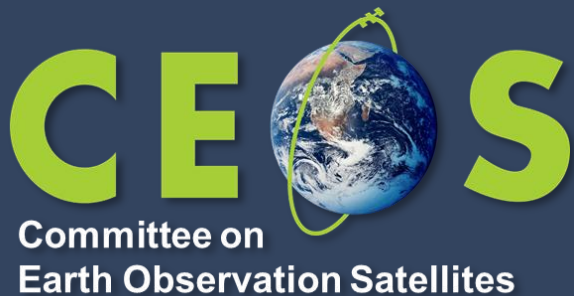


LSI-VC-18

Overview of TPM and CCM



Peggy Fischer (ESA)
Mission Manager of ESA Third Party Missions and
Copernicus Contributing Missions
Overview of TPM and CCM programs
LSI-VC-18
Ispra, Italy

ESA procures EO data (and associated services) for its own purpose or on behalf of other institutions

→ *ESA Third Party Missions and Copernicus Contributing Missions*

Earthnet Third Party Missions

EO data for R&D and science needs



**Initial data assessment
(mainly for commercial EO data)
Growing data portfolio including
emerging data domains**

→ Includes EDAP and *coordination with NASA*



Copernicus Contributing Missions

EO data (and associated delivery services) for operational public needs



Operational data delivery:

- from established data suppliers
- from **emerging data suppliers**

ESA as Anchor Customer

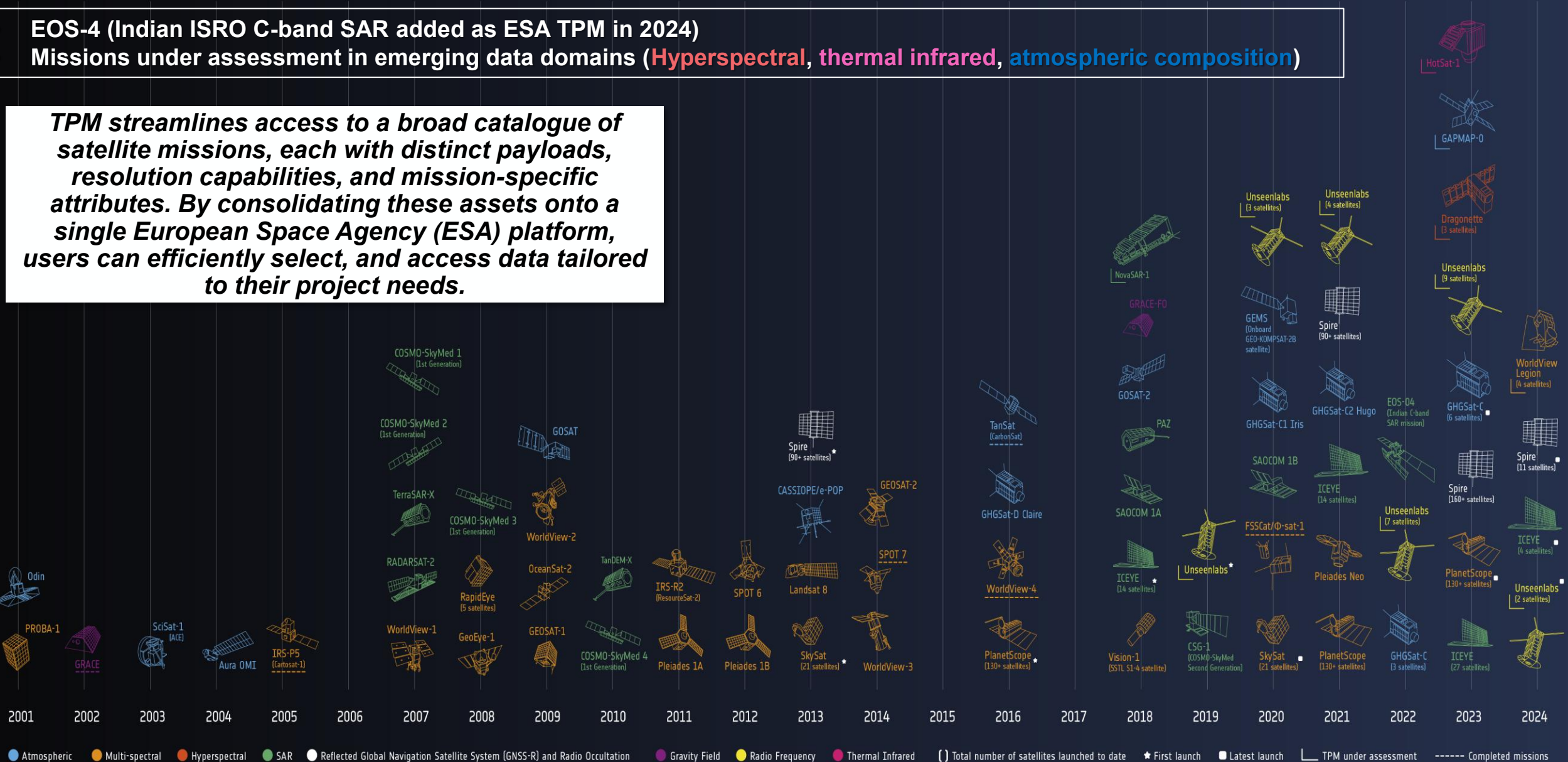
THIRD PARTY MISSIONS TIMELINE

SAR, Multispectral, Atmospheric missions approved as ESA Third Party Missions (for scientific use)



- EOS-4 (Indian ISRO C-band SAR added as ESA TPM in 2024)
- Missions under assessment in emerging data domains (Hyperspectral, thermal infrared, atmospheric composition)

TPM streamlines access to a broad catalogue of satellite missions, each with distinct payloads, resolution capabilities, and mission-specific attributes. By consolidating these assets onto a single European Space Agency (ESA) platform, users can efficiently select, and access data tailored to their project needs.



Central component – Earthnet TPMs



About THIRD PARTY MISSIONS PROGRAMME

What are TPMs?

Third Party Missions are earth observation missions that are not owned or operated by ESA. The agency has an agreement with these third parties to distribute data products from their missions to scientific users

History?

ESA's TPM arrangement has been operating for over

45 YEARS

providing EO data to users in **Europe** and **worldwide** for research and pre-operational applications development

How many?

TPMs currently include over 60 instruments on more than 50 missions

<60

INSTRUMENTS

50+

MISSIONS

● Atmospheric ● Optical ● Reflected Global Navigation Satellite System (GNSS-R) and Radio Occultation
● Gravity Field ● SAR



More than 14,300 research projects used TPM data since 2008 with over 2300 newly registered TPM users in the last 12 months

Benefits?

Data is offered from a large number of international missions through a single programme. One of the criteria for selecting new missions is that they utilise instruments that offer similar data to those acquired by ESA missions, contributing to a wide range of data that may be used together. Other criteria include degree of innovation, opportunity for new international collaboration and experience to be gained for future missions

TPMs data combined with the data from ESA missions, can exploit the synergy between all sources of data to meet the needs of user communities, from different sectors, for a growing range of applications

Data Access?

<https://earth.esa.int/eogateway/missions/third-party-missions>

TPM Data Sample products gallery & Data Access Guide

Explore Sample Data Products from Third Party Missions

The table below lists examples of sample data products from a range of ESA Third Party Mission (TPM) datasets.

Click on the provided link to preview what these TPMs provide and download samples



GEOSAT-1



IRS-P6
(ResourceSat-2)



SkySat



COSMO-SkyMed
First Generation



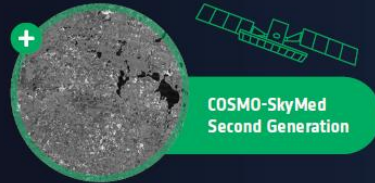
GEOSAT-2



PAZ



Vision-1



COSMO-SkyMed
Second Generation



IRS-P5
(Cartosat-1)



PlanetScope



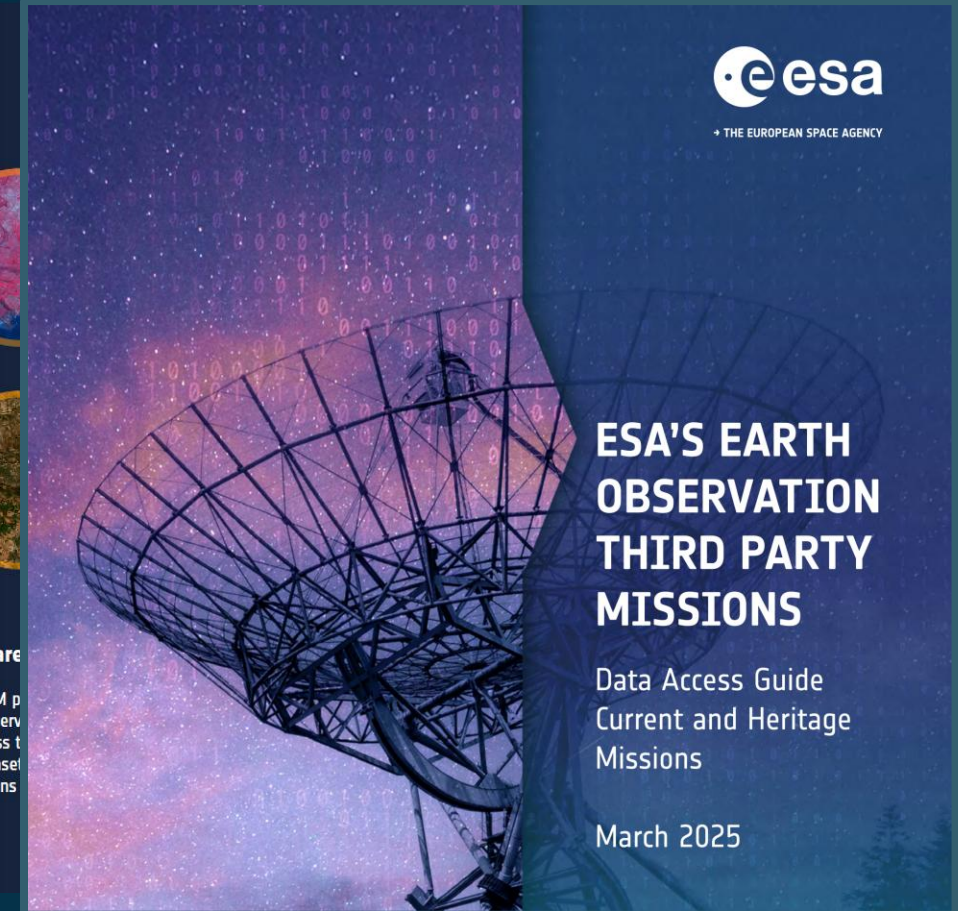
WorldView-3

● Optical - acquired over ESA's test site at La Crau, France

● SAR - synthetic aperture radar data acquired over a test site at Neustrelitz, Germany



esa



What are
ESA's TPM p
Earth observ
free access t
TPM dataset
applications

<https://earth.esa.int/eogateway/news/explore-sample-data-products-from-third-party-missions>

<https://earth.esa.int/eogateway>

5

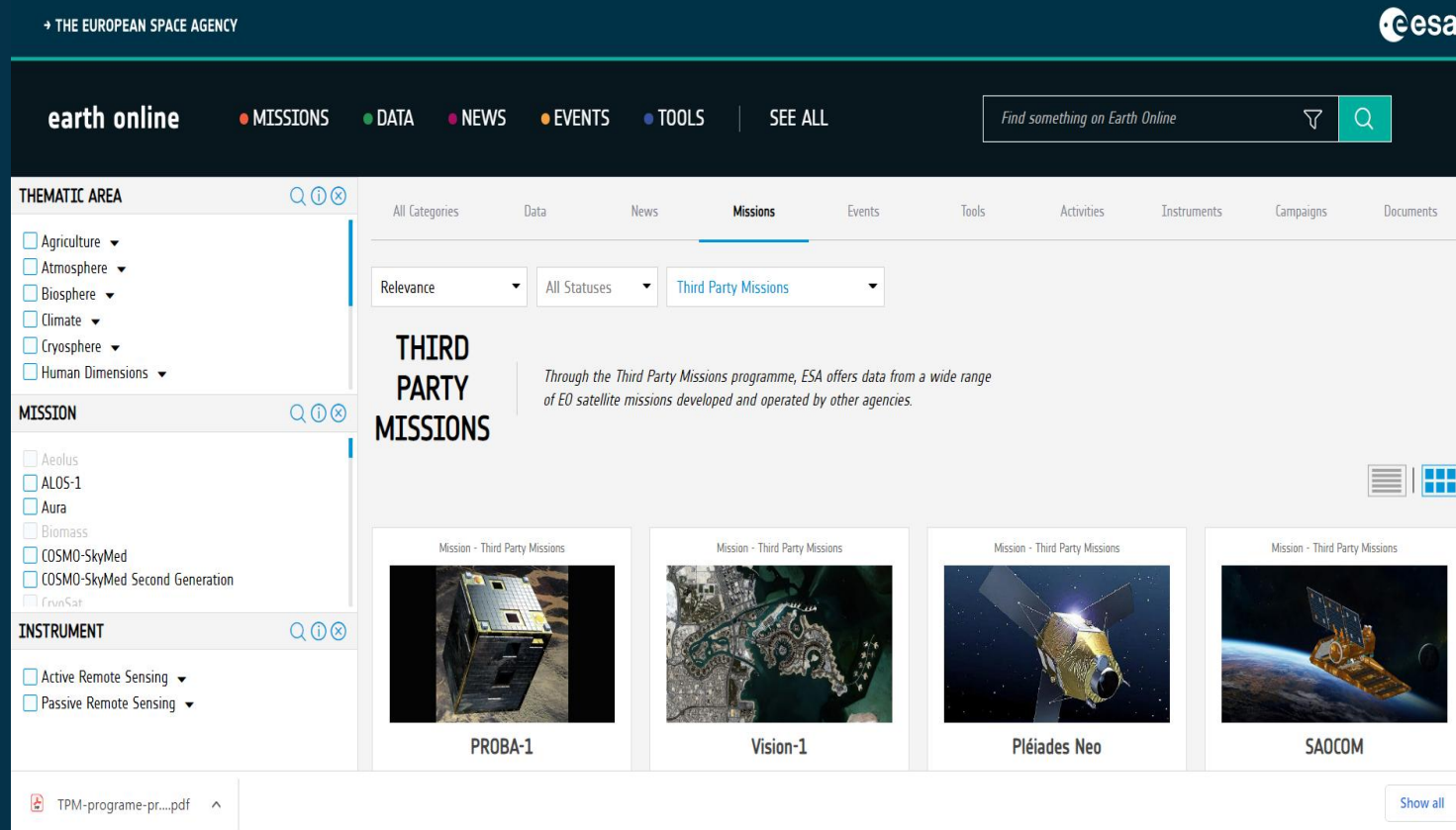


→ THE EUROPEAN SPACE AGENCY

How to Access commercial TPM Data – Project Proposal

From the Earth Online mission description page:

<https://earth.esa.int/eogateway/missions/third-party-missions>



- 1 SELECT**
You can search for data products for use in your projects by [browsing the available collections](#)
- 2 REGISTER**
Once you have selected your mission and data collection, a Project Proposal must be completed. To complete the proposal, **you must log in or register an ESA EO Sign-In account**
- 3 PREPARE**
Create and fill-out the proposal, which includes outlining the objectives, methods and deliverables of the project, the composition of the team of researchers and the region of interest. You may optionally add further data collections from different missions to the proposal
- 4 SUBMIT**
Once the proposal is complete, submit it to ESA for evaluation. This process may take up to six weeks, after which the user is notified as to the outcome of the assessment and, if approved, provided with instructions on how to order the products from the data provider
- 5 PROMOTE**
When the project closes, a final report should be submitted. Users are then encouraged to **contact the Earth Online editorial team so a success story about the project** can be prepared for the website. The editors can be reached at: contentmatters4earthonline@ejr-quartz.com

Explaining the T&Cs for ESA Third Party Missions data



EARTHNET

ESA's Third Party Missions (TPM) programme enables users, known as Principal Investigators (PIs), to access data delivered by more than 50 missions for use in research and development activities

The Terms and Conditions (T&C) for TPM data describe the conditions PIs must accept to access and utilise products and how they may use the products in any results derived from the data

What is a PI?

PIs can include representatives from:



Research and development organisations worldwide, including research institutions and universities



Research and development teams from European companies, exclusively for non-commercial and non-operational activities



Commercial incubators and business incubation centres



Which data can PIs access?

TPM data are split into two main groups:

OPEN DATA

which do not have technical or financial constraints

RESTRAINED DATA

which are managed differently due to policy, technical or financial constraints

Access to **open data** is provided following submission of a Fast Registration form and acceptance of the Terms and Conditions

Access to **restrained data** requires submission of a Project Proposal or data access authorisation request, which will be evaluated by ESA to confirm its relevance for research and development, and whether the requested data are available

While restrained data from European TPM providers are available to users worldwide, restrained data from non-European TPM providers are only available to users from ESA Member States and ESA Cooperating States

How can data be used?

Data can be used for civilian purposes only, including scientific research and pre-operational application development.

As per ESA policy, very high-resolution imagery over conflict areas cannot be provided.

Discover more about the TPM terms and conditions [here](#)

Explaining the Third Party Missions licensing scheme

Eligible PIs include:

- ❑ **Research and development (R&D)** entities worldwide (e.g. university, research institution)
- ❑ R&D and innovation teams of **commercial European companies exclusively for non-commercial and non-operational activities**
- ❑ **Incubators and Business Incubation Centres (BIC)** for civil EO research applications only.



General conditions of TPM data utilisation:

TPM Data can be categorized as **open** or **restrained**, with access requiring a **Fast Registration** or **Project Proposal**

Any publication resulting from work carried out using TPM Data must credit ESA (and data provider)

TPM Very high-resolution imagery over conflict areas not available

Restrictions may apply to users from certain countries, depending on license conditions and national security legislation in the data provider's country as specified in the "Living Annex"

The Living Annex to the "Terms and Conditions" document contains the list of TPMs with diverging utilisation rules as stipulated by a respective TPM Owner (TPMO)

The Annex is constantly updated, and the amendments to the general conditions are specified for each TPMO

The European Copernicus Space component

- Copernicus Contributing Missions -



PROGRAMME OF THE
EUROPEAN UNION



co-funded with



Climate change

Air Quality

Copernicus Sentinel satellites
provide key data on

Land Applications

Natural disasters

Food security

Marine Observations

& much more...

Earth Observation data

But gaps remain



Complementarity

Copernicus Contributing Missions
help us close them

HOW?

The European Copernicus Space component

- Copernicus Contributing Missions -



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deliver

complementary commercial and
national Earth Observation data and

critical insights

for



Urban & Infrastructure

& much more...

Security & Surveillance

EO data

improved revisit times, higher spatial resolution,
and complementary spectral capabilities

With very high-resolution SAR &
Multispectral missions

Hyperspectral, radio frequency,
atmospheric monitoring, thermal infrared missions



→ THE EUROPEAN SPACE AGENCY

CCMs and Copernicus Services



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EUROPEAN UNION



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*Copernicus
Space
Component*

Sentinels

← synergy →

Copernicus Contributing Missions (CCM)



→ serving the 6 Copernicus Services

CCM follows an industrial policy:

- EU preference for data procurement
- Gradual inclusion of data from European space start-ups/scale ups
- Importance given to data quality

major

major

major

major

**Climate
Change**



ECMWF

Atmosphere



ECMWF

Marine



Mercator

Land



**EEA
EC JRC**

Emergency



EC JRC

Security



**SatCen
EMSA
Frontex**

*Copernicus
Service
Component*



ESA's Dynamic Purchasing System for CCM

→ The DPS is a digital procurement process – accessible via the esa-star procurement system – that shortens and simplifies the bidding process for commercial Earth observation data providers (Copernicus Contributing Missions)

This DPS includes opportunities for three groups of data providers:

→ CCM Category 1

European Earth Observation Emerging Data Suppliers :

Mini-competitions awarding anchor customer contracts (max. duration of 5 years) for data purchase & data quality validation activities; addressed at European companies, which are registered in an EU Member State or Copernicus Participating Country for less than 15 years

15 Contracts signed

→ CCM Category 2

European Earth Observation Established Data Suppliers :

Mini-competitions awarding commercial contracts for systematic or on-demand data purchase; addressed at European companies, which are registered in an EU Member State or Copernicus Participating Country. Objective is to buy increasingly more European data in line with the EU Space regulation on Strategic Autonomy.

7 contracts signed

→ CCM Category 3

Earth Observation Data Suppliers for miscellaneous data needs :

Mini-competitions awarding commercial contracts to companies which either act as owner or as a broker of non-European satellite data

4 contracts signed

CCMEs as of 2025

Further evolution expected in the next few years



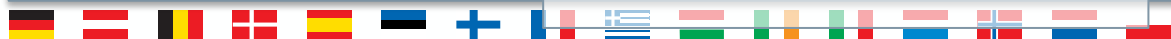
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	Emerging providers	Established providers	
	Category-1	Category-2 (EU)	Category-3 (non-EU)
Multispectral - ≤1m	GEOSAT, marble imaging	AIRBUS	MAXAR TECHNOLOGIES through EUSI, planet.
Multispectral - ≤4m	ENDUROSAT, aerospacelab, PROMÉTHÉE EARTH INTELLIGENCE	GEOSAT, AIRBUS	MAXAR TECHNOLOGIES through EUSI, planet.
SAR		hisdeSAT, AIRBUS, ICEYE, e-geos	MDA
Atmospheric Composition	ABSOLUT Sensing, SATLANTIS	<p>New missions from emerging and established space companies will expand coverage</p> <p>Filling more gaps than ever before</p>	GHGSAT
Thermal IR	constellr, ORORA TECHNOLOGIES, AISTECH, SatVu		
Hyperspectral	KUVA SPACE, ORUS		
Radio Frequency	unseenlabs, aerospacelab		



CCM Category-1 data demonstrations



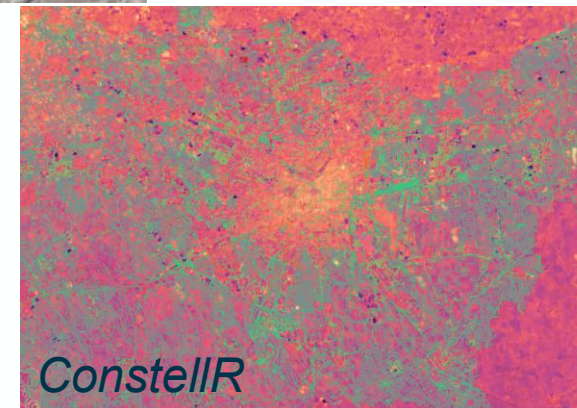
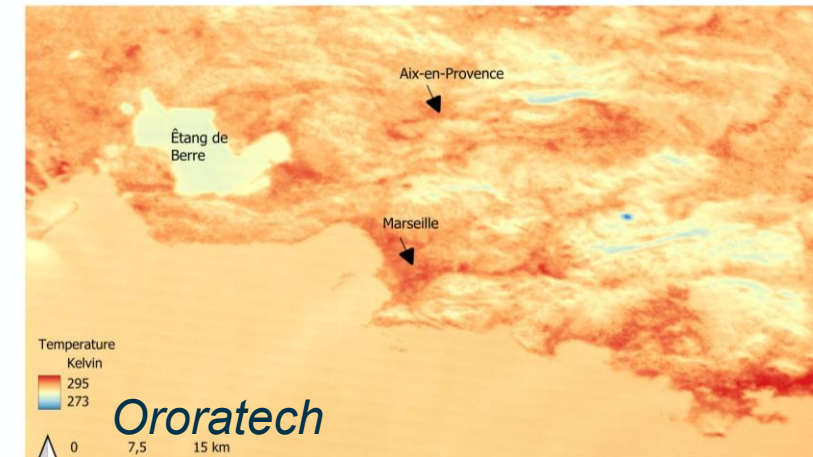
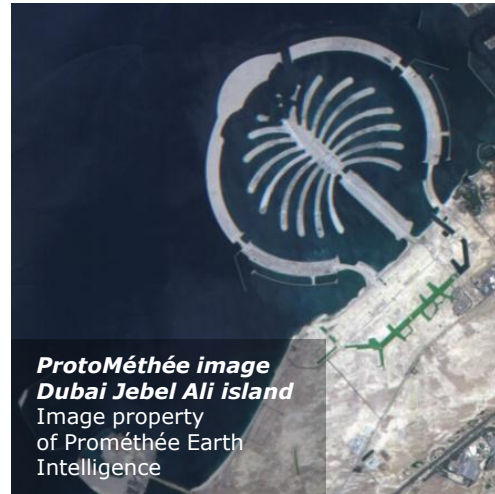
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Explore the practical integration of European Emerging CCM data into Copernicus with Sentinel data to enhance interoperability and complement existing missions, as well as prepare for future Sentinel expansion missions.



In average **3 data demonstrations per CCM Category-1 mission per year** (currently 9 contracts, 6 additional contracts in Q2 2025)

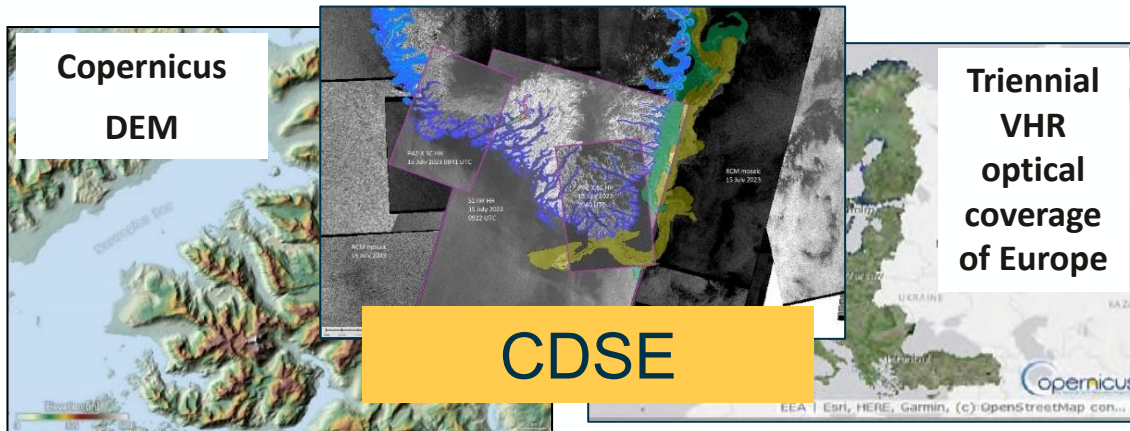
CCM systematic data

Predefined seasonal coverages

ESA manages the Copernicus Data Space Ecosystem (CDSE), the single entry-point for all users to Sentinel data and CCM systematic data

CCM systematic data can be downloaded from CDSE Copernicus Browser

<https://dataspace.copernicus.eu>



On-demand CCM data

Acquired over areas affected by natural and man-made disasters or crisis situations

ESA manages the Copernicus Contributing Missions Rapid Response Desk (CCM-RRD), the operational hub enabling 24/7 satellite tasking, user support, rapid on-demand data access for Copernicus Services (CCM Cat-2/3)

Data catalogue allowing access to CCM data as ordered by Copernicus Services for re-use by other eligible users

<https://www.rapidresponse.copernicus.eu/>



Updated user categories and access rights (Copernicus CDSE)

(for Contributing Missions data – systematic data)

<i>Who can access Copernicus Contributing Missions data ?</i>	Viewing data (discovery)	Downloading data
Copernicus services & Union Institutional Users	✓	✓
Union Research Projects	✓	✓
National Public Authority	✓	✓
International organisations	✓	*
General public	✓	

*download allowed for a few (older) systematic data sets

User categories and access rights (Copernicus CDSE) (for Copernicus DEM data)

Free and open
licence for COP-DEM
Global 30m and 90m

Who can access Copernicus DEM data ?	90 m	30 m	10 m
Copernicus services & Union Institutional Users	DOWNLOAD	DOWNLOAD	DOWNLOAD
Union Research Projects	DOWNLOAD	DOWNLOAD	DOWNLOAD
National Public Authority	DOWNLOAD	DOWNLOAD	DOWNLOAD
International organisations	DOWNLOAD	DOWNLOAD	VIEW
General Public	DOWNLOAD	DOWNLOAD	VIEW
Copernicus Operators	DOWNLOAD	DOWNLOAD	DOWNLOAD



CopDEM 10m download now also allowed for National Public Authorities

CCM-RRD – Data Offer



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Sensor type

● Synthetic Aperture Radar

● Optical

● Atmospheric



Spatial Resolution Classes in Scope of CCMs Data Provision

		Very High Resolution (VHR)			High Resolution (HR)		Medium Resolution (MR)		Low Resolution (LR)
CCM RRD user needs		<50 cm	>=50 cm	1-4m	4-10m	10-30m	30-100m	100-300m	> 300m
Spatial resolution classes		VHR1a	VHR1b	VHR2	HR1	HR2	MR1	MR2	LR
Scope of CCM activity, with major focus on VHR1/2									

Who can access CCM on-demand data*?

Viewing data

Downloading data

Tasking satellites

Copernicus services & Union Institutional Users

✓

✓

✓

Union Research Projects

✓

✓

✓ **

National Public Authority

✓

✓

International organisations

✓

✓

General public

* rapid on-demand data access is coordinated by RRD, including a rolling archive for re-use of the same data within 6 months. No long-term data access.

** if tasking accepted by DG-DEFIS



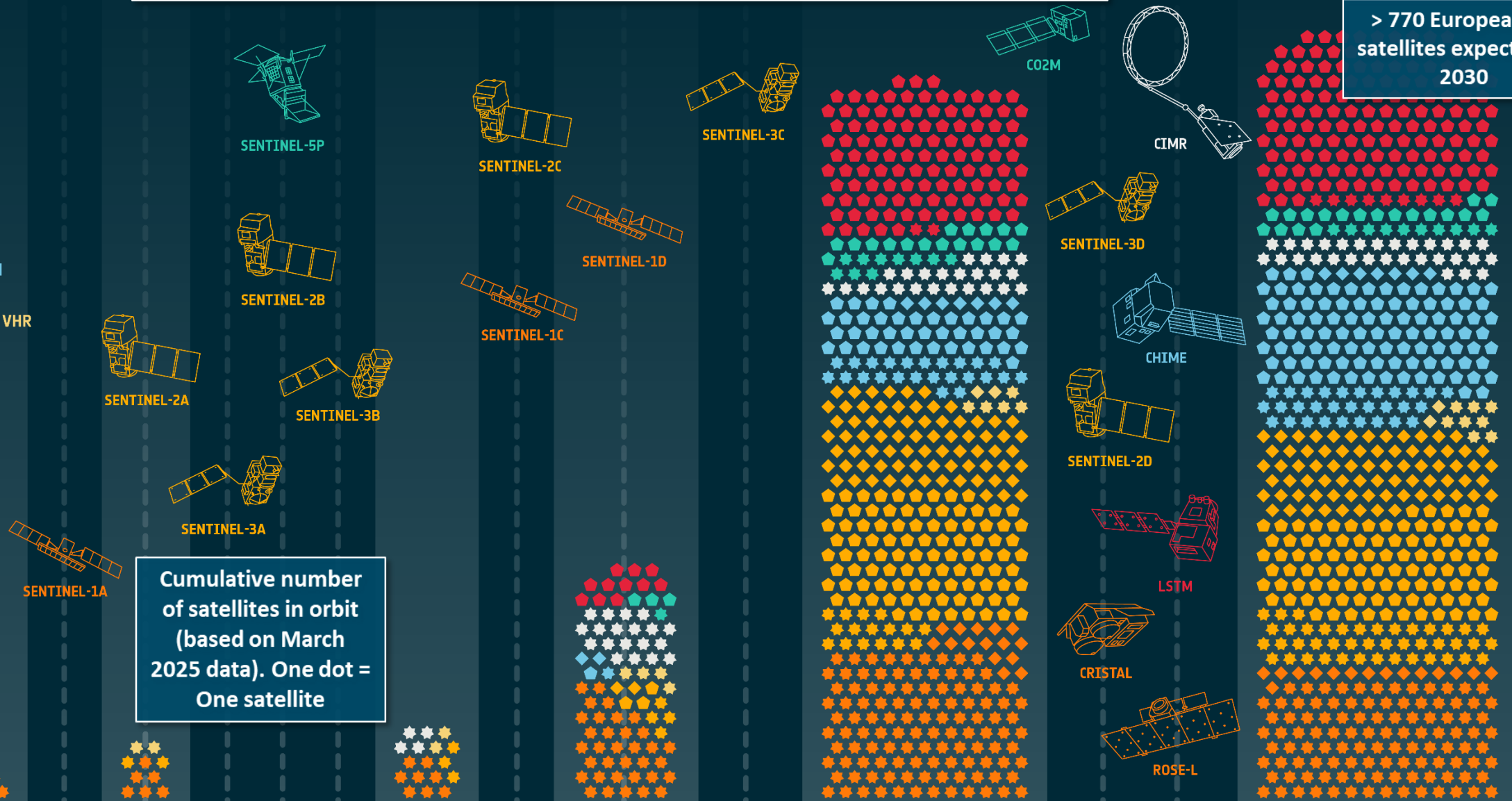
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EUROPEAN UNION

Potential evolution of the European EO space capacity until 2030 (Sentinel fleet, commercial and national satellite missions)

co-funded with



- Thermal Infrared
- Atmospheric Composition
- Radio Frequency
- Hyperspectral
- Multispectral VHR
- Multispectral
- SAR
- ★ Established Providers
- ◆ Emerging Providers
- ◆ National Constellations



Cumulative number of satellites in orbit
(based on March 2025 data). One dot =
One satellite

> 770 European EO
satellites expected by
2030

2010

2014

2015

2016

2017

2018

2020

2024

2025

2026

2027

2028

2029

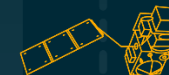
2030



CO2M



CIMR



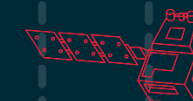
SENTINEL-3D



CHIME



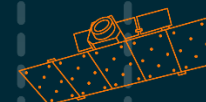
SENTINEL-2D



LSTM



CRISTAL



ROSE-L



SENTINEL-5P



SENTINEL-2C



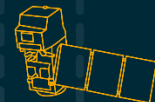
SENTINEL-3C



SENTINEL-1D



SENTINEL-1C



SENTINEL-2B



SENTINEL-3B



SENTINEL-2A



SENTINEL-3A



SENTINEL-1A