



ILMATIETEEN LAITOS
METEOROLOGISKA INSTITUTET
FINNISH METEOROLOGICAL INSTITUTE

GMES

Global Monitoring for Environment and Security



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GMES (Global Monitoring for Environment and Security)

- European initiative for the implementation of information services dealing with environment and security.
- Will be based on observation data received from earth observation satellites, airborne and ground based information and model simulations.
- Co-operation with EU and ESA, in which ESA will develop services and implement the space component and the Commission will manage actions for identifying, developing and running services
- The aim is to provide, on a sustained basis, reliable and timely information related to environmental and security issues in support of public policy makers' needs



GMES: a multi-purpose tool

FOR

- Observation of the state and evolution of the global environment
- Aid to civil protection for prevention, monitoring and assessment of natural and man-made hazards
- Securing sustainable development
- Support to the EU Common Foreign and Security Policy (CFSP)
- Fulfill European Space Policy
- Support to EC Common Agricultural, Fisheries and Regional development policies
- Assistance to development and humanitarian aid



European Commission

Struct



Inputs from

Data Providers

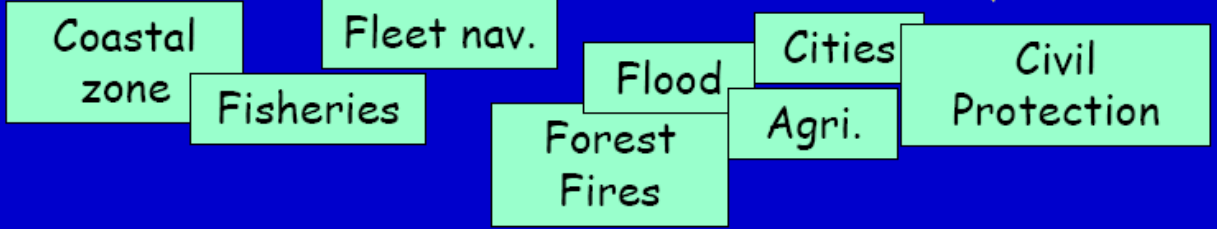
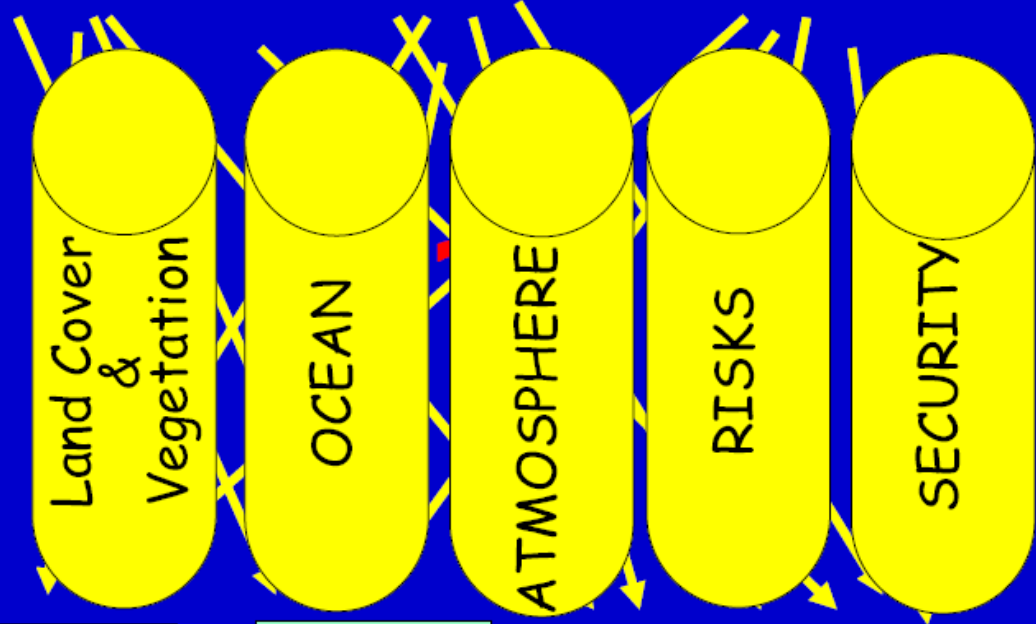
Space
Level 1 products / sensor

Airborn
Level 1 products / sensor

In-situ
Level 1 products / sensor

Production by

Service and/or Thematic Centres



Outputs for

Users



GMES Priority Themes

European Regional Monitoring

- Land Cover Change in Europe
- Environmental Stress in Europe

Global Monitoring

- Global Vegetation Monitoring
- Global Ocean Monitoring
- Global Atmosphere Monitoring

Security-Related Aspects

- Support to Regional Development Aid
- Systems for Risk Management
- Systems for Crisis Management and Humanitarian Aid

Horizontal Support Action

- Information Management Tools and Contribution to the Development of a European Spatial Data Infrastructure



European Space Agency



- Responsible for the development of the operational space segment, technology and availability of EO data
 - Sentinel satellite programme (2500 Me)
 - 5 satellite families
- Develops infrastructure for operational services
 - GMES Service Element (100 Me)
 - Funds 10 Service Centers for various application fields to provide operational services
- Helps to identify user segment and corresponding standards
- Participates in development and demonstration of operational services



European Union



- Is responsible to set the priority areas and demands for GMES services
- Brings to attention to all EU projects the needs of GMES
- Brings end users and developers together
 - User forums
- Supports the the multi-source data fusion (satelliteborne, airborne, insitu and model)
- Finances GMES through FP- 5, -6 and 7 (IP, NOE, STREP, SSA)
- Clarifies problems encountered with data sales and security
- Participate's to ESA's Sentinel satellite programme



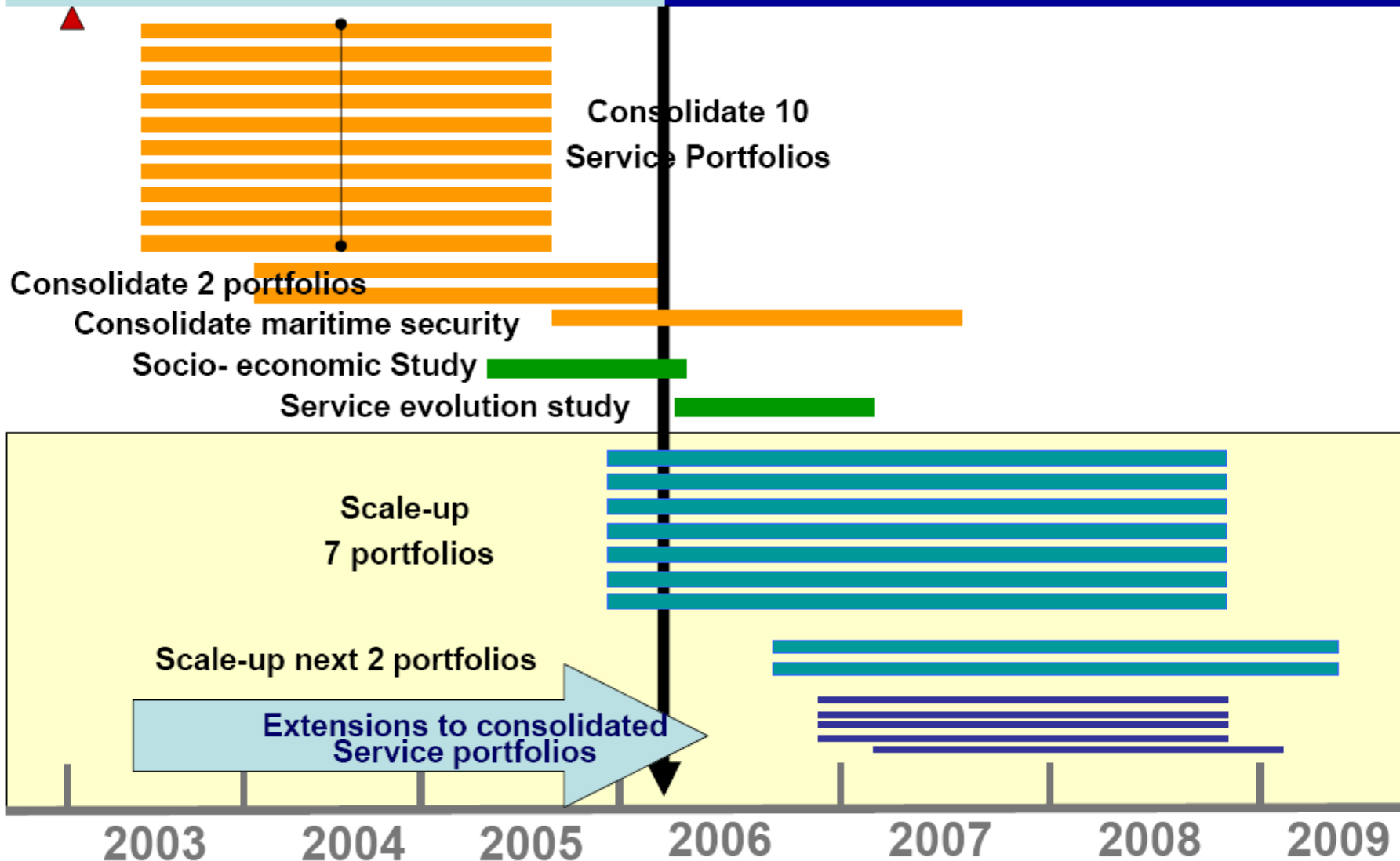
GMES Implementation Period (2004-2008)

- Management actions
 - Advisory Council, PB-EO, Programme Office, GMES partnership(s), Coordination actions in the framework of GEO
- Implementation actions
 - in-situ component, space component, data policy, data integration and information management, management structure, services, security aspects
- Funding actions
 - ensure sustainability of GMES services through appropriate funding mechanisms

GSE Programme Schedule

Consolidate services

Scale-up services





ESA's GMES Service Centers

2005-2008

- Marine and coastal environment services (Alcatel, F)
- Land information services (InfoTerra, D)
- Polar environment services (C-core, CAN)
- Forest monitoring services (GAF, D)
- Fire and flood risk management services (EADS Astrium, F)
- Geohazard risk management services (NPA, UK)
- Food security information services in Africa (Vito, B)

2006-2009

- Atmospheric services (DLR, D)
- Humanitarian Aid Information Services

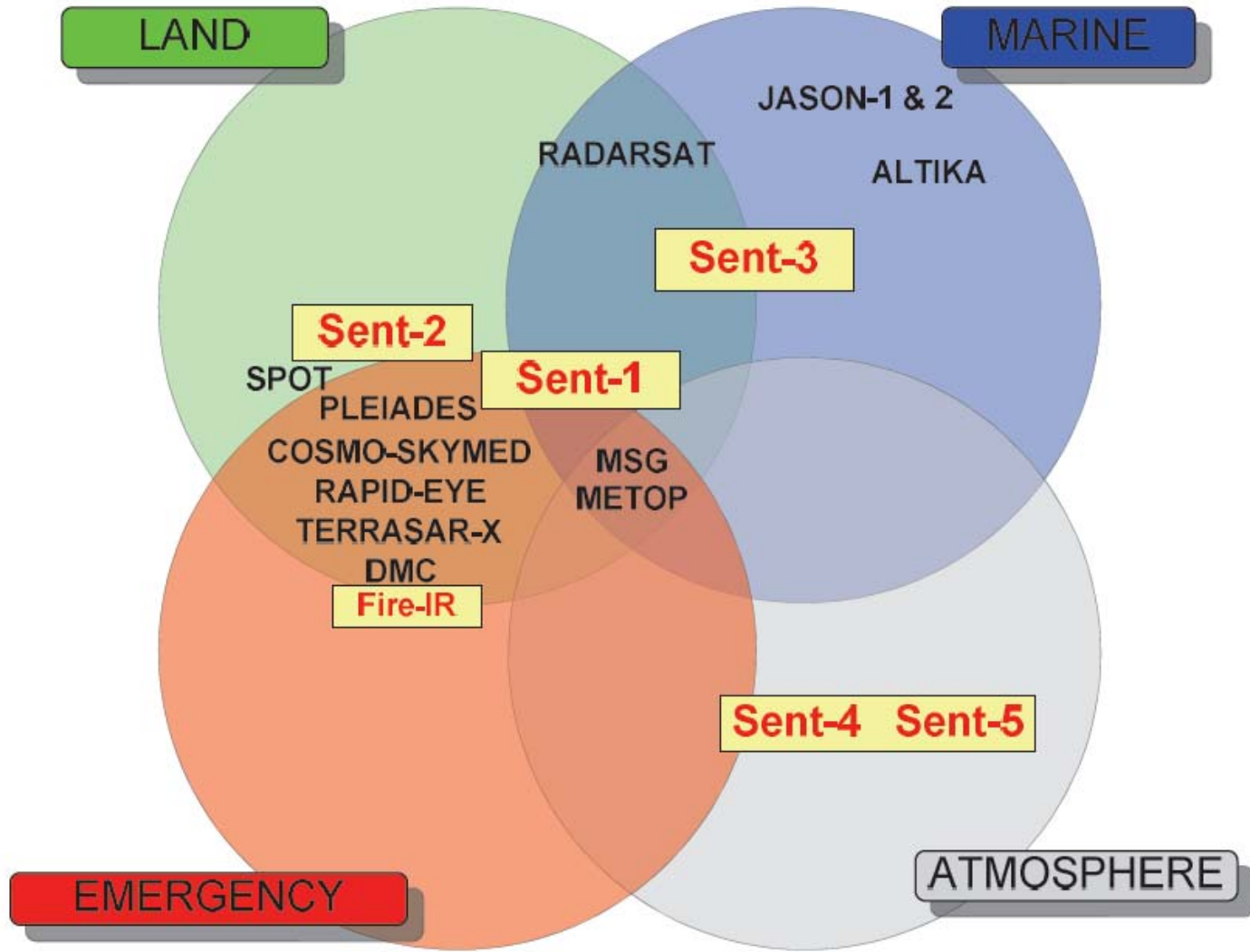
2006-2007 (Consolidation)

- Maritime security (Telespazio, ITA)



GMES Sentinel program

- Space component of GMES
- ESA's programme that will be partially funded by EU
- Sentinels are satellite families not just single satellite missions
- Consists of 5 Sentinels
 - Sentinel 1: SAR sensor (Interferometric C-band)
 - Sentinel 2: Superspectral (Landsat, Spot class sensor)
 - Sentinel 3: Ocean sensor (Modis-Meris class sensor + thermal IR sensor)
 - Sentinel 4: Atmospheric chemistry sensor (LEO orbit)
 - Sentinel 5: Atmospheric chemistry sensor (GEO orbit)





EU Framework Programmes

- EU initiated 10 pre-GMES project in 5. Framework Programme
- Integrated Projects (IP) played major role in 6. Framework Programme
 - Land IP
 - Ocean IP
 - Risk IP
 - Atmosphere IP
 - GMES sustainability IP
- GMES is co-ordinated by DG Enterprises. However, DG Environment ja DG Research contribute to the programme
- GMES plays a very strong role in 7. Framework Programme



Fast Track services (FP-7)

- Three candidate services for “fast track” introduction
 - Emergency Response
 - Land Monitoring
 - Marine Core service
- Confirmation of status & definition of scope & modalities obtained in dedicated workshops
- Development & funding based on current process (FP7)
 - EC/FP6 & ESA/GSE projects
- Fast track services as INSPIRE pilots
- New Fast Tracts to be initiated later in FP-7



GMES Bureau

- Established in June 2006 in Brussels
- Operational management of GMES using mechanisms foreseen in EC/ESA Framework Agreement.
 - Bureau's tasks will include developing proposals for managing GMES service provision beyond the Commission. This will include other EU institutions and bodies, Member States and intergovernmental organisations such as ESA, EUMETSAT, and EUSC
- Populated in part by seconded experts from Member States and EEA, EUMETSAT, EU Satellite Center, EU Council.
- Responsible for pushing forward on medium-term issues such as the GMES governance structure and longer-term financial sustainability.



Governance

- **How the governance of the future "operational GMES" will be organized is still open**
 - The main responsibility on operational services lies on the Commission.
 - What will be the roles of various partners?
 - EU
 - ESA
 - Member states
 - Other international organizations



GEO



Group on
Earth Observations

- The Group on Earth Observations, GEO, was established by a series of three ministerial-level summits.
- GEO includes 65 member countries, the European Commission, and 43 participating organizations working together to establish a Global Earth Observation System of Systems.
- The GEO vision for *GEOSS* is to realize a future where in decisions and actions for the benefit of humankind are informed via coordinated, comprehensive and sustained Earth observations and information.
- *GEOSS* will build on and add value to existing Earth-observation systems by coordinating their efforts, addressing critical gaps, supporting their interoperability, sharing information, reaching a common understanding of user requirements, and improving delivery of information to users.
- **EUROPEAN CONTRIBUTION TO GEO IS GMES**