

CEOS - Atmospheric Composition Constellation Meeting 11

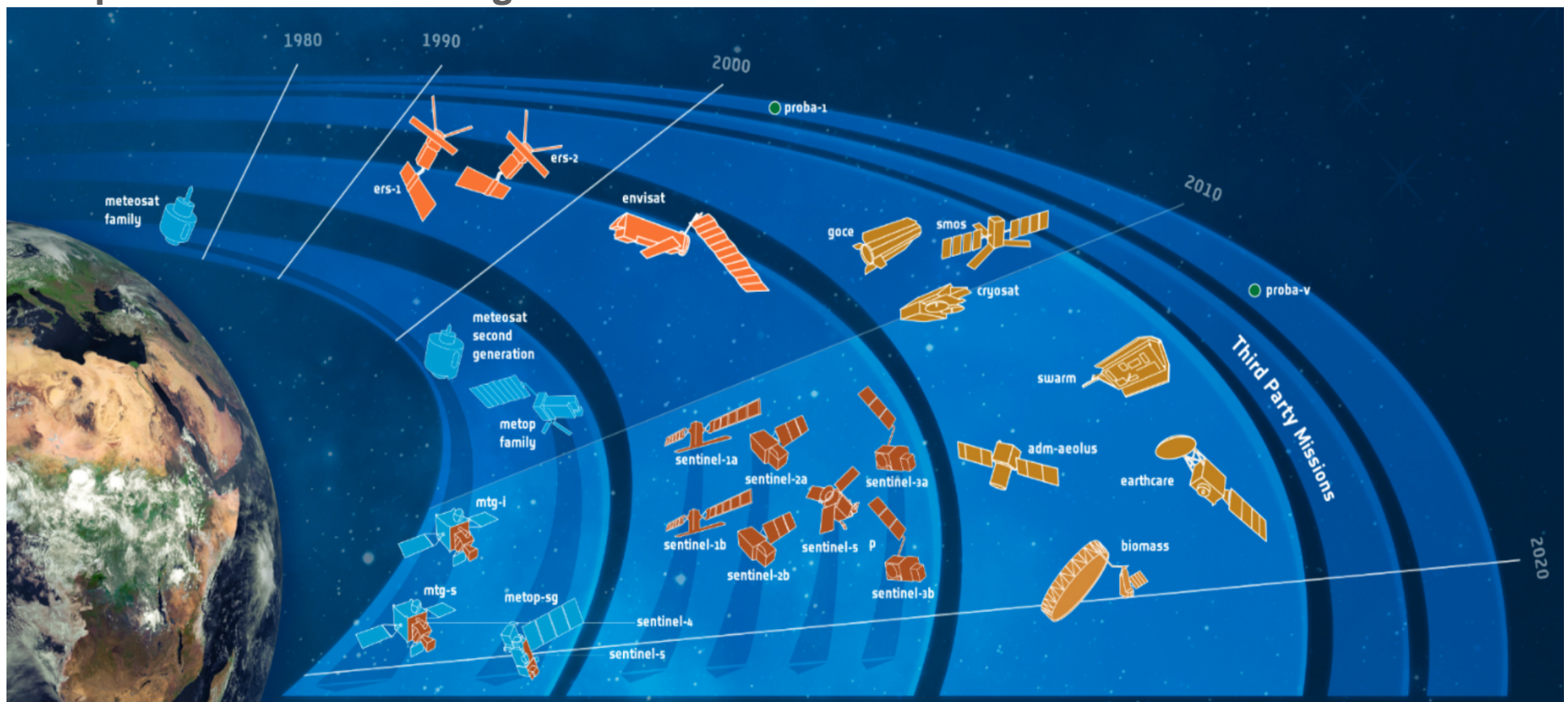
Maurice Borgeaud

28 April 2015

Directorate of Earth Observation Programmes

Head of Science, Applications and Futures Technologies Department

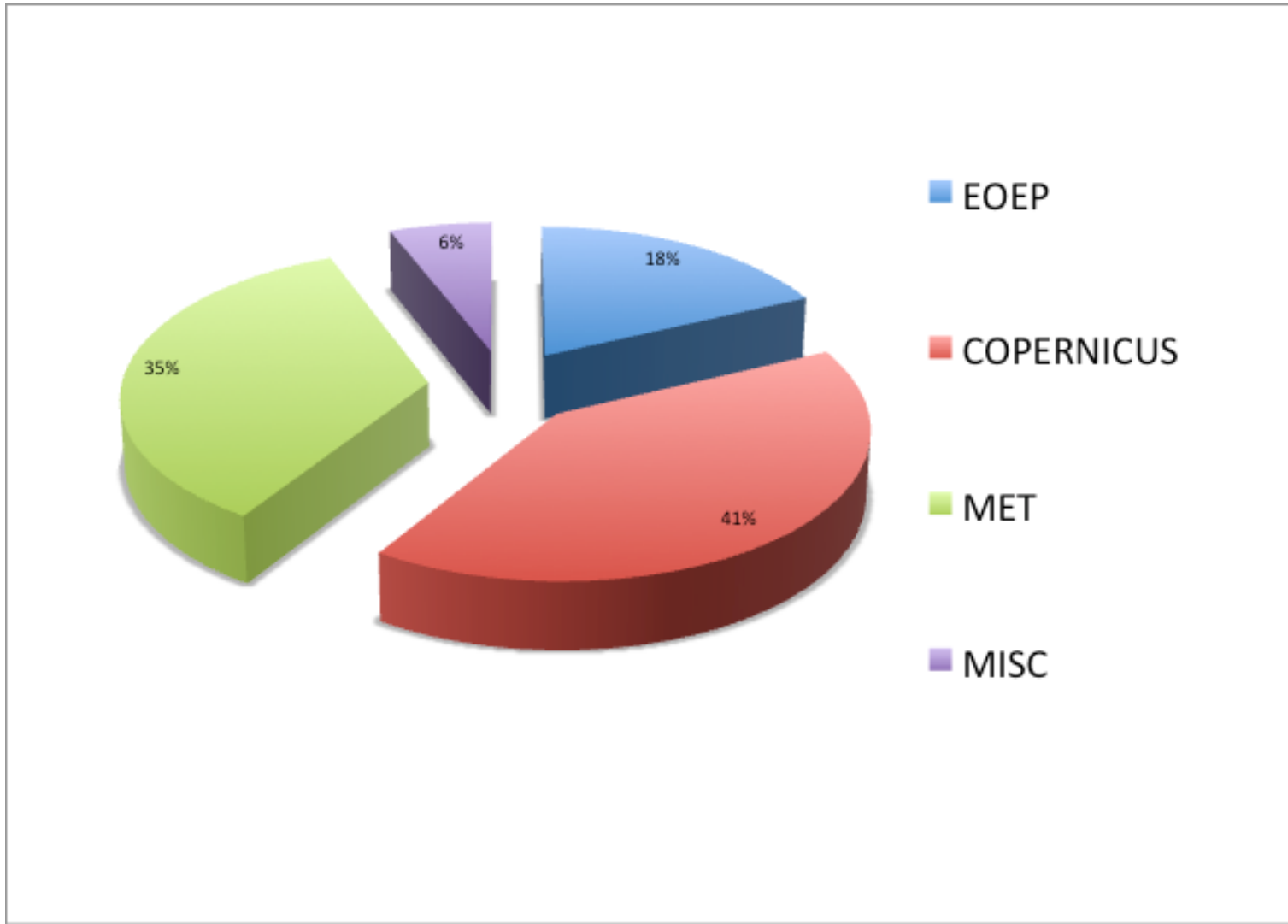
Scientific: Earth Explorer Missions
Operational: Copernicus Sentinel Missions
Operational: Meteorological Missions



Meteorological

Sentinels

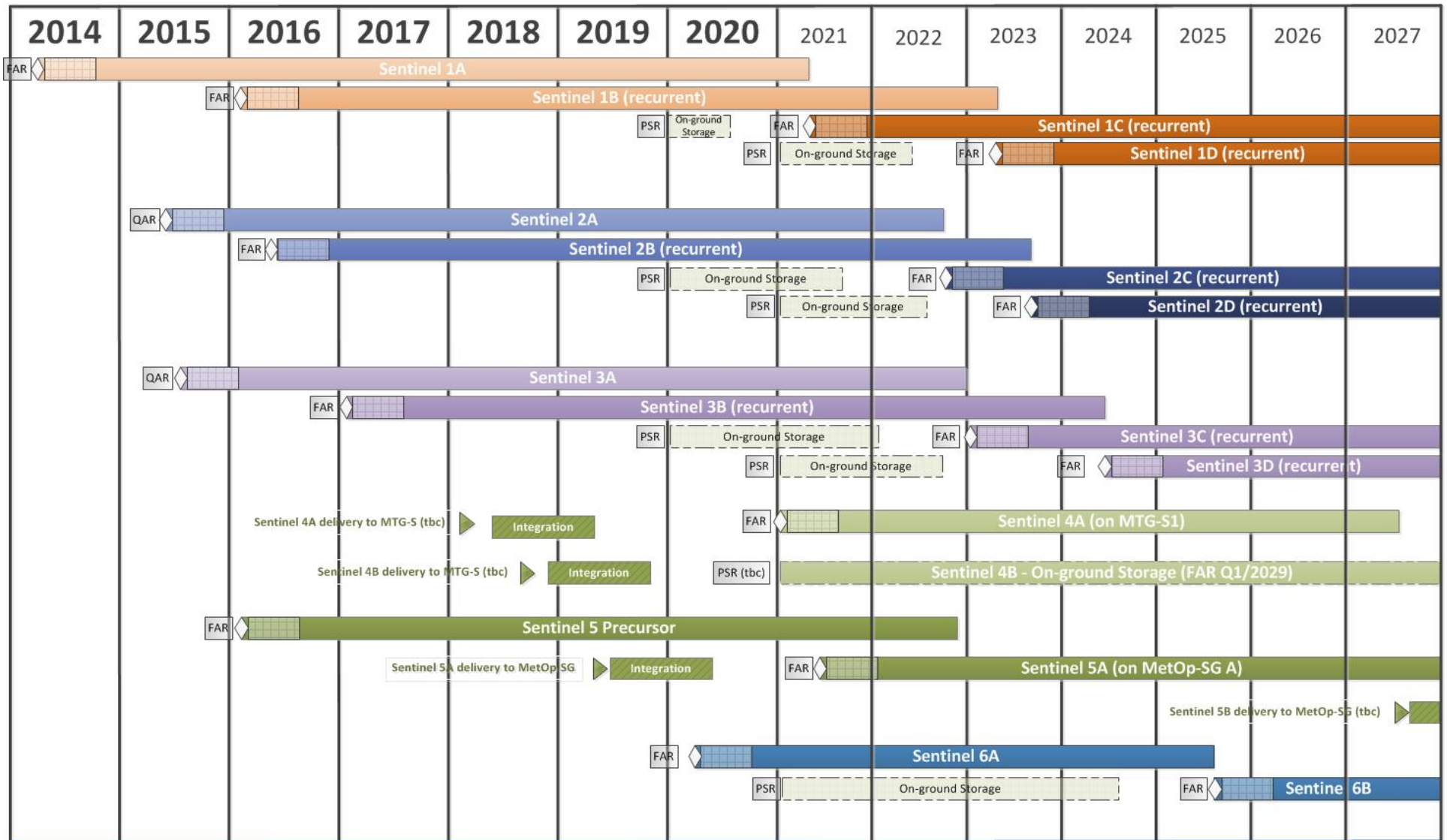
Explorers



- Operations secured until 2021
- Infrastructure secured until 2028-2030
- Fully geared towards contributing to GEOSS
- EU-ESA Agreement signed 28 October 2014
- Sentinel-1 A launch on 3 April 2014
 - Data freely available since 3 October 2014
 - On top of the Copernicus services:
 - More than 6300 users registered
 - 830 TB of data distributed

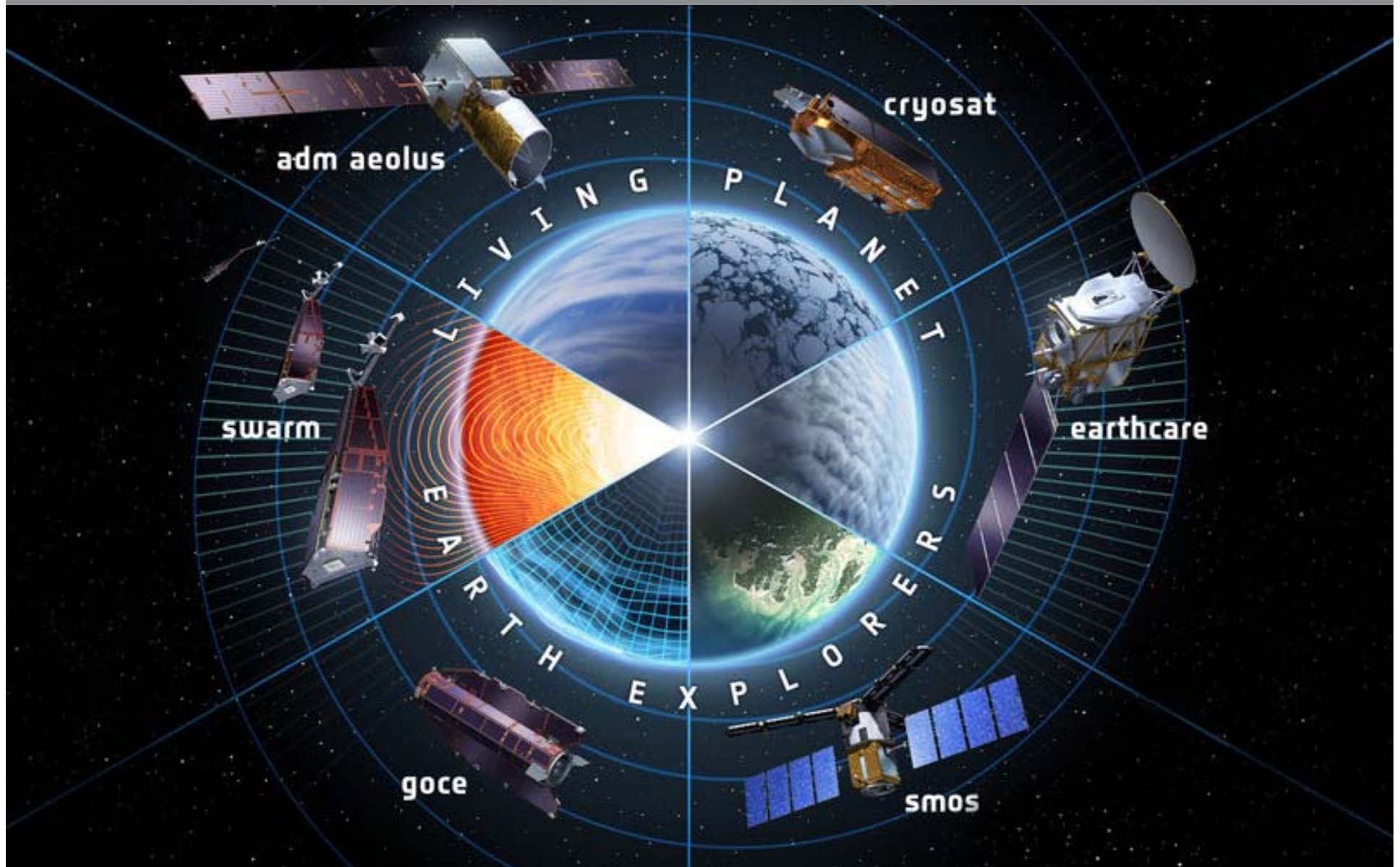


Tentative Sentinel Schedule



Legend:

- Qualification Acceptance Review (QAR)
- Flight Acceptance Review (FAR) or PreStorage Review (PSR)
- On-ground Storage
- Tentative launch date
- In-orbit Commissioning



ADM-Aeolus

- Global observations of wind profiles for analysis of global 3D wind field
- Launch planned for 2016

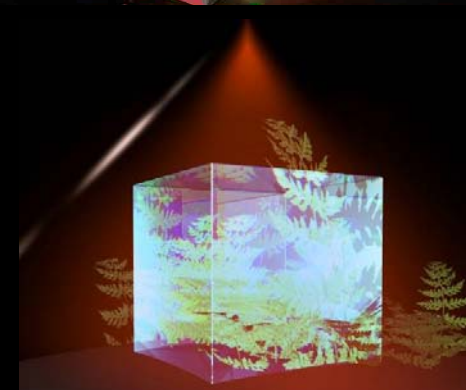
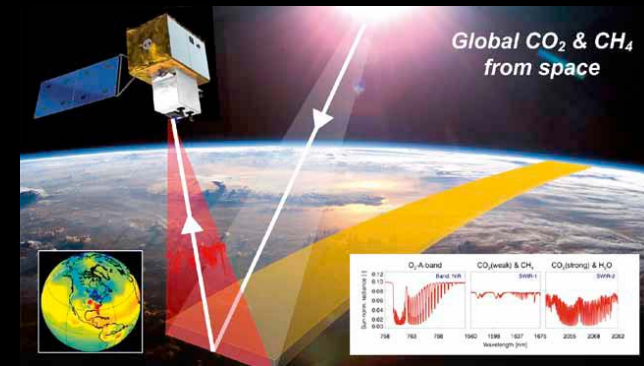
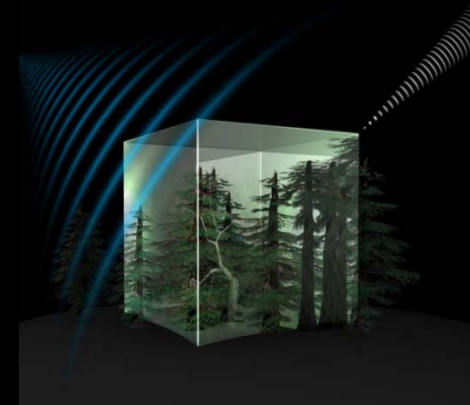


EarthCARE

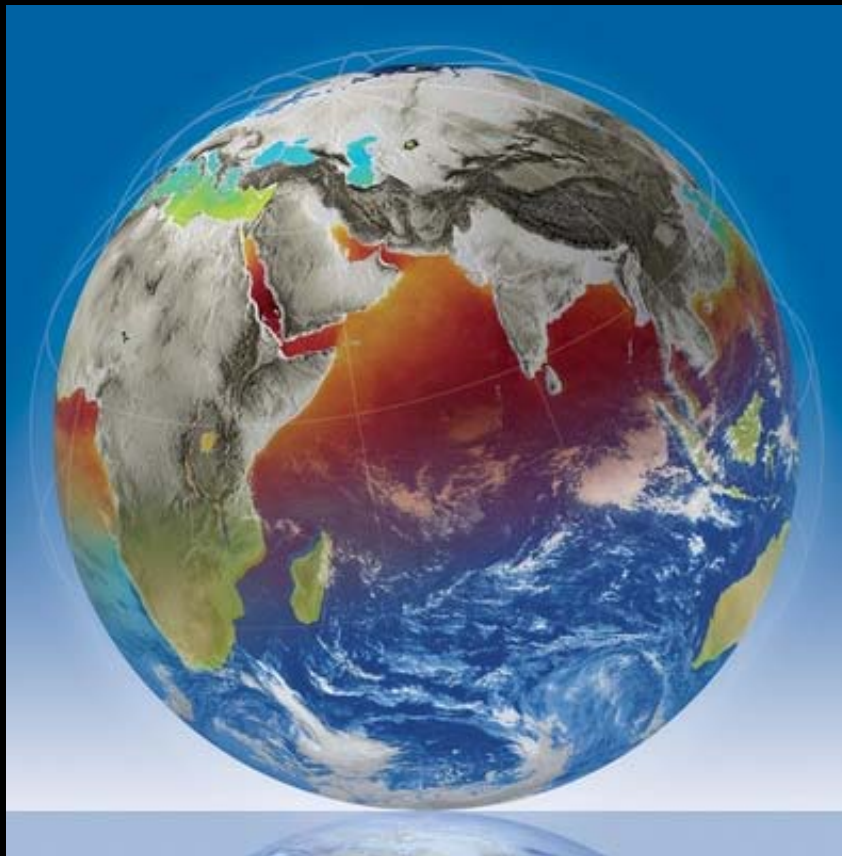
- Global observations of clouds, aerosols and radiation
- Launch planned for 2018



- Biomass is selected as the 7th Earth Explorer mission
 - Selected in May 2015 by ESA's Earth Observation Programme Board
 - Essential to understand the Earth's carbon cycle
 - Biomass estimates based on global interferometric and polarimetric P-Band SAR observations
 - Flight acceptance review in 2020
- Candidate missions for 8th Earth Explorer: FLEX and CarbonSat
- Call for future Earth Explorer mission planned end 2015



Status: Phase A/B1 studies being completed for two competing mission candidates

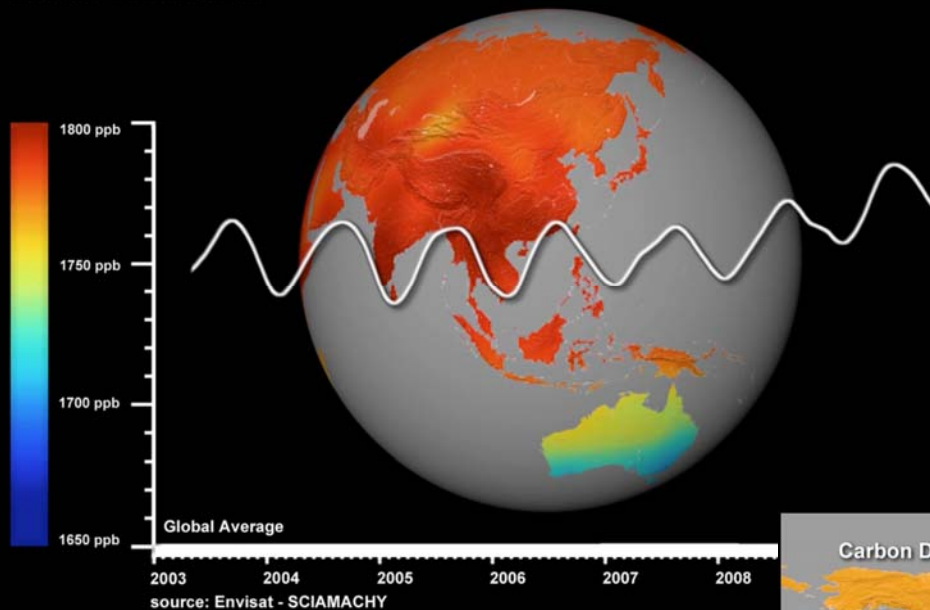


- **FLEX:** to provide global maps of vegetation fluorescence, which can be converted into an indicator of photosynthetic activity
→ to improve our understanding of how much carbon is stored in plants and their role in the carbon and water cycles
- **CarbonSat:** to quantify and monitor the distribution of carbon dioxide and methane
→ for a better understanding of the sources and sinks of these two gases and how they are linked to climate change.

UCM in Krakow, Poland, 15-16 Sept 2015

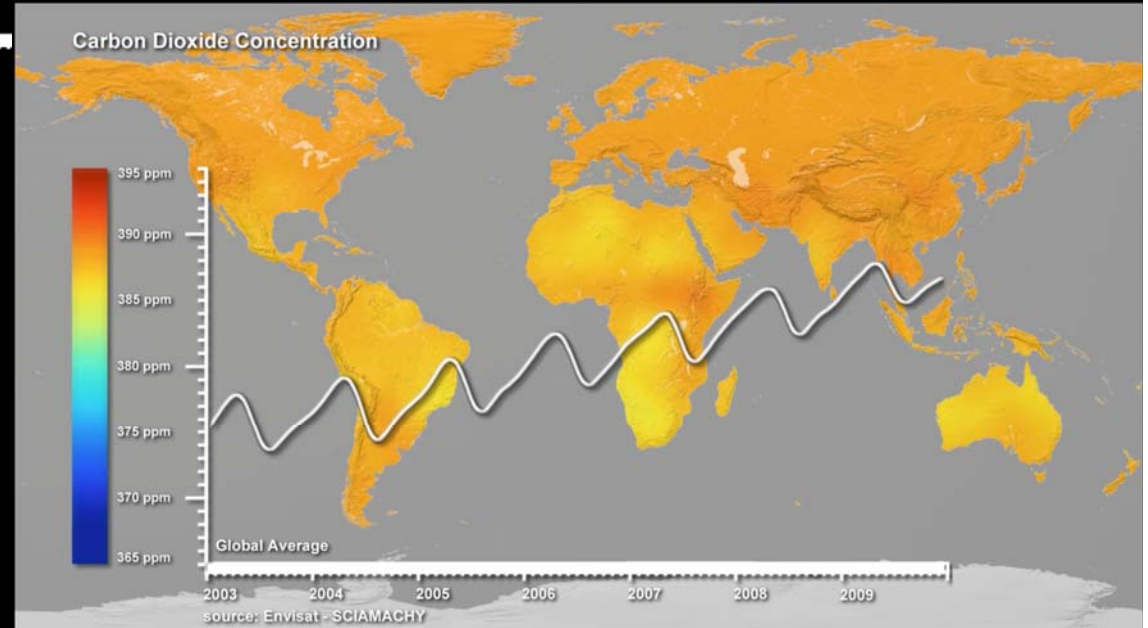
=> Decision by PB-EO in Nov. 2015

Methane Concentration



- GHG is one of the 13 ECV's studied in the frame of the ESA CCI (Climate Change Initiative)
- Using SCIAMACHY (2002-2012) and TANSO (2009-2014) data

Carbon Dioxide Concentration



Extend ongoing long term ACC coordination among the CEOS agencies in order to collect and deliver data to improve predictive capabilities for coupled changes in the *Ozone Layer, Air Quality, and Climate Forcing* associated with changes in the environment.

Topics of this meeting:

- Facilitate the establishment of long term total and nadir profiling ozone data sets (linking European and American data sets)
- Define an implementation plan for a GHG Constellation (based on http://ceos.org/document_management/Publications/WG_Climate_CEOS-Strategy-for-Carbon-Observations-from-Space_Apr2014.pdf)
- Extend the ongoing Air Quality Constellation activities (harmonization to improve data product quality and usage for the planned geostationary AQ missions in Europe, Korea and USA)

