

living planet symposium

BONN
23-27 May
2022

TAKING THE PULSE
OF OUR PLANET
FROM SPACE

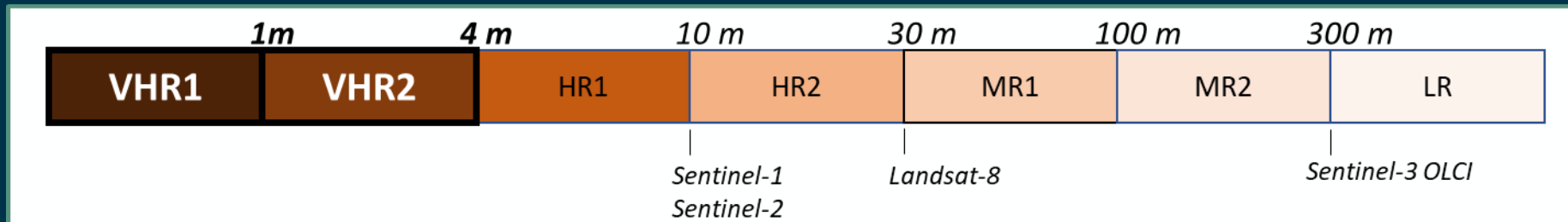
B7.02 European New Space and CCM Activity

26 May 2022

ESA chairs: Henri Laur and Peggy Fischer

What are Copernicus Contributing Missions (CCM) ?

Generally understood as commercial satellite missions used in the Copernicus Programme, operating in domain of Very High Resolution



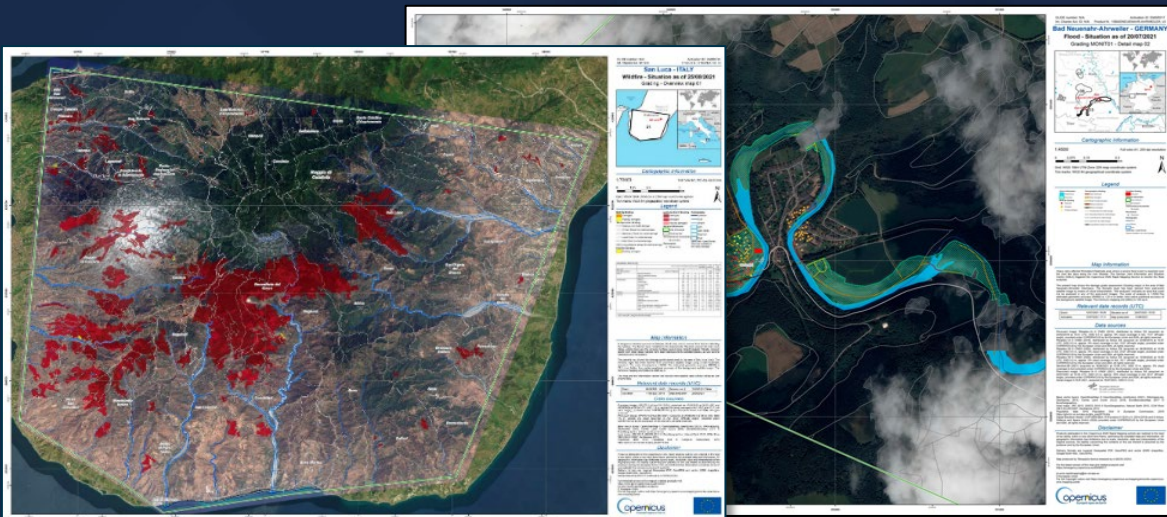
→ Any EO mission not subject to the Sentinel data policy, but to the policy defined by its stakeholders. This includes:

- **Commercial Contributing Missions**, for which Copernicus programme pays a license fee,
- **Non-commercial Contributing Missions**, for which most mission stakeholders have defined an open and free data policy that Copernicus programme benefits of (e.g. USGS Landsat).

Data requirements for Copernicus Contributing Missions – two main categories

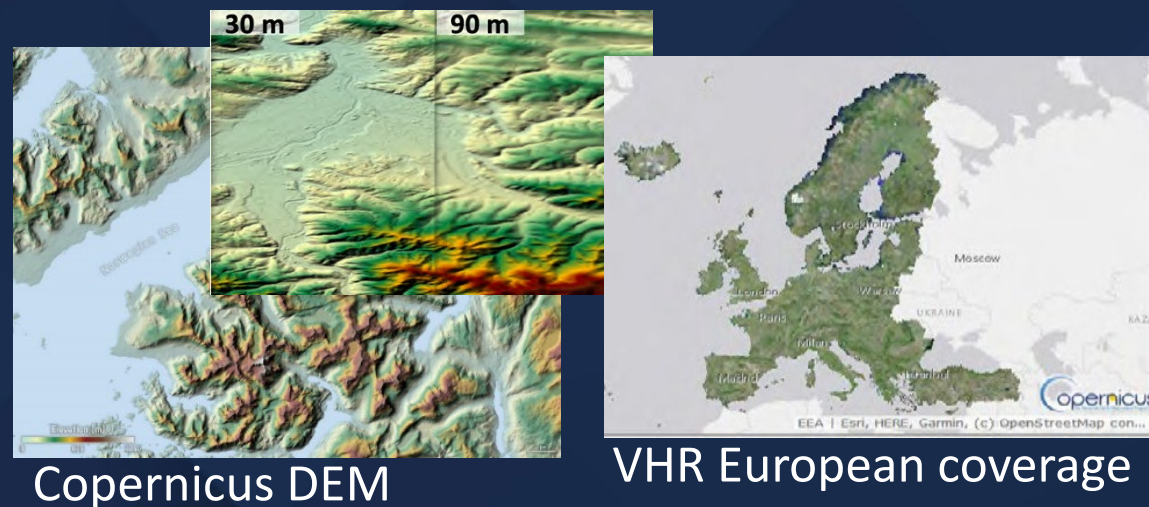
On-Demand data acquisitions (unplanned)

Main requirements are spatial resolution and timeliness, i.e. get the data as soon as possible after an event.
Not pre-defined areas of interest



Systematic data acquisitions (planned)

The main characteristics of the regular coverages is the completeness, quality and uniformity to be achieved using CCM covering pre-defined areas of interest



The main characteristics of the regular coverages is the quality and uniformity to be achieved using VHR data covering pre-defined areas of interest, but from different providers. Below follow some highlighted requirements:

- Optical VHR - Yearly/seasonal coverage of large areas, in Europe, for the Copernicus Land Monitoring Service with accessible satellite data for Public authorities in Europe - (CLMS)
- Coastal areas (e.g. HR optical data for Ocean Colour, VHR optical for land cover) – (CLMS, CMEMS)
- Optical and SAR for regular verification of a selection of sites of the ground motion service - (CLMS)
- HR SAR coverage of European seas for sea ice monitoring element of the Copernicus Marine Environment Monitoring Service (CMEMS)
- Satellite data equivalent to the data from the future Sentinel Expansion missions (Polar Expert Group III report)

On-demand requirements

- **On-demand for Optical and SAR data with more stringent timeliness requirements:**
 - A. Lead-time: from request to sensing
 - B. Latency (delivery timeliness): from sensing to image availability
- **From “first come, first (ordered) principle” to “first satellite image available to Copernicus Services”**

New	Req. 1:	Req. 2:	Req. 3:	Req. 4:
A. Lead time:	<2h &	<12h &	<24h &	<48h &
B. Latency:	15min	>3 h - < 12 h	15min/30min/1h/3h	>3 h - < 12 h
Current	«Rush» Requirement		«Rush» data offer	
A. Lead time:	<16h		First image available <48h	
B. Latency:	30 min		(including latency <3h)	

- **On-demand services requirements from Copernicus (future):**
 - VHR Digital Surface/Terrain Models for CEMS and CSS
 - Tip & Cue from HR to VHR for SAR and Optical (CSS)
 - Satellite data equivalent to the Sentinel Expansion missions (Hyperspectral, SAR L-band) (CSS, Polar Expert Group III)

Sentinels & Copernicus Contributing Missions

- Copernicus Sentinels
- Optical CCM
- SAR CCM
- Upcoming CCM

CCMs complement Sentinel data to ensure whole range of Copernicus observational requirements is satisfied



Procurement principles for Copernicus Contributing Missions (CCM) ?



Principle #1:

→ Respond to existing and future user needs, especially for but not limited to Very High Resolution data, with improved capacities in terms of timeliness and uniformity

Principle #2:

→ Facilitate on-boarding of European New Space missions in supplying data to Copernicus Services

Principle #3:

→ Give European data providers a long-term perspective of data buy for public needs in Europe



ESA EO and New Space companies

ESA as anchor customer (i.e. buying the data provided by New Space companies):

- through the **EU Copernicus Contributing Missions activity** for operational purposes
- through the **ESA Earthnet Third Party Missions activity** for scientific purposes

ESA as developer:

- through the **ESA InCubed** Public Private Partnership co-funding programme
- through the **development of specific small missions such as Scouts, Phisats (FutureEO), or Proba-V Cubesat Companion (ESA GSTP, ESA Proba-V)**