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# 2nd GEO European Projects Workshop Report



**33<sup>rd</sup> International Symposium on  
Remote Sensing of Environment**

**MAY 5, 2009  
STRESA, ITALY**

**GEO** GROUP ON  
EARTH OBSERVATIONS



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# **Reinforcing Europe's Contribution to GEO**

## **Report on the ISRSE-33 Side Event**

May 5, 2009 Palazzo dei Congressi, Stresa, Italy

### **2nd GEO European Projects Workshop (GEPW-3)**

A contribution to the GEO Task ST-09-02: Promoting Awareness and Benefits of GEO in the Science and Technology Community and to the Task ST-09-01: Catalyzing Research and Development (R&D) Funding for GEOSS.

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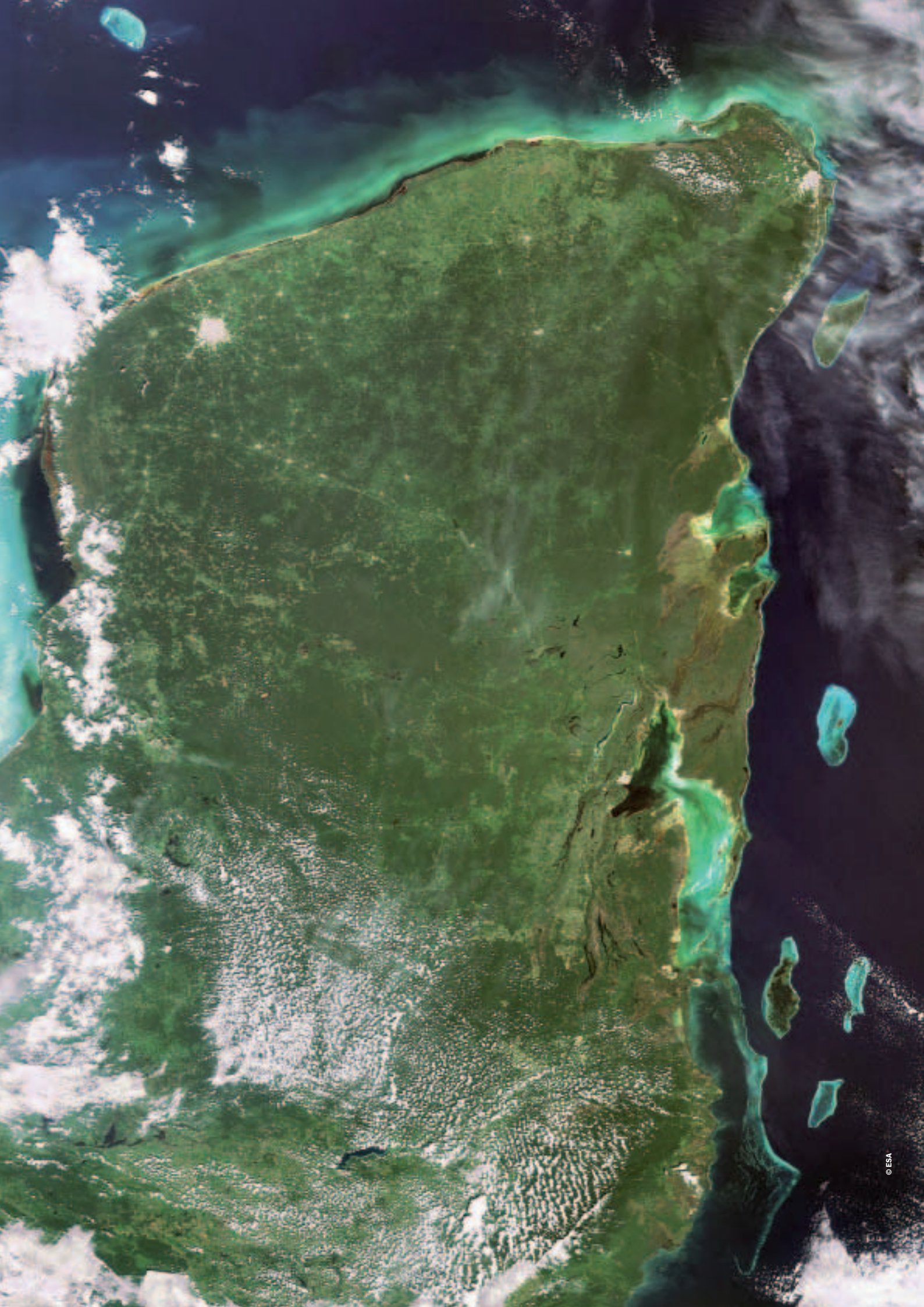
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# TABLE OF CONTENT

<b>FOREWORD</b> .....	<b>5</b>
<b>AGENDA OF THE WORKSHOP</b> .....	<b>6</b>
<b>INTRODUCTION</b> .....	<b>7</b>
<b>WORKSHOP FOCUS AND WORKSHOP FINDINGS</b> .....	<b>9</b>
● Progress made since the first GEP Workshop .....	9
● European Contribution to GEO and Preparation for the 2010 Ministerial .....	10
– Contribution to GEO: Problems to be addressed .....	10
– Expectations: Benefits of global coordination efforts .....	10
– GEOSS Common Infrastructure Priorities .....	11
– Summit 2010 .....	11
<b>MORNING SESSION PRESENTATIONS: EUROPEAN PROGRAMMES</b> .....	<b>13</b>
● EC Joint Research Centre .....	13
● EC DG Enterprise, GMES Bureau .....	13
● EC DG Development .....	14
● European Space Agency .....	14
● EUMETSAT .....	14
● EC DG Research .....	15
● European Environment Agency .....	15
<b>AFTERNOON SESSION PRESENTATIONS</b> .....	<b>17</b>
● The GEOSS Common Infrastructure (GCI) .....	17
● A proposal to further Integrate European contribution in GEOSS .....	17
● Italian Perspective .....	17
● Global Land monitoring Core Service, GMES perspective .....	18
● View of a Director of the UK Centre for Earth Observation .....	18
● The Carbon Cycle, the EU GEO(SS) contribution .....	19
● Additional input .....	19
<b>WAY FORWARD &amp; UPCOMING ACTIONS</b> .....	<b>21</b>
<b>CONCLUSIONS</b> .....	<b>23</b>
<b>ANNEX 1 – ACRONYMS</b> .....	<b>25</b>
<b>ANNEX 2: LIST OF PARTICIPANTS TO THE WORKSHOP</b> .....	<b>26</b>



# FOREWORD

The workshop “Reinforcing Europe’s Contribution to GEO” took place on May 5 2009 in Stresa, Lago Maggiore – Italy.

As a side event to the 33rd International Symposium on Remote Sensing of the Environment, it contributed to the GEO focus of the Symposium.

As the 2nd EC GEO Project Workshop, it helped to sketch a view on the progress Europe is making in its contribution to GEO, and even more importantly it helped assess a number of actions that need to be pursued in order to further reinforce Europe’s Contribution to GEO. Representatives from Projects funded by the European Commission research Framework Programme actively took part in the Workshop. The involvement of European participants who represent officially their countries in GEO and are members of the European GEO High Level Working Group (the European Caucus for the GEO initiative), must also be underlined as a positive factor in the aim to reinforce and widen the European contribution to the Global Earth Observation System of Systems (GEOSS). It was particularly interesting to hear the views on GEOSS and Europe’s activities on Earth Observation from representatives of Germany, Italy and the UK.

In addition, the Workshop can be seen as a good contribution to the GEO Task ST-09-02 which aims at promoting awareness and benefits of GEO in the Science and Technology Community. In particular the workshop specifically supported activity (1) *foster links with major scientific research enterprises in each Societal Benefit Area (SBA)*, activity (2) *Encourage relevant*

*scientists and technical experts to contribute to GEOSS in a truly participatory way, and activity (5) outreach to and engagement of the S&T community in GEO at major symposia and other meetings on different levels.* By addressing the European community of researchers and scientists and some of the European funding organisations, the workshop also contributed to activity 3a of Task ST-09-01, which aims at *identifying gaps, priorities, barriers, etc. and additional resources needs with a view to “Catalyzing Research and Development Funding for GEOSS”.*

The organisation of regular GEO Project Workshops enables Europe to aggregate its different activities in the domain of Earth Observation and build a network of funded activities which makes a valuable contribution to the implementation of the GEOSS. The European Commission intends to maintain this process in the future. The next GEO European Workshop (GEPW-3) will take place in Istanbul on 8 and 9 October with the objective of facilitating the participation of South Eastern European countries in GEO, thereby contributing to develop capacity in the domain of Earth Observation in the region.

**Manuela Soares**

*Director Environment  
European Commission,  
Directorate-General for Research*

# AGENDA OF THE WORKSHOP

ISRSE-33

Side Event: Reinforcing Europe's Contribution to GEO

May 5, 2009 – Palazzo dei Congressi, Stresa, Italy

Agenda

**May 5, 2009**

**11.00** Morning Session: *Current and Planned participation of European Programmes to the Development of the GEOSS – Progress made since the 1st GEO European Projects Workshop*

Chair: Manuela Soares, Director, DG Research – Environment Directorate, European Commission

Introduction by the Chair

Presentations:

- EC Joint Research Centre (Alessandro Annoni)
- EC DG Enterprise, GMES Bureau (Mauro Facchini)
- EC DG Development (David Radcliffe)
- European Space Agency (Jérôme Béquignon)
- EUMETSAT (Vincent Gabaglio)
- EC DG Research (Gilles Ollier)

**12.30** Lunch Break

**14.00** Afternoon Session: *Round Table – Demonstrating the benefits of the European Contribution to the GEOSS in the context of the upcoming 2010 Ministerial – Pan-European and National views on improving the process and expanding contribution to the GEOSS and its GCI*

Chair: Manuela Soares, Director, DG Research – Environment Directorate, European Commission

Moderator: Alessandro Annoni, EC Joint Research Centre

Introduction by the Moderator: The GEOSS Common Infrastructure, the critical gateway to GEOSS operation

Short intervention by the members of the Round Table:

- A proposal to further integrate European contribution in GEOSS (Udo Gärtner)
- Italian perspective (Maria Dalla Costa)
- Global Land Monitoring Core Service, GMES perspective (Virginia Puzzolo)
- United Kingdom perspective (Andrew Shaw)
- The Carboscope/The COCOS project viewpoint (Han Dolman)

Discussion animated by the moderator with the round table participants and interventions from the room

**15.30** End



# INTRODUCTION

On 3 and 4 September 2008 in Brussels the Commission organised a Workshop and invited Projects financed by the European Commission and working on Earth Observation matters to participate.

The objective was twofold: (1) developing collaboration between projects and between European researchers in the domain of Earth Observation, and (2) building an integrated approach for Europe's contribution to GEO and to its Work Plan for 2009-2011.

At the end of Workshop the participants recognised that it was a useful step towards projects coordination and towards the integration of European efforts in the GEO global initiative, as well as the occasion to improve the coordination among different actors, with a resulting more efficient use of funds. They supported the idea of holding a second Workshop to follow through at a convenient occasion.

The International Symposium on Remote Sensing of the Environment has kindly accepted to house our 2nd Workshop as a one day side event.

The side event built upon the outcomes of the first GEO European Projects (GEP) Workshop and planned for a focused approach.

In the morning session the European Programmes presented the progress made in their involvement and participation to the GEO and the GEOSS.

For the afternoon session diverse stakeholders were asked to express their views on how to reinforce Europe's contribution to the GEOSS and the Common Infrastructure, and this in the context of the mid-term milestone for GEO, namely the upcoming 2010 Ministerial. European Member States representatives, a scientific project, an Earth Observation Service provider and pan-European organisations contributed to the session with presentations and the floor was further opened to the room for questions and discussion. The moderator wrapped up the session with a presentation of the main conclusions.

In order to highlight the results of the Workshop, this report is organised to present the Workshop Focus and its Findings at the beginning of the document. The next paragraphs present in more details the presentations and contributions made during the sessions. Finally at the end of the text we have attempted to organise and summarise the proposed actions needed to aim for further progress.

All presentations made during the Workshop can be found on the Europa Research Environment website:  
[http://ec.europa.eu/research/environment/index\\_en.cfm?section=geo&pg=gepw-meeting-2](http://ec.europa.eu/research/environment/index_en.cfm?section=geo&pg=gepw-meeting-2)



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## WORKSHOP FOCUS AND WORKSHOP FINDINGS

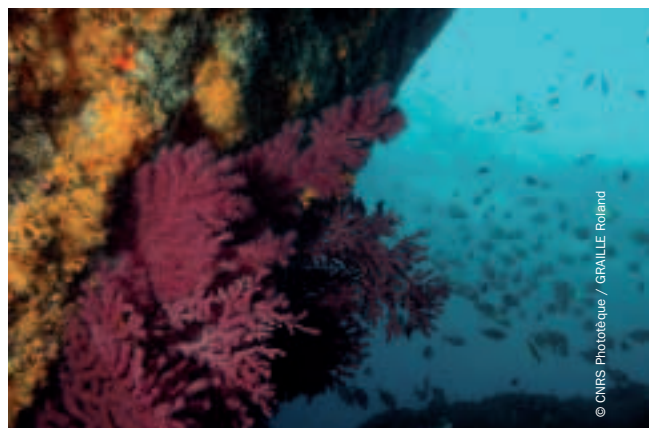
The Focus of the Workshop was on identifying the progress made since the first workshop in September 2008 and identifying further issues or proposals for action deemed important in order to develop the contribution of Europe to the GEOSS and its GEOSS Common Infrastructure (GCI).

### ● Progress made since the first GEP Workshop

The morning session of the workshop gave an overview of the contribution of major European Programmes to the GEO. From this it could be identified that since the first GEO European Projects Workshop, a number of progress were made both regarding the level of exposure of European Research in the Global Earth Observation Community and in GEO, and regarding the efforts made by the European Programmes to further contribute to the GEO.

In particular the following can be underlined:

- Through the reinforced efforts of the JRC and the help of new FP7 projects, the European INSPIRE Directive is more and more taken into account in the development of the GEOSS Infrastructure
- The GMES European initiative is getting ready to actively participate in GEO with in view mutual benefit of both initiatives
- The relevant scientific communities are gradually becoming more aware of the GEO as they take part in projects that are designed to be contributing to GEOSS since their initial conception. Thus they take the opportunity to develop coordination at a global level by contributing to Tasks of the GEO Work Plan 2009-2011, often co-leading them
- The European effort in capacity building is quite well supported by all European Earth Observation programmes, especially as concerns Africa but not solely
- Some European Key areas of knowledge start to be more apparent, supported and confirmed by leading roles secured in GEO Tasks (Carbon Monitoring, Biodiversity or the GEOSS Common Infrastructure – GCI to cite just a few)
- European Space Infrastructure is strongly supportive of Earth Observation programmes. This European area of excellence is developing its support to GEOSS with a perspective to provide operational sustained services.



- **European Contribution to GEO and Preparation for the 2010 Ministerial**

Identifying issues and proposals for further action and to expand European involvement in GEOSS can be related to the expectations European stakeholders have from GEOSS, to the contribution and commitment one is ready to make, or to the development aspects of the GEOSS infrastructure itself. Also at stake is what Europe is preparing to do or should prepare so that a little less than 2 years later, at the 2010 ministerial, there can be real progress demonstrated for the GEO.

During the session, questions asked were classified according to the following themes:

- Contribution: What level of European contribution and commitment can be reached?
- Expectations: What are the expectations of the European stakeholders with respect to GEOSS?
- GEOSS Common Infrastructure: Limitations, requirements and priorities
- 2010 Ministerial perspective: What can Europe demonstrate?

The afternoon session had a very short duration of 90 minutes including stakeholders' presentations. The workshop being held in Stresa, Italy as a side event to the ISRSE Symposium, participation was open to European projects and to the GEO High Level Working Group (the European Caucus for the GEO initiative) participants who planned to be present. The workshop thus gathered 40 participants.

The session highlighted the following findings, presented as a compendium of recommendations heard during the afternoon session and classified according to the previous four themes.



#### Contribution to GEO: Problems to be addressed

**What contribution?  
What commitment to operations?  
Which barriers and which incentives?**

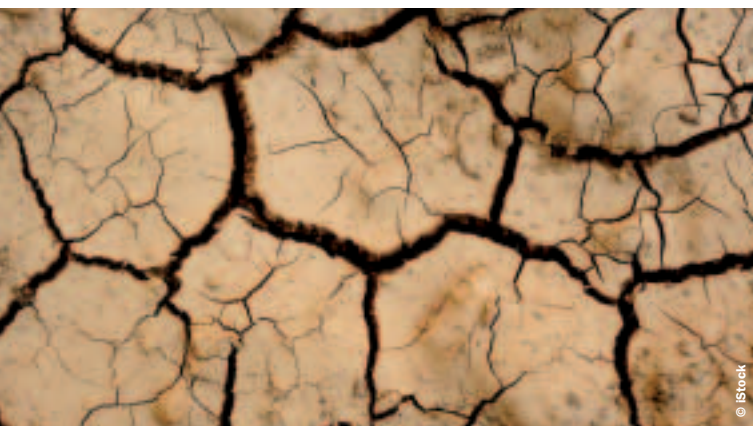
- Improving the overall impact, visibility and variety of European contributions to GEO/GEOSS
- Reflecting the excellence of European Earth Observation through coordination of European contributions originating from GMES, INSPIRE and FP7 projects and through cross-coordination of the numerous additional EO activities in Europe
- Improving National level coordination between various types of users, Earth Observation providers and R&D institutions
- Improving communication with stakeholders from Central and Regional Administrations and building links with participants in GMES developments and projects
- GEO positioning with respect to multilateral Environmental Agreement
- The existing pre-operational GMES services are not yet well linked to GEO (current contribution versus potential)



#### Expectations: Benefits of global coordination efforts

**What GEOSS is for you?  
How do you hope that GEOSS will facilitate your work?  
Which are the more important components?  
Is there a need for a GEOSS Common Infrastructure and if yes, which is its value?**

- Pan-European information- and coordination efforts will lead to
  - more efficient use of funds
  - achieving better interoperability
- Access to global data is an identified derived benefit from GEOSS
- Exploitation of synergies can be achieved in Communities of Practice (CoP); e.g. COCOS/Carbon cycle monitoring





**GEOSS Common Infrastructure Priorities**

**Common Infrastructure  
Problems  
Needs  
Priorities**

- Need for Earth Observation to provide data streams and information services called for to implement Multilateral Environment Agreements at National, Regional and International level
- In particular, support to the G8 priorities:
  - The G8 Environment Summit set out as priorities (1) Low Carbon Technologies (2) Climate Change and the Negotiating Scenarios for the Post Kyoto Architecture and (3) Biodiversity and Ecosystem Services
  - The G8 Summit in Aquila, which took place after the Workshop, expressed the need to take action to improve risk preparedness, prevention, monitoring and response times
- Making the GEOSS Common Infrastructure truly operational for users as soon as possible.



**Summit 2010**

**What Europe is preparing to do or should do so that in 2-years time at the 2010 ministerial there can be real progress demonstrated for the GEO?**

**What can we offer?  
What should be done?**

In the perspective of the 2010 summit GEO expects to be able to prove real achievements and reduce the mismatch between environmental users' expectations and the ability of space, airborne and in situ Earth observations to meet them.

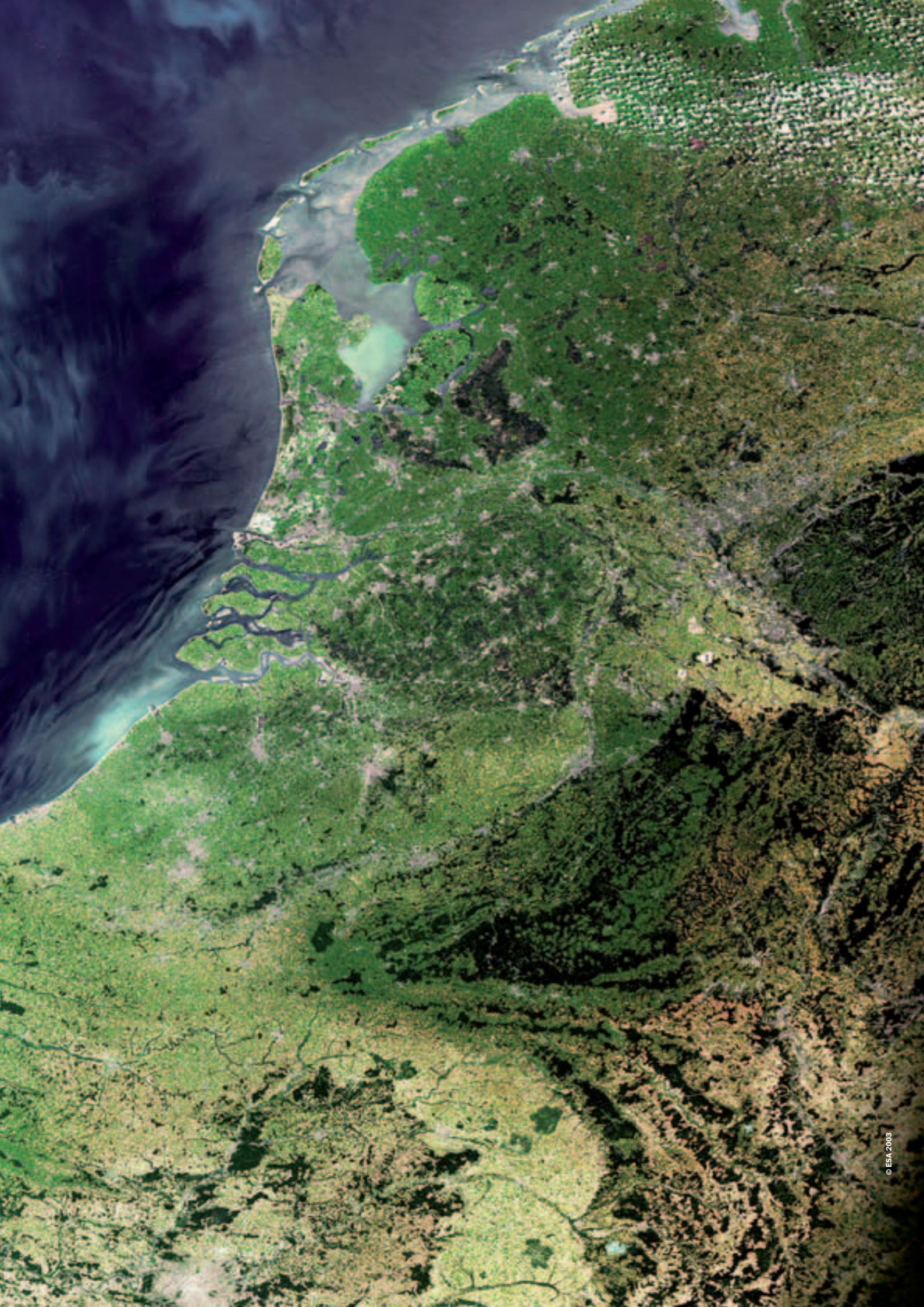
**What needs to be done or initiated?**

- Foster collaboration between pan-European Earth Observation Organisations
- Address national Earth Observation activities, strengthening the coordination of national/regional Earth Observation programmes wherever possible

- Fully apply GEO principles of data sharing in the field of European Earth Observation
- Contribute to GEOSS GCI by sharing existing European Earth Observation achievements and data sets
- Concentrate on a limited scope of Societal Benefit Areas (SBAs), for example 3 out of the 9 GEOSS SBAs: Climate, Disasters, Water
- Accompany R&D projects for GEOSS implementation with support/coordination actions for
  - improving "outreach" activities,
  - promoting best practice exchange,
  - capacity building, training and communication activities towards key users categories,
  - improved and more accessible information on Earth Observations products
- Develop a Communication Framework and a "benefit narrative" addressed to Member States, communicating benefits of GEO: justifying existing on-going commitments and justifying future (increase) commitments. The Communication Framework should work at different level:
  - Communication between Science community and Policy makers
  - Communication on market benefits of Operational Services
  - Acquisition of Public engagement through raising awareness, influencing behaviour, encouraging participation and educating
- Lead the establishment of GEO Community of Practice and/or support the development of a comprehensive information system.

**What can Europe offer for the 2010 Ministerial milestone?**

- GMES Land Monitoring Core Service (LMCS) Global component (sustained operations) covering Thematic Services (Land Surface Carbon Fluxes; Crop Production; Global water cycle) and Hot Spot Monitoring Service. This could represent a newly developed operational service component for GEOSS
- Successful Capacity Building initiatives
- The first versions of a Carbon Monitoring and Observing System and of a Biodiversity Observing System
- INSPIRE components and services (e.g. INSPIRE Catalogue and Portal) including Member States soon entering in Initial Operating Capability phase.



# MORNING SESSION PRESENTATIONS: EUROPEAN PROGRAMMES

## ● EC Joint Research Centre

Alessandro Annoni, Head of the Spatial Data Infrastructure Unit of the Institute for Environment and Sustainability presented the mission of the Joint Research Centre in the light of the Environment Policy themes. The JRC provides customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies and is active in all phases of the Policy Cycle of the EU.

The JRC has laboratories, marine stations and other technical infrastructures for Environmental Research to support research activities and perform in-situ measurements. The JRC has also developed a number of Information Systems and Databases which are key building blocks in support of the Environmental policy themes:

- INSPIRE European Geoportal
- Catchment Characterisation and Modelling (CCM) database used by the Water Information System for Europe (WISE) operated by the EEA
- European Forest Fire Information System (EFFIS)
- European Flood Alert System (EFAS)
- Radioactivity Environmental Monitoring Database (REM)
- European Soil Information System (EUSYS)
- Global Land Cover 2000 Database in collaboration with partners
- Image2000/2006 view service.

The JRC is actively supporting the development of GMES services and also active in GEO since the beginning of the initiative. Currently the JRC assumes a decisive role in the GEO Governing structure by co-chairing the Architecture and Data Committee and the User Interface Committee and by participating to ad-hoc task forces on critical issues such as the Data Sharing Task Force and the Initial Operating Capability Task Force.

Its research teams participate to GEOSS tasks through both institutional actions and activities and through participation to FP7 European Projects. As an example, it is taking the opportunity of the EuroGEOSS Project to support the implementation of the INSPIRE directive in Europe and to extend at international level through GEOSS.

Since the first Workshop held in September 2008, JRC's contribution to GEOSS Tasks has been increasing notably through some particularly important FP7 projects (EuroGEOSS, GIGAS, EBONE and e-SOTER in particular).

EU best practices, standards and specifications can thus be offered in support of the development of the GEOSS.

## ● EC DG Enterprise, GMES Bureau

Mauro Facchini, Deputy Head of Unit of the GMES Bureau at the European Commission presented the plan for Contribution to GEO of the Global Monitoring for Environment and Security (GMES) initiative.

He first recalled the objectives of GMES which is to provide information services to decision makers and other users on a sustained basis, then recalled what infrastructure and what services were being put in place to that aim. Public investment allows the implementation of GMES and leads to an open data access policy (with some exceptions related to security).



International cooperation is considered needed to preserve cost efficiency and in this frame the GEO process will ensure access to global observation data while contribution to GEO needs also to be further defined. GMES contribution will be an organised and coherent contribution from GMES stakeholders. It will help leverage further contribution at National and European level and will be based on long-term availability of data sets. All Societal Benefit Areas can benefit from GMES services.

### ● EC DG Development

David Radcliffe, Senior Policy Advisor on Sustainable Management of Natural Resources presented Europe's contribution to GEO from the perspective of the EC Directorate General on Development.

He explained why GEO was important to world development challenges: it helps informing on many important issues like food security, climate change, natural disasters, water resources management, desertification, deforestation, which all have a geographical dimension.

There is further an iterative relationship between GEO and Development whereby Development guides information requirements which then justify the need for Global integrated system. Development of infrastructure and other capabilities can then be matched to user needs, and in turn awareness and Capacity Building promotes further the demand for services.

The European Commission support is driven by a consensus on Development policy and Humanitarian Aid policy and by a joint African Union – European Union strategy which has set up 8 thematic partnership including the Energy, the Climate Change and the Science, Information Society and Space themes.

The European Development fund further funds programmes which are directly relevant to GEO capacity building, fostering the use of Earth Observation data: PUMA and AMESD in particular, and the GMES for Africa.

The Food Security Thematic Programme (FSTP) and the Environment and Natural Resources Thematic programme (ENRTP) are research and promotion instruments supporting Development policies and making use of Earth Observation data.

The Development Directorate General of the EC thus contributes to GEO by creating demand for services to support the implementation of policies, strategies and programmes. It further directly funds programmes and projects that link research with development. Finally it helps raising awareness and political commitment.

### ● European Space Agency

Jérôme Béquignon from the European Space Agency (ESA) Brussels representation presented ESA's contribution to GEO and GEOSS.

ESA is a Participating Organisation of GEO and has been dedicated to observing the Earth from Space since the development of the first Meteosat mission and its launch in 1977. Its Living Planet Programme now comprises a Science and Research component with the Earth Explorer missions, and an Earth Watch component which provides data for operational services (Meteorological services and Monitoring of the environment services through the GMES Sentinel missions).

Using data from its space missions ESA contributes also directly to the production of data sets such as the 2006 ENVISAT/MERIS Land Cover data set and the TIGER support effort to develop sustainable observation systems to improve the understanding of the water cycle and the monitoring of water resources in Africa.

ESA further contributes to GEO one of the three proposed GEO portals which allow access, search and discovery of Earth Observation data registered in the GEOSS.

Finally, ESA is also very active in supporting the interoperability of data and the adoption of standards, protocols and open architecture that are needed to build the GEOSS Common Infrastructure, as demonstrated by its participation to projects such as GIGAS and GENESI-DR of the EC INFSO Directorate General.

### ● EUMETSAT

Vincent Gabaglio, International Relations Officer at the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) presented the EUMETSAT role in reinforcing Europe's contribution to GEOSS.

EUMETSAT is a Participating Organisation of GEO and has been supporting the initiative by offering access to the EUMETCast dissemination system and delivering Environment Data to users worldwide through the GEONETCast Global coverage system.

GEONETCast, an early achievement of GEO, is interfaced with the GEOSS Common Infrastructure through the EUMETSAT EO Portal, both of which being registered components of GEO and offering access to the GEONETCast catalogue to GEO users.



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EUMETSAT leverages the GEONETCast dissemination system for the benefit of GEO by participating in GEO Tasks through FP7 Projects such as DevCoCast (environmental data dissemination and user training in Africa, South America and Asia) and AIDA (affordable alert system for Disaster Risk Management in Africa); through participation to the dissemination of CBERS Sino-Brazilian satellite data over Africa; and through a long term commitment to support African Users: participation in the PUMA and AMESD programmes and in GMES for Africa in particular.

EUMETSAT intends to further consolidate its contribution to GEO by continuing to broaden the scope of data available on GEONETCast, working on extended interface with the GCI and with the SBA Tasks of the GEOSS, and on the other side, continuing to strengthen the link with Africa data provision, dissemination and Capacity Building initiatives.

● **EC DG Research**

Gilles Ollier, Head of the Sector which has responsibility for Earth Observation within the Environment Directorate of the Research General Directorate of the EC explained how a specific sub-activity (6.4.1) had been introduced in the theme Environment of the Cooperation Program of FP7 (Framework Programme 7) in support of Research activities needed for GEOSS.

Each year the Call for proposals for sub-activity 6.4.1 has followed a specific rationale. In 2007, the focus was on dealing with as many Societal Benefit Areas as possible in order to contribute involving the European Science Community at large in GEO, in 2008 the focus was on the GEOSS Common Infrastructure in relation with the Inspire Directive, the 2009 Call concentrated on emerging observing systems in particular for Environment and Health and Sustainable exploitation of mineral resources. In 2010 it will focus on the new tasks introduced in the GEO Work Plan and on new technologies in support of GEOSS. In addition, Capacity Building activities are supported each year.

As a result FP7 funded project from the RTD Environment Directorate provide already a broad coverage of the GEO Work Plan. Following the 1st GEP Workshop in September 2008, their current or planned contribution to the 2009-2011 GEO

Work Plan has been clarified and several projects have taken a co-lead role in GEO Tasks: EBONE on Biodiversity, e-SOTER in User Engagement cross-cutting products, EuroGEOSS in Architecture and GCI, AEGOS in Capacity Building Infrastructure Development task for Africa, EnviroGRIDS in Ecosystems vulnerability, CEOP-AEGIS in Water resource management and Research tasks, COCOS in Global Carbon observation systems, EnerGEO in Energy Environment Impact Monitoring, and also Geo-Bene (FP6) on socio-economic benefits of GEO and YEOS (FP6) in Capacity Building of Operational Oceanography.

Some other FP7 funded research projects are also contributing actively to GEO tasks, such as DevCoCast which promotes the use of the GEONETCast distribution network in Africa, South America and China, as the ICOS infrastructure project supporting the Global Carbon Observation Task, and several projects from the Information Society Directorate General. More projects of interest to GEO could still be identified in the FP7 portfolio.

GEO is proving a unique platform to develop International cooperation for the research projects. European capabilities obtain recognition at a global level and European Environment Research areas can access the necessary data that they required to build representative global datasets and analyses.

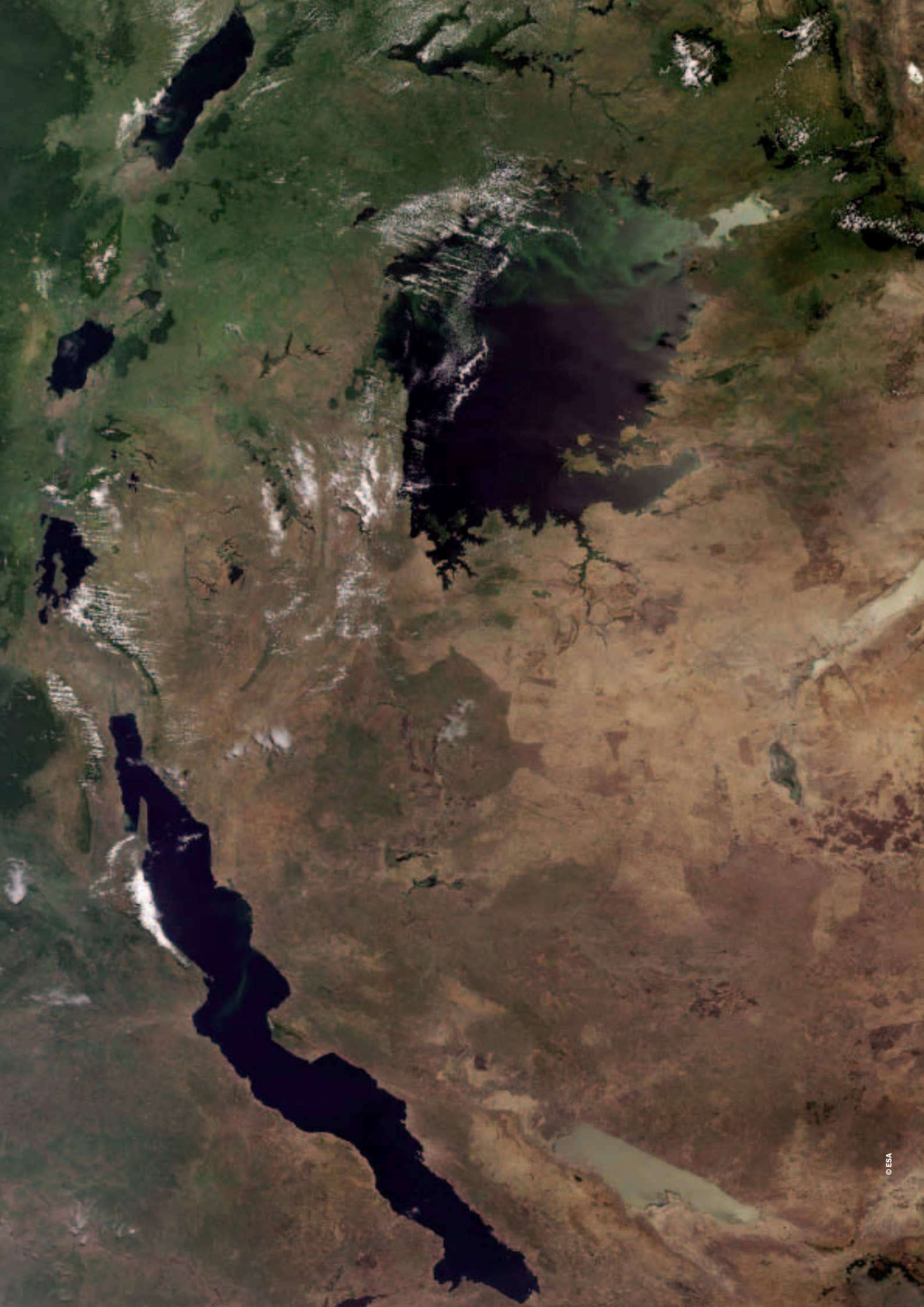
EC DG RTD considers that for the 2010 Ministerial there is ground to prepare for a demonstration of real progress stemming from European Community's contribution to the GEOSS on chosen specific areas.

● **European Environment Agency**

Chris Steenmans, Policy Officer at the European Environment Agency (EEA) explained how the EEA is charged with developing the approach for securing the required in-situ component for the GMES services.

He then briefly introduced an upcoming event organised by the EEA which would be discussing how existing and planned information systems can best serve the needs of a society faced with the challenges of global environmental change. The objective of the meeting would also be to identify measures that need to be taken to that effect.





# AFTERNOON SESSION PRESENTATIONS

## ● The GEOSS Common Infrastructure (GCI)

Alessandro Annoni, European Commission, Joint Research Centre, presented the GEOSS Common Infrastructure (GCI) current state of development.

An Initial Operating Capability (IOC) for the GCI was initiated in June 2008 marking the start of an operational GCI that includes various registries (e.g. components and services, standards, best practices...), a common search facility known as "clearinghouse" and GEO web portals for user search and access interface.

In support to the standards registry of the GCI, the Standards and Interoperability Forum (SIF) has been set-up and is now becoming operational. Its aim is to enable a greater degree of interoperability among GEOSS components.

To upgrade and augment the GCI a special programme called "Architecture Implementation Pilots" (AIP) is running aiming at deploying services and components of the GCI as demonstration pilot cases.

The GCI is a critical gateway to GEOSS operation and its design and functionalities continue to be improved and documented.

## ● A proposal to further Integrate European contribution in GEOSS

Udo Gaertner from Germany presented a proposal to further integrate European Contribution in the GEOSS. The proposal looks to address the following issues:

- improving the impact, visibility and extent of European contribution to GEOSS
- pursuing the EC led coordination of European contributions to GEOSS originating from GMES, INSPIRE, FP7- projects and extending it to numerous additional Earth Observation activities in Europe
- benefiting from improvement in the efficient use of funds and increased interoperability through information and coordination efforts as exemplified by the 1st GEO European Projects Workshop in September 2008.

The proposal, called EUGENE, limits itself to 3 GEO Societal Benefit Areas, Climate, Disasters and Water, although potential additional workshops are not ruled out. It aims at initiating a process to (1) foster collaboration between pan-European EO Organisations in each of these areas (2) include also national EO activities (3) strengthen the coordination of national/regional EO programmes wherever possible (4) fully apply GEO principles in the field of European EO data sharing.

Currently supported by DLR (German Aerospace Centre), EUMETSAT, BfG (German federal Institute of Hydrology), and the University of Bonn, the proposal has been submitted to the EC in answer to a Call for proposal. The project intends to liaise with many actors in Europe and requests direct support and involvement from additional European EO institutions and EO focused stakeholders.

## ● Italian Perspective

Maria Dalla Costa, from the Institute for Environmental Protection and Research (ISPRA), presented the Italian Perspective in view to strengthen the contribution to GEO.

ISPRA was established in 2008, issued from the merger of three Italian institutions APAT – the Italian Environment Protection and Technical Services Agency, INFS – the National Institute for Wildlife; ICRAM – the Central Institute for Scientific and Technological Research applied to the Sea. ISPRA supports the Italian Ministry of Environment representation in GEO.

Italy has supported GEO since its beginning and is expecting achievements to be demonstrated at the 2010 ministerial especially in the provision of data services for environmental users.

Italy is hosting the G8 summits in 2009. The G8 environment Summit in Syracuse in April focussed on Low Carbon Technologies, Climate Change and negotiation Scenarios for post-Kyoto, Biodiversity and Ecosystem Services. The G8 Summit in l'Aquila (Italy) in July stressed the need to take action to improve risk preparedness, prevention, monitoring and response times and GEO could certainly support this.

Italy is working in three directions to improve GEO's performance:

- a. Improve communication among several stakeholders (Central and Regional Administrations) and improve the links between GEO and national participations in GMES development and projects
- b. Contribute to GEOSS GCI by sharing its own EO achievements, notably CosmoSkyMed, and the environmental information systems which are developed within SEIS and are in line with INSPIRE
- c. Improve national level coordination between various types of users, EO providers, R&D institutions (ASI, CNR, CNIPA, ISPRA, ENEA...) with focus on the environment, cross cutting themes and interoperability.

Suggested actions at EU level relate to accompanying R&D projects for GEOSS implementation with support/coordination actions on:

- improving "outreach" activities
- promoting best practice exchange

- capacity building, training and communication activities towards key users categories
- improving and making more accessible information on EO products from providers.

- **Global Land monitoring Core Service, GMES perspective**

Virginia Puzzolo from the EC GMES Bureau presented the Global Land Monitoring Core Service (GLMCS) and how the development of this GMES service can contribute to the GEOSS.

GLMCS is an extension of the GMES Land Monitoring Core Services to Global products. Although not yet operational, the service will provide Global Systematic monitoring service of

- near real time bio geophysical variables at global scale describing the vegetation state and dynamic (including 13 terrestrial Essential Climate Variables (ECVs))
- global land cover/land cover change products annually or every 2-3 years
- more elaborated products based on modelling, assimilation and forecast on (1) Land Surface Carbon fluxes (2) Crop production and Food security forecast (3) Global water cycle.

It will provide in addition hot-spot monitoring service on an ad hoc basis upon request by European or international/inter-governmental institutions and initiatives for: (1) limited coverage extension (2) lower revisit frequency (1-5 years) (3) specific region of interest e.g. Africa, South America.

GLMCS intends to support the European policies at the level of International cooperation on regulatory issues and in particular the European commitments under international treaties and conventions. Through the production of terrestrial ECVs GLMCS will also consolidate the European contributions to the GEO/GEOSS and to the terrestrial component of GCOS and GTOS.

GLMCS could contribute to the GEO Work Plan tasks DA-09-03 a) Global land Cover Data sets, US-09-03 cross-cutting products a) Forest Mapping and change monitoring and b) Bio-geophysical,

Soil and Land Surface data, and other Tasks including CL-09-03, WA-08-01, EC-09-02d), AG-07-03.

From the participation to GEOSS, GLMCS expects to get support to access in-situ data not easily obtained, including the assimilation of meteorological data.

- **View of a Director of the UK Centre for Earth Observation**

Andy Shaw, Director of the Knowledge Exchange at the recently formed UK Centre for Earth Observation presented his personal understanding from a UK perspective of how to reinforce Europe's contribution to GEO. Creating the UK Centre for Earth Observation was a significant move for UK to become involved on the international scene in the domain of EO.

Regardless of the fact that some individual institutions are strongly supportive of the GEO in the UK, GEO gathered limited national support from the member state stems from the fact that it has been run from a policy making driven view in place of a science perspective.

One of the key challenges it faces therefore is communicating the benefit of GEO to the Member States. The Communication Framework should address the link from Science to Policy, the requirement for Operational Services and the need of public engagement.

A model of Science Policy interface would include links between policy makers, science advisory bodies, and Monitoring/Research/expert programmes and studies.

At a global scale, this framework can easily be heavily populated by a multitude of stakeholders. For example, a recent meeting of the GEO-BON initiative has drawn strong support in the UK from scientists. When drawing the global picture, GEO-BON is however only one of many initiatives and groups that are deemed necessary to answer the need of a Global Science to Policy framework.

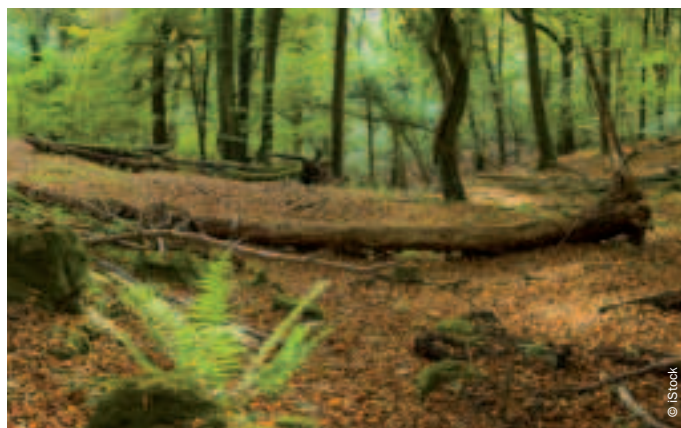
As regards the requirement for Operational Services, emphasis should be on defining and assessing the benefits and on identifying in what way operational commitments will enable the development of new markets, contribute to the green economy and potentially engage the private sector.



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It should be further noted that within the UK all projects have to provide regular impact and benefit assessment.

Finally, public engagement requires raising awareness, influencing behaviour, encouraging participation and educating people.

A better UK support would be therefore achieved if Europe would be able to develop a "benefit narrative". Communicating with all projects potentially contributing to GEO and developing both top-down and bottom-up benefit methodologies would ensure broader acceptance at all level.

It was specifically noted that the expressed view was that of the speaker rather than a formal UK view.

The recently formed UK Centre for Earth Observation is located in the University of Reading and involves 26 institutions from the UK, covering areas including Climate Research, Water Cycles, Data simulations and Data management. It will provide scientific inputs to GEOSS. The centre for Earth Observation will become certainly an important European actor at international level in the domain of EO and a key interlocutor for GEO activities in Europe.

● **The Carbon Cycle, the EU GEO(SS) contribution**

Han Dolman from the VU University of Amsterdam made a presentation from the perspective of the Carbon Cycle Research Community which is strongly committed to the GEO and takes a proactive role in the development of the GEOSS Societal Benefit Area on Climate.

Carbon cycle studies are "an example of research domain when you know where you start but do not know where you go" as Han Dolman said. 50 years ago we didn't have any clues on Climate Change. Continuous observation is key to reducing the uncertainties on the future.

European Member States and the European Commission backs a limited number of Research Infrastructure of European dimension through screening by ESFRI (Strategy Forum on Research Infrastructures). ICOS is an EC ESFRI infrastructure to set up a system within Europe, part of a Global system that

measure carbon cycles. The CarboScope system developed in the frame of ICOS is a User interface showing the surface fluxes data on a global basis, and allowing comparison of CO<sub>2</sub> and CH<sub>4</sub> fluxes calculations from different European data contributors.

COCOS is a project in the Global context and leads a GEO sub-task: Global Carbon Observation and Analysis System (CL-09-03a). COCOS also leads the establishment of a GEO Community of Practice: Integrated Global Carbon Observation (IGCO). This task is further linked through the community of Practice to the Forest Tracking sub-task (CL-09-03b) and the Greenhouse Gases from Space sub-task (CL-09-03c).

As concrete input to describing what should be further supported by Europe in GEOSS, the following is a proposed plan of action for European support in GEO:

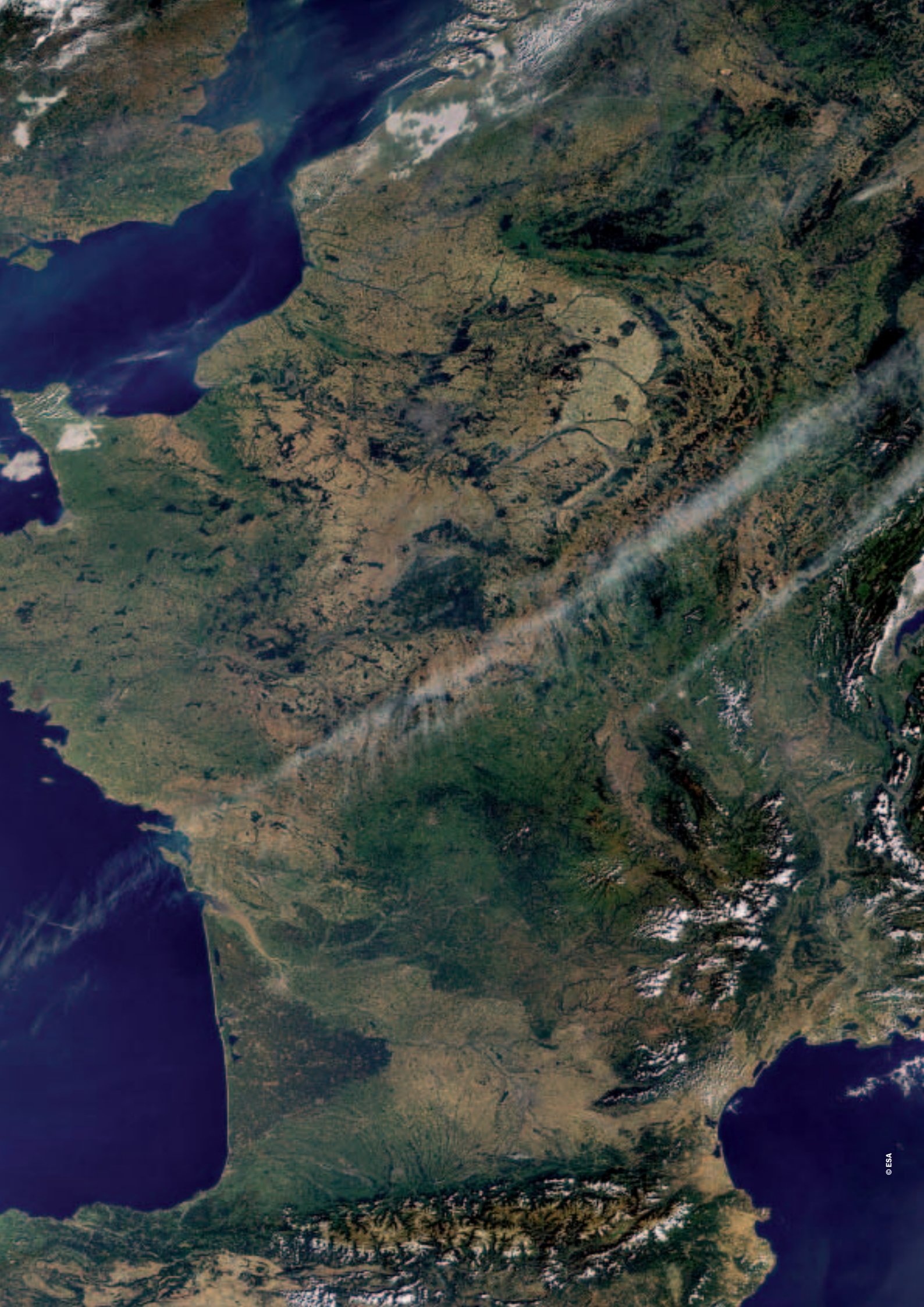
- Maintaining the observing system (ICOS) on the long run; one cannot coordinate and play a significant role without having and maintaining the infrastructure (link with GMES)
- Improving interoperability and harmonisation of data (COCOS, GEO CoP); working with the data
- Engaging with ESA, NASA, etc. in development of new satellite instruments (active, passive, biomass...)
- Working on accessible data portals (CarboScope) and keeping the focus on the integrated observation of the C-cycle.

● **Additional input**

During the round table discussion that followed, it was also suggested that making the relation with the top priorities developed under the United Nations organizations' umbrella, such as that of UNEP was a clear priority to be considered.

Regarding the proposal presented by Germany to further integrate European contribution in GEOSS, the need to include more Science in the project proposal was suggested, thus better linking policy with science. Also, extending the partnership within the proposal to more countries or pan-European organizations was deemed important.





## WAY FORWARD & UPCOMING ACTIONS

- Between the time the Workshop was held in early May and the edition of this report, the European Commission has initiated negotiation with the coordinator of the EUGENE proposal requesting in particular an extended participation from pan-European organisations.

In principle this will lead to activities starting in the 4th quarter of 2009 and covering in part the following identified required actions:

- Foster collaboration between pan-European Earth Observation Organisations,
  - Address National Earth Observation activities with the support of National Centres on Earth Observation, strengthening the coordination of national/regional Earth Observation programmes wherever possible,
  - Extending outreach activities and making more accessible information on Earth Observation products.
- Pursuing the effort initiated through the EC GEO European Workshops on both accounts of assembling a broad European family of projects, extending the number of projects reached, and, promoting the European input to the GEOSS.

A further workshop will be organised in October 2009 in Turkey. This workshop will have a dual focus on the European contribution to Global Data Sets and on the preparation of the 2010 GEO Ministerial Summit.

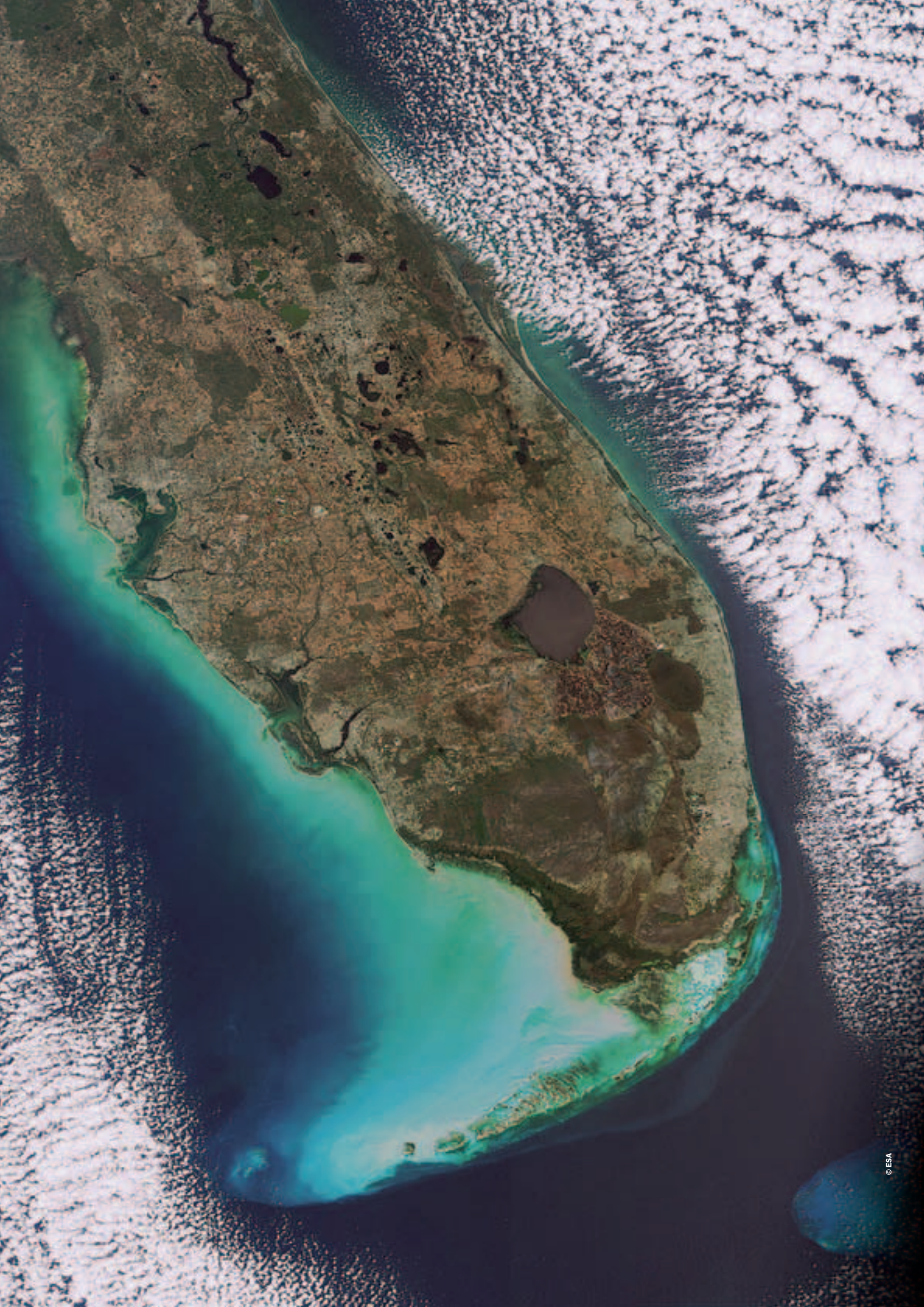
- The “Communication Framework and Benefit Narrative” suggested by UK representative identified to support GEO in National context could in part be supported by identified actions foreseen to be implemented in the GEO Tasks ST-09-01 and ST-09-02 where there is a strong participation and support of Europe. This is in particular true for task ST-09-01 which addresses funding programmes linked to the Science to Policy Framework.

- Promotion of the GEO at the 2009 G8 meeting in Italy was foreseen. Additional effort is needed to link GEO with the international environmental policy agreements.
- The EC and GEO Member State will contribute to identify a limited number of key achievements, clear outcome of GEO Tasks demonstrating GEO's value added and effectiveness, to be presented at the 2010 Ministerial summit. The timeframe for identifying these key achievements at GEO level is the following: establishment of a Task Force for the preparation of the 2010 Ministerial (September 2009); Call for interest (running from May 2009; Review and preliminary approval of list of key achievements at GEO VI in Washington in November 2009; Final review and decision at ExCom meeting in June 2010.

European specific competences must be identified and chosen to support the Ministerial key achievements within that time frame. Some competences start already to become obvious picks even recognised so at international level: Capacity Building, GCI Architecture and Data standards for GEOSS, some SBA thematic focus such as Biodiversity Observation and Carbon Monitoring systems.

- European data sets established and operated by EC projects, by the JRC, by the GMES initiative, and by Member States must be made easily available through the GCI.
- The excellence of Europe in Space as exemplified by National competences, ESA programmes, GMES and EUMETSAT meteorological system and EumetCast system, must continue to be supported by Europe in the long term and made visible in GEO.







## CONCLUSIONS

The 2nd GEO European Projects Workshop was targeted at assessing and reinforcing Europe's contribution to GEO.

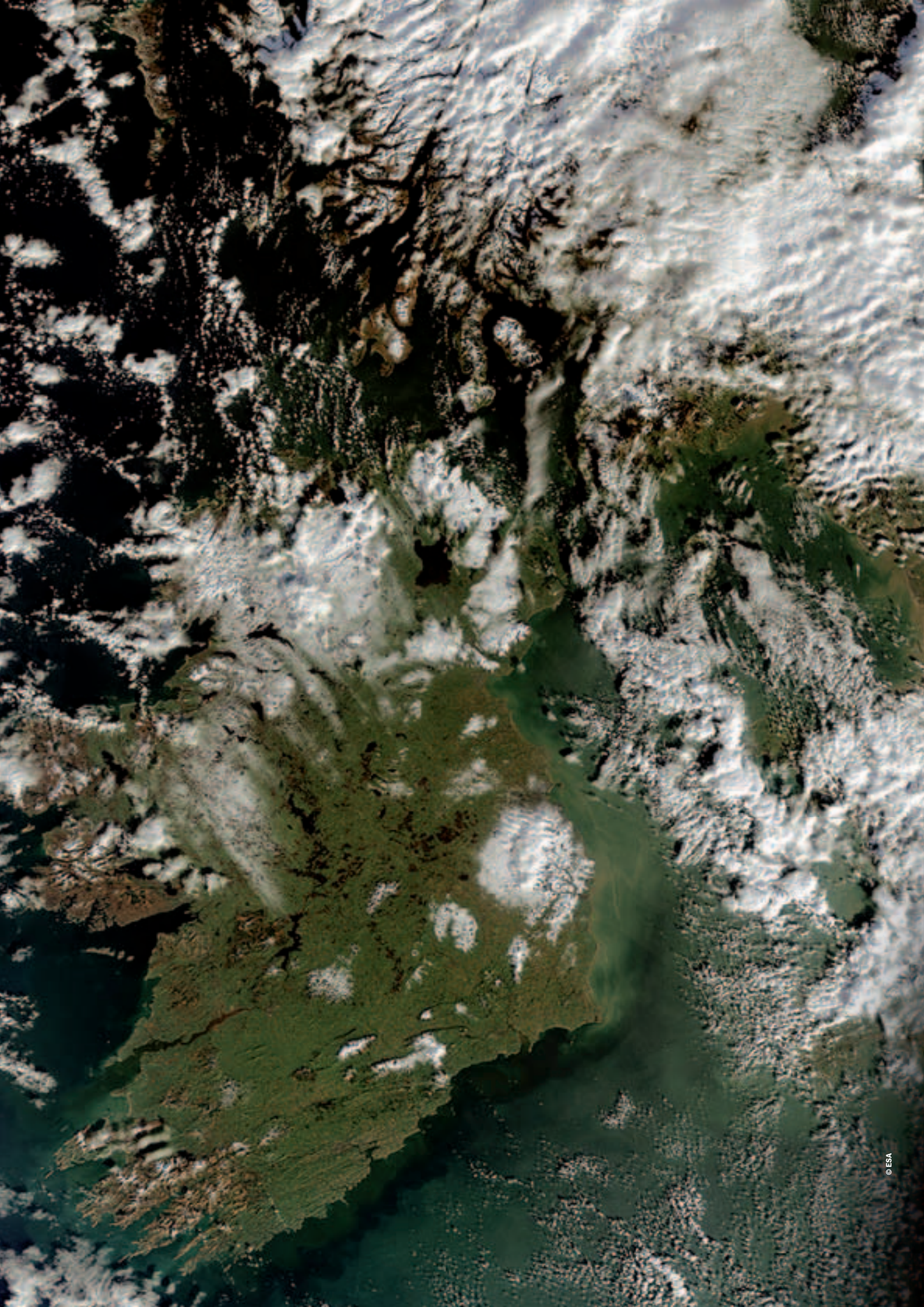
The first session presented the extent of European Programmes participation in the GEO and the GEOSS. This session showed that Europe is indeed increasing its participation in the development of the GEOSS and gathering certain of its forces in a focussed way in implementing the GEO Work Plan.

In particular it was encouraging to get the participation to the workshop of some European GEO countries through their GEO principals or more politically involved representatives.

In the afternoon session the format of having diverse stakeholders expressing themselves from their various viewpoints on the issues and proposals for finding paths to reinforce further Europe contribution to the GEOSS led to a summary of ideas strongly embedded in the context of the mid-term milestone for GEO, namely the upcoming 2010 Ministerial.

Actions will be progressed as explained in Chapter 7 – Way Forward. The reflection on how to further grow and put to the forefront of the international scene the progress that is being made in Europe for the benefit of the GEOSS will need to be pursued. A further rendezvous is already planned in October 2009 in Istanbul in Turkey for the 3rd GEO European Projects Workshop. It will be aimed at continuing the preparations for the mid-term Ministerial milestone, in particular from the point of view of the European content of the GEOSS.

The Environment Research Directorate of the European Commission wishes to thank all participants and contributors to this series of Workshop for their input and their help in providing a sound European vision based on their research and in support of the important environment concerns of our society.



# ANNEX 1 – ACRONYMS

**AEGOS** – African European Georesources Observation System  
[www.aegos-project.org](http://www.aegos-project.org)

**AIDA** – Advancing ICT for DRM in Africa  
[www.aidaonline.info](http://www.aidaonline.info)

**AMESD** – African Monitoring of the Environment for Sustainable Development  
[www.eumetsat.eu/Home/Main/AboutEUMETSAT/InternationalRelations/Africa](http://www.eumetsat.eu/Home/Main/AboutEUMETSAT/InternationalRelations/Africa)

**Carboscope** – A tool developed as part of the ICOS project and designed for users with knowledge of the Carbon cycle who desire to learn more about atmospheric inversion results  
[www.carboscope.eu](http://www.carboscope.eu)

**CBERS** – China-Brazil earth resources Satellite – The CBERS Program is the consequence of a partnership between Brazil and China in the space technical scientific segment aiming at the development, launch and operation of remote sensing satellites  
<http://www.cbbers.inpe.br/>

**CEOP-AEGIS** – Coordinated Asia-European long-term Observing system of Qinghai – Tibet Plateau hydro-meteorological processes and the Asian-monsoon system with Ground satellite Image data and numerical Simulations  
[www.ceop-aegis.org](http://www.ceop-aegis.org)

**COCOS** – Coordination Action Carbon Observation System  
[www.cocos-carbon.org](http://www.cocos-carbon.org)

**CoP** – Community of Practice – A Community of Practice (CoP) is defined by GEO as a user-led community of stakeholders, from providers to the final beneficiaries of Earth observation data and information, with a common interest in specific aspects of societal benefits to be realized by GEOSS implementation

**DevCoCast** – GEONETCast for and by Developing Countries  
[www.devocast.eu](http://www.devocast.eu)

**EBONE** – European Biodiversity Observation Network: design and plan for an integrated biodiversity observing system in space and time  
[www.ebone.wur.nl](http://www.ebone.wur.nl)

**EnerGEO** – Energy Observation for monitoring and assessment of the environmental impact of energy use

**EnviroGRIDS** – Building Capacity for a Black Sea Basin Observation and Assessment System supporting Sustainable Development  
[www.envirogrids.net](http://www.envirogrids.net)

**e-SOTER** – Regional pilot platform as EU contribution to a Global Soil Observing System  
[www.esoter.net](http://www.esoter.net)

**EUGENE** – Improving coordination, visibility and impact of European GEOSS contributions by establishing a European GEOSS network

**EuroGEOSS** – European approach to GEOSS  
[www.eurogeoss.eu](http://www.eurogeoss.eu)

**EuroSITES** – European Ocean Observatory Network: Integration and enhancement of key existing European deep-ocean observatories  
[www.eurosites.info](http://www.eurosites.info)

**GCI** – GEOSS Common Infrastructure – The GEOSS Common Infrastructure allows the user of Earth observations to access, search and use the data, information, tools and services available through the GEOSS

**GENESI-DR** – Ground European Network for Earth Science Interoperations  
[www.genesi-dr.eu](http://www.genesi-dr.eu)

**Digital Repositories**  
[www.genesi-dr.eu](http://www.genesi-dr.eu)

**GEO** – The Group on Earth observation, which is coordinating efforts to build a Global earth Observation system of Systems, or GEOSS  
[www.earthobservations.org](http://www.earthobservations.org)

**GEO-BENE** – Global Earth Observation – Benefit Estimation: Now, Next and Emerging  
[www.geo-bene.eu](http://www.geo-bene.eu)

**GEO-BON** – The Group on Earth Observations Biodiversity Observation Network – GEO-BON is both a Community of Practice and a Task in the GEO Work Plan  
[www.earthobservations.org/geobon.shtml](http://www.earthobservations.org/geobon.shtml)

**GIGAS** – GEOSS, INSPIRE and GMES an Action in Support  
[www.thegigasforum.eu](http://www.thegigasforum.eu)

**GMES** – Global Monitoring for the Environment and Security – European initiative for the implementation of information services dealing with environment and security  
[www.gmes.info](http://www.gmes.info)

**GMES Africa** – The Global Monitoring for Environment and Security in Africa and ACP countries initiative  
[www.eumetsat.eu/Home/Main/AboutEUMETSAT/InternationalRelations/Africa](http://www.eumetsat.eu/Home/Main/AboutEUMETSAT/InternationalRelations/Africa)

**GLMCS** – GMES Global Land Monitoring Core Service

**ICOS** – Integrated Carbon Observing System  
[www.icos-infrastructure.eu](http://www.icos-infrastructure.eu)

**INSPIRE** – Infrastructure for Spatial information in Europe. The INSPIRE Directive of the European Union entered into force in May 2007, establishing an infrastructure for spatial information in Europe to support Community environmental policies, and policies or activities which may have an impact on the environment  
[inspire.jrc.ec.europa.eu](http://inspire.jrc.ec.europa.eu)

**OneGeology** – OneGeology Europe  
[www.onegeology-europe.org](http://www.onegeology-europe.org)

**PUMA** – Preparation for the Use of MSG in Africa  
[www.eumetsat.eu/Home/Main/AboutEUMETSAT/InternationalRelations/Africa](http://www.eumetsat.eu/Home/Main/AboutEUMETSAT/InternationalRelations/Africa)

**SBA** – Societal Benefit Area – The Global Earth Observation System of Systems is simultaneously addressing nine areas of critical importance to people and society which are the 9 SBAs: Agriculture, Biodiversity, Climate, Disasters, Ecosystems, Energy, Health, Water, and Weather

**TIGER** – Initiative focusing on assisting African countries to overcome problems faced in the collection, analysis and dissemination of water related geo-information by exploiting the advantages of Earth Observation space technology  
[www.tiger.esa.int](http://www.tiger.esa.int)

**YEOS** – Yellow Sea Observation, forecasting and Information System  
<http://ocean.dmi.dk/yeos>

# ANNEX 2: LIST OF PARTICIPANTS TO THE WORKSHOP

## 2nd GEO European Projects Workshop, Stresa

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