Results of the EU survey 2015 on Earth observation in a global context

A public consultation on possible EU actions in relation to global coordination of Earth observations via the Group on Earth Observations (GEO)

Source: EC  DG RTD.I4
June 2015
EU survey on Earth observation in a global context:

• Rationale
• Purpose, target and audience
• Time, structure and responses
• Main outcomes:
  • Awareness of and stance on EO, GEO and GEOSS
  • Opportunities and barriers to a stronger EU coordination of Earth observation through GEO
  • Possible EU-level actions for the future
• General assessment of the consultation

Annexe: Supporting diagrams
Rationale for the consultation:

- Element of a continued multi-stakeholder dialogue
  - to refine, consolidate and prioritise future possible EO actions at EU level to support the new Commission priorities fixed by President Juncker

- Builds upon and raises awareness of:
  - Previous targeted consultations of European experts conducted by the Commission in 2013 and 2014;
Purpose and target audience

• Purposes of the consultation:
  • Estimate general awareness of and stance on:
    ▪ Earth Observations (EO)
    ▪ the Group on Earth Observation (GEO)
    ▪ the Global Earth Observation System of Systems (GEOSS)
  • Appreciate how to maximize EU benefits from increased European coordination in Earth observation in the GEO context;
  • Collect views and priorities on a set of possible actions at EU level

• Broad target audience:
  • EU Member States and other European GEO member countries
  • Copernicus entrusted bodies, other EO organisations in Europe
  • European private sector including the geo-service industry
  • European research community
  • European civil society (individual citizens, environmental NGO's, etc.)
  • Environmental and protection agencies in Europe
• **Period of consultation:** from **26/01/2015 to 20/04/2015**
  • https://ec.europa.eu/eusurvey/runner/ConsultGEO

• **326 submitted responses** (232 individuals + 94 organisations)
  • 56% : research sector  
    17% : business sector  
    16% : public authorities  
    6% : international organisations  
    5% : others including NGO's, interest groups, etc.
  • 65% of responders: EO plays a central role for their activities  
    25% of responders: EO is peripheral/occasional  
    10% of responders: general interest in EO (no specific role)

• **Geographical distribution of the responses:**  
  PT (16%), ES (16%), UK (12%), DE (10%), IT (5%), FR (5%), other (< 5%)
Number of responses per country

Geographical distribution (number of responses per country)

Total sample of 326 responses
Awareness of and stance on EO, GEO and GEOSS

• All participants agree that "Global cooperation is essential for easy access to Earth observation systems and open data" (81% entirely agree and 18% agree to some extent)

• A large majority of the participants are aware of GEO-GEOSS (+79%) and Copernicus (82%)
  ▪ Only half of them know about the "Data Collections of Open Resources for Everyone" made openly (and quasi freely) accessible through GEOSS

• Participants have interest for multiple EO data sources:
  1. Space-borne Earth observations (75,5%)
  2. Ground-based Earth observations (50%)
  3. Airborne Earth observations (44%)
  4. Seaborne Earth observations (28%)

• They consider new emerging EO data sets as strategic:
  1. Data from models and simulators (93%), data acquired from drones (92%)
  2. Data from internet objects (84%), data from personal mobile devices (81%)
  3. Data extracted from social media (59%)
Percentages of GEO awareness amongst the respondents depending on their sector of activity (% out of 326 responses)

- Research: 36% GEO aware, 13% geo not aware
- Business: 11% GEO aware, 3% GEO not aware
- Other: 29% GEO aware, 7% GEO not aware
Benefits from and barriers to a stronger EU approach to GEO and global Earth observations

What main benefits?

1. Many of the environmental issues facing Europe are global in nature, calling for EO-based EU action in cooperation with other regions
   (99% agree: 78% entirely agree, 21% agree to some extent)

2. The full and open data access to remote sensing & in-situ observations advocated by GEO offers opportunities for innovation & growth
   (97% agree: 77% entirely agree, 20% agree to some extent)

3. The EU's Copernicus programme for Earth observation can be promoted worldwide as a key EU contribution to GEOSS
   (90% agree: 60% entirely agree, 30% agree to some extent)

4. The EU could benefit from the current data revolution & the Internet of Things, which have huge potential for innovative uses of EO data & products
   (86% agree: 56% entirely agree, 30% agree to some extent)

What main barrier?

• Future commitment of resources to GEO in a context of high pressure on public budgets
   (87% agree: 52% entirely agree, 35% agree to some extent)
GEO-related features of highest interest (> 50%): 
1) International cooperation (66%) 
2) Knowledge base to meet the SDGs (64%) 
3) Earth system research (62%) 
4) EO-derived products and services (59%) 
5) Achieving policy goals (52%)

<table>
<thead>
<tr>
<th>Feature</th>
<th>High interest</th>
<th>Moderate interest</th>
<th>Low interest</th>
<th>I don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>International cooperation on Earth observations to tackle global challenges</td>
<td>66%</td>
<td>24%</td>
<td>8%</td>
<td>2%</td>
</tr>
<tr>
<td>Achieving a robust monitoring capacity &amp; sound knowledge base on the Earth system, to help meet the Sustainable Development Goals</td>
<td>64%</td>
<td>27%</td>
<td>6%</td>
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</tr>
<tr>
<td>Identifying monitoring gaps &amp; research questions relating to the Earth system</td>
<td>62%</td>
<td>29%</td>
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<td>Developing Earth observation products &amp; services exploiting the full &amp; open Earth observation data shared via the GEOSS information system</td>
<td>59%</td>
<td>30%</td>
<td>8%</td>
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<td>Achieving international, national &amp;/or local policy goals using Earth observations shared by the GEO community</td>
<td>52%</td>
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<td>Better coordination of public-sector initiatives concerning Earth observation in Europe, to make Europe's contribution to GEO more coherent</td>
<td>46%</td>
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<td>GEO as a tool for sharing responsibility for EO capacity building (e.g training, education &amp; equipment for EO monitoring &amp; processing) &amp; the costs it entails</td>
<td>39%</td>
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<td>GEOSS as a tool for marketing &amp; advertising EO assets &amp; services internationally &amp; expanding networks, to open up global markets</td>
<td>22%</td>
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### EU approach to Global Earth observation and GEO: issues of highest interest (> 50%)

1. **Acceleration of the open data trend for EO** (76%)
2. **Stronger ERA targeting GEOSS and Copernicus** (69%)
3. **Structured access to in-situ & socioeconomic public data** (54%)
4. **Operational synergies between GEOSS and Copernicus** (54%)

### Detailed Issues

1. **Open data trend for EO**
2. **ERA targeting GEOSS and Copernicus**
3. **Public bodies coordination; access to in-situ and socioeconomic data**
4. **GEOSS and Copernicus synergy**
5. **RDI in data management for EO reuse**
6. **European coordination towards GEOSS**
7. **European GEOSS information system**
8. **Businesses from GEOSS opportunities**
9. **Promoting national GEO 'offices'**
10. **Citizens' science and observatories**

![Bar Chart](image-url)
Possible EU-level actions to support the EU industry

High priority issues for positioning the EU industry on the global stage: (40-45 % of all answers; 50-55% of answers received from the business sector)

- Increasing awareness of GEO and GEOSS by companies established in Europe, especially SMEs and start-ups involving young entrepreneurs
- Support to new EO-based business opportunities through financial rewards (prizes) for meeting a specific technological challenge in the GEO area

As well as: (30-40 % of all answers; 38-48% of answers received from the business sector)

- Action to address the full value chain from EO research to innovation and market deployment, including more intensive use of public procurements
- Public-private partnerships to facilitate GEO engagement and GEOSS take-up by the European service industry
- Demonstrating / promoting new businesses opportunities based on mobile GEO-based applications for local needs by non-expert users
- Setting up a European GEOSS forum for dialogue with European businesses
Characterisation of the respondents from the business sector (55 responses out of 326)
Characterisation of the respondents from the EO downstream sector (18 responses out of 326)
Main additional messages given in response to open fields:

- Main benefits from EO data stem from integration with other information sources
- More emphasis should be placed on cross-disciplinary projects, looking at scientific problems which span the oceans, atmosphere & land
- Necessity to promote GEOSS outside today’s GEO community
- Development cooperation matters for the EU. In many regions of the world EO systems are the only way to obtain environmental data.
- To put mechanisms in place to get nations more strongly involved and find ways to involve people at all levels within the EU
- Programmatic support to long term monitoring (including in situ) for basic essential variables is an issue
- To enable on-demand, real-time extraction of knowledge from GEOSS data by EU citizens and organisations
- To care about accuracy and usability of data; towards high quality data produced or quality controlled by qualified professionals
- Copernicus and Sentinel missions need to enhance data distribution
General assessment of the consultation

- Good rate of participation compared to other EU surveys (also considering the technological nature of Earth observation)
- Largest interest by (EO) experts from the research, GEO and Copernicus communities; moderate participation by the business sector; lower response rate from civil society
- A large majority of the respondents would support a stronger EU approach to GEO and global Earth observation
- All participants subscribe to the preliminary analysis of GEO- and EU-specific challenges and opportunities pre-identified in the GEOSS Staff Working Document of 2014
- Clear priority trends are given for the pre-identified motivations, opportunities, barriers and possible EU action towards global Earth observation in the GEO context
Main policy recommendations for the future:

- In a context of high pressure on public budgets, to put emphasis on coordination and synergies between existing EO assets in Europe and their internationalisation via GEOSS.

- Top priorities for possible EU action in the future:
  - Accelerate open EO data sharing
  - Interconnect European data infrastructures
  - Increase GEOSS awareness by the European industry (e.g. forum)
  - Stimulate new applications, including for non-expert users (e.g. through financial rewards, public procurements, RDI activities)
  - Implement stronger operational ties between GEOSS and Copernicus
  - Develop a stronger ERA for EO (targeting GEOSS and Copernicus)
  - Improved coordination between public bodies with EO mandate and between GEO member countries and participating organisations
Annexe: Supporting Diagrams

EU survey 2015 on Earth Observation in a global context:
A public consultation on possible EU actions in relation to global coordination of Earth observations via the Group on Earth Observations (GEO)

Source: EC DG RTD.I4
June 2015
A - Awareness of and stance on Earth observations, GEO and GEOSS

3/4 of the participants are aware of the Group on Earth Observations (GEO).

Percentages of GEO awareness amongst the respondents depending on their sector of activity (% out of 326 responses)
3/4 of the participants are aware of the global Earth Observation System of Systems (GEOSS).

Percentages of GEOSS awareness amongst the respondents depending on their sector of activity (% out of 326 responses):
A - Awareness of and stance on Earth observations, GEO and GEOSS (continued)

Only half of the participants are aware of the collection of datasets shared by the GEO Community on a full, open and unrestricted basis (GEOSS Data CORE)

No 51%
Yes 49%
### B - Assessing benefits from and barriers to a stronger EU coordination of Earth observation through GEO

#### Most relevant GEO-related features

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Key reasons justifying a stronger EU approach to GEO and global Earth observations

Many of the environmental issues facing Europe are global in nature, calling for EO-based EU action in cooperation with other regions. 78% Yes, I entirely agree, 21% Yes, I agree to some extent, 0% No, I disagree to some extent, 0% No, I entirely disagree, 0% I don't know.

The full and open data access to remote sensing & in-situ observations advocated by GEO offers opportunities for innovation & growth. 77% Yes, I entirely agree, 20% Yes, I agree to some extent, 12% No, I disagree to some extent, 0% No, I entirely disagree, 0% I don't know.

The EU’s Copernicus programme for Earth observation can be promoted worldwide as a key EU contribution to GEOSS. 60% Yes, I entirely agree, 30% Yes, I agree to some extent, 3% No, I disagree to some extent, 7% No, I entirely disagree, 7% I don't know.

The EU could benefit from the current data revolution & the Internet of Things, which have huge potential for innovative uses of EO data & products. 66% Yes, I entirely agree, 30% Yes, I agree to some extent, 6% No, I disagree to some extent, 7% No, I entirely disagree, 7% I don't know.

GEO helps promote research & innovation. It is a unique forum for coordinating the whole observation community. 43% Yes, I entirely agree, 43% Yes, I agree to some extent, 7% No, I disagree to some extent, 6% No, I entirely disagree, 6% I don't know.

GEO is a way of leveraging existing EO-related infrastructure, programmes, projects & activities; it boosts its major contributors’ international standing. 39% Yes, I entirely agree, 45% Yes, I agree to some extent, 6% No, I disagree to some extent, 9% No, I entirely disagree, 9% I don't know.
### B - Assessing benefits from and barriers to a stronger EU coordination of Earth observation through GEO (cont.)

**Main barriers to a stronger EU approach to GEO and global Earth observations**

<table>
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<tr>
<th>Factor</th>
<th>Yes, I entirely agree</th>
<th>Yes, I agree to some extent</th>
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<td>35%</td>
<td>5%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>GEOSS’s added value &amp; impact not demonstrated enough</td>
<td>27%</td>
<td>44%</td>
<td>14%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>General GEOSS usability &amp; data quality documentation</td>
<td>24%</td>
<td>42%</td>
<td>14%</td>
<td>4%</td>
<td>16%</td>
</tr>
<tr>
<td>Uncertainty about the extent to which GEOSS will be implemented between 2016 &amp; 2025</td>
<td>23%</td>
<td>43%</td>
<td>9%</td>
<td>3%</td>
<td>22%</td>
</tr>
<tr>
<td>Lack of an overall framework for engaging the private sector in supporting &amp;/or exploiting the GEOSS information system</td>
<td>23%</td>
<td>41%</td>
<td>15%</td>
<td>4%</td>
<td>17%</td>
</tr>
<tr>
<td>GEO synergies with some UN programmes &amp; initiatives not sufficiently well developed</td>
<td>21%</td>
<td>41%</td>
<td>12%</td>
<td>1%</td>
<td>25%</td>
</tr>
<tr>
<td>Perception that GEO might be in competition with existing &amp; new EO-related initiatives</td>
<td>18%</td>
<td>32%</td>
<td>27%</td>
<td>8%</td>
<td>15%</td>
</tr>
</tbody>
</table>
C - Possible EU-level action in the field of global Earth observation and GEO

Towards a stronger EU approach

- EU action to accelerate the trend towards open data, with a focus on Earth observations: 76% High, 19% Medium, 2% Low
- Stronger European Research Area in the field of Earth Observation, with more international EO research & innovation activities targeting GEOSS & the EU Copernicus programme: 69% High, 22% Medium, 4% Low
- EU action to improve coordination of the various public bodies & systems in Europe that collect in-situ & socioeconomic data, to provide more structured access to such data: 54% High, 33% Medium, 7% Low
- Stronger operational synergies between GEOSS & the EU's Copernicus programme: 54% High, 29% Medium, 4% Low
- Reinforced Community research, benchmarking & pilot deployment activities in the field of EO data management, to support data reuse: 47% High, 41% Medium, 6% Low
- Stronger model of European coordination (more formal & structured) vis-à-vis GEO & GEOSS, to maximise GEOSS benefits to the European society: 46% High, 38% Medium, 6% Low
- EU action to help develop a regional European GEOSS information system that is interoperable with the Copernicus dissemination infrastructure: 46% High, 32% Medium, 9% Low
- EU action to encourage the private sector in Europe to seize future GEOSS business opportunities: 37% High, 47% Medium, 5% Low
- Benchmarking & promoting successful GEO-related coordination mechanisms, currently implemented at national & regional levels: 30% High, 43% Medium, 20% Low
- EU action to empower citizens through EO-related citizens' science & citizens' engagement in the collection of environmental data: 30% High, 43% Medium, 20% Low

Research and Innovation
C - Possible EU-level action in the field of global Earth observation and GEO (continued)

Priority issues for positioning the European EO industry on the global stage

- Increasing awareness of GEO & GEOSS in local European companies, especially small & medium-sized firms & start-ups involving young entrepreneurs that could potentially benefit from GEOSS (46% high priority, 32% medium priority, 13% low priority, 10% I don't know)
- Commission support to new business opportunities in the field of Earth observation through financial rewards (prizes) for meeting a specific technological challenge in the GEO area (41% high priority, 34% medium priority, 15% low priority, 10% I don't know)
- Demonstrating/promoting new businesses opportunities based on mobile GEO-based applications for local needs by non-expert users (39% high priority, 40% medium priority, 13% low priority, 8% I don't know)
- Action to address the full value chain from EO research to innovation & market deployment, including more intensive use of public procurement for innovative solutions & pre-commercial public procurement (39% high priority, 39% medium priority, 9% low priority, 13% I don't know)
- Setting up public-private partnerships (PPPs) for Earth observation to facilitate GEO engagement & GEOSS take-up by the European EO service industry (38% high priority, 36% medium priority, 16% low priority, 10% I don't know)
- Setting up a European GEOSS forum for ongoing dialogue with European businesses (31% high priority, 41% medium priority, 15% low priority, 13% I don't know)
D - Respondent's profile
Individuals versus Organisations

- Individual: 71%
- Public authority: 9%
- Business: 8%
- Research: 7%
- International organisation: 1%
- Non-governmental organisation: 1%
- Interest group: 1%
- Other: 1%
- Other: 1%
### Geographical distribution (Total of responses per country)

<table>
<thead>
<tr>
<th>Country</th>
<th>Responses</th>
</tr>
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<tbody>
<tr>
<td>Spain</td>
<td>53</td>
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<tr>
<td>Portugal</td>
<td>52</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>40</td>
</tr>
<tr>
<td>Germany</td>
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<tr>
<td>Italy</td>
<td>17</td>
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<td>Belgium</td>
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<td>Sweden</td>
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<td>Austria</td>
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<td>Greece</td>
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<td>Norway</td>
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<td>Bulgaria</td>
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<td>Finland</td>
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<td>Luxembourg</td>
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<td>Slovakia</td>
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<td>Moldova</td>
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<td>Croatia</td>
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<td>Malta</td>
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<tr>
<td>Lithuania</td>
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<tr>
<td>Hungary</td>
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</table>

**Associated countries + third countries (less than 5% of the replies)**
D - Respondent's profile (continued)
Responses' rate per sector

- Research: 56%
- Business: 17%
- Public authority: 16%
- International organisation: 6%
- Non-governmental organisation: 4%
- Interest group: 2%
- Other: 1%
D - Respondent's profile (continued)

Business sector: fields of activity

- 40% Other (both mid- and downstream)
- 28% Information and Communication Technologies
- 16% Other EO (both mid- and downstream)
- 12% EO midstream (data processing, archiving, delivery, selling)
- 4% EO downstream (geographic information, value-adding services)
- 10% EO upstream (launchers/satellites, manufacturing/satellite operator/data reception or distribution)

D - Respondent's profile (continued)
Business sector: domains of applications

- Agriculture
- Forestry
- Construction
- Environmental pollution
- Oil and gas
- Climate
- Education, training and research
- Travel and tourism
- Alternative energies
- Maritime services
- Emergency services
- Insurance and finance
- Fisheries
- Minerals and mining
- Security and defence
- Other

Bar chart showing the percentage of respondents in each domain of application.
Thank you