biodiversity Variables**

Joerg Freyhof, German Centre for Integrative Biodiversity Research (iDiv)



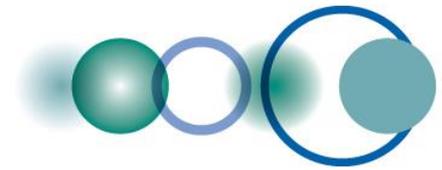
GEOBON task components

- **C1: Global Biodiversity Observation Network**
- **C2: Essential Biodiversity Variables**
- **C3: Global Wetland Observing System**
- **C4: BON-in-a-Box**



GEOBON C3, Global Wetland Observing System

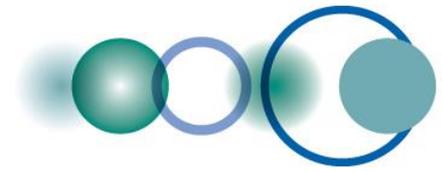
- **Provide information to Ramsar Convention for State of the World's Wetlands report**
- **Satellite-based Wetland Observing System (SWOS)**
- **Recently funded by Horizon 2020**



Blue Planet: oceans and society

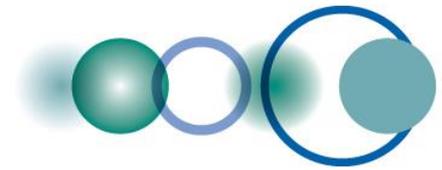
- **Ocean observations and information for development of global-change adaptation measures (vulnerability of coastal zones, sea-level rise, ocean acidification).**
- **Improve the global coverage and data accuracy of coastal and open-ocean observing systems.**
- **Coordinate and promote the gathering, processing, and analysis of ocean observations.**
- **Develop a global operational ocean forecasting network.**
- **Establish a global ocean information system.**
- **Provide advanced training in ocean observations, especially for developing countries. Raise awareness of biodiversity issues in the ocean.**

- **Lead: Trevor Platt, Partnership for the observation of the global ocean (POGO)**



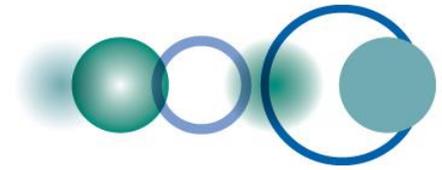
Blue Planet task components

- **C1: Sustained Ocean Observations and Information (Lead: Albert Fischer, UNESCO)**
- **C2: Sustained Ecosystems and Food Security (Lead: Shubha Sathyendranath, PML)**
- **C3: Ocean Forecasting and Services (Lead: Paul diGiacomo, NOAA)**
- **C4: Services for the Coastal Zone (Lead: Hans-Peter Plag, Old Dominion University)**
- **C5: Ocean Carbon and Climate (Lead: Mark Dowell, EU-JRC)**
- **C6: Developing Capacity and Social Awareness (Lead: Sophie Seeyave, POGO)**



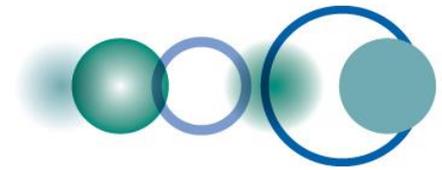
Blue Planet, C4: Services for the Coastal Zone

- **Develop a global coastal zone information system: access to available information and facilitate collection of new information (crowd-sourcing, citizen-science)**
- **Pilot project to demonstrate the added-value of ecosystem-based approaches for monitoring and managing the coastal zone.**
- **Assess climate change impacts on island coasts**
- **Assess the observational requirements for decadal forecasts of coastal local sea-level variation**
- **Assess user needs and observational requirements for coastal water quality; identify indicators and best practices for coastal water quality, and implement a monitoring service pilot for coastal water quality.**



The GEO Coastal Zone Community of Practice

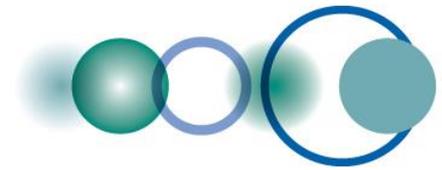
- Brings together experts to support coastal zone management through utilization of Earth observations and derived products: research and practical applications
- Organization of a series of regional workshops addressing the decision support through Earth observations for integrated coastal zone management
- Co-chairs: Paul M. DiGiacomo, NOAA, and Hans-Peter Plag, University of Nevada
- Members from USA, Brazil, Germany, ...



Health: Tools and Information for Health Decision-Making

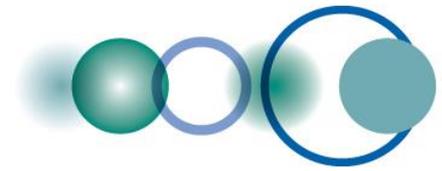
- **Develop tools and information systems for the environment and human health.**
- **Advance the integration of Earth observations and forecasts into health decision-making processes**
- **Engage with health users and decision-makers to identify needs**
- **Carry out capacity building and a plan for the promotion and sustainable use of Earth information by the health user-community**
- **Establish linkages with other Societal Benefit Areas such as Ecosystems, Biodiversity, Climate and Disasters**

Lead: Rifat Hossain, WHO



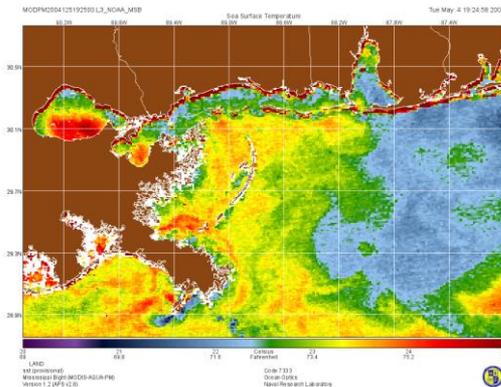
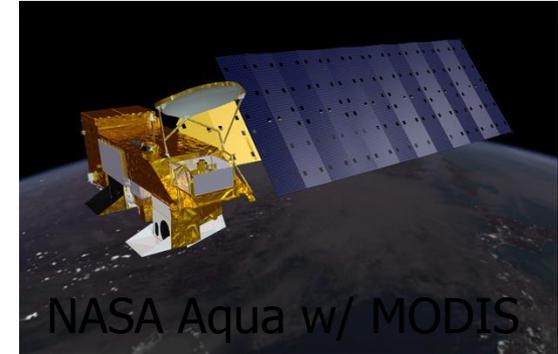
Health task components

- **C1: Air-borne Diseases, Air Quality and Aeroallergens**
- **C2: Water-borne Diseases, Water Quality and Risk**
- **C3: Vector-borne Diseases**
- **C4: Holistic Approach to Health: Transmission Dynamics, Urban Health Forecasting, Linkages and New Technologies**

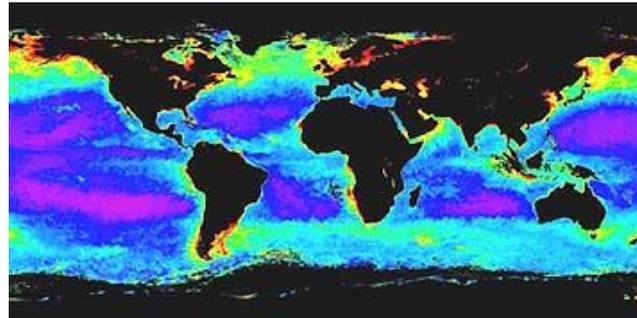


Health C2: Water-borne Diseases, Water Quality and Risk

- Satellites, computers and molecular biology have made public health forecasting a reality
- Sea surface temperature, sea surface height, color and other products can be used to predict the presence of harmful microbes in water and seafood

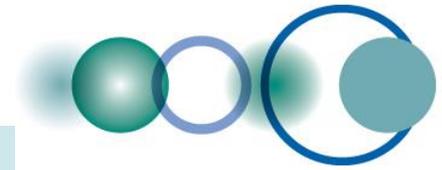


MODIS SST (NRL, & USM)



Color (NASA SeaWiFS)

- Harmful microbes
- Toxic algae
- Dinoflagellates
- Bacteria
- *V. cholerae*
- *V. parahaemolyticus*
- *V. vulnificus*
- Fecal indicators



AfricEOSS
Implementing GEOSS in Africa



GEO BON



GEO Human health

Energy and Geo-Resources Management

Global Ecosystem Monitoring

Global Carbon Observation and Analysis

Water quality

Climate Information for Adaptation

High-Impact Weather Prediction and Information



GEOGLAM
Global Agricultural Monitoring

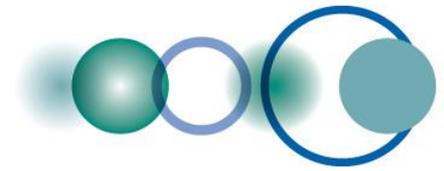
Integrated Water Information



Global Urban Observation and Information

Global Land Cover

Impact Assessment of Human Activities



Recommendations

1. Think out of the box!



Creativity

2. Think in the box!



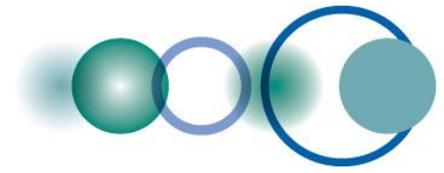
**Water quality as part
of a global system**

3. Think on users
requirements and abilities



**Develop products
and services to be
used**

THINK!



Conclusions



Thank you!

earthobservations.org

dberod@geosec.org

