GROUP ON EARTH OBSERVATIONS | ABCC Program Comparative Study

The 5th ABCC workshop at Iguazu, Brazil

GEOSS : A sustainable, coordinated and comprehensive platform to the ABCC program

Yubao Qiu
GEO Secretariat

2012-11-19

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GEO, the Group on Earth Observations

An **Intergovernmental Organization** with 89 Member Countries, the European Commission and 64 Participating Organizations

U.S. Department of State, Washington DC July 31, 2003

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What real GEO is,

- 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, set up formally at 2005
- Voluntary partnership of governments and international organizations
- provides a framework within which these partners can develop new projects and coordinate their strategies and investments
- charged with developing GEOSS

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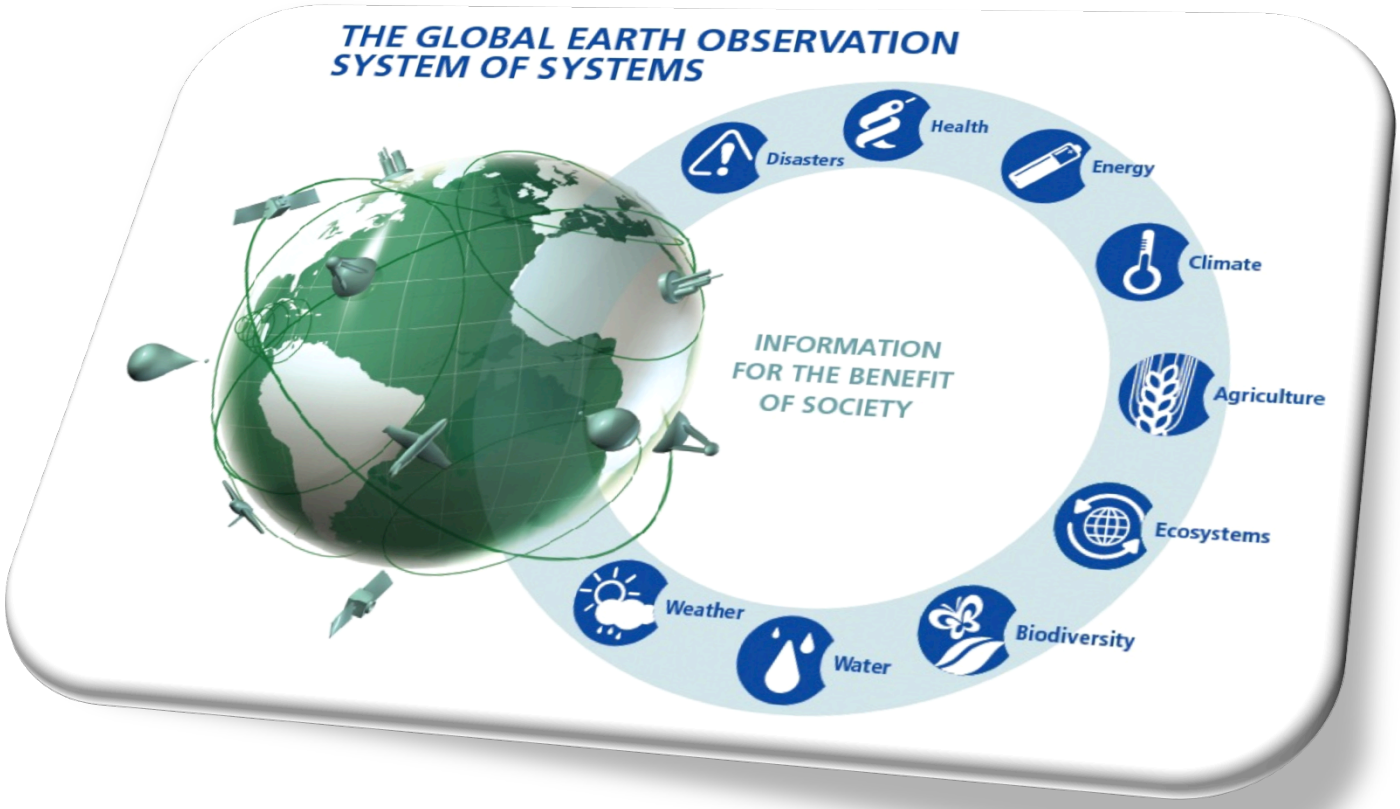
GEOSS: A Global, Coordinated, Comprehensive and Sustained System of Observing Systems



Built from the expansion and interlinking of existing observation and information systems and the investments of Members and Participating Organizations in new systems.

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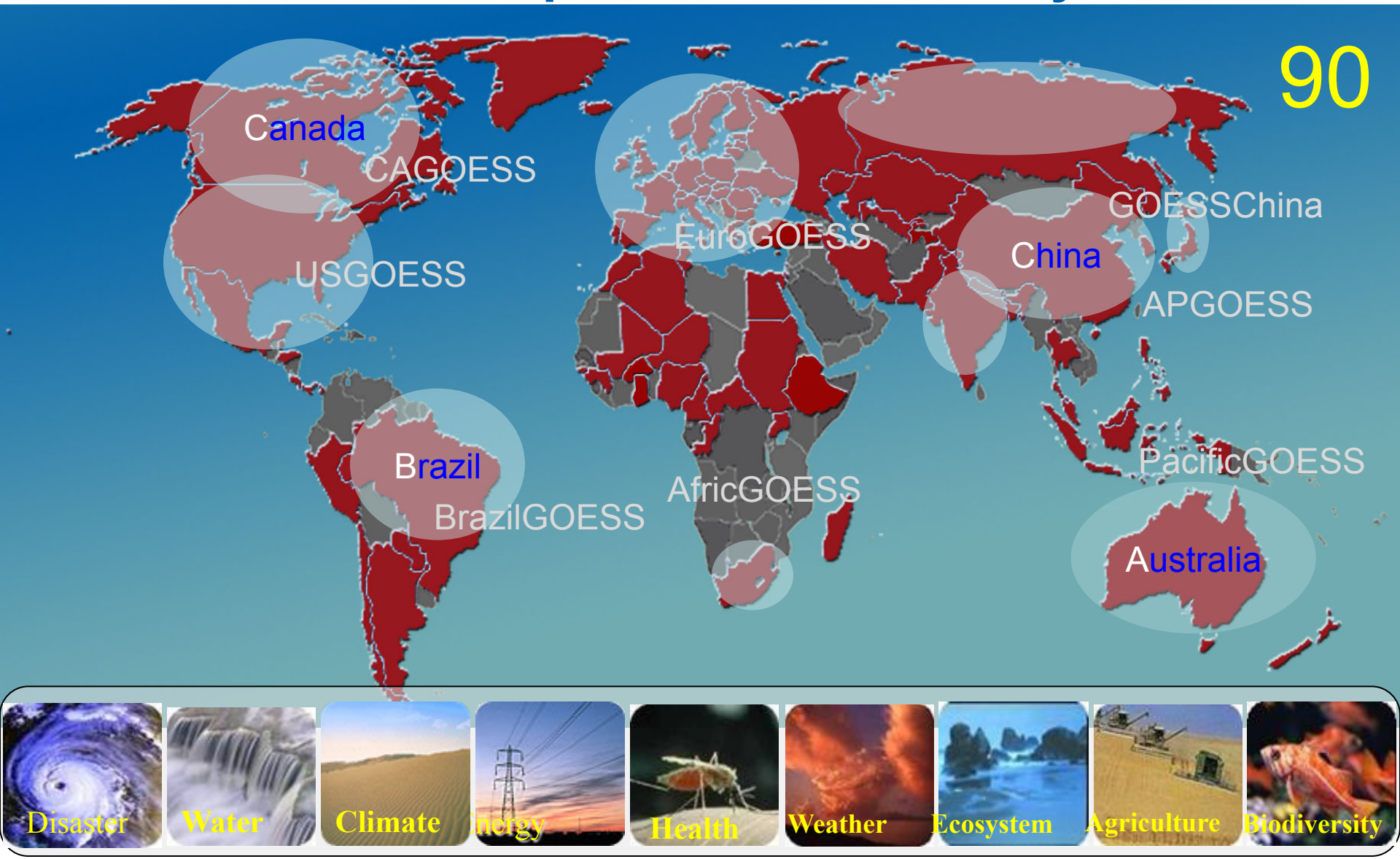
Members: Global Space Observation Systems



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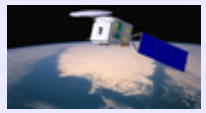
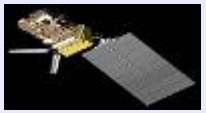
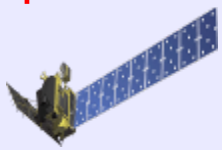
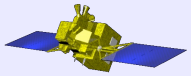
GEO: Observation Platform Coordination

Space Observations





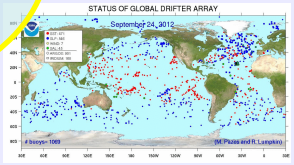
esa

cnes

DLR

In-situ Measurements





SAON
SUSTAINING ARCTIC OBSERVING NETWORKS

INTERACT

EEA

Services

Needs

GEO POs : Sci & Tec oriented

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GEOSS: main objectives

- Improve and Coordinate Observation Systems (avoid duplications)
- Provide Easier & More Open Data Access
- Foster Use (Science, Technology and Applications)
- Building Capacity
- Identify gaps in observations (based on user requirements)

…Earth Observation Systems should be coordinated and shared internationally

… to answer Society's need for informed decision making

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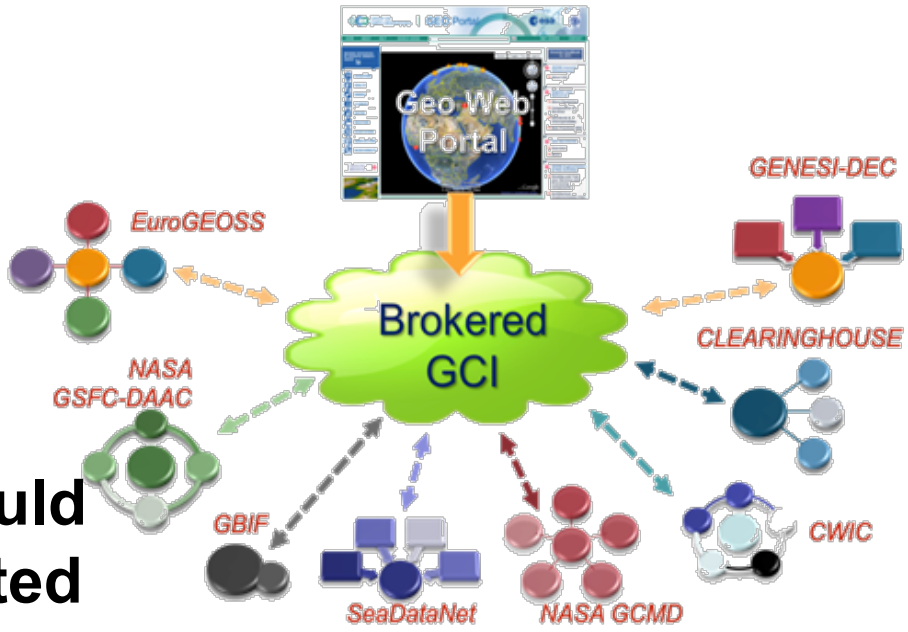
Systems Interoperability

- **Technical Specifications for Collecting, Processing, Storing, and Disseminating Data and Products**
- **Based on Non-proprietary Standards**
- **Defining What Systems Should Comply With to be Contributed to GEOSS**



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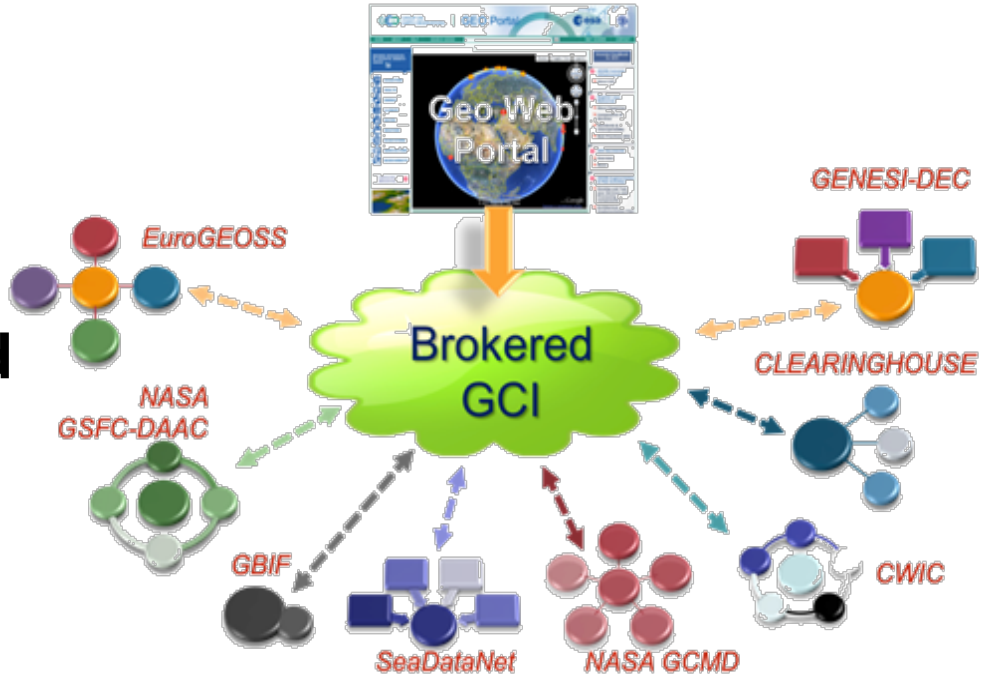
Simplifying and Discovering Information

- GEO Web Portal (and Clearinghouse)

- GEO Data Sharing Principles

- **Offering Access to Data and Services**
- **Providing Calibration and Validation**
- **Providing Tools**



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GEO Governance

- 10-Year Plan Endorsed by 2005 Ministerial Summit
- Plenary (co-chaired by RSA, EC, USA and PRC)
- Executive Committee

  (13 Members)
- Executive Secretariat (Geneva)

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GEO Governance

Executive Committee 13 Members

Regional representation

Africa(2)	:	South Africa, Uganda
Americas(3)	:	Argentina, Panama, USA
CIS(1)	:	Russia
Asia(4)	:	Australia, China, Japan, NZ
Europe(3)	:	EC, Germany, Norway

4 co-Chairs: EC, USA, China and South Africa

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How GEO works

- Coordinating activities of Members and Participating Organisations
- Supporting the development of capabilities for Observations, Processing and Information Dissemination
- Encouraging cross-cutting approaches

The GEO implementation tool is the Workplan

Archives of systems (GEOSS)

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The GEO Workplan

To address targets of the Implementation Plan and track relevant progress, the main tool is a Workplan, approved every year by the GEO Plenary.

The Plan is structured in tasks encompassing all the SBA's and the transverse areas leading to the progressive definition and implementation of GEOSS

Current Workplan is the 2012-2015, available at GEO website *http://www.earthobservations.org/*

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GEO 2012-2015 Work Plan

Strategic Target Driven-Structure

1. **INFRASTRUCTURE**

   (Architecture and Data Management)

2. **INSTITUTIONS AND DEVELOPMENT**

   (Capacity Building, Science and Technology, User Engagement)

3. **INFORMATION FOR SOCIETAL BENEFITS**

   (All SBA Tasks, plus new transverse tasks on Oceans, Global Land Cover, Global Forest Observation, Impact Assessment of Human Activities)

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1. INFRASTRUCTURE

IN-01 Earth Observing Systems

IN-02 Earth Data Sets

IN-03 GEOSS Common Infrastructure

IN-04 GEOSS Communication Networks

IN-05 GEOSS Design and Interoperability

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2. INSTITUTIONS AND DEVELOPMENT

ID-01 Advancing GEOSS Data Sharing Principles

ID-02 Developing Institutional and Individual Capacity

ID-03 Science and Technology in GEOSS

ID-04 Building a User-Driven GEOSS

ID-05 Catalyzing Resources for GEOSS Implementation

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3. INFORMATION FOR SOCIETAL BENEFITS

SB-02 Global Land Cover
SB-03 Global Forest Observation
SB-04 Global Urban Observation and Information
SB-05 Impact Assessment of Human Activities
DI-01 Informing Risk Management and Disaster Reduction (DISASTERS)
HE-01 Tools and Information for Health Decision-Making (HEALTH)
HE-02 Tracking Pollutants (HEALTH)
EN-01 Energy and Geo-Resources Management (ENERGY)
CL-01 Climate Information for Adaptation (CLIMATE)
CL-02 Global Carbon Observation and Analysis (CLIMATE)
WA-01 Integrated Water Information (inl. Floods and Drought) (WATER)
WE-01 High-Impact Weather Prediction and information (WEATHER)
EC-01 Global Ecosystem Monitoring (ECOSYSTEMS)
AG-01 Global Agricultural Monitoring and early Warning (AGRICULTURE)
BI-01 Global Biodiversity Observation (GEO BON)

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Working Plan 2012-2105

Task to Target – EC to Biodiversity

		Aichi Biodiversity Targets																			
		Strategic Goal A				Strategic Goal B						Strategic Goal C			Strategic Goal D			Strategic Goal E			
		1. Awareness of biodiversity	2. Value of BD integrated	3. Incentives for BD	4. Sustainability	5. Habitat loss	6. Marine resources	7. Agriculture, forest and aquaculture	8. Pollution	9. Alien species	10. Coral reefs and other threatened ecosystems	11. Protected areas	12. Threatened species	13. Genetic diversity	14. Ecosystem Services	15. Climate change resilience	16. Access and Benefit Sharing	17. National BD Strategies & Action Plans	18. Indigenous knowledge	19. Knowledge sharing	20. Resources
Societal Benefit Areas/Targets*	Biodiversity	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
	Water						■		■	■	■	■	■	■	■	■	■				
	Climate						■				■	■	■	■	■	■	■				
	Ecosystem	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■				
	Agriculture	■			■			■	■	■				■	■						
	Health									■					■						
Cross-cutting Areas	Ocean	■				■	■	■	■	■	■	■	■								
	Land Cover				■	■		■	■	■		■	■	■	■	■		■	■	■	
	Forest		■			■		■				■	■		■	■			■		
	Impacts			■	■		■		■												

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Working Plan 2012-2105

Target to Task – Habitations to task

		Aichi Biodiversity Targets																			
		Strategic Goal A				Strategic Goal B						Strategic Goal C			Strategic Goal D			Strategic Goal E			
		1. Awareness of biodiversity	2. Value of BD integrated	3. Incentives for BD	4. Sustainability	5. Habitat loss	6. Marine resources	7. Agriculture, forest and aquaculture	8. Pollution	9. Alien species	10. Coral reefs and other threatened ecosystems	11. Protected areas	12. Threatened species	13. Genetic diversity	14. Ecosystem Services	15. Climate change resilience	16. Access and Benefit Sharing	17. National BD Strategies & Action Plans	18. Indigenous knowledge	19. Knowledge sharing	20. Resources
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	Water					■			■	■		■	■		■	■					
	Climate					■					■					■					
	Ecosystem					■	■		■		■	■	■	■	■	■	■				
	Agriculture	■			■	■		■	■	■				■	■						
	Health					■				■					■						
Cross-cutting Areas	Ocean	■	■	■	■	■	■	■	■	■	■	■	■								
	Land Cover	■	■	■	■	■		■	■	■		■	■	■	■	■		■	■	■	
	Forest	■	■	■	■	■		■				■	■		■	■			■		
	Impacts			■	■	■	■		■												

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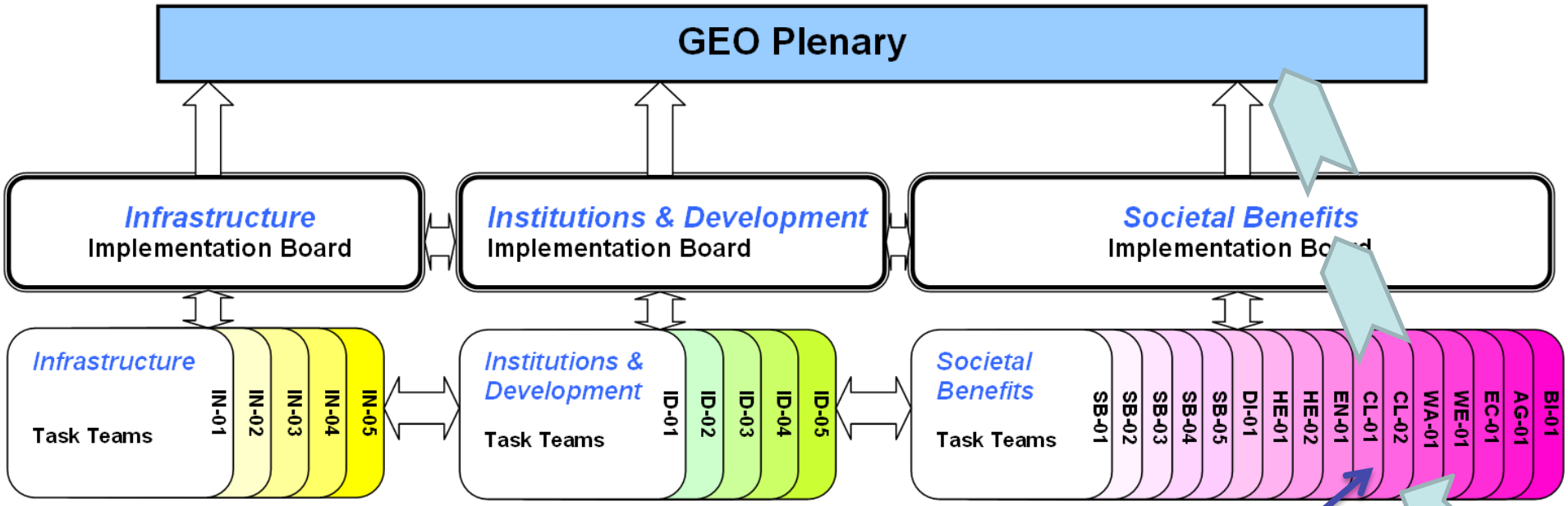
GEO 2012-2015 Work Plan Management



There are 26 tasks, including 60 components, ABCC program is now under the EC-01-C2 component.

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Before 2015, GEO aims to:

Priority Actions

Build upon the **ABCC Programme (Comparative Study on Global Environmental Change Using Space Technology)** to assess changes in global-change sensitive parameters such as forest carbon, vegetation, glacier, snow and aerosol distributions

Improving the management and protection of terrestrial, coastal and marine resources

EC-01 - Global Ecosystem Monitoring

EC-01 - Global Ecosystem Monitoring

Improving the management and protection of terrestrial, coastal and marine resources

Achieved

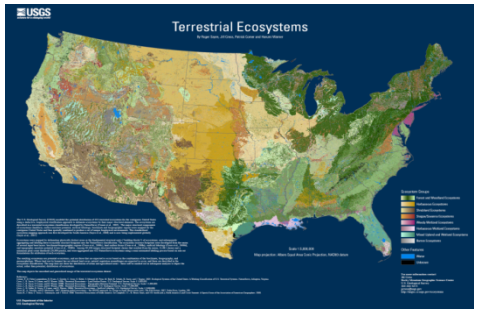
- ✓ Methodologies
- ✓ Techniques
- ✓ Tools
- ✓ communities and networks

demonstrated

Before 2015, GEO aims to:

- ➢to **establish** the monitoring capability for all ecosystems and the human impacts on them,
- ➢to **improve** ecosystem services.

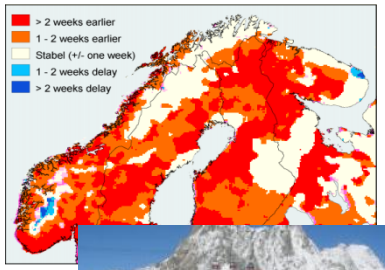
EC-01-C1 Global Standardized Ecosystem Classification, Map and Inventory

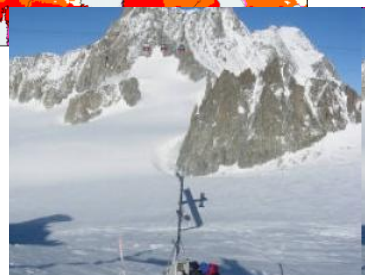


Global Ecosystems Mapping (USGS)

- ☐ major marine and coastal ecosystems
  - **SB-01-C2**
- ☐ RAMSAR Wetlands
  - **GEO-BON**
- ☐ Heritage sites & Biosphere Reserves
  - **HINST, UNESCO**

EC-01-C2 Operational Monitoring of Key Ecosystems and Related Services





Himalayan Khumbu Valley

- ☐ **key ecosystems services**
  - ✓ Moist forests (GFOI?)
  - ✓ Dry forests (GFOI?)
  - ✓ Arctic ecosystems (**INTERACT**)
  - ✓ Wetlands (**GEOBON**)
  - ✓ Dry-lands (**UNCCD -**)
  - ✓ Mountains (**SHARE**)
- ☐ SHARE GeoNetwork
  - Italy
- ☐ phenology observations
  - Noway
- ☐ **ABCC Programme**
  - Four Countries
    Au, Br, Ca, Cn

And many other contributors…

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Comparative Study on Global Environmental Change Using Space Technology




NATURE

- To establish a **cooperative relationship** among the Participants in the use of **Earth Observation science and technology** in the study of **global change**, on the basis of equality, reciprocity and mutual benefit.

OBJECTIVES

- To develop and use **earth observation** to launch the **comparative study** on the **global changing** over different environment to tackle the global change mechanism .

- To focus their efforts and together **develop** new and **innovative methods, mechanisms, technologies, platforms** and **systems** to expand their collective knowledge base to address mutual Problems.

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ABCC Programme and GEO Platform : GEOSS

- **Comparative Study :**
  - Comparative Themes ← GEOSS exiting projects (finding) : ECVs, EBV as example

- **Earth Observation** ← GEO partnership mechanism
  - Data (satellite and In-Situ)
  >IN-01, Earth Observing Systems
  >IN-03, GEOSS Common Infrastructure

- **Global Change** ← GEO POs' Scientific Programs: Global initiatives
  - Challenge Science Background
  >2007, Joint WCRP/IGBP/GCOS Workshop
  >2009, Joint IPCC/WCRP/IGBP Workshop
  >2010, WCRP-UNESCO Workshop
  >2011, 2011.2, GC (IPCC) and Earth Observation Data
  >IN-04 GEOSS Communication Networks
  >ID-05 Catalyzing Resources for GEOSS Implementation

- **Science and Technology**
  - Request and Outreach ← GEO POs' Scientific Programs
  >ID-03 - Science and Technology in GEOSS
  >Workplan, WP Symposium and GEO Plenary

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GEOSS : A sustainable, coordinated and comprehensive platform to the ABCC program

The GEO (Work Plan) provides,

- GEO is a inter-government organization, the commitment from its members or participant organization is quite secured.
- A flexible framework for developing new projects within and across areas, and coordinating strategies and investments.
- Benefits and opportunities include inter-alia: fostering networking and partnerships (new contacts and collaborations);
- Providing access to data (making more data available);
- Enlarging user-bases (users grow in numbers and diversity);
- Increasing visibility and high-level support (e.g. through the GEO Website, Newsletter, Work Plan Syposium, Plenary, Ministerial);

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GEOSS : A sustainable, coordinated and comprehensive platform to the ABCC program

- Optimizing the use of resources (participants build on complementarity);
- Activate new applications, especial over global perspective (e.g: GFOI, GEOGLAM, GEOBON, and etc);
- Enhance the expertise capacity building for common people (more practical for the science oriented observations).
- Leveraging funding for activities (mechanisms value contributions to GEOSS implementation, like the European 7th Framework Programme, and ID05: Catalyzing Resources for GEOSS Implementation);
- Help create the **Implementation of the ABCC** plan, bring the **ABCC Research Report** to a high level position.

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ABCC could strongly support the GEOSS building at

◆ Interaction

- The Open Data – CORE of GEOSS – four countries ability in supporting the global changing study
- Users of different components in GEOSS

◆ Output

- Models and Tools (Sci. & Tec. Development)
- Scientific report and finding in Global changing

◆ Outcome

- Consistency with 2012-2015 Working Plan Development
- Thoughts contribution to GEOSS Post 2015 Development

…Earth Observations are needed to inform decisions

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"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.

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Thank you!