



## State of play

MODEG 20th, 21 Oct. 2013

DG Enterprise and Industry

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<http://copernicus.eu>

- **Copernicus Overview and Marine monitoring**
- **Transition to operations**
- **Space Component Data**
- **Process for User Requirements**
- **Conclusions**

## What is Copernicus?

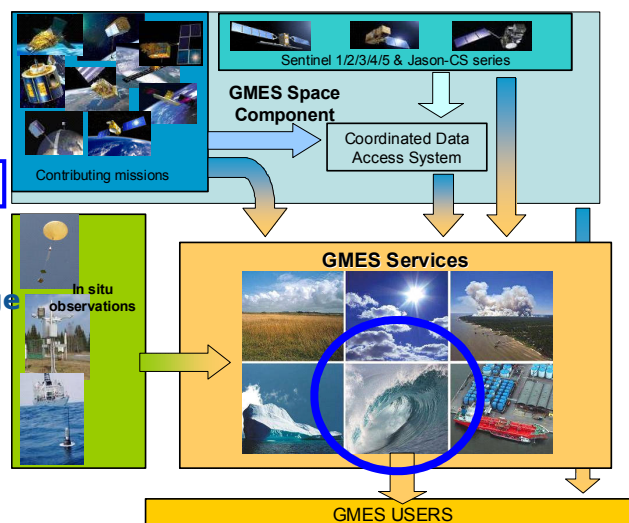
**It is the European Earth monitoring programme**

- Providing reliable **information on the environment and security**
- Long term and operational
- Building on existing assets and capabilities
- Complemented by dedicated assets (e.g. Sentinels)
- **Contributes to growth and job** through open data policy to downstream sector

## System view

**Service lines**

- Land
- Atmosphere
- **Marine**
- Emergency
- Security
- Climate Change

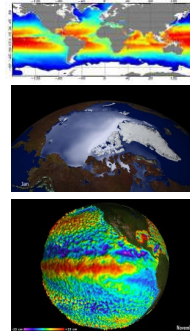


## Marine environment monitoring

**Objective: To provide information on the state of physical ocean and marine ecosystems for the global ocean and the European regional areas.**

**Monitoring and forecast, plus reanalysis of past years on**

- Currents
- Temperature
- Salinity
- Sea ice
- Sea level
- Surface winds
- Biogeochemistry

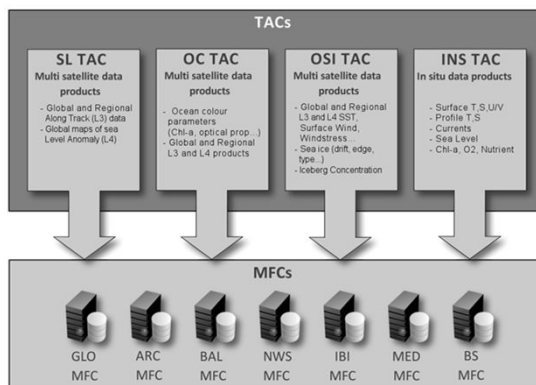
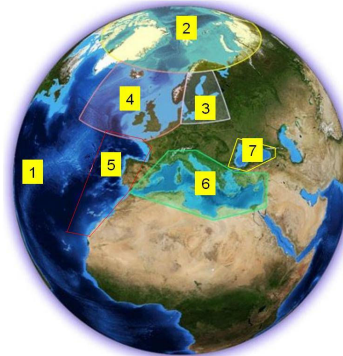


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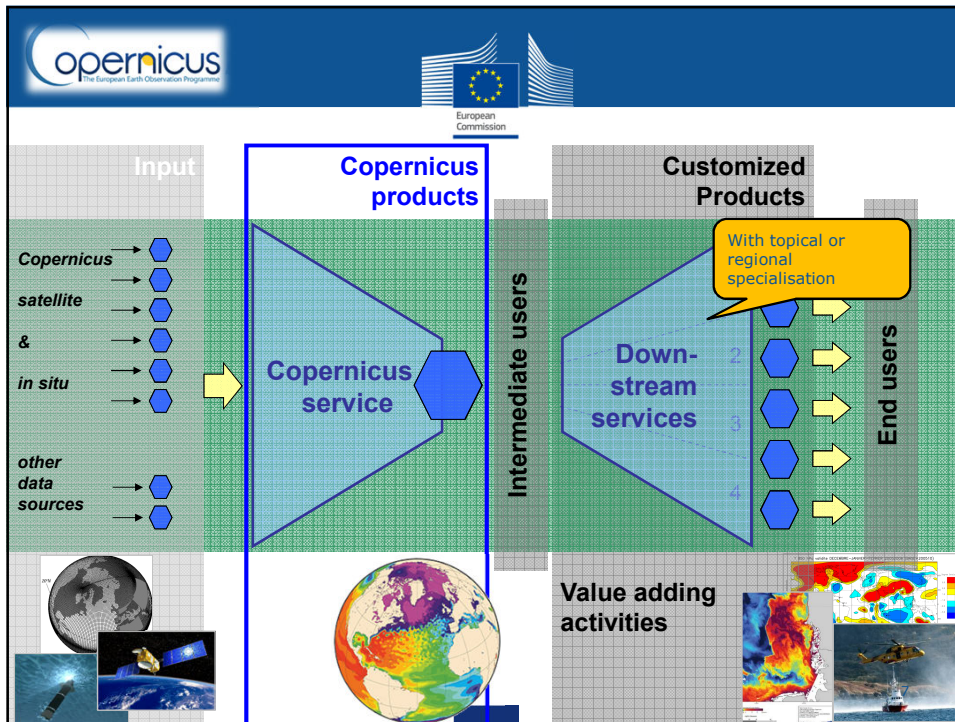
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## Maritime Service

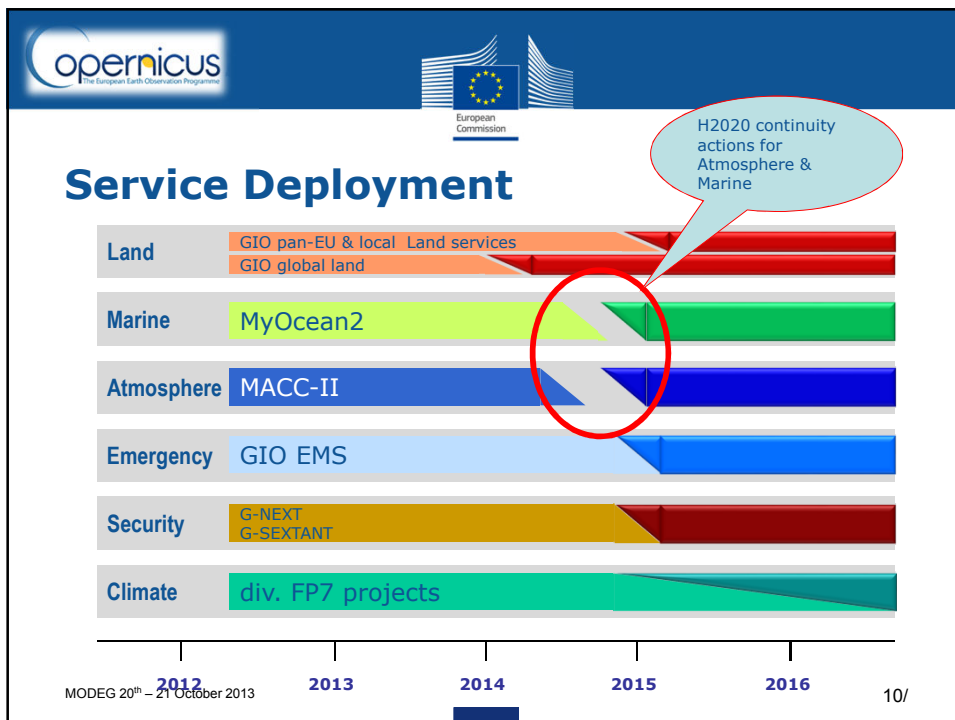
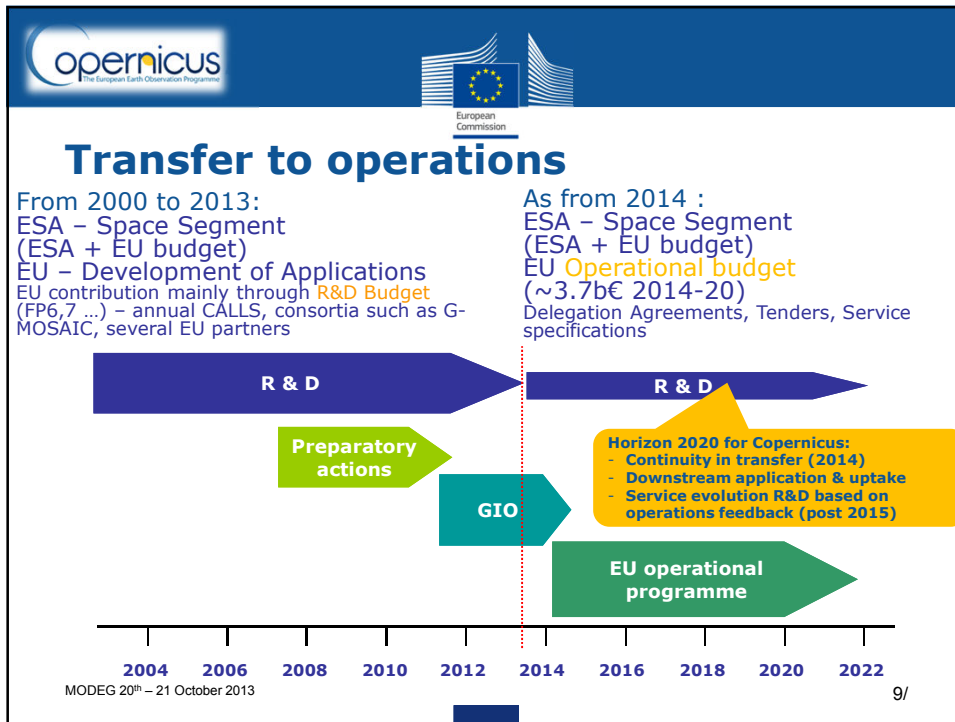
- Thematic Assembly Centres
- Marine Forecasting Centres (6 Regional and 1 Global)



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## Necessary steps

- **Ensure budget**
  - MFF consensus reached
- **Copernicus Regulation**
  - Being discussed in Council and EP
  - hopefully adoption Q1/2014
- **Delegated Act on Copernicus Data and Information Policy**
  - discussed in Council and EP
- **Selection of Implementing Entities**
  - Call for Expression of Interest proposed (ISC)
- **Negotiation & Signature of Agreements**
- **Ramp-up and procurement by selected operator**

## Implementation of services

- **In some cases, the implementation of the services may be (partly or in full) entrusted to competent EU bodies.**
  - EEA, FRONTEX, EMSA, EUSC
- **For other cases, potential implementing entities<sup>1)</sup> will be identified, e.g. following a call for interest.**
  - Operational and financial capacity
  - Eligibility according to EU Financial Regulation
  - Selection criteria on quality of approach

**(1) EU Financial Regulation Article 58.1(c)**

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## Dedicated satellite missions: Sentinels



### Sentinel 1 – SAR imaging

All weather, day/night applications, interferometry



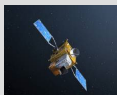
### Sentinel 2 – Multispectral imaging

Land applications: urban, forest, agriculture,..  
Continuity of Landsat, SPOT



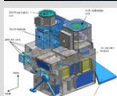
### Sentinel 3 – Ocean and global land monitoring

Wide-swath ocean color, vegetation, sea/land  
surface temperature, altimetry





### Sentinel 4 – Geostationary atmospheric

Atmospheric composition monitoring, trans-  
boundary pollution



### Sentinel 5 – Low-orbit atmospheric

Atmospheric composition monitoring  
(S5 Precursor launch in 2015)






## Data for the Services

	Global Land	Conti- nental Land	Local Land	Marine	Emer- gency	Security	Atmo- sphere	Climate
Sentinel 1		Nice to have	Nice to have	Crucial	Crucial	Crucial		
Sentinel-2	Required	Crucial	Nice to have		Crucial	Crucial		
Sentinel-3	Crucial	Required	Required	Crucial			Required	Required
Sentinel-4				Nice to have			Crucial	Required
Sentinel-5(p)				Nice to have			Crucial	Required
Jason CS				Crucial				Required

■ Crucial  
■ Required  
■ Nice to have

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## Proposal on Sentinel 3 processing

On EC request: ESA currently analysing S3 changes:

**i. SRAL SAR operational scenario:**  
 → 100% SAR mode over Land and Oceans

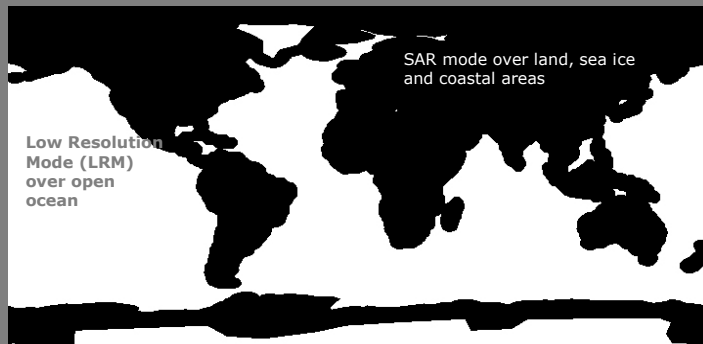
**ii. Requirements for Atmosphere monitoring:**  
 → implement NRT production of FRP and AOD;

- Additional Products: Fire Radiative Power, Aerosol Optical Depth
- Consistent over ocean and land surfaces

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## Current operational baseline



*alternative option to current "ocean scenario" (cover all oceans and coastal areas with the SAR mode) and a "full scenario" (i.e. 100% SAR mode).*



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## In short ...

- Baseline operation scenario**
  - ✓ Reduced resolution over open ocean
  - ✓ Interruption between open ocean and coastal zones
  - ✓ Small data gaps
- 100% SAR mode**
  - ✓ Consistent observations from open ocean to coastal zones
  - ✓ potential for new applications



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**Process for charting requirements**

**The Pull:**

- ❑ *Copernicus is user driven*
- ❑ *Formal user interface = User Forum*
- ❑ *current project "GMES-PI" pilot to this approach for service areas Atmosphere and Marine*
  - List of users is being developed
  - Existing requirements are consolidated

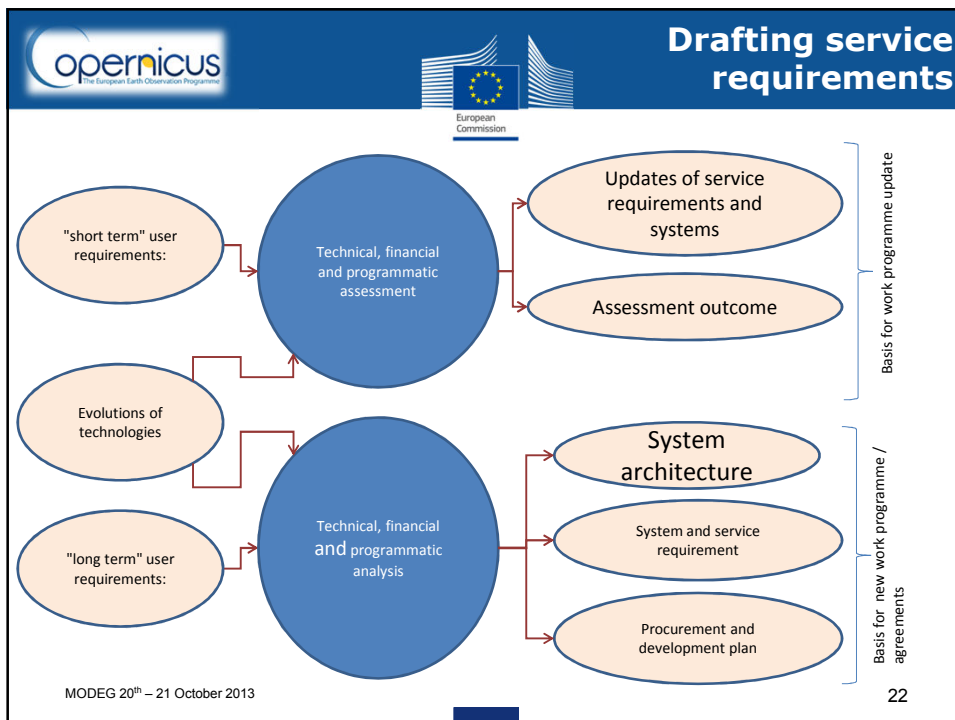
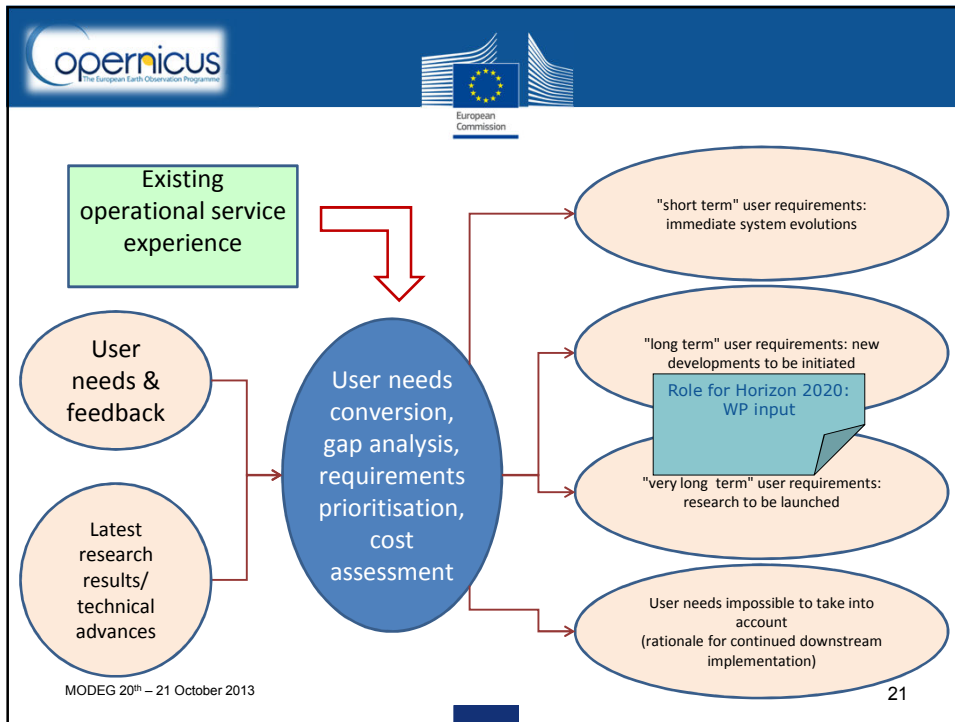
**The Push:**

- ❑ *Information from R&D can be useful to*
  - **Identify new possibilities (user push)**
    - project whitepapers → User Forum/Copernicus Committee
  - **Identify obstacles for uptake in existing service**



Operational service feedback on R&D needs

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## Summary

- Copernicus moves ahead
- Priority is to establish operational services
- Structured process for user requirements proposed
- change request for Sentinel-3 being analysed
  - full cycle SAR Mode over ocean and land

### Announcement: GMES PURE workshop

SHAPING THE OPERATIONAL COPERNICUS MARINE MONITORING SERVICE  
29 - 30 October 2013, EuroGOOS AISBL, Brussels, Belgium  
[http://www.gmes-pure.eu/announcement\\_02.php](http://www.gmes-pure.eu/announcement_02.php)



Thank you for your  
attention!

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