



Global Monitoring for Environment and Security

GMES Thementage Deutschland 2011
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European Commission



Outline

- What is GMES?
- GMES Services
- Funding
- Data Policy
- GMES Initial Operations: status
- GMES: the way forward

What is GMES?

1. An **autonomous** *Earth Observation system*
2. The largest fleet of satellites and earth-based monitoring instruments in the world
3. An **end user-focused** programme of services for **environment** and **security**
4. Joined-up information for policymakers, scientists, businesses and the public
5. Europe's response to the **global need** for environment and climate monitoring

Why an EU lead GMES programme?

EO is strategic

- Security, risk and crisis management
- Spatial planning
- Monitoring of natural resources
- Atmosphere and Climate monitoring

→ **Need for autonomous European capacities**

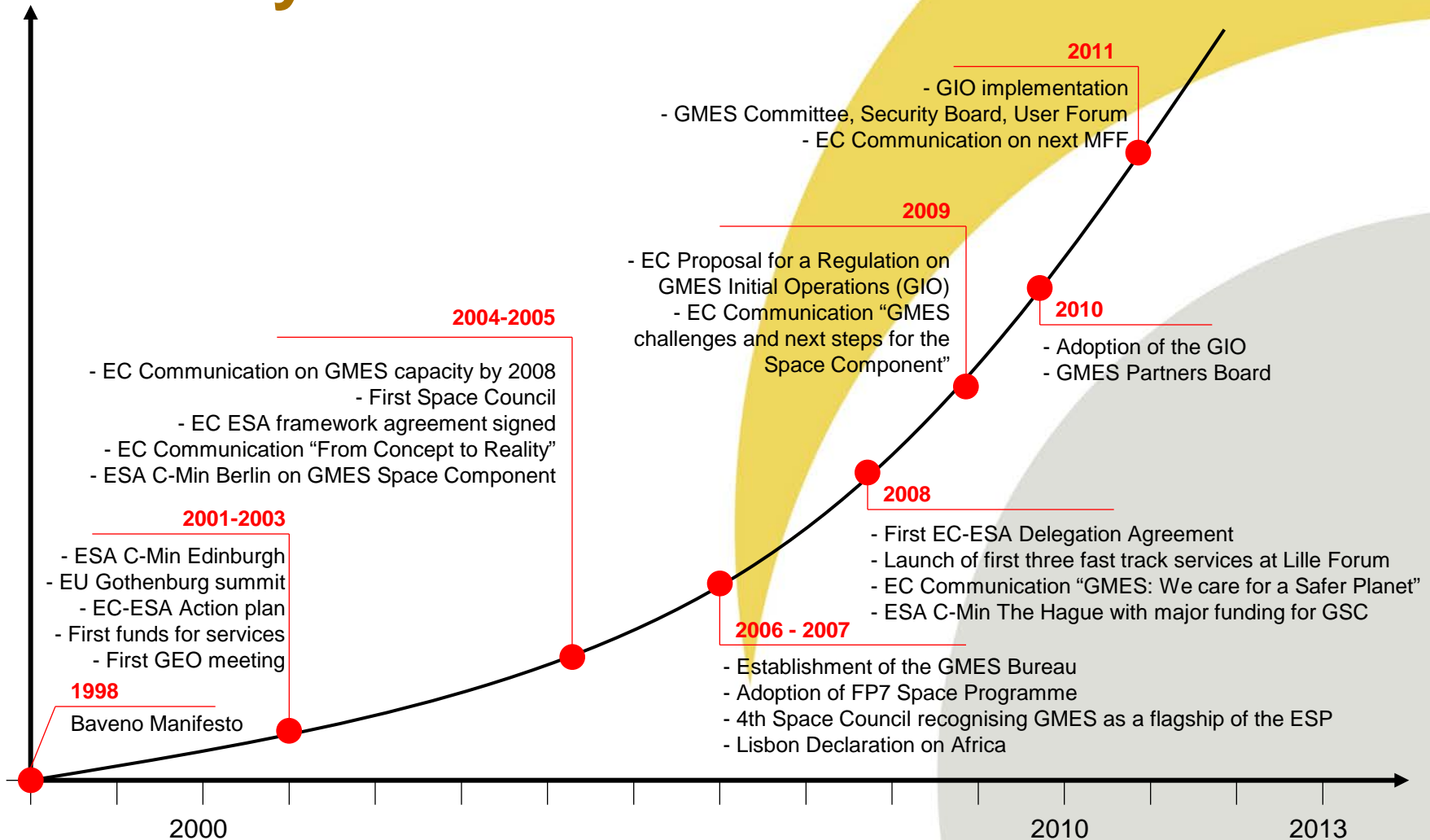
EO requires synergies

- EO costs for a comprehensive programme like GMES go beyond resources of a single nation
- EU acting and visible at international level
- Wide potential market for EU

→ **Pooling of resources at EU level fosters innovation and competitiveness**

From Baveno...to GIO

15 years of continuous efforts



GMES Overall View

USERS

Policy makers & Public & Private, commercial

What is their need?



Examples provided

Farming Oil Spill Tracking Air quality Flood Surveillance Climate Change



Information services

Land Marine Atmosphere Emergency Security Climate

Space Infrastructure & In Situ Infrastructure

Sustainable information

OBSERVATION

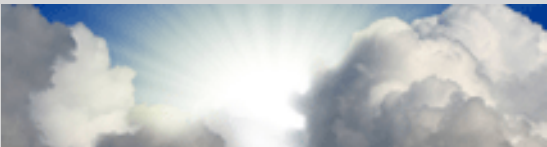
Monitoring of Earth systems



Land



Marine



Atmosphere

Horizontal applications



Security



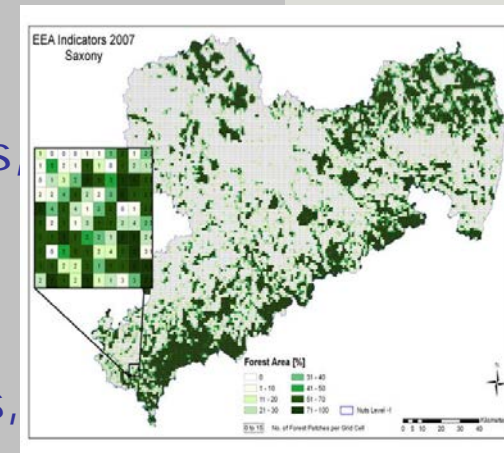
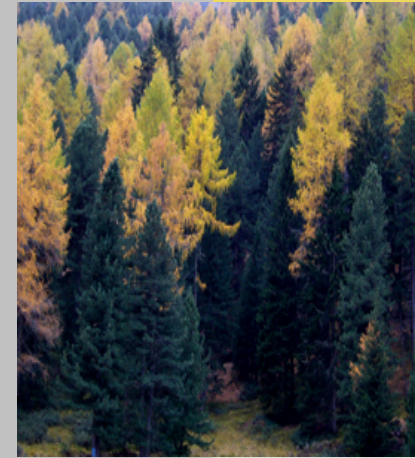
Emergency

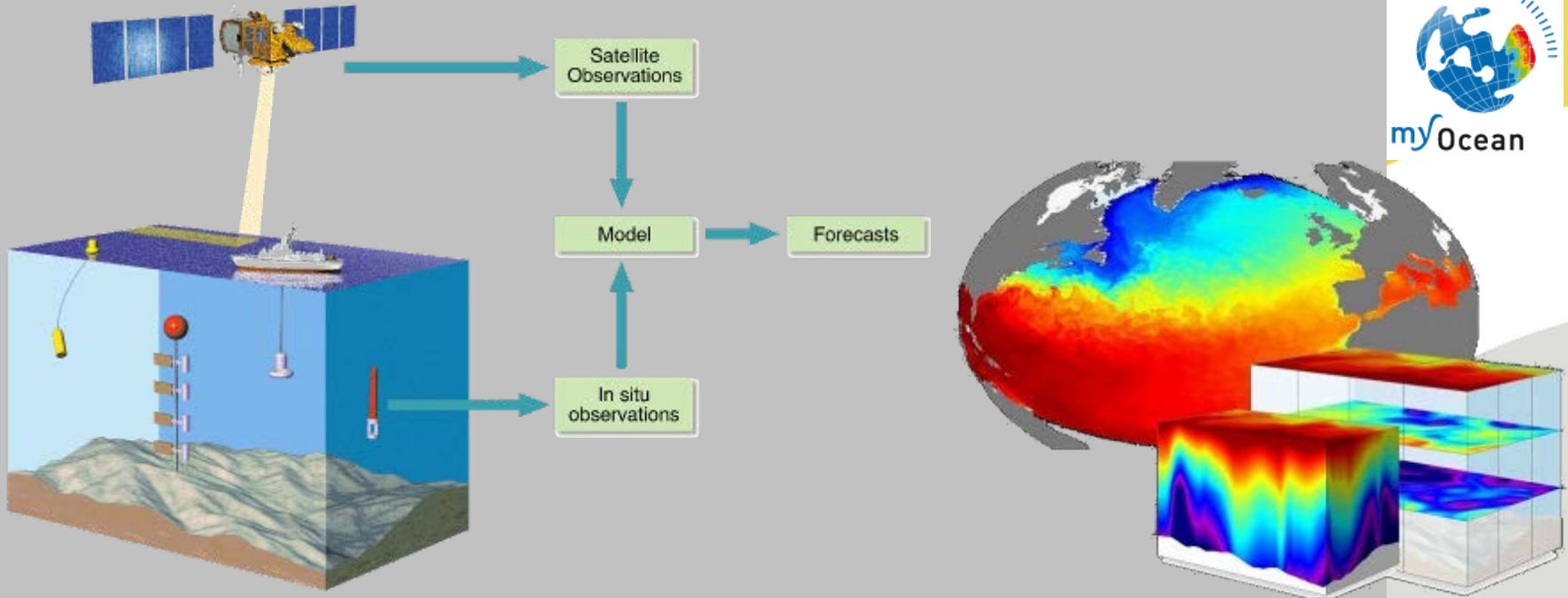
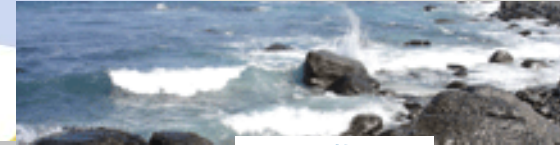


Climate Change



- Land services address a broad range of EU policies and users (land use planning, forestry, water, agriculture etc.)
- Stepwise approach:
 - « **multi-purpose** » **products** common to many users and applications (1st priority): 3 components
 - **Global** : Essential Climate Variables (ECVs), biogeophysical parameters in support to Climate Change monitoring
 - **Continental** : Pan-EU products (e.g. Pan-EU land cover and land cover change)
 - **Local** : zooming on 'hot spot' (e.g. urban areas, protected area, coastal areas etc.)
 - **thematic products** at EU or International level (e.g. water quality/quantity models, crop forecasts, environmental indicators etc.)



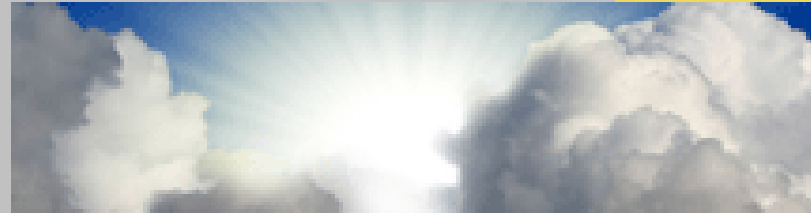


- Global ocean & main European regional seas (Baltic, Med, Atlantic, Black Sea, Arctic)
- physical ocean state (“ocean weather” and primary ecosystem)
- reanalysis for marine ECVs
- evolution towards coastal domain & marine resources

Scope

Global & European

- Air quality
- Climate Forcing, e.g. Aerosols, ECVs
- Ozone
- UV monitoring/Solar radiation

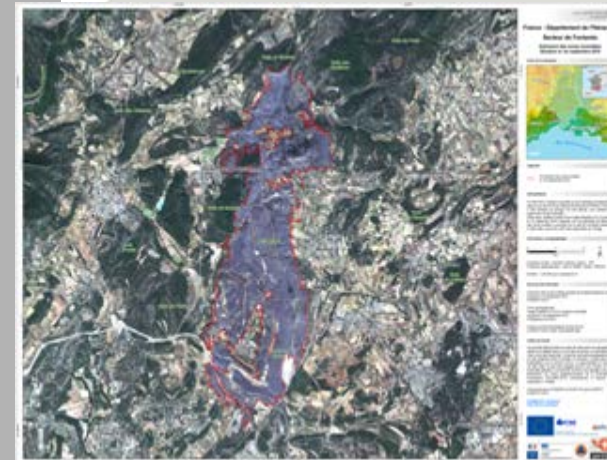
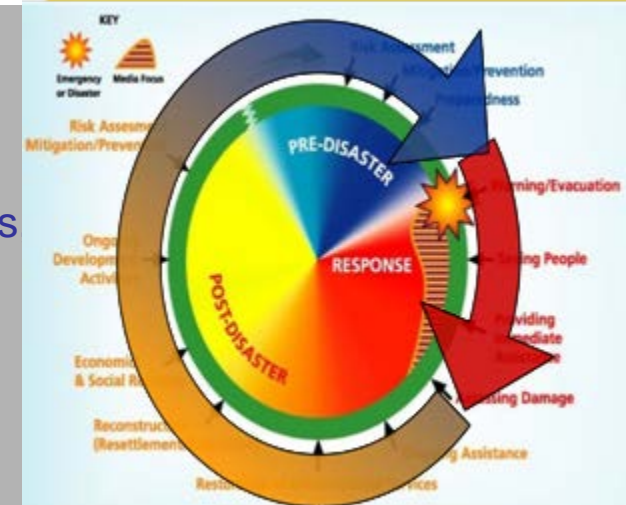


- => Support **implementation** of Directives (Air Quality) & international conventions (Montreal, CLRTAP, Kyoto)
- => Better analysis of national, regional air pollution **abatement policies & measures**
- => **Solar Energies**: Solar-radiation potential analysis



Objectives and scope

- reinforcing the **European capacity** to respond to emergency situations resulting from
 - natural or man-made disasters (e.g. forest fires, floods earthquakes, volcanic eruptions, landslides)
 - humanitarian crisis
- **within and outside** the EU
- coordinated with **major international initiatives** (International Charter “Space and Major Disasters”, GEOSS) and actors (UNOSAT, World Food Programme, UN-Spider).
- To improve the response time when the crisis occurs, notably through the provision of **rapid mapping** capacities
- To address **all phases of the crisis cycle** (including preparedness, prevention, reconstruction...)



Fire in France, Hérault, September 2010

Scope

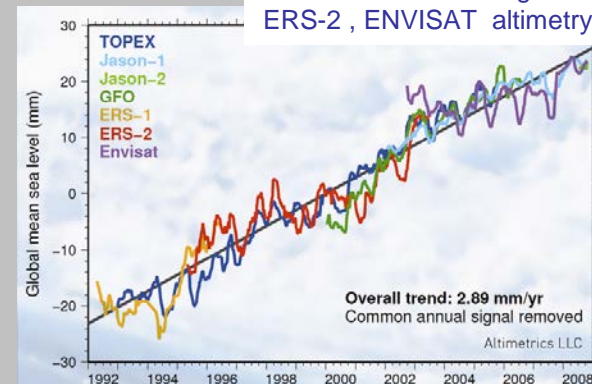
- Thematic areas (user-communities based):
 - Support to EU External Action
 - Border surveillance (land, sea)
 - Maritime Surveillance (ship detection and tracking)





Scope

- Supporting **Climate Science & Scenario making**
- Monitoring & Verification: **Emissions, Land use, Deforestation, Water availability, Greenhouse gases, Polar caps**
 - Sustained and operational monitoring of Essential Climate Variable (ECV) (total of 44 GCOS ECVs)
 - Re-analysis of long-term time series of current and archived data sets
- Supporting & Monitoring **Adaptation Measures and Indicators**

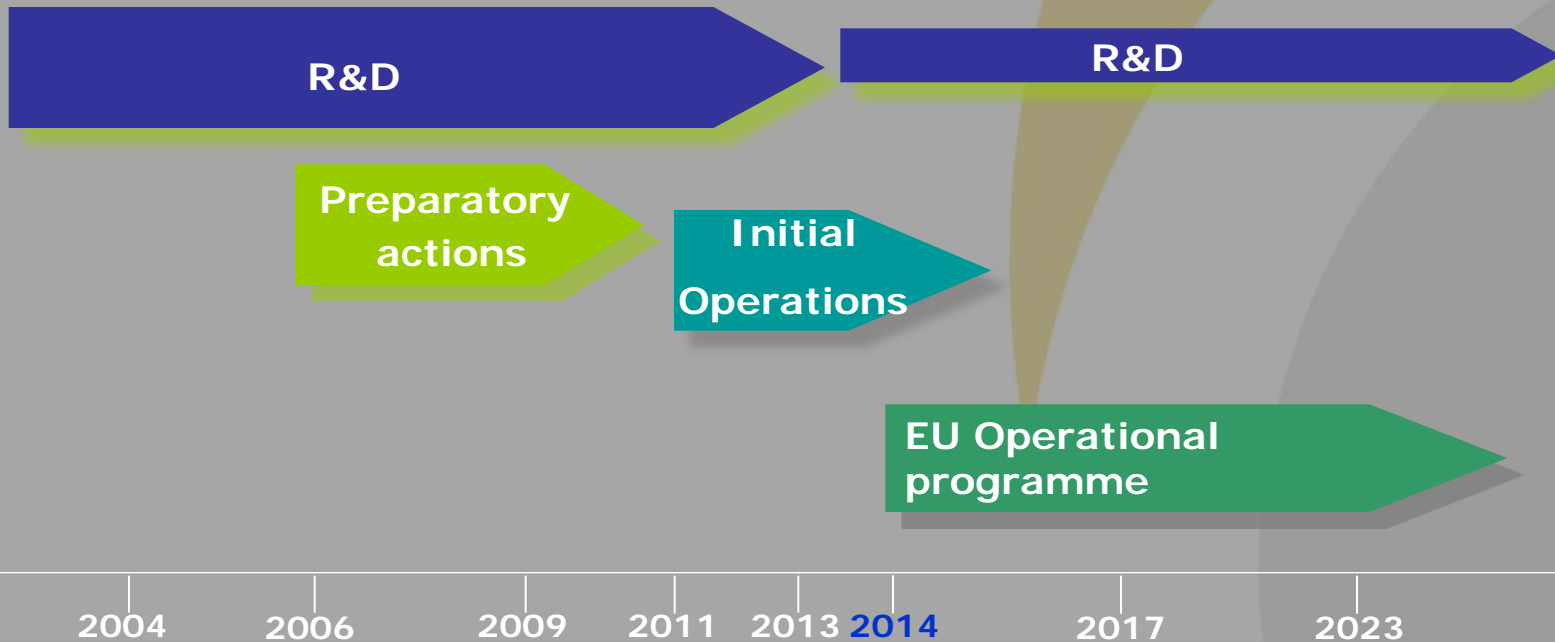


Financing

- Three stages:
 - **demonstration** stage (R&D funding)
 - **pre-operational** stage (mixed R&D and operational funding)
 - **operational** stage (operational funding) beginning after the regulation adopted last year by the Council and the European Parliament

Financing

Public financing for GMES with a modular approach



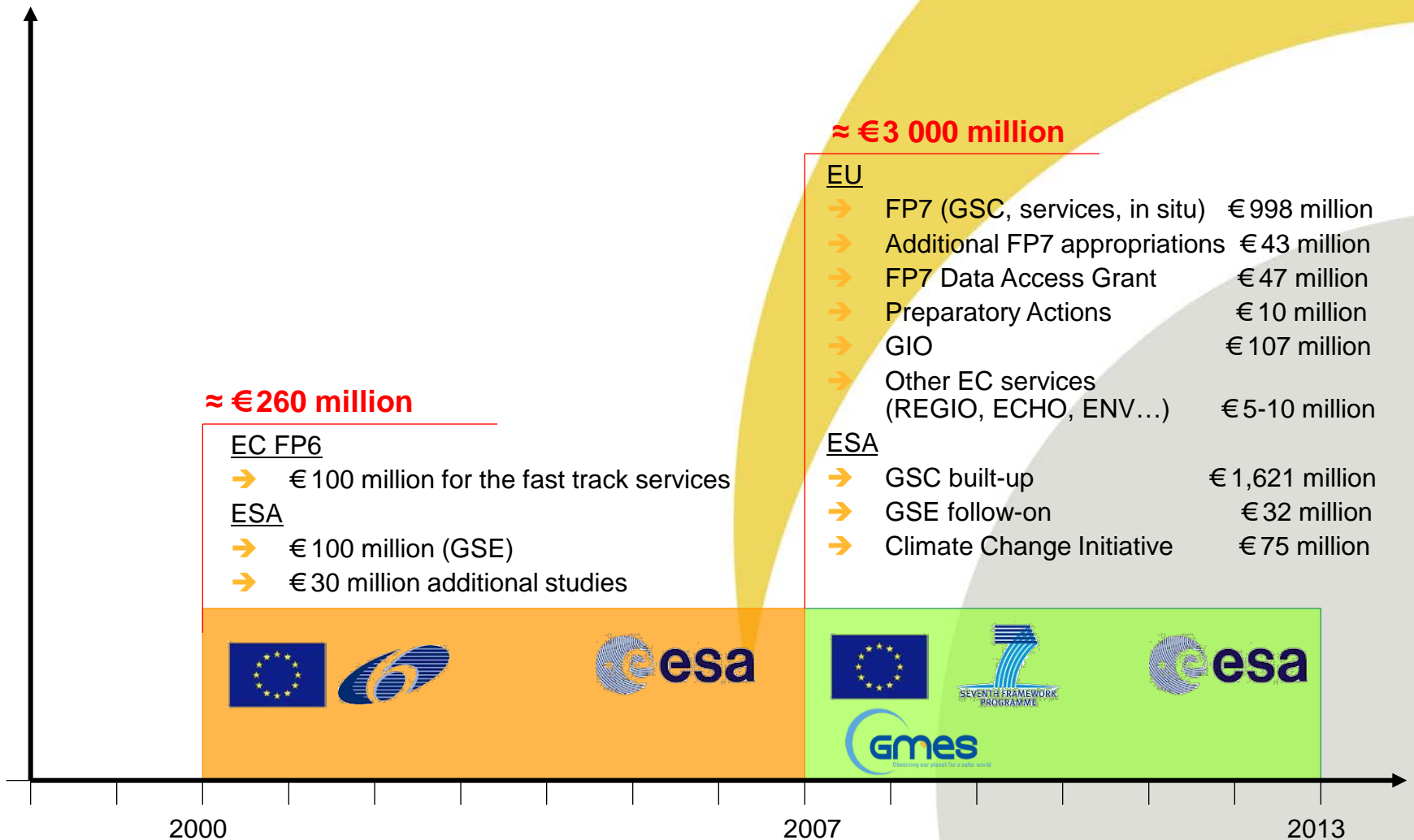
GMES funding: until 2013

- EU and ESA investment in 2002-2013 **about 3,2 billion €**
 - **1,2 billion € in the FP7 Space programme 2007-2013**, on top of more than 100 M€ in FP6.

GMES funding so far

- Joint EU – ESA investments have served to:
 - Develop **pre-operational services**
 - Develop five missions of **dedicated space infrastructure** (the Sentinels)
 - Ensure **access to data** from other **satellite** missions for the development of services
 - Coordinate **access to in-situ data**
 - Support the **downstream sector** and user uptake.

Dedicated funding commitments



Global overview until 2013

- Service and in situ components
 - EC \approx € 520 million (c.e.c.)
 - ESA \approx € 240 million (2008 e.c.)
- Space component
 - ESA \approx € 1 650 million (2008 e.c.)
 - EC \approx € 780 million (c.e.c.)
- Dedicated GMES financial appropriations until 2013 \approx € 3.2 Bn

Other indirect contributions

- Member States
 - in situ infrastructures
 - space infrastructures (contributing missions)
- FP (FP6 and FP7) consortia ≈ € 230 million
- National funded GMES projects
- Intergovernmental agencies (EUMETSAT, ECMWF)

GMES: initial operation phase

- The GMES Programme – Initial Operations - **Regulation No 911/2010** entered into force on **09/11/2010**
- GMES and Initial Operations : 107 M€
 - Emergency Management service
 - Land monitoring service
 - User uptake
 - Space component

GIO implementation overview

- **Good progress of GIO implementation in the last few months**
 - **Delegation agreement to EEA for the Land Monitoring Service (Pan-EU and local components)**
 - **Sub-delegation to the JRC and set-up institutional coordination for the Emergency Management Service**
 - **A series of calls for tenders was launched**
 - **Emergency Management Service – EFAS (2 calls)**
 - **Emergency Management Service – Mapping (3 calls)**
 - **Pan-EU component of Land Monitoring – Production of 5 HR layers (1 call – 6 lots)**
 - **Support to GIO implementation activities (1 call - 3 lots)**
 - **Framework Contracts expected to be signed by the end of 2011**
 - **Workshops for preparing next steps (on Local component, on Reference data access and on Global Land)**

GMES Data and Information Policy (DIP) Objectives

- DIP objectives for actions financed under the GMES Programme (Regulation 911/2010 ART. 9) :
 - **Promoting** the use and sharing of GMES information and data;
 - Strengthening Earth observation **markets** in Europe, in particular the **downstream** sector, with a view to enabling growth and job creation;
 - Contributing to the **sustainability** and **continuity** of the provision of GMES data and information;
 - Supporting the European research, technology and innovation communities.

DIP Principles

- GMES Regulation 911/2010 ART. 9 :
 - **Full and open access** to information produced by GMES services and data collected through GMES infrastructure, subject to relevant international agreements, security restrictions and licensing conditions, including registration and acceptance of user licences;

Measures defined in GMES

- For the purpose of providing for a framework to ensure the attainment of the GMES information and data policy objectives, the Commission may adopt the following measures by means of **delegated acts**:
 - registration and licensing conditions for GMES users;
 - criteria for restricting access to the information produced by the GMES services and to data collected through the GMES dedicated infrastructure.

GMES Data and Information Policy

- Workshop dedicated to the GMES Data and Information Policy is planned on 12 – 13 January 2012 (**tbc**)
- Experts from Member States will be invited to attend
- **Objectives:**
 - to pursue the discussions on DIP
 - to consult Member States experts on preliminary DIP options

GMES-related events

- **2011**

- UF workshop - **Land Monitoring service** – Brussels - 9 March
- **Climate Change** conference – Helsinki – 16-17 June
- UF workshop – **Access to reference data** – 26 September
- UF workshop - **Atmosphere monitoring** – Brussels – 27 October
- UF workshop – **Global Land** – Lisbon – 12-13 December

- **2012**

- **GMES Data Policy** workshop – Brussels – 12-13 January (tbc)
- UF Workshop – **GMES Marine service** – Brussels - 25 January (tbc)

Financing GMES post 2014: Multiannual Financial Framework 2014-2020

- 29.06.2011: Communication of the European Commission to the European Parliament, the Council, the European economic and social committee and the committee of the regions on the next Multiannual Financial Framework

MFF Communication

- The commission is proposing to finance GMES **outside** the Multiannual Financial Framework and the budget.
- Communication on GMES is expected to be published on the **30th November 2011**
- Discussion will begin between the European institutions in order to decide the adopted budget

Conclusions

- GMES is a challenge: it is an ambitious programme with great expectations and involves several 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.
- Cost/benefit analysis demonstrates “best value for money invested”.

For further information please visit

EC GMES website :
ec.europa.eu/gmes

EU Space Research :
ec.europa.eu/enterprise/policies/space/research

FP7 services website:
gmes.info