



Climate Change Initiative



Realise the full potential of the long-term global EO archives that ESA, together with its Member states, has established over the last thirty years ...

... as a significant and timely contribution to the ECV databases required by the United Nations Framework Convention on Climate Change

- **Respond to GCOS Requirements for UNFCCC**
- **Puts European scientists at the forefront of generating Satellite based Climate records.**
- **Strengthen European Research Communities presence in IPCC Assessments**
- **Take benefit of the 30 years investment of ESA Member States in EO Global Observations**

- **Creation of a European EO Climate Science community**
- **Facilitate the scientific cooperation between the Climate Observing and Modelling Communities**
- **Develop a protocol for Climate Quality Algorithms Evaluation in an international context.**
- **Delivered fully Error Characterised Climate Data sets, first for many ECVs**
- **Provided up to date validated scientific data sets to support International Climate Policy and decision making.**



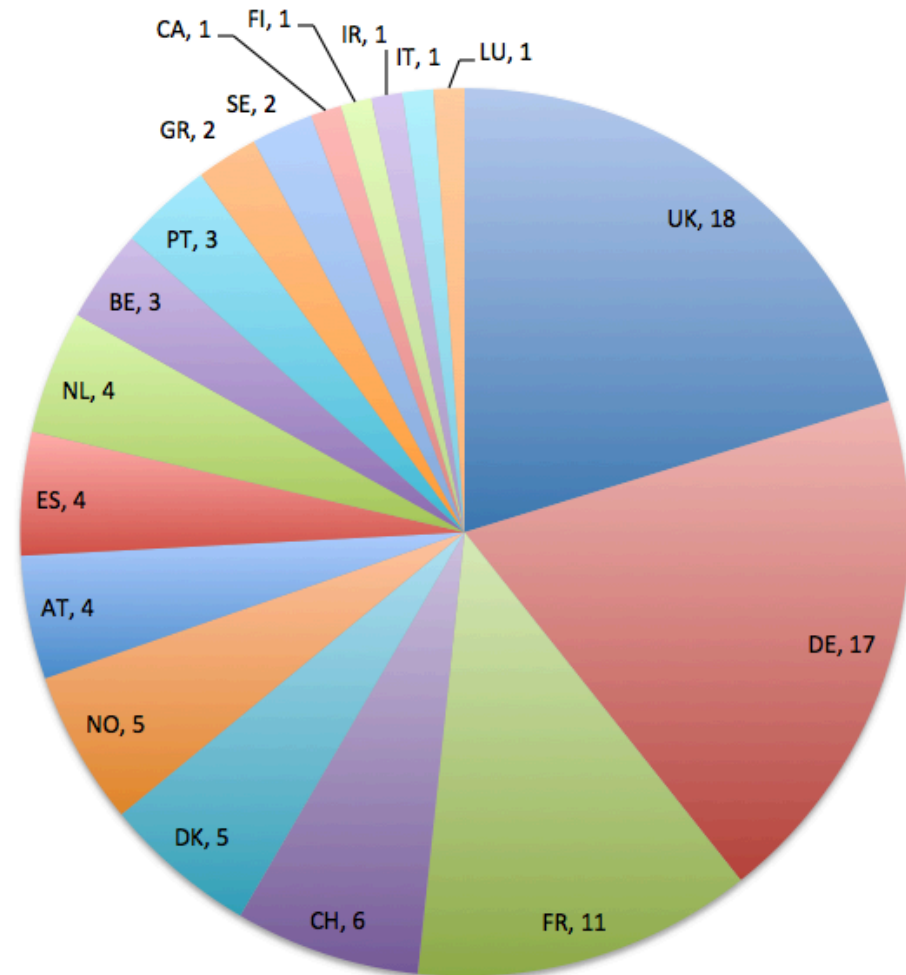
A European EO Climate Science Community

CCI Science Leaders:

- Anny Cazenave (Sea Level)
- Andy Shepherd (Ice Sheets)
- Chris Merchant (Sea Level)
- Emilio Chuvieco (Fire0)
- Frank Paul (Glaciers)
- Gerrit Leeuw (Aerosol)
- Michel van Roozendaal (Ozone)
- Michael Buchwitz (GHG)
- Pierre Defourny (Land Cover)
- René Forsberg (Ice Sheet)
- Roger Saunders (Climate Modellers)
- Rainer Hollmann (Cloud)
- Shubha Sathyendranath (Ocean Colour)
- Sophie Bontemps (Land Cover)
- Stein Sandven (Sea Ice)
- Thomas Holzer-Popp (Aerosol)
- Wolfgang Wagner (Soil Moisture)
- Leif Toudal Pedersen (Sea Ice)

and many others ...

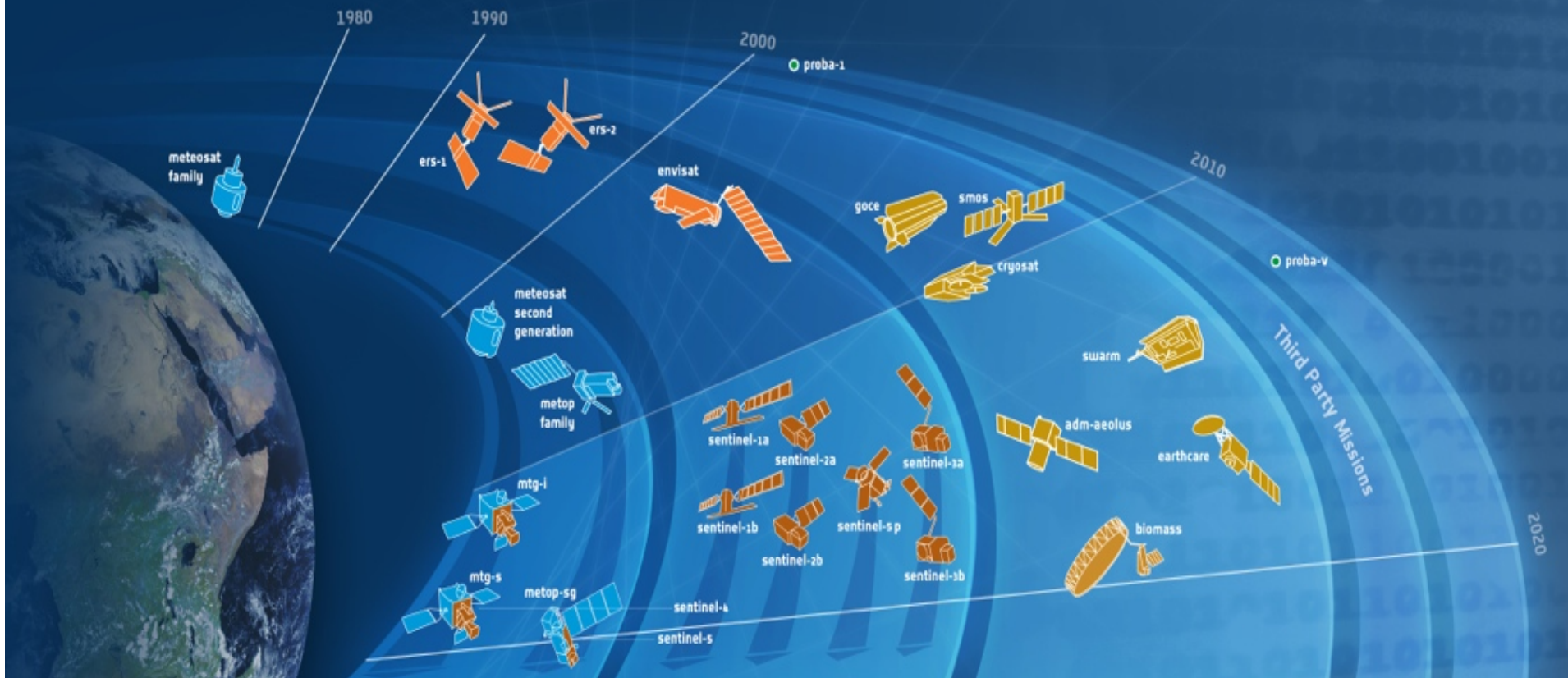
Number of Contributing National Entities Total 89



- **Generate peer reviewed publications in high impact scientific journals by European Scientific Community (>170 publications)**
- **Pave the way for the ECV component of the Copernicus Climate Change Services,**
- **Facilitate the Sea Level Closure Budget by strengthen dialogue between Glaciers, Ice Sheets and Sea Level research communities,**

- **Maintain European contribution to the CEOS coordinated response to GCOS,**
- **Involve the European Science Community in the development of new ECVs,**
- **Further enhance European Research Communities presence in IPCC Assessments,**
- **Capitalise on new Research Missions to Global Climate Records.**

→ THE ESA EARTH OBSERVATION PROGRAMME



Meteorological Missions

driven mainly by Weather forecasting and Climate monitoring needs. These missions developed in partnership with EUMETSAT include the Meteorological Operational satellite programme (MetOp), forming the space segment of EUMETSAT's Polar System (EPS), and the new generation of Geostationary Meteorological satellites (MSG & MTG satellites).

Copernicus Sentinel Missions

driven by Users needs to contribute to the European Global Monitoring of Environment & Security (GMES) initiative. These satellite missions developed in partnership with the EU include C-band imaging radar (Sentinel-1), high-resolution optical (Sentinel-2), optical and infrared radiometer (Sentinel-3) and atmospheric composition monitoring capability (Sentinel-4 & Sentinel-5 on board Met missions MTG and EPS-SG respectively).

Earth Explorer Missions

driven by Scientific needs to advance our understanding of how the ocean, atmosphere, hydrosphere, cryosphere and Earth's interior operate and interact as part of an interconnected system. These Research missions, exploiting Europe's excellence in technological innovation, pave the way towards new development of future EO applications.

Missions With Partners

EO Operated Missions