GMES preparing for Initial Operations and INSPIRE crosslinks

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Outlines

1. Overview of GMES Initial Operations context
2. Overall implementation plan
3. Proposals for the implementation of GIO Land and Emergency services
4. Crosslinks with INSPIRE
GMES overall view

Users

Policy Makers & Public & Private, Commercial

What is their need?

Example Services Provided

Information Services

Sustainable observation

Observation

Space Infrastructure & In Situ Infrastructure

Farming
Oil Spill Tracking
Air Quality
Flood
Surveillance
Climate change

Land
Marine
Atmosphere
Emergency
Security
Climate

GMES: Observing our planet for a safer world
1. Overview of GMES Initial Operations context
Scope and Content of the GMES Proposal for a Regulation

- Overall Programme comprising:
  - a service component (land, marine, atmosphere, emergency response, climate change, security),
  - a space component
  - an in-situ component
- Initial Operations (GIO) comprise:
  - emergency response, land monitoring
  - users uptake
  - data access, including support to in situ data collection
  - space component
- Continuity with research activities
- Organizational arrangements
- Data policy (full and open access)
GMES regulation: Status and timing

• 29 May 2009
  ▪ Adoption of the Regulation proposal for a GMES Programme by the Commission COM(2009) 223 final

• 2009-2010
  ▪ Co-decision procedure with Council and Parliament
  ▪ Expected adoption by the end of 2010
    • 17th May: first reading EP, ITRE
    • 17th June: EP Plenary → 624 positive votes
    • September: adoption under Belgian Presidency, publication OJ
  ▪ Preparatory phase for the implementation starting in 2010

• 2011-2013
  ▪ Implementation of basic act by the Commission assisted by a Programme Committee through adoption of annual work programmes (2011, 2012, 2013)
  ▪ Technical implementation as foreseen in 2008 Communication and Council conclusions
Financial proposal

- 107 M€ allocated to the implementation of the Regulation
- Another 43 M€ re-deployed within FP7
- Proposed allocation in the legislative and financial statement accompanying the proposal (2011-2013)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Budget (M€)</th>
</tr>
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<tbody>
<tr>
<td>Emergency response service</td>
<td>12</td>
</tr>
<tr>
<td>Land monitoring service</td>
<td>26</td>
</tr>
<tr>
<td>Take-up of services by users</td>
<td>5</td>
</tr>
<tr>
<td>GMES space component operations</td>
<td>40</td>
</tr>
<tr>
<td>Access to data for the services</td>
<td>24</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>107</strong></td>
</tr>
<tr>
<td>Research activities under FP7</td>
<td>43</td>
</tr>
<tr>
<td><strong>Total including FP7</strong></td>
<td><strong>150</strong></td>
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Earmarked for Data Access
Financing for GMES in 2011-2013
FP7 and Proposed GMES Regulation

- 107M€ - GIO Funding (GMES Regulation)
- 459M€ - FP7
- 166 M€ - FP7
- 43 M€ - FP7

FP7

- Land
- Emergency Take-up
- Data Access
- GSC Operations
- Marine
- Atmosphere
- Security
- Downstream services
- Climate & specific capacities
- GSC build-up phase

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2. Overall implementation plan and Governance
3 steps to be considered:

1. **Preparatory phase**
   - Consultation of stakeholders
   - Consolidation of the scope of services
   - Preparation of Annual Work Programme
   - Set up specific organisational arrangements (MoU, AA, Delegation agreement…) with institutional actors (other DGs / MS) in particular for preparing budget appropriation
   - Preparation of technical specifications for the service procurement

2. **Service procurement**

3. **Monitoring and evaluation of services**
Preparation of the GIO Work Programme

• Each year (2010, 2011, 2012) preparation of annual Work Programme describing the activities related to the annual budget appropriation

• WPs describing in more details the activities covered by GIO:
  ▪ Scope of the services,
  ▪ Annual budget
    • + appropriate procurement scheme (ITT, grant, delegation agreement…)
  ▪ Governance
    • overall coordination: DG ENTR
    • technical coordination → cfr. “We care for a safer planet”: role of EEA
  ▪ Implementation scheme
    • centralised ? decentralised ? mix ?

• During the preparatory phase consultation is needed:
  ▪ Partner’s Board,
  ▪ GMES Programme Committee
Governance Context

Political Coordination

European Commission + Partners Board, Programme Committee Security Board and User Forum

Technical Implementation

Space Component
- Coordination and procurement for the EU ESA
  - Development of satellites
    - ESA
  - Operations
    - ESA (ad interim)
    - EUMETSAT
- Access to data from other satellites
  - EEA
- In-situ Coordination
- Services
  - User interface
    - Coordination of service requirements
  - Commission EU agencies
  - Service delivery
    - Integrated network of centres for marine and atmosphere
    - Shared methodology and pan-European integration for Land, Emergency and Security
3. Proposed approach for GMES Land and Emergency service

- Scope
- Implementation scheme
- Institutional coordination
The LMCS addresses: a wide range of resources and policies at EU and international level (e.g. soils, water, agriculture, forestry, biodiversity, transport etc.). Very diverse user communities with various requirements.

- Land use
- Forests
- Urban planning
- Water quality
- Crop production
- …
GIO land service focusing on 4 priorities identified from user consultations, Land IG outcomes, precursor activities (Geoland(1&2), GSE, CORINE LC…). Might be enlarged beyond 2013 (modular implementation)

1. **Global component** building on GEOLAND2/Biopar: production of Terrestrial ECVs (Essential Climate Variables) and integration into models

2. **Pan-EU Land cover component** building on activities at EU level (CLC, LUCAS) and MS level, GMES projects (Geoland2/Euroland, Land FTS precursor..). Based on recent discussions with stakeholders on the future of EU land cover activities (EIONET / GMES and INSPIRE/GMES workshops 2009):
   1. New CLC exercise (to ensure continuity of time series),
   2. Additional 5 HR layers and
   3. Support to harmonisation/synergies with MS activities

3. **Local component**: continuity of Urban Atlas (2011-2012) and extension to other ‘hot spots’, potential candidates Natura2000/biodiversity, Biofuels, coastal areas..

4. **Access to reference data** in continuity with GMES Preparatory Action 2009 (cross-cutting with Emergency response and Security services)
Proposed service delivery scheme – GIO Land service

Service delivery scheme to be adapted to each Land service component

1. Global component:
   - Centralised scheme relying on an integrated network of centres (mostly institutional) similar to Atmosphere and Marine services.
   - Several options to be explored for service procurement (ITT, grant)

2. Pan-EU Land cover component:
   - Mixed scheme as for CORINE Land Cover: Centralised procurement and pre-processing of EO data, harmonisation, aggregation of national products, validation + Decentralised production of land cover products.
   - Service procurement based on ITTs and grants to MS (should be managed by EEA which has a long experience)

3. Local component:
   - Centralised scheme proposed as for the current Urban Atlas, but with more involvement from local/national users (e.g. in the validation)
   - Service procurement based on central ITTs

4. Access to reference data
   - Several options are open (ITT, grants, partnership). Discussions required with other EU services, MS and NMCAs / Eurogeographics
Initial scope of service: rapid mapping
Full scope of the service
Proposed scope – GIO Emergency Response service

Focus on priorities defined from user consultation, Implementation Group recommendations, building on precursors projects (SAFER, LINK-ER, PREVIEW, GSE..)

1. On-demand production and **delivery in rush mode** of EO, data and damage assessment and reference maps over crisis area within and outside EU. **Service available 24/7**. Nr. of crisis 30-50/year

2. On-demand production of products for non-crisis purpose (**prevention, reconstruction**) in normal mode in and outside EU

3. Routine background production of **reference maps over ‘risk areas’** where reference maps are not accessible or available

4. Validation and quality control, data and products archiving, cataloguing and dissemination

**Need to address synergies with Land service and Security service**
Proposed service delivery scheme – Emergency Response service

Possible approaches:

1. Centralised scheme with service delivery at EU level (as in SAFER)
2. Decentralised scheme with product integration at national, regional, local level on the basis of EO data provided at EU level
3. Mix of both (depending on MS capacities)
5. Cross-links between INSPIRE and GMES
GMES proposal for a regulation

• Explanatory memorandum:
  ▪ Consistency with other policies and objectives of the EU:
    • As outlined in the 2008 Communication, GMES needs to be compliant with the Infrastructure for Spatial Information in Europe (INSPIRE) framework. INSPIRE is based on a Directive that covers spatial data held by public authorities in the Member States. It places no obligation on Member States to create new geospatial data sets, whereas the objective of GMES is to ensure the continuous availability of operational Earth observation services.
  • Pre-amble 18:
    • GMES services should be fully and openly accessible. This is necessary to promote the use and sharing of Earth observation data and information in accordance with the principles of the SEIS, INSPIRE and Global Earth Observation System of Systems (GEOSS).
• Regulation: Organisational arrangements
  ▪ Commission: implementation and coordination with national activities
    • Art. 4 § 2: “The Commission shall manage the funds allocated to the activities under this Regulation in accordance with … and shall ensure complementarity and consistency of the GMES programme with other relevant Community policies, instruments and actions, relating in particular to … Directive 2007/2/EC (INSPIRE),…”

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Cross-links in projects

• GMES projects are being informed about INSPIRE Implementing Rules, and asked to take them into account

• Geoland2 recognised the importance of INSPIRE in GMES context by:
  ▪ Including a specific work package on SDI
  ▪ Organising technical discussion with other GMES projects (gMosaic, SAFER) and INSPIRE stakeholders (JRC-IES-SDI, GSC-DA)
  ▪ providing an expert to the INSPIRE Thematic Working Group on Land Cover
  ▪ Participating to the GIGAS project on interoperability between INSPIRE, GEOSS, GMES and SEIS

• some GMES projects are:
  ▪ establishing metadata according to INSPIRE specifications (Geoland2, MyOcean…)
  ▪ establishing viewing services according to INSPIRE specifications (Geland2…)
MACC global monitoring
e.g. UV 4 day forecast
Marine services: Shipping

Currents at sea surface

23/09/08, Current (m/s)

20/09/08, Currents Om (m/s) WEST MED SEA
Marine services: Water quality

Surface Chlorophyll A
MyOcean: v1 service: INSPIRE compliant

**MYOCEAN SERVICE**

MyOcean service will evolve during the project’s life towards a comprehensive and fully operational service.

**Current version** (V0 Service):
MyOcean service allows all users to access a catalogue of worldwide and European regional Ocean products (real time observations, analysis and forecast) that have been developed and made available under previous projects such as MERSEA, MARCOAST, POLARVIEW, ECOOP, GLOBCOLOR.
All products (see MyOcean catalogue) have been gathered and made accessible through a single "Online Queryable Catalogue". In this version, the products are still hosted on their respective web portals (thus, by clicking on "access to products" you will be conducted to other web portals).
Products and services are open and free (but subject to restriction in re-distribution : see Licence) to any user and for any application, including commercial activities.

**Next release** (V1 Service):
At the end of 2010, MyOcean pan-European full fledged service will offer a single and reliable entry point to users and a direct access to all products. The web portal will be directly connected to production units all over Europe in order to ensure homogeneity, traceability and full operationality. Service will include "INSPIRE" functionalities (discovering, visualisation, downloading, tools, ...) and a 24/7 helpdesk.
Geoland2: Biopar global component
Geoland2 portal: INSPIRE compliant services
GMES Urban Atlas
- service enabled (EEA)
- free access

Joint INSPIRE-GMES workshop (June 2009)

- OODM based approaches in the MS provide flexibility to support multiple scale levels and multiple use cases
- INSPIRE and GMES already trigger national LC initiatives
- A robust and yet flexible European data model for LC is urgently needed.
  - Consolidating European requirements
  - Extracting commonalities from existing models
- Early interaction between MS OODM and EU OODM is needed to ensure coherence at EU-level
- Some production steps can be centralised...
  - image acquisition
  - image pre-processing
  - ...
- ...others should be decentralised
  - guarantee stakeholder involvement and uptaking
- Some additional R&D is still needed
  - coherence testing of EU LC obtained from different approaches

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Joint Workshop:
Proposed next steps

- Geoland2
  - Testing OODM coherence?
- Preparation spec. GIO
  - Include the OODM approach (political)
- INSPIRE TWG
  - Develop EU-LC data model
- EIONET WG
  - Reference docs, Experts
  - Feedback from MS
- FP7 cooperation MS
  - Methodological developments: generalisation + testing
- GIO
  - Image acquisition
  - Centralised processing steps
  - Quality issues at EU level
- GMES full progr.
- INSPIRE implementation
- GEOSS

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Harmonised European Land Monitoring (HELM)

- FP7 space-2010-1 call (in relation to GMES)
- Network of authorities concerned with land monitoring in Europe
  - 26 partners
  - 19 countries
  - + contributing but non beneficiary participants
- Objectives:
  - Exchanging and achieving reciprocal knowledge,
  - Develop shared visions and planning for the future monitoring at EU level,
  - Identification of joint activities by taking on tasks collectively,
  - Alignment of national systems involving the mutual adaptation of data interpretation methods and of the timing of data gathering,
  - Lasting integration and combining data across all administrative levels
- HELM contribution to INSPIRE TWG on Land Cover (WP 2.6)

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Reference Data Access: hydrography

- Take benefit of existing datasets:
  - EEA: ECRINS
    - based on CCM (JRC)
    - consistent topology
    - basins from 5 -500 km2 (100 km2 on average)
    - incorporated lakes and dams
    - reference layer for MS reporting under WFD directive in WISE
  - EuroGeographics: ERM
    - good geometry
    - good toponomy
  - MS: national hydrographical datasets: more detailed and enriched information
- Objective:
  - To produce and make a homogeneous European wide coverage of a hydrographical network that is fully connected and routed and fulfilling the geometrical accuracy consistent with the resolution scale (1:100,000 to 1:250,000 range)

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RDA Service Component

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Conclusion

• GMES is a challenge: it is an ambitious programme with great expectations and involves numerous partners.

• Ambitious activities need time: lot of progress has been made since the beginning with a big boost in the last 5 years towards operations, and now getting shaped in GIO

• INSPIRE awareness is present at various levels:
  • GMES projects
  • GMES call for tenders

• Links between GMES and INSPIRE need to be further intensified
  • Support actions
  • User fora

• There is a political consensus about the fact that we can not afford not to have GMES, translated into good progress in co-decision on the GMES regulation
Thanks for Your Attention!

http://ec.europa.eu/enterprise/policies/space/research/index_en.htm