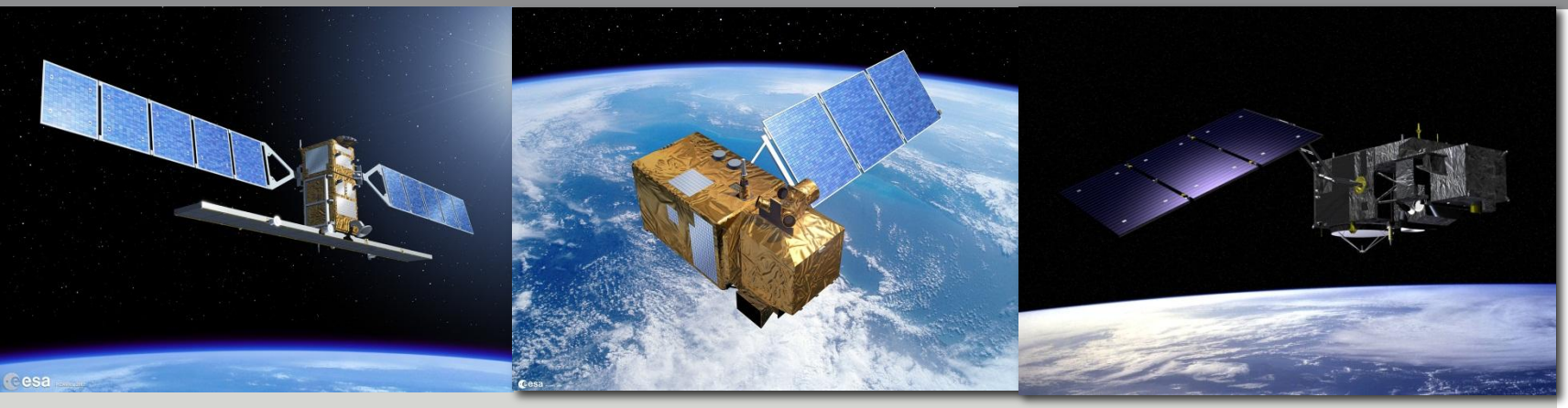
SENTINEL DATA POLICY AND ACCESS TO DATA

European Space Agency

Workshop on GMES Data and Information Policy
Brussels, 12-13 January 2012



A quick overview of the Sentinel Data Policy and the GMES Space Component (GSC) Operations Concept

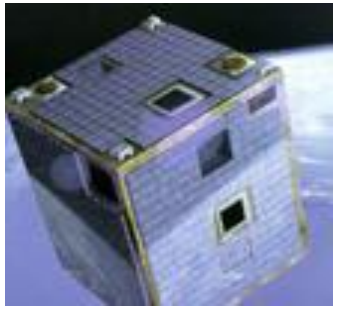
Three GMES Components

GMES is a user-driven EU led initiative

- **Services Component – coordinated by EC**
  - Information services in response to European policy priorities
- **In-situ component – coordinated by EEA**
  - Observations mostly within national responsibility, with coordination at European level
- **Space Component – coordinated by ESA**
  - Sentinels Missions - EO missions developed specifically for GMES
  - Contributing Missions - offering part of their capacity to GMES (EU/ESA MSs, EUMETSAT, commercial, international)

GMES is a perfect example of a system of systems

ESA's Earth Observation data



ERS and Envisat

Earth Explorers

Revised ESA Data Policy for ERS, Envisat and Earth Explorer missions ESA/PB-EO(2010)54

Sentinels

Joint Principles for a Sentinel Data Policy ESA/PB-EO (2009)98

Contributing missions (to GMES) and Third Party Missions

Data Policy of individual data providers

Sentinel Data Policy

Sentinel Data Policy =
full and open access to Sentinel data to all users

- Aim for maximum availability of data & corresponding access services
- Support to increasing demand of EO data for
  - → climate change initiatives
  - → implementation of environmental policies

In practical terms

- Anybody can (has the right to) access acquired Sentinel data
- Licenses for the Sentinel data are free of charge
- Online access with users registration including acceptation of generic T&C

Sentinel Data Policy

What does it mean?

Technically: Improved availability and easier access to EO data, simple data dissemination system and interfaces to users

Politically: Continue international trend for full and open access to EO data, in line with GEO data sharing principles, setting context for future data policies

Economically: Supports growth of VACs' business, thus enabling growth and job creation; Increased uptake of EO data opens new markets and supports development of new products

Implementation of the Sentinel Data Policy

Defined in

→ **the GSC operations concept:** defines functionalities of the core and collaborative ground segment, and

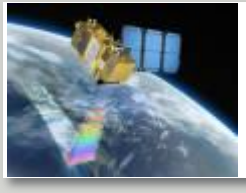
→ **the HLOP:** defines the priorities in data acquisition/provision applicable to all Sentinel missions during the operations of the GSC, and

→ the **Terms and Conditions** for the use of the Sentinel Data

GMES dedicated missions: Sentinels

Sentinel 1 – SAR imaging
All weather, day/night applications, interferometry

mid 2013 / 2015



Sentinel 2 – Multi-spectral imaging
Land applications: urban, forest, agriculture,..
Continuity of Landsat, SPOT

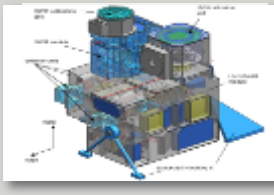
end 2013 / 2015

Sentinel 3 – Ocean and global land monitoring
Wide-swath ocean color, vegetation, sea/land surface temperature, altimetry

end 2013 / 2015

Sentinel 4 – Geostationary atmospheric
Atmospheric composition monitoring, trans-boundary pollution

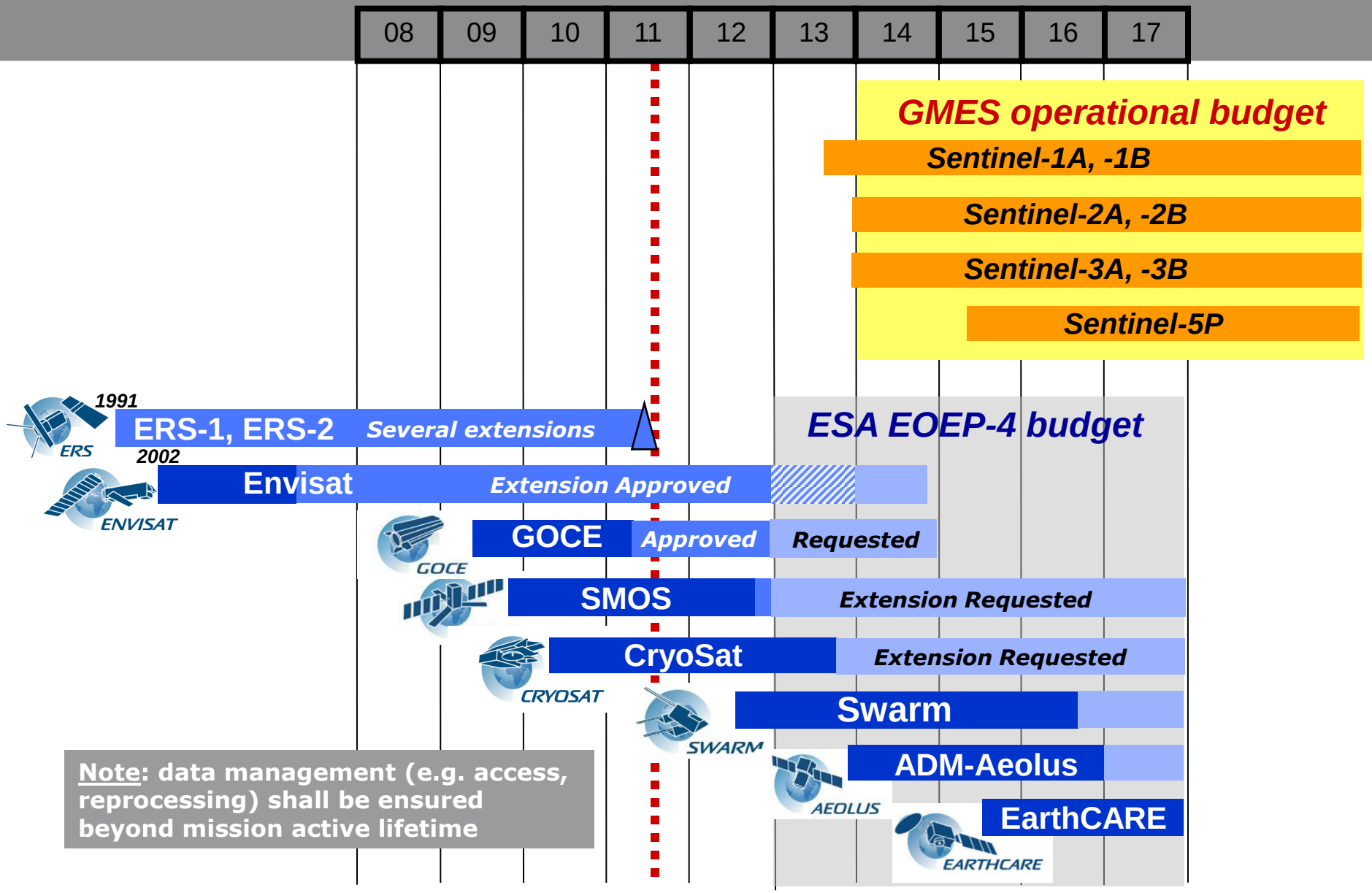
2020



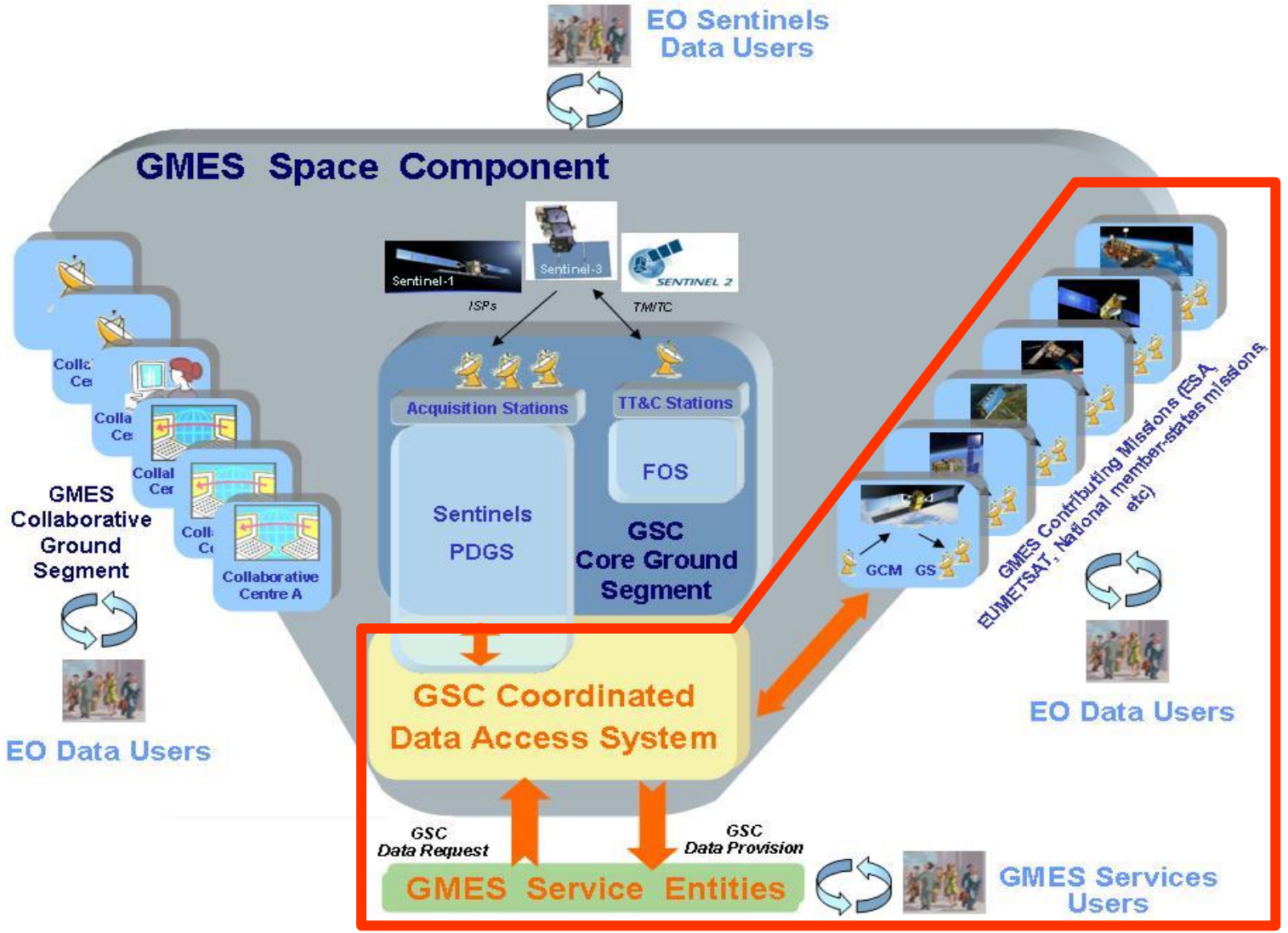
Sentinel 5 – Low-orbit atmospheric
Atmospheric composition monitoring
(S5 Precursor launch in **2015**)

2020+

Sentinel missions & other ESA missions



GSC Operations Phase Concept
- Ground segment architecture and data flow -



operating today

GSC Data Access - TODAY

http://gmesdata.esa.int/

GSC Operations Phase Concept
- Sentinel operations strategy -

Main objectives of the Sentinel operations strategy

- provide data to GMES services and for use by Member States according to their specified requirements

- ensure systematic and routine operational activities:
  - with a high level of automation
  - with pre-defined operations to the maximum extent possible

GSC Operations Phase Concept
- Core and Collaborative Ground Segment -

The GMES Space Component (GSC) Operations Concept will rely on a GSC Ground Segment consisting of:

- **a GSC Core Ground Segment**, with **GSC-funded Functions and Elements**, providing :
  - the primary access to Sentinel Missions data
  - the coordinating access functions to Contributing Missions data and Sentinels,

- **a GSC Collaborative Ground Segment**, with **non GSC-funded Functions and Elements**, providing:
  - a supplementary access to Sentinel Missions data i.e. either through specific data acquisition services (e.g. Quasi-Real-Time), or specific data products
  - the frame for international cooperation.

Main Sentinel facilities

- Flight Operations Segment – implementation on-going
- Stations: Data Acquisition and Near Real Time Product Generation – ITT process: negotiations on-going
- Processing and Archiving Centres (PAC) – ITT process: negotiations on-going
- Missions Performance Centres (MPC) – ITT to be issued in 2012
- Precise Orbit Determination (POD) – ITT to be issued in 2012
- Payload Data Management Centre

GSC Operations Phase Concept
- Core Ground Segment -

The data volume of Sentinel-1,-2,-3 A-series production is equivalent to ~25 Envisat missions with:

- systematic processing of all Sentinels data,
- data driven production,

  No backlog accumulation under nominal conditions

- 3 main categories of operational latency customized according to mission production and consolidation requirements, acquisition areas and Ground Segment resources:

  Near Real Time 1h, Near Real Time 3h, Non Time Critical

The commissioning phases focus on L1 products verification and validation.

Gradual availability of validated L2 products (core ground segment) and collaborative interfaces is planned during the initial operations phases.