



Copernicus Marine Training and User Support

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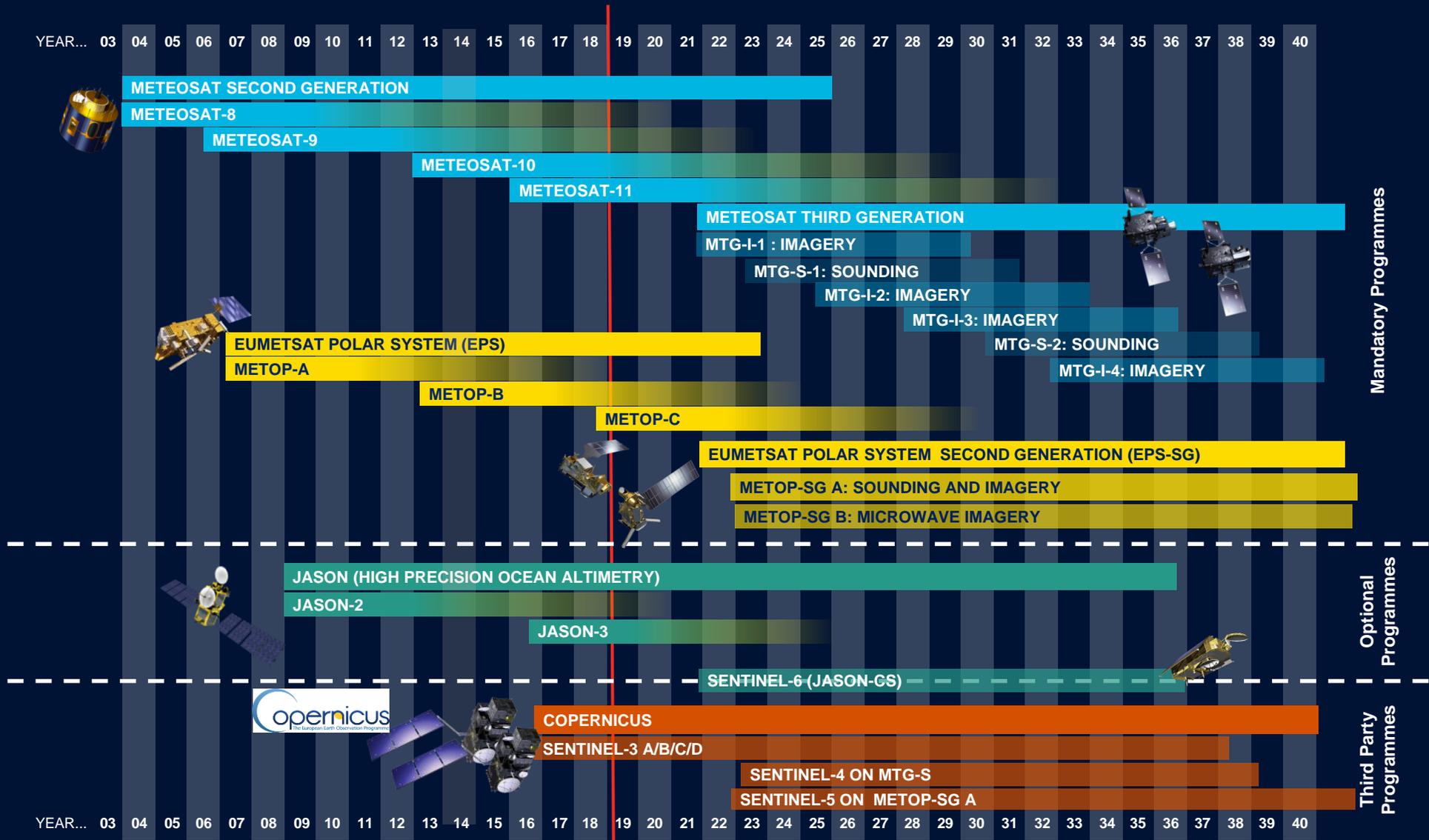


- What is our role? Who are our “users”?
- Data access
- User engagement and support
- Tools and training
- Contacts

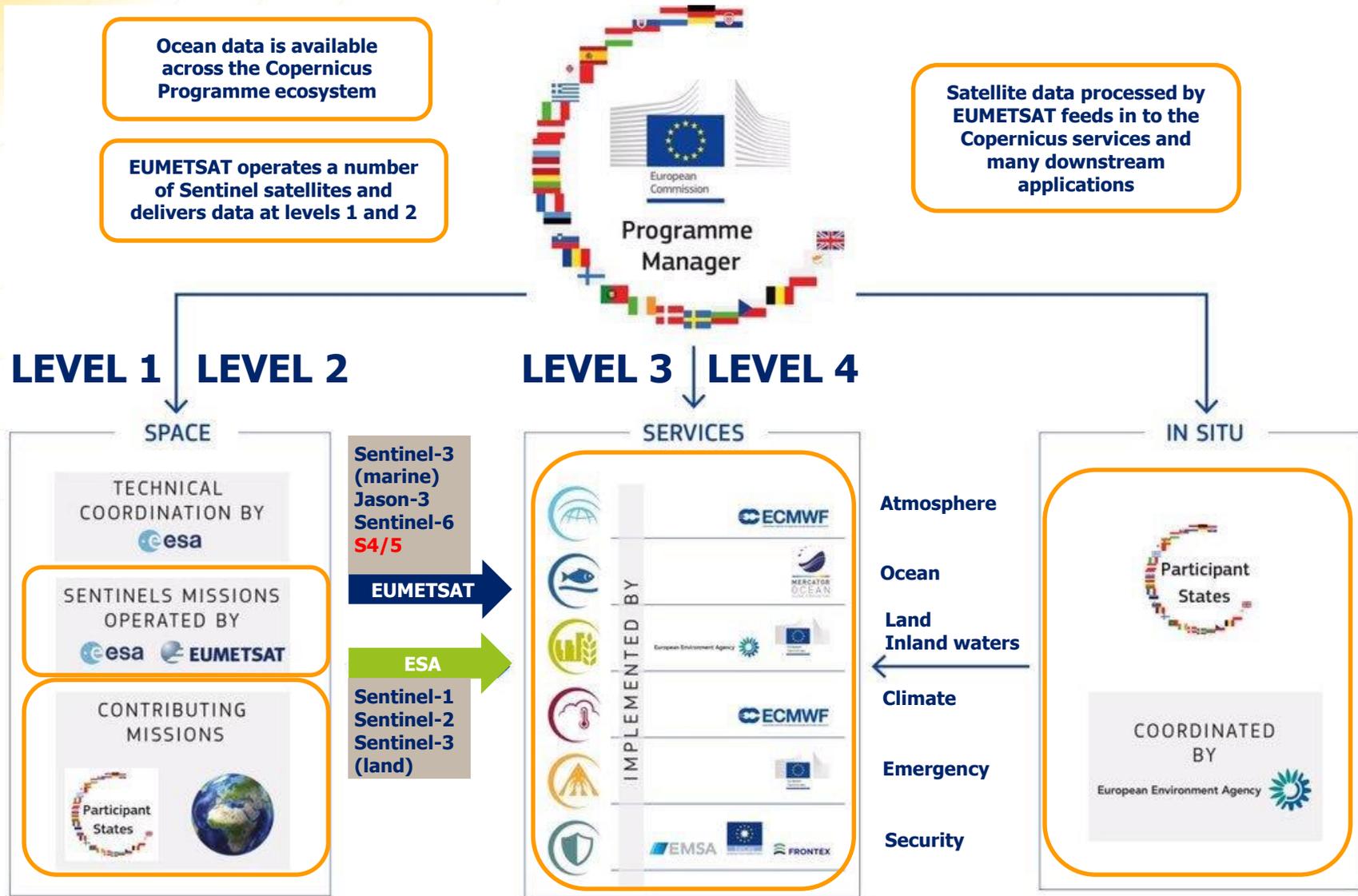
1. “... fulfil [...] through its own satellite programmes the requirements of its Member States for observations and data services for operational weather and Earth system monitoring and forecasting, and for climate services.”
2. “... establish additional capabilities in partnerships with the European Union and other satellite operators to achieve synergy with its own satellite missions for the common benefit of its Member States and partners.”

Copernicus

EUMETSAT committed to more & better observations



Ocean(+) data in Copernicus



Contributing missions:

OceanSat2 (3)

MODELS

Classification

Who does what in the value chain? Copernicus ocean data



EUMETSATs role:

- **Data ID and specification:** Sentinel-3 operations
- **Data processing:** Development and delivery of L1-L2(p, L3) data
- **Products:** Derived geophysical products (SST, Chl, SSH, ice etc etc)
- **Product analysis/tailored service:** infrastructure, training and user support, **connecting experts**.

Other actors:

- **Data processing/Products:** Development and delivery of L3-4 data
 - Copernicus services
- **Product analysis/tailored service.** Government and businesses, H2020/National funding etc
- **End users:** Marine policy makers, regulating agencies, industry (fishing, aquaculture, shipping, tourism) and **“unknown unknowns”**

Accessing data from EUMETSAT



EUMETSAT offers a range of data discovery and delivery mechanisms

Single sign on registration for online services at <https://eoportal.eumetsat.int>

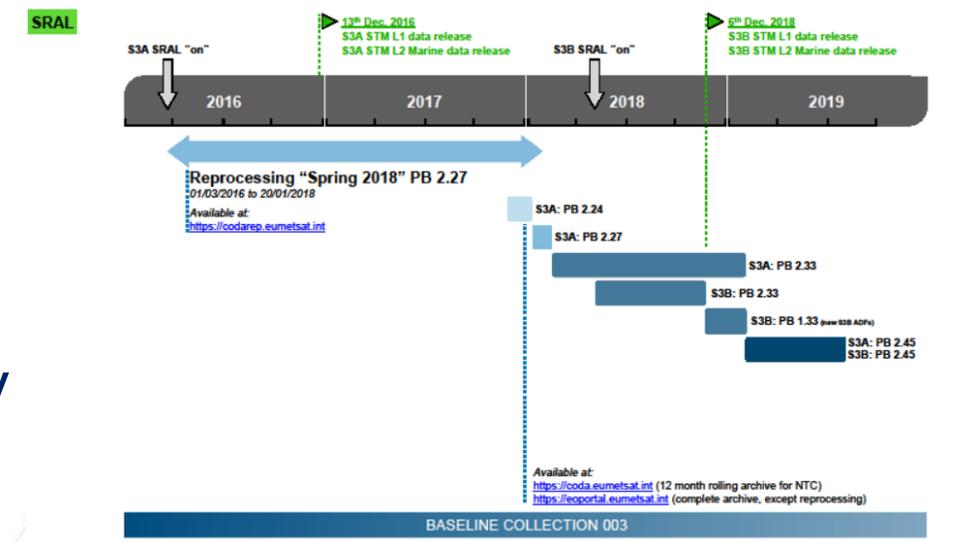
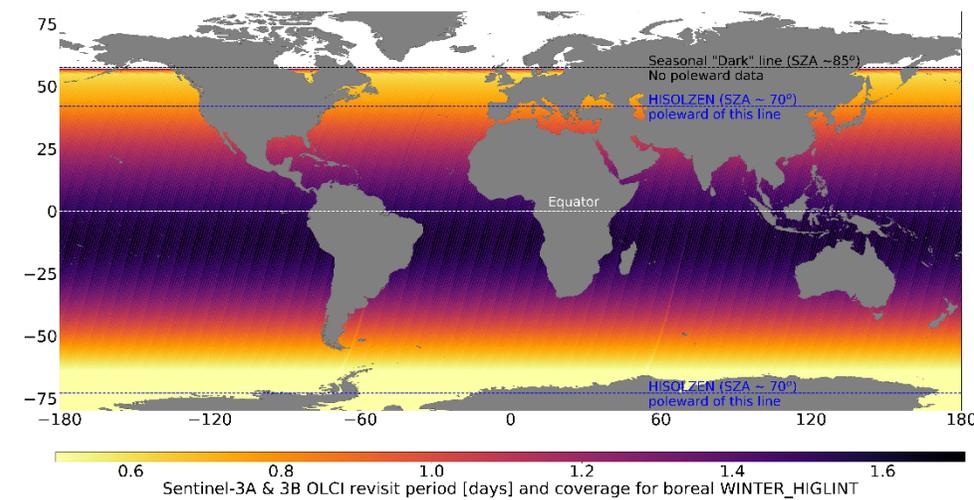
	EUMETCast	EUMETCast is a multi-service push dissemination system based on multicast technology. The multicast stream is transported to the user via satellite (EUMETCast Satellite) or terrestrial (EUMETCast Terrestrial) networks.
	Copernicus Online Data Access (CODA)*	CODA offers all Sentinel-3 marine products through a rolling buffer spanning the last 12 months of data. It can be accessed through its API and web-based GUI. https://coda.eumetsat.int CODAREP also available for reprocessed data. New fire products!
	Data Centre Long-Term Archive	An ordering application enables users to browse and select from the long-term archive of products including those from Sentinel-3 marine service. https://archive.eumetsat.int/
	EUMETView	EUMETView is a visualisation service that allows users to view EUMETSAT's data and Copernicus Sentinel-3 marine data in an interactive way using an online map viewer.
	WEkEO	WEkEO is one of the Copernicus Data Information and Access Services (DIAS), and is coordinated by EUMETSAT, ECMWF and Mercator Ocean. It is now operational. You can find out more information here: https://www.wekeo.eu/

*ODA portal for Copernicus services and specific users (e.g. S3VT)

- See other talks this week at EGU on our upcoming data services:
 - EGU2020-10267: [Reducing Time to Results with EUMETSAT's New Data Services](#)
 - EGU2020-18670: [Data Tailor: Integrate EUMETSAT's data into your datacube](#)

- **User engagement through**
 - Product User Requirements and Instrument co-design with our main users (e.g. Copernicus services)
 - User Interface Platforms and user support
 - Satellite Application Facilities
 - User expert groups on specific issues (Data format, EUMETCast dissemination, S3VT, RAIDEG, GMES&Africa marine, climate etc)
- Product developments and Sentinel-3 reprocessings. Info through S3VT, product release notes, and <https://www.eumetsat.int/website/home/Data/ScienceActivities/ScienceStudies/index.html>
- Regular user surveys – Copernicus and data stream specific
- Training programme

- Help Desk (5/7 days, 8/24h) with commitment for response with unique email address ops@eumetsat.int
- User Notification Service (maintenance, outage, change)
- Support documentation improvements (e.g. baseline diagrams and (interactive) coverage maps)
- Tools –Git based code repository
 - Downloader script
 - Batch processing workflows
 - Results of product studies

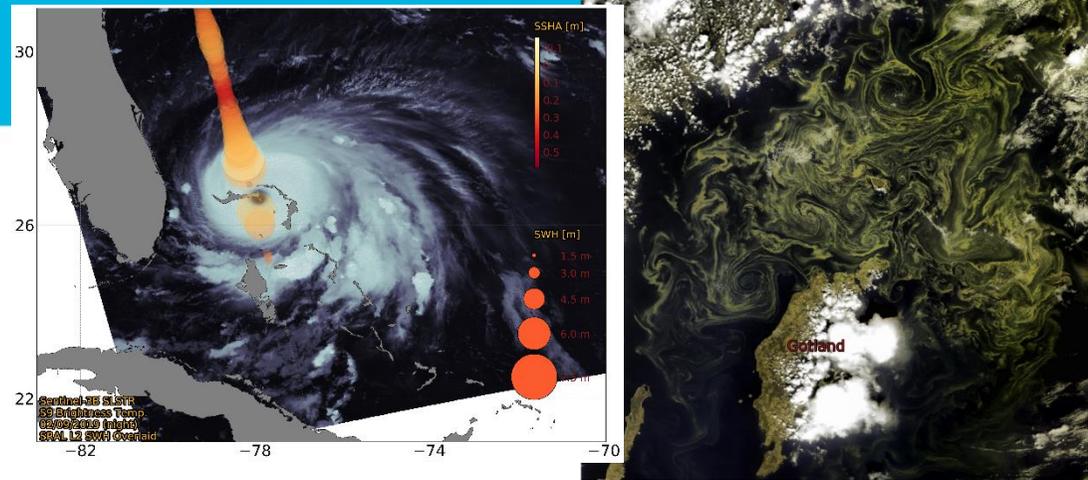


- Copernicus podcast series “Day-to-Day” – 3 episodes out:
<https://scienceblog.eumetsat.int/2020/02/introducing-day-to-day-eumetsats-first-podcast-series/>
- Meet the Satellite and tutorial videos on YouTube
<https://www.youtube.com/watch?v=z9GGmvJzDx0&list=PLOQg9n6Apif1ODObv39j43j8IAvJDOAVY>
- Ocean Hackathons
- Planning for Copernicus/WEkEO focused MOOC in 2020 with CMEMS/CAMS



EUMETSAT outreach

- Case studies:
 - Sharing interesting images and story
 - Show potential
 - *New*: providing code for case study image generation on WEkEO JupyterLab
- Spotlight on a user: promoting use cases



The screenshot shows the EUMETSAT website with the following content:

- Header: EUMETSAT MONITORING WEATHER AND CLIMATE FROM SPACE
- Navigation: HOME IMAGES ABOUT US SATELLITES DATA NEWS QUICK LINKS
- Section: SOUTH AFRICAN ALGAL BLOOMS
- Text: Detection of harmful algal blooms in the southern Benguela, as seen by OLCI aboard Sentinel-3.
- Metadata:
 - Date & Time: March to June 2017
 - Satellites: Sentinel-3
 - Instruments: OLCI
 - Channels/Products: Level 2 Ocean Colour
- Text: By Hayley Evers-King (+PML), Marie Smith and Stewart Bernard (+CSIR)
- Text: The southern Benguela current is a highly productive ecosystem, making it a popular site for fisheries and aquaculture activities.
- Image: A small satellite image of the southern Benguela region showing algal blooms.

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- Header: EUMETSAT MONITORING WEATHER AND CLIMATE FROM SPACE
- Navigation: HOME IMAGES ABOUT US SATELLITES DATA NEWS QUICK LINKS
- Section: TECHNICAL BULLETINS
- Section: SPOTLIGHT ON A USER - BLAKE SCHAEFFER
- Text: BLAKE SCHAEFFER, OF THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, TALKS ABOUT AN APP THE AGENCY HAS DEVELOPED, WHICH PROVIDES SENTINEL-3 DATA TO WATER QUALITY MANAGERS.
- Text: Water, whether in the coastal ocean, or inland lakes and reservoirs, is a vital resource for human activities, and an important ecosystem.
- Text: Water resources and habitats can be threatened by poor water quality, as a result of human-induced or naturally occurring phenomena, such as harmful algal blooms.
- Text: Cyanobacteria are one type of bloom-forming species that has been linked with significant socio-economic and environmental impacts in aquatic environments.
- Text: Of particular concern, is the potential of these blooms to cause respiratory and skin irritation in both humans and animals. Monitoring water quality and providing advisories on these threats, is a challenge for local authorities around the world, in terms of cost and scope of monitoring, and access to suitable supporting data for decision making.
- Image: A portrait of Blake Schaeffer.
- Footer: WELCOME, CLIMATE SERVICE, DATA CENTRE, EUMETCAST, IASI, GOME-2, METEOSAT, METOP, @EUMETSAT_USERS, EUMETSAT USERS TWITTER, Tweets by @eumetsat_users

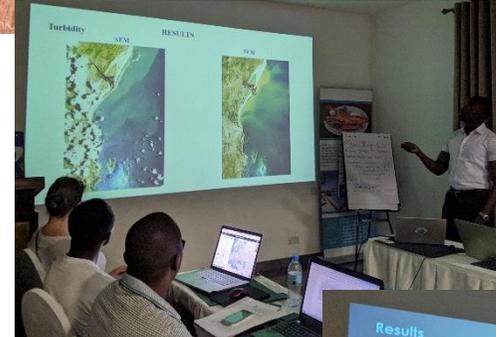
- **Participant-led:**
 - They learn what they need to for their application.
 - Trainers help to navigate options for data, access, analysis etc.
 - Self reflection, confidence, and independent working.
- **Collaborative:**
 - Encourage learning from each other and forming networks for post-course support.
- **Open principles**
 - Open data, open source software
 - Maintainable, shareable

- Many training interventions across both EUMETSAT and Copernicus product ranges.
- See <http://training.eumetsat.int>
- Includes marine forecasting and Copernicus marine data stream (and collaborations – primarily CMEMS, but also ESA and others).
- Open to engagement with EO skills alliances (e.g. EO4GEO)
- WEkEO – upcoming training on hosted processing

EUMETSAT Copernicus marine training



- Blended courses (online and classroom)
 - Focussed on Sentinel-3
 - 2 per year, 1 in EU, 1 in Africa.
 - Latter now in collaboration with GMES&Africa consortia
 - Participant led, constructivist
- Short courses at conferences/meetings
- Copernicus Collaborative Exchange
 - Funding for travel and subsistence to facilitate knowledge exchange.



EUMETSAT Copernicus marine training



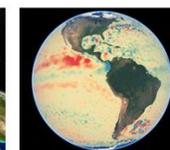
- **Resource development:**
 - Moodle pages:
 - Technical and preparatory information. Interactive elements, surveys etc.
 - YouTube video tutorials and MOOC content (www.oceansfromspace.org)
 - Code repository:
 - Jupyter notebooks, Python code
 - Educational
 - Common workflows:
 - Batch downloading and processing, visualisation, time series analysis
 - New iterations constantly based on requests and collaborations
 - Outcomes of EUMETSAT studies
 - Designed for both stand-alone installation and use on WEkEO
 - Offered with appropriate open source licensing
 - Released soon on EUMETSAT GitLab (beta version available)



How to access Copernicus sea surf temperature data



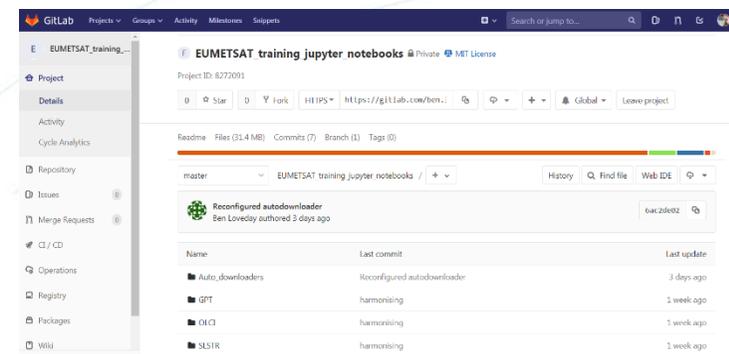
Watch the course videos
View the course overview and begin watching the course videos



About the course
Read more about the aims of this course, and who it is supported by



Meet the presenters
Profiles of our expert course presenters



- **Short courses for EGU (in coming weeks):**
 - SC1.22: Using Copernicus Marine Data: Satellite data for ocean applications
 - SC1.21 Using Copernicus data for Atmospheric Composition Applications
 - SC1.23: EUMETSAT's Climate Data Records: Using satellite data for climate applications

Register here: <https://tinyurl.com/ya5fhkaj>

- **Train-the-trainers - with the Copernicus marine service and IODE.**
 - Work with trainers from around the world to use Copernicus marine data in your education activities.
 - Applications open until May 10th:
<https://www.oceanexpert.net/event/2627>

What can we do to help the EGU community?

- Support services and training available to ALL users.
- Feedback is vital to driving product and service improvements.
- Promoting research outcomes through our networks
- Collaboration on training – reuse of material.

Contacts:

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