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EC contribution to R&D in GEO

Slovenian GEO/GMES Workshop
Ljubljana, Slovenia, 12 May 2011

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Overview

- Overview of GEO and GEOSS
- GEO Data Sharing Principles and Action Plan
- European participation and organization within GEO
- Contribution of FP7 projects to GEO
- Earth Observation and the future CSF

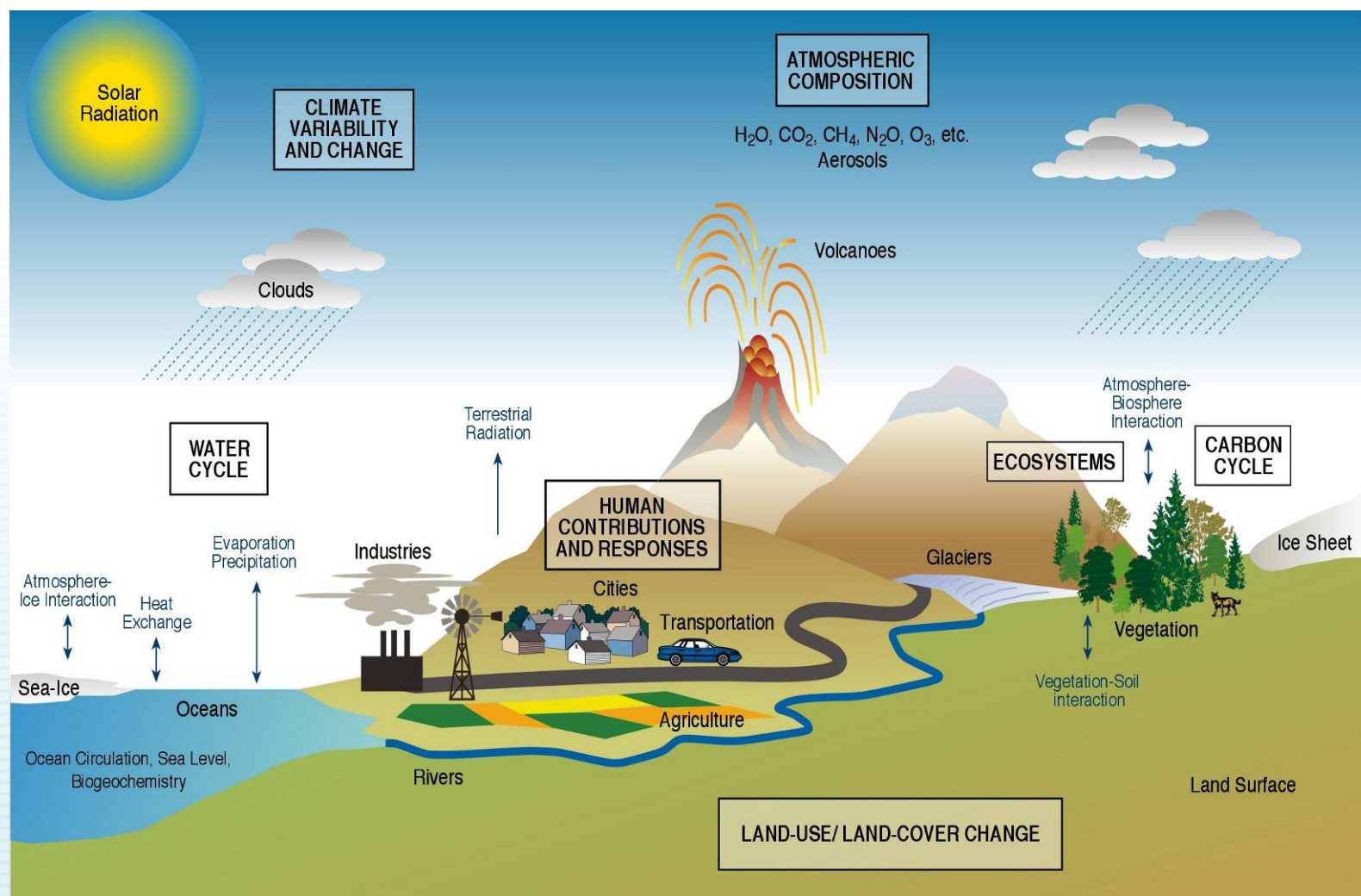


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The Earth is a complex system of systems





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Earth Observation: A strategic information

Needs for implementing high-priority policies:

- Environment policies (Kyoto protocol, biodiversity convention, management of natural resources)
- International relationships (e.g. assistance to the developing countries)
- Essential for Research and for the provision of independent assessment + opportunity for international cooperation
- Space policy (GMES)
- European Organisations (ESA, EUMETSAT, Eurogoos, EuroGeoSurvey, ECMWF)



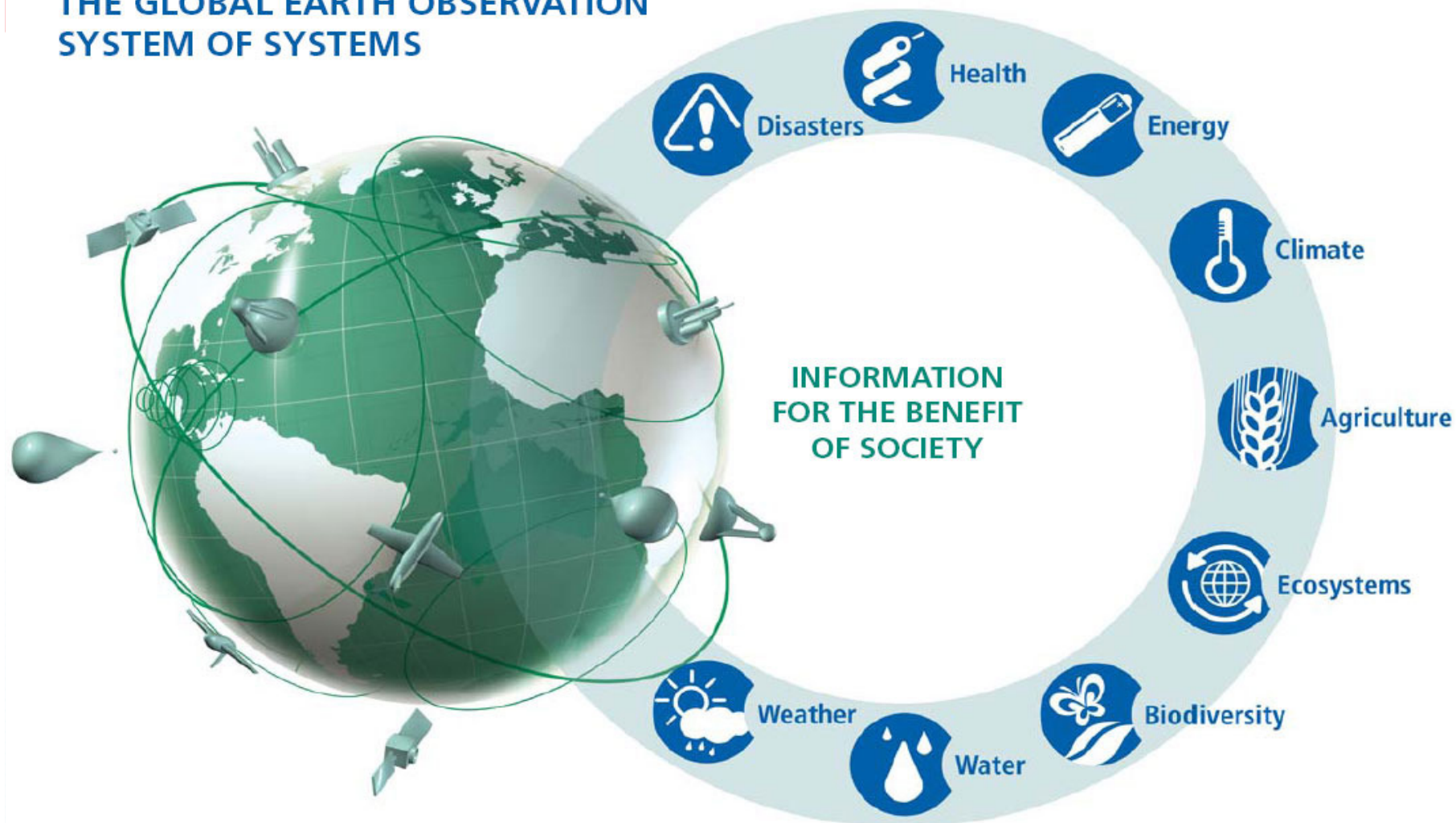
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GEOSS: A Global, Coordinated, Comprehensive and Sustained System of Observing Systems

THE GLOBAL EARTH OBSERVATION SYSTEM OF SYSTEMS



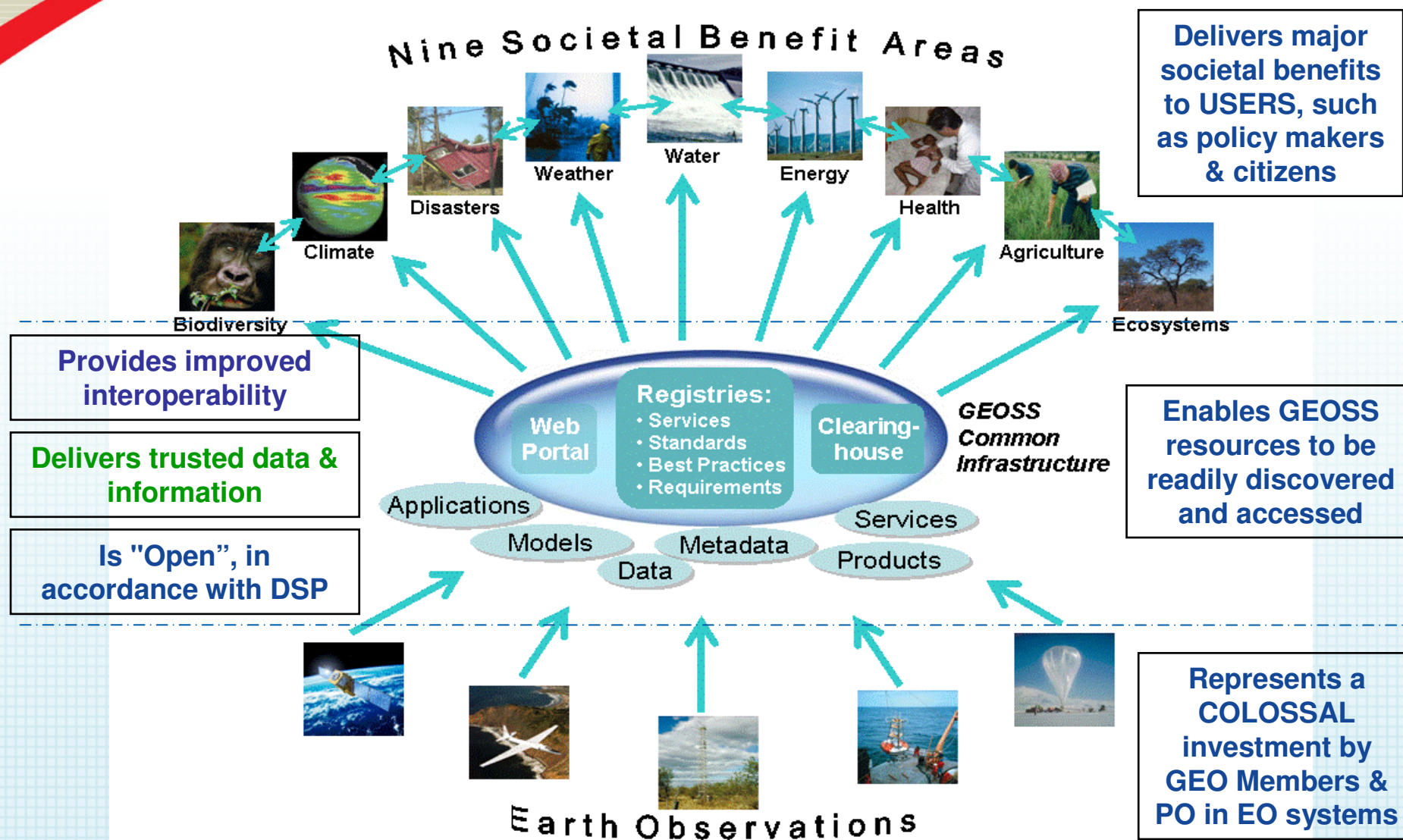


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GEOSS Common Infrastructure Operational View





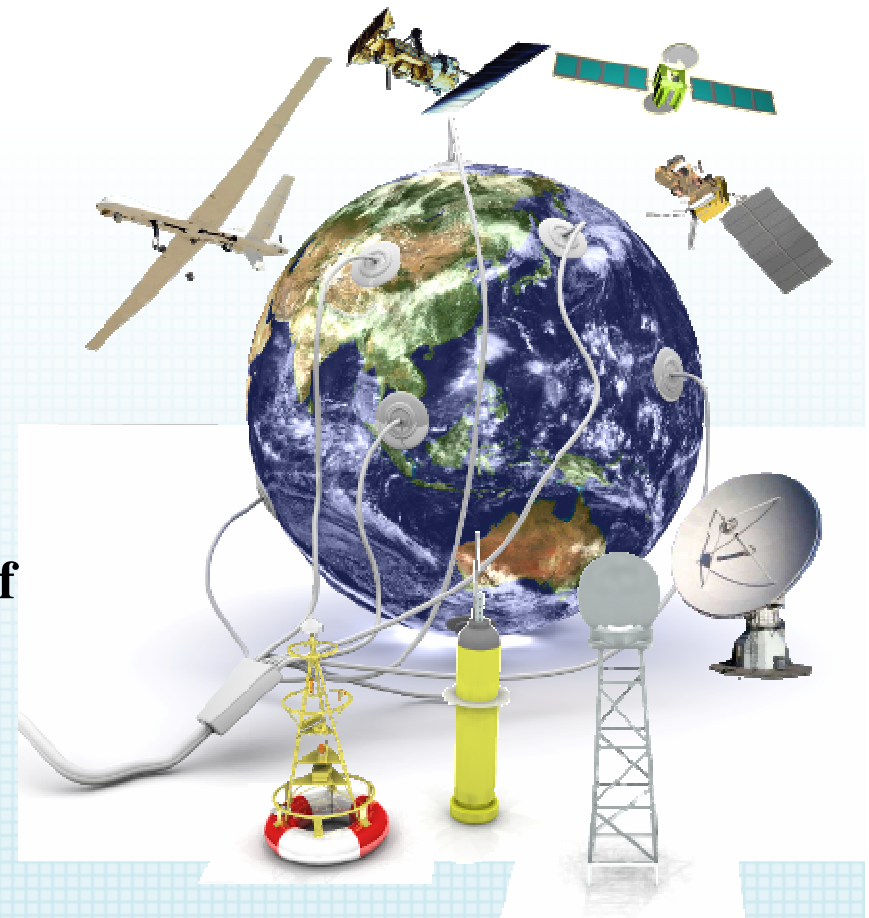
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GEOSS Data Sharing Principles

- **Full and open exchange of data, metadata, and products shared within GEOSS, Recognizing Relevant International Instruments and National Policies**
- **Shared data, metadata & products available at Minimum Time Delay and Minimum Cost**
- **Shared data, metadata & products free of Charge, or no more than cost of reproduction, are encouraged for Research & Education**





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Data Sharing Action Plan

What **Actions** need to be taken? (1)

Actions for GEO

1. Create the GEOSS Data Collection of (Full and) Open Resources for Everyone (GEOSS Data-CORE) to address GEO Societal Benefit Areas.
2. Establish a Task Force within GEO to:
 - Monitor the use and impact of resources made available with full and open access.
 - Promote the efficacy of the Data Sharing Principles in delivering societal benefits.
 - Evaluate the outcomes of this Action Plan and recommend further actions, including any mechanisms needed to further enhance the ability of the GEOSS architecture to provide access to data, metadata and products, in liaison with GEO Committees.
3. Maintain the GEOSS Common Infrastructure (GCI)
 - Categorization of Data Access Conditions: 4 groups
 - User Registration
 - Data Citation and Data Tagging
4. Integrate implementation of the Data Sharing Principles, as appropriate, into the activities of the GEO Work Plan Tasks and GEO Committees



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Data Sharing Action Plan

What **Actions** need to be taken? (2)

Actions for GEO Member States

5. Take leadership to establish national coordinating mechanisms
6. Develop flexible policy frameworks to ensure the implementation of a more open data environment

Actions for GEO Member States AND Participating Organizations

7. Maximise the number of documented datasets made available on the basis of full and open access.
When no information about usage rights and restrictions is provided, the presumption within GEOSS will be that the data are fully and openly available with no restrictions on use and dissemination.
8. Promote with data providers within their territories the benefits of full and open access to data



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DS Action Plan & GEO Ministerial Declaration

Notes with particular satisfaction:

- a) the GEOSS Data Sharing Implementation Guidelines and Action Plan
- b) the establishment of the operational GEOSS Common Infrastructure (GCI), which significantly improves access to global Earth observation data and resources (**DS AP action 3**)

- Commits to:

- a) Maximise the number of documented datasets made available on the basis of full and open access (**DS AP action 7**)
- b) Create the GEOSS Data-CORE (**DS AP action 1**)
- c) Develop flexible national and international policy frameworks to ensure a more open data environment is implemented (**DS AP action 6**)

- Requests:

- a) the establishment of national GEO coordination mechanisms (**DS AP action 5**)
- b) the adoption of national measures to promote and monitor engagement with the implementation of GEOSS Data Sharing Principles

Accepted by GEO VII Plenary

5 actions out of 8 included into the Declaration

DS AP valid for 85 countries → more access to Earth Observation worldwide

→ impacts the European attitude in this domain



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European participation in GEO

European Participating Organisations

ECMWF, EUMETSAT, ESA, EEA, etc.... well committed to the GEO tasks, provision of space and in-situ infrastructures and Earth Observation services.

European Countries

National institutions from most MS are committed in GEO tasks, contributing at the integration of national systems and research in the global context. E.g.

Norway (NSC) co-leads Forest Carbon Tracking Task;

France (BRGM) co-lead of Disasters SBA tasks

The Netherlands (ITC) leads several Capacity Building sub-tasks;

Italy (CNR) co-leads HE and EC tasks

Germany (DLR) co-leads EN task;

Greece (MKFES) leads EC sub-task

Spain (AEMET) leads tasks CB-09-01, HE-09-03a

Slovenia currently does not co-lead any GEO task nor co-chairs any GEO Committee

→ commitment for GEO WP 2012-2015 or GEO EXCOM 2012-2013?

European Commission

- Research components for GEOSS through FP7 ENV theme (emphasis on societal benefits and in-situ observations), FP7 SPACE theme (GMES remote-sensing and operational aspects)
- Standards and Interoperability component through the INSPIRE Directive and the JRC
- Capacity Building component through Community activities including FP7 projects.

High Level Working Group

- It is coordinated by the European Commission's Directorate-General for Research, and it meets regularly



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EC FP7-ENV projects related to GEO

Sub-activity 6.4.1 - Earth and ocean observation system (~20 M€/yr)

Introduced in FP7 Environment priority Cooperation Specific Program to support Research activities needed for GEOSS:

- **Development and integration of observation systems** for environmental and sustainability issues in the framework of GEOSS (complementary to GMES)
- **Making systems interoperable** and **optimising the information** for understanding, modelling and predicating environmental phenomena, for assessing, exploring and managing natural resources.
- **European efforts** to be **brought in the global context** as foreseen through GEO



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EC FP7-ENV projects related to GEO

- **FP7-ENV tool to fund research projects in the domain of GEO**
- **Main principles:**
 - maintenance of the portal and the availability of data have to be covered beyond the end of the project
 - FP7 ENV projects all set to register into GEOSS registry, and to participate in initiatives as AIP (former AR-07-02, now AR-09-01b)
 - Since 2008, as part of their dissemination plan, the projects funded by EC have to commit in producing appealing multimedia material showcasing to the public at large the activities performed

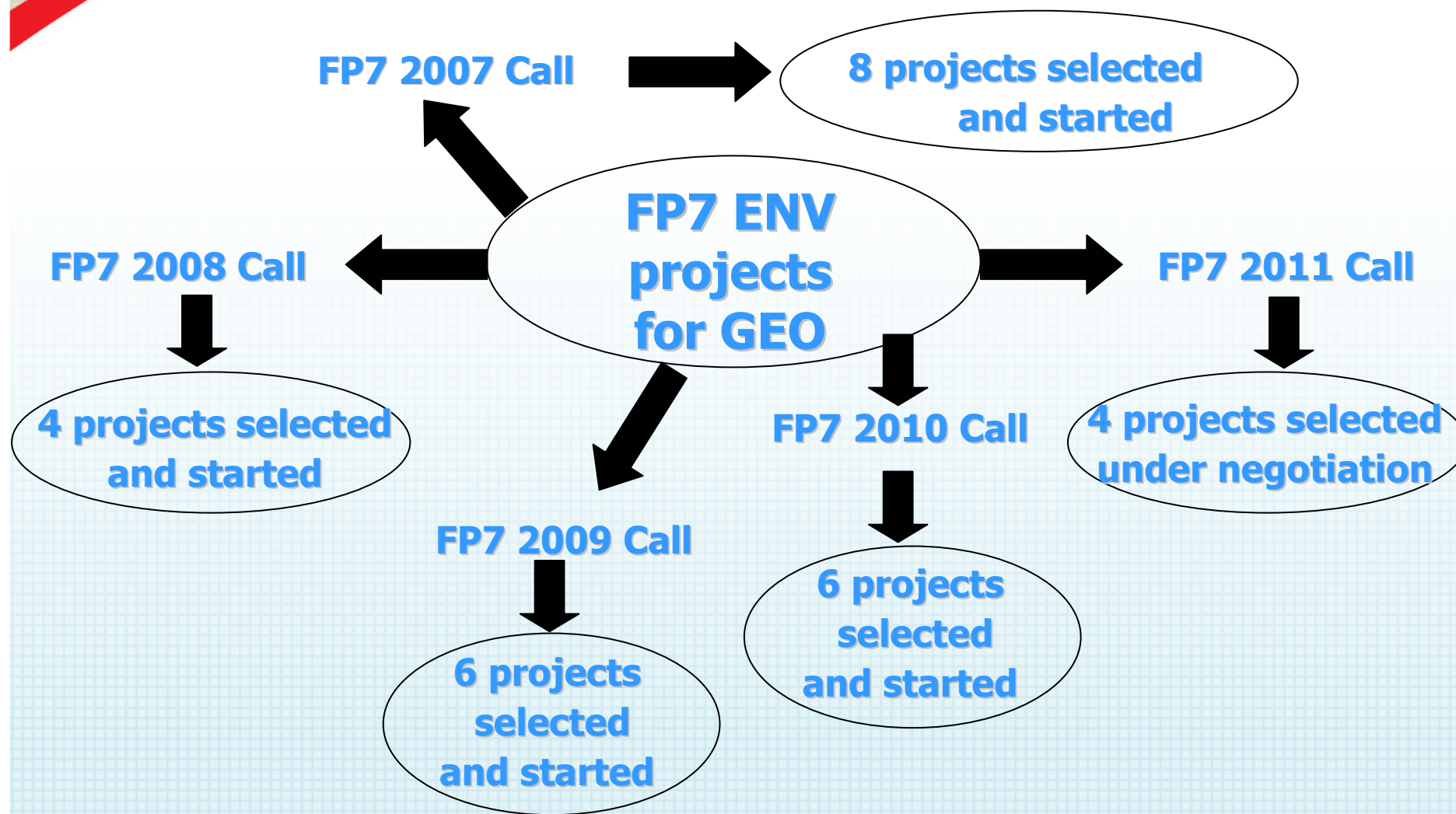


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Contribution of FP7 ENV to GEO





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Rationale of the annual WP Calls for sub-activity 6.4.1

2007 call

- Coverage of several GEO Societal Benefits Areas by involvement of the European S&T Community (Carbon Cycle, Biodiversity, Ocean Interior, Soil, Water)

2008 call

- Research supporting the Initial GCI in relation with Europe's development of INSPIRE
- Research supporting Ecosystem, Water and Energy SBA's

2009 call

- Emerging observing systems (Environment/Health, Sustainable exploitation of mineral resources)
- Structuring European approach to EO by encouraging Pan-European cross-cutting R&D activities

2010 call

- New tasks introduced in the 2009-2011 GEO Work Plan:
- Global Mercury Observing System
- promoting GEO in S&T Community
- links between GEO and new technologies (data visualisation, GNSS, reanalysis)

2011 call

- Integration and optimisation of information for building a Global Carbon Observing System:
- Inter-operable integration of shared Earth Observations in the Global Context
- Developing increased EO capacity for better agriculture and forestry management in Africa
- Assessing ecosystems (fisheries) within the Mediterranean marine coastal areas of North Africa

Overall EC contribution to Slovenian partners 2007-2011: 903 kEUR



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Contribution of FP7-ENV projects to GEOSS

TRANSVERSE GEOSS (*GEOSS Building Blocks*)

ARCHITECTURE

EuroGEOSS (08)
GEOVIQUA (10)
GEOWOW (11)

DATA MANAGEMENT

GEOWOW (11)

USER ENGAGEMENT

EUGENE (09)

CAPACITY BUILDING

DevCocast (2007)
AEGOS (2007)
EnviroGRIDS (2008)
SEOCA (2009)
GEONETCAB (2009)
BalkanGEONet (10)
OBSERVE (10)
MEDINA (11)
AGRICAB (11)

SCIENCE AND TECHNOLOGY

EGIDA (10)
GfG2 (10)

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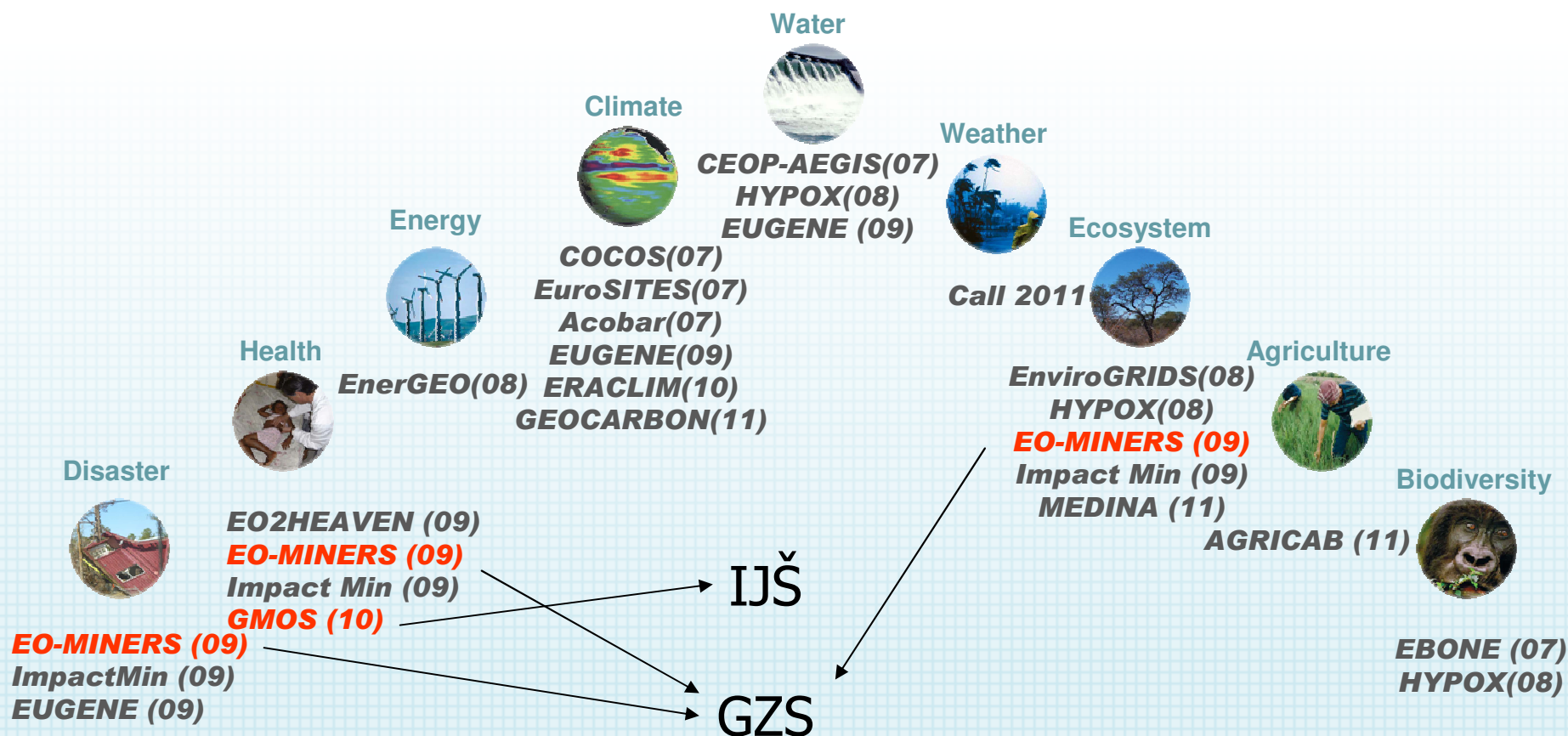
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Contribution of FP7-ENV projects to GEOSS

THE 9 GEOSS SOCIETAL BENEFIT AREAS (GEOSS for Society)





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ENV- 2012 Call for Proposals

Provisional list of topics related to GEOSS

- 1. Assessing global biological resources: the European contribution to the Global Earth Observation Biodiversity Observation Network (GEO BON)**
Global system of in situ marine and terrestrial observations, integrated with remote sensing measurements, for the monitoring and assessment of global biological resources. (1 stage - up to 1 project, max. EU contribution 7 M€)
- 2. Developing community-based environmental monitoring and information systems using innovative and novel earth observation applications**
Enable and demonstrate the direct transfer of environmental knowledge for policy, industrial and societal use
(2 stages - several projects to be funded; max EU contribution 12 M€)
- 3. Long-term monitoring experiment in geologically active regions of Europe prone to natural hazards: the Supersite concept**
Increased European technical know-how for the monitoring of Geological disaster and contribution to the development of the relevant European industrial sector;
(2 stages - several projects to be funded; max EU contribution 8 M€)



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ENV - 2012 Call for Proposals - Timeline

- 1. 17/06/2011 INFODAY, Brussels: info session, brokerage sessions**
- 2. 20/07/2011 PUBLICATION of the call on CORDIS**
- 3. 20/10/2011 1st STAGE SUBMISSION DEADLINE for 2-STAGE proposals**
- 4. 21/11 – 2/12: 1st STAGE EVALUATION of 2-STAGE proposals**
- 5. 08/03/2012 2nd STAGE SUBMISSION DEADLINE of 2-STAGE selected proposals**
- 6. 08/03/2012 DEADLINE for SUBMISSION of 1-STAGE proposals**
- 7. June 2012 grant agreement negotiations for selected proposals**



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Common Strategic Framework (CSF) Scope





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Common Strategic Framework

draft structure: 3 Sets of Challenges

■ R&I for Society

Tackling major societal challenges:

- Health and wellbeing
- Safe food and sustainable agriculture
- Secure, clean and efficient energy
- Green transport, less congestion
- Efficient use of resources & raw materials
- Inclusive and safe societies

R&I for Competitiveness

Competing on a global scale:

Leadership in key enabling technologies (Advanced materials, nanotech, biotech, microelectronics, photonics)

Access to finance (venture capital, RSFF)

Integrating research, higher education and innovation (EIT)

Support for innovative SMEs

Science for R&I

Increasing levels of excellence in the research base:

- Frontier research (European Research Council)
- Research Infrastructures for science
- Mobility (Marie-Curie Actions)

R&I = Research and Innovation



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Benefit for the European S&T Environment Community

S&T and Earth Observation/GEOSS :

- Earth Observation is by nature S&T relevant:
- It involves High-Tech infrastructures (satellites, in-situ observing and monitoring networks etc...)
- It requires technology research for the evolution of those High-Tech observing systems
- It is essential for the development of models describing the Earth System

GEO is a unique strategic platform to *promote international collaboration* in Environmental Research:

- Collaboration with Research partners outside Europe: China, Africa, USA, ..
- Recognition of EU Research Capabilities and Competence at int'l level,
- Support to Capacity Building in ACP countries

The *development of global sets of data is a necessity* for environmental research in many domains: climate, ocean, health etc... European Researchers have both a lot to gain and much to contribute for those global data sets:

- Access to new data
- Data cohesion at international level
- Constitution of global data repositories.