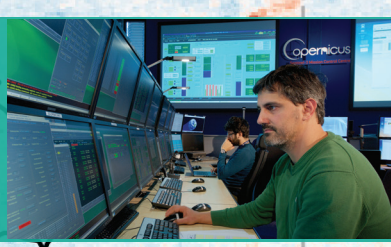
COPERNICUS DATA USER UPTAKE

2020 REPORT



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Europe's eyes on Earth

EUMETSAT

COPERNICUS AND EUMETSAT IN 2020

Data from the Copernicus programme offers a vast range of opportunities for operational agencies, researchers, businesses, and governments across Europe and around the world. Uptake of the data continues to grow and is supported at EUMETSAT by various data services, user support and training activities.

EUMETSAT is entrusted by the European Commission to operate satellite missions, deliver data, and provide support services to the Copernicus programme. EUMETSAT currently operates the Sentinel-3 missions with ESA, the Sentinel-6 mission in collaboration with ESA, NOAA, NASA, and CNES, and will in future operate and process data from the Sentinel-4 and -5 instruments on board the EUMETSAT Meteosat Third Generation and EPS Second Generation missions. A vast volume of data from these satellites is delivered to a wide variety of users all over the world, in operational timeframes. As well as measurements from the satellites, the data provided include derived marine and atmosphere geophysical products. These data also contribute to the Copernicus services and supply governments, businesses, scientists, and the public, with vital information about our planet. Adding to a chain that rapidly multiplies the value of the data. Through communications, user support and training services, EUMETSAT is working with new and experienced users of Earth Observation data, to maximise the impact/utility of the data made freely available through the Copernicus Programme. The infographics and stories below aim to share how much data is being used, by who, where, and for what over the last year. The year 2020 saw a new Sentinel launched (Sentinel-6 Michael Freilich) as well as several new products from Sentinel-3 that enhance its contributions to atmospheric composition measurements.

99.31% Average timeliness for data delivery

70,350 TB Data delivered by EUMETCast push service

1,968 TB Total data downloaded from online pull services

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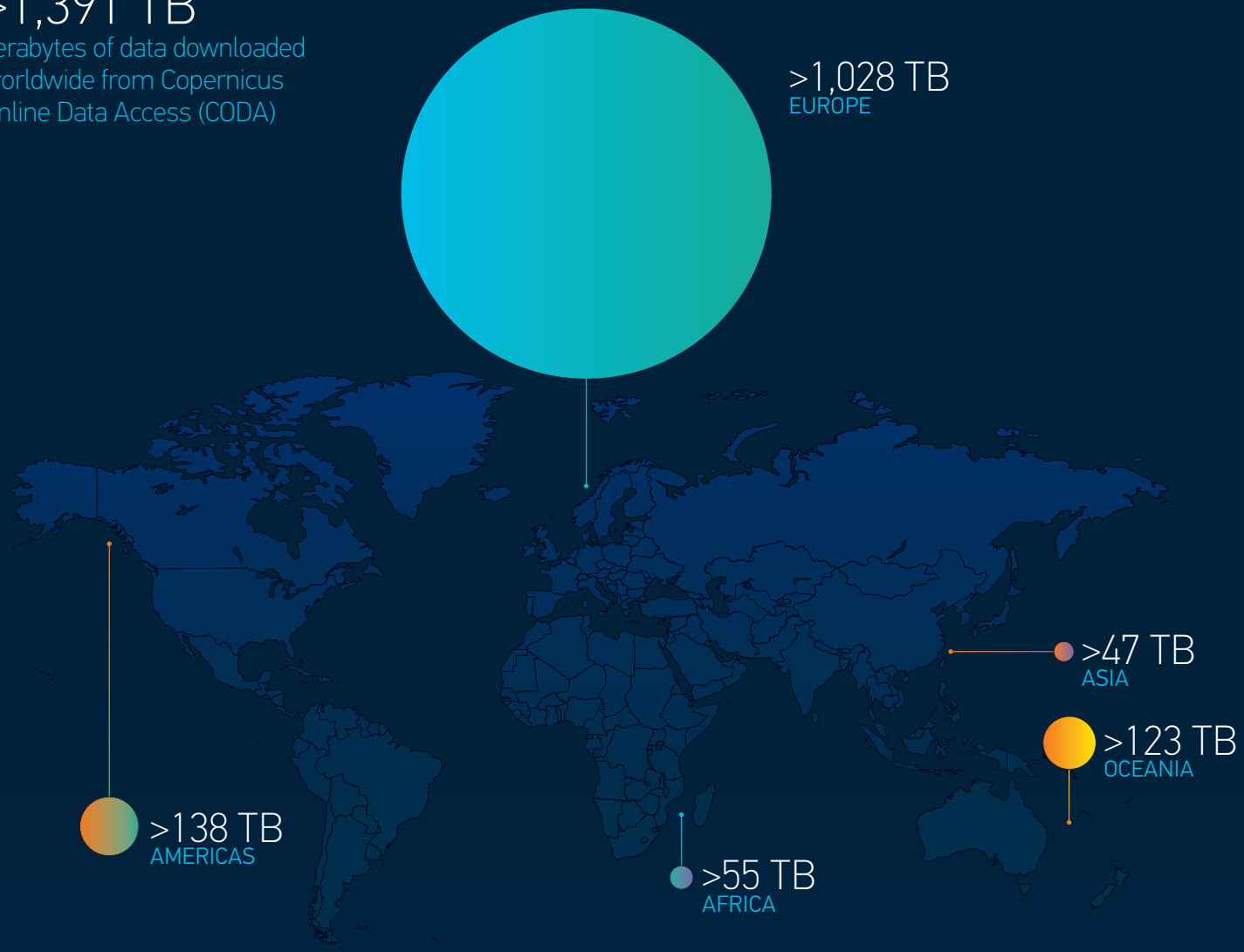
>1,391 TB

Terabytes of data downloaded worldwide from Copernicus Online Data Access (CODA)

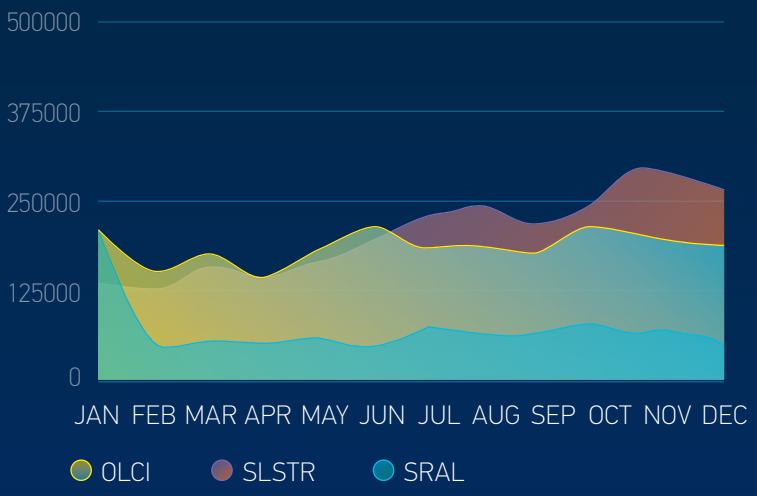


NUMBER OF FILES DOWNLOADED FOR EACH SENSOR

TOTAL FILES DOWNLOADED

OLCI	3,157,902
SLSTR	3,495,769
SRAL	1,159,339

Sentinel-3 has three instrument packages to observe ocean and land colour (OLCI), ocean and land temperature (SLSTR), and ocean surface topography (SRAL). Peaks in downloads typically correspond with enhanced use around events and during reprocessing campaigns by downstream providers such as the Copernicus Services.



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SUPPORTING SCIENCE AND OPERATIONAL MONITORING

There is a growing uptake of data from the Copernicus programme by national institutions. These organisations often have broad responsibilities covering different environmental domains and frequently act as conduits for other data users in their countries. Copernicus data is used in the monitoring and management activities that these institutions and their partners must deliver. Further, the opportunities for collaboration offered through EUMETSAT's Copernicus activities - such as training events and community initiatives like sensor validation teams, support these institutions in reaching their goals.

USER STORY

Instituto Hidrográfico (IH) is a state laboratory supporting the scientific and defence aspects of the marine environment for Portugal. They have a long history of collaboration with EUMETSAT, with staff attending Copernicus training events, EUMETSAT supporting regional workshops on using satellite data, and IH researchers supporting Sentinel-3 and 6 validation activities.

THE CHALLENGE

Meeting broad responsibilities (national monitoring for safety in navigation, marine protection and sustainable exploration) with a large and in part remote, Exclusive Economic Zone means that IH must use as many data sources as possible.

DATA ACCESS

Using both the graphical web interfaces and scripting allows IH to develop both custom and operational applications.

PROCESS

IH combines satellite data with data from their in-situ platforms, providing products and visualisations from a variety of applications.

DISTRIBUTION

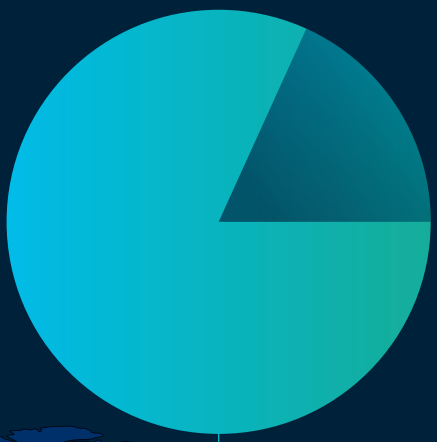
IH is working to integrate Copernicus data in to their online platform - Hidrografico+.

> "We really want to achieve an effective use of the ocean data collected by our monitoring system and combine it with data from Copernicus, contributing to a more sustainable monitoring of the ocean"
>
> *INSTITUTO HIDROGRÁFICO*

VALUE

Effective use of the ocean data collected by the IH monitoring system, combined with data from Copernicus contribute to more sustainable monitoring of the ocean, boost scientific development and increase knowledge about the ocean.

5,151
Worldwide Users
(institutions and individuals)



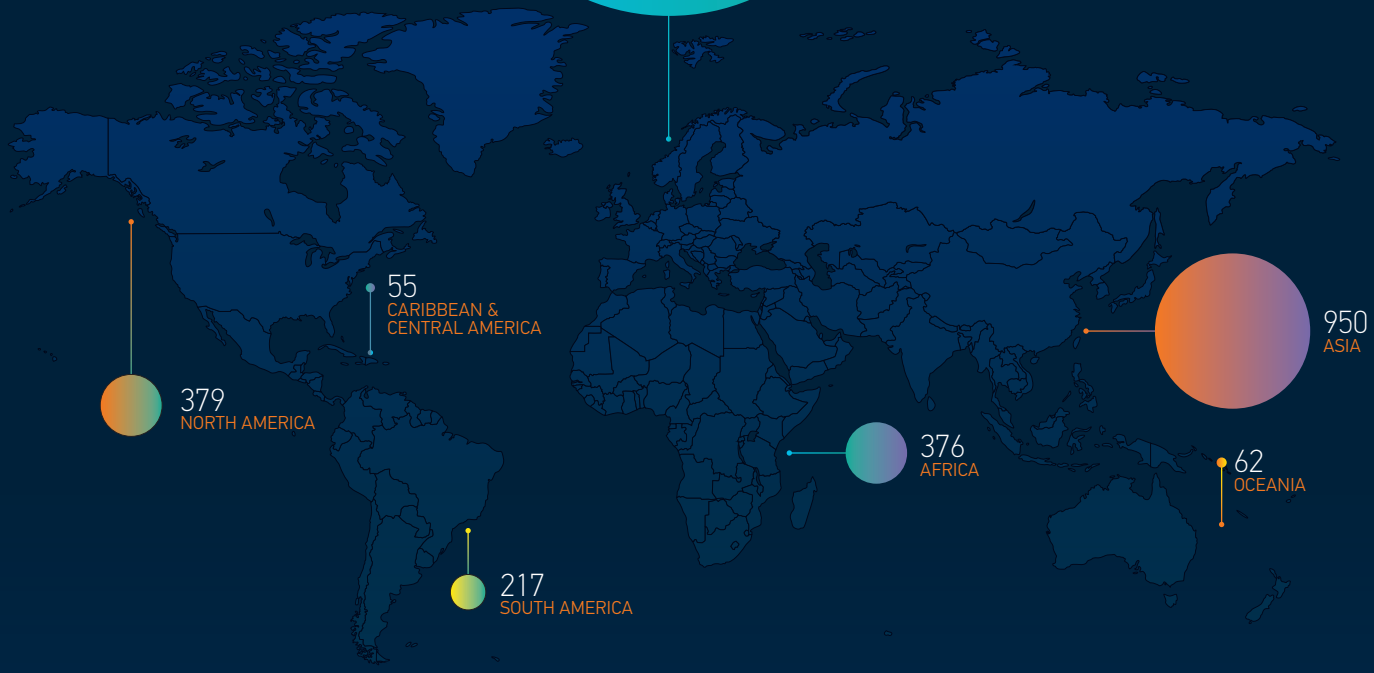
3,112
EUROPE

2,563 EUROPEAN UNION

549 REST OF EUROPE

EUROPEAN UNION

ITALY	400
GERMANY	475
FRANCE	344
SPAIN	256
GREECE	166
POLAND	136
NETHERLANDS	109
PORTUGAL	115
BELGIUM	98
DENMARK	51



USER SECTORS

PRIVATE INDIVIDUAL	40.08%
NATIONAL INSTITUTION	21.81%
RESEARCHER	17.49%
EDUCATION	14.29%
COMMERCIAL SME	10.57%
COMMERCIAL NON-SME	5.03%
INTERNATIONAL ORGANISATION	2.36%

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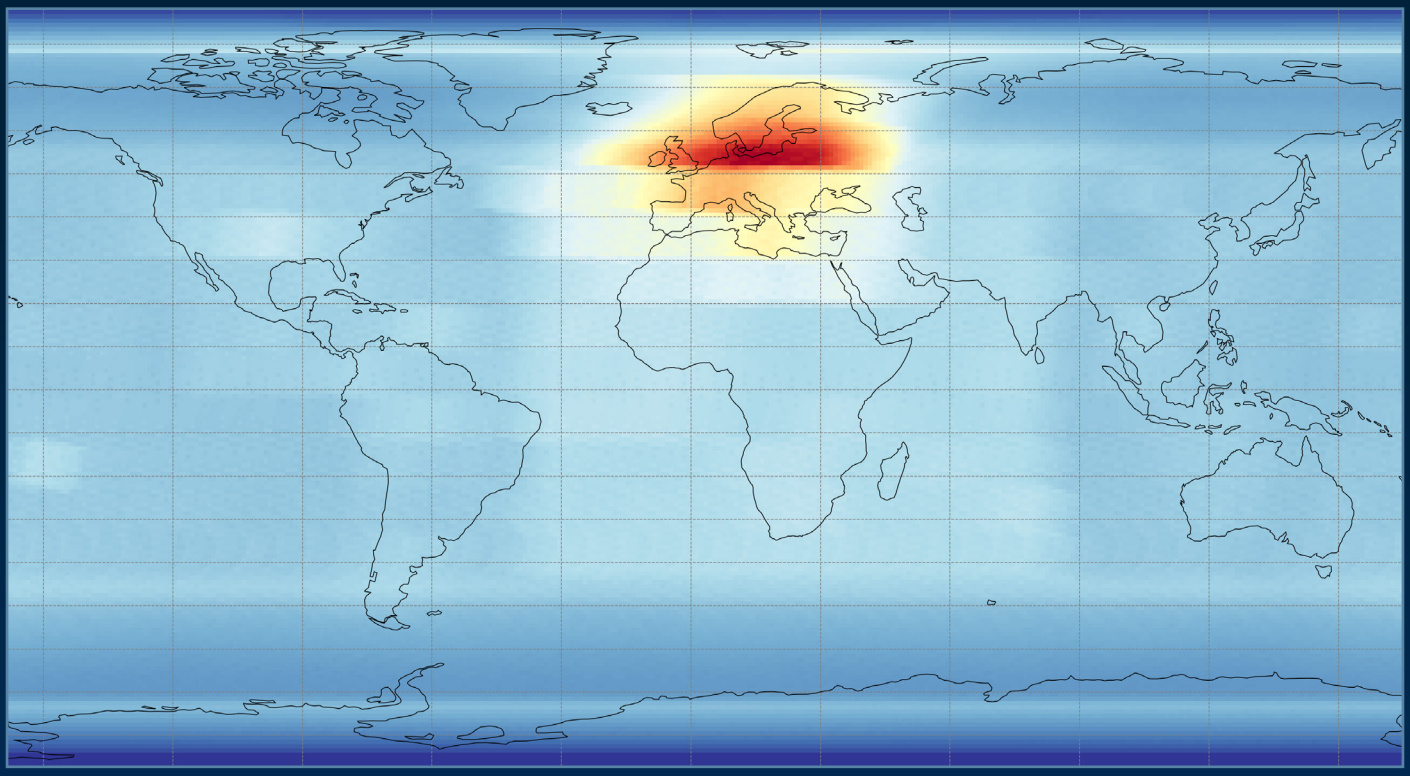
GLOBAL USER DOWNLOAD BEHAVIOUR IN 2020

EUROPEAN USER DOWNLOAD BEHAVIOUR 2020



Fewer downloads — More downloads

Map showing which areas around the world European users downloaded data for in 2020. In general, it can be seen that users in Europe are focused on data that covers Europe. However, there is also a significant number of European users who are downloading data that covers the full globe.

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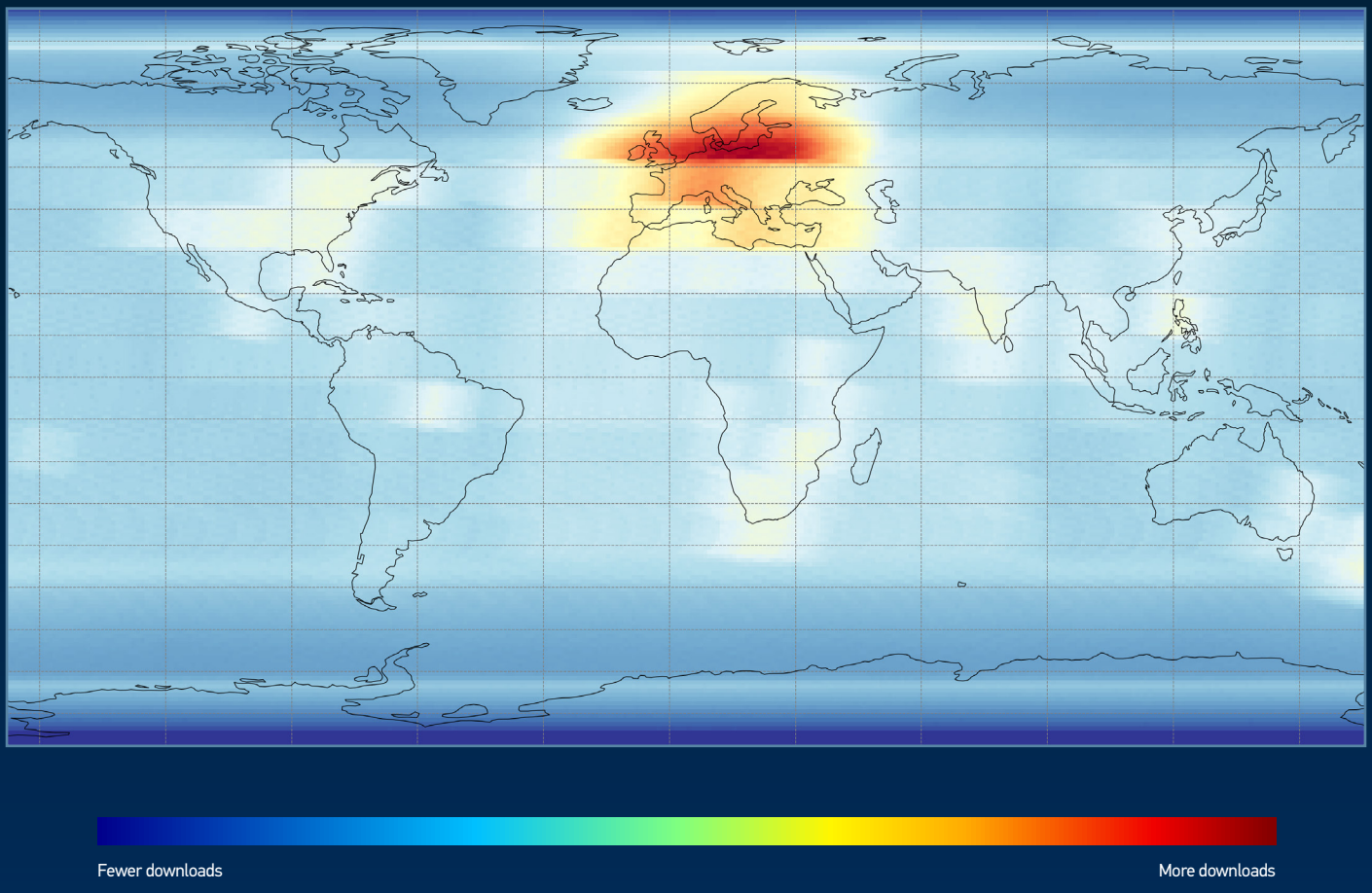
Data from the instruments aboard the Sentinel-3 satellites provides near global coverage of land and oceans. Some users work with data from the entire globe, whilst others are focussed on specific regions. Looking at which products have been downloaded in the last year shows which regions of the world are of most interest to users. Reflecting presence of the majority of Sentinel-3 data users, Europe is a major focus region. However there is also substantial interest (in terms of number of product downloads) in other regions around the Earth.

GLOBAL DATA FOR A GLOBAL SET OF USERS



Map showing which areas around the world users downloaded data for in 2020. Hotspots can be seen over Europe, India, New Zealand, Korea, Southern Africa and parts of the USA, as well as areas with significant inland water bodies.

FLEXIBLE ACCESS TO DATA

Data from the Copernicus programme are used by a wide variety of expert users. These include innovating companies who wish to provide meaningful applications. Copernicus data are also required to monitor unexpected scenarios as the one we have during the pandemic crisis of COVID-19 to respond to a societal demand ranging from public information to support of assessments on environmental conditions. These activities are also elements of training and demonstration of EUMETSAT's Copernicus activities such as data access and handling.

USER STORY

MEEO is a SME specialized in remote sensing data and handling and wants to provide reliable and intuitive information on the environmental impact of the COVID-19 crisis - This is required for both assessment and outreach purposes to demonstrate the benefits of the Copernicus Program. An expert provider is needed to inform about the applicability and limitations of Sentinel data to monitor air-quality related issues. For this, MEEO also makes use of the datasets and the associated analysis for training events such as the new WEkEO webinars.

THE CHALLENGE

Provide a rapid data analysis on the changes in Atmospheric concentrations of pollutants due to lockdown.

DATA ACCESS

Latest data on air quality is accessed through the WEkEO Harmonised Data Access.

PROCESS

Fast analysis of Near-real-time Nitrogen Dioxide data and comparison with historical satellite data.

DISTRIBUTION

Public information for European awareness and science information events and WEkEO training material.

> "We handle satellite data to identify the impact of Lockdown during the COVID-19 crisis on the concentration of pollutants"

MEEO - METEOROLOGICAL ENVIRONMENTAL EARTH OBSERVATION

VALUE

Effective use of Copernicus data to support the analysis of the lockdown impact on air quality and emissions changes. Provide a valuable application case to present the new WEkEO platform for data access and processing.

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1,352 Active users each month

632 Sentinel-3 users from EUMETCast

3,021 WEkEO users

60,009 YouTube views

2,392,304 Twitter impressions

25,368 Website views

1,513 Users trained to date

62 Help desk queries answered

50 New scientific publications using Sentinel-3 data

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USER OUTREACH

Outreach activities and events are important channels for engaging with our users. Through these activities we are able to inform and educate about the Copernicus programme and to challenge those who will use the data to identify innovative application areas.

The Copernicus Sentinel-6 Michael Freilich satellite was launched at 18:17 (CET) on 21 November 2020 from Vandenberg Air Force Base, California. Press activities to promote the launch led to 1455 articles in various news outlets, ranging from BBC and Die Welt, to smaller regional news outlets.

SENTINEL-6 LAUNCH

18:17 (CET)
21.11. 2020

Vandenberg Air Force Base, California.

ON SOCIAL MEDIA

217 original posts published on Facebook

1,1M Twitter impressions
2,542 Twitter Likes
810 Twitter Shares

2M Facebook impressions
17.6K Facebook Likes
554 Facebook Shares

2M Instagram impressions
17.6K Instagram Likes
554 Instagram Shares

5 videos published during the launch campaign
16.3K views

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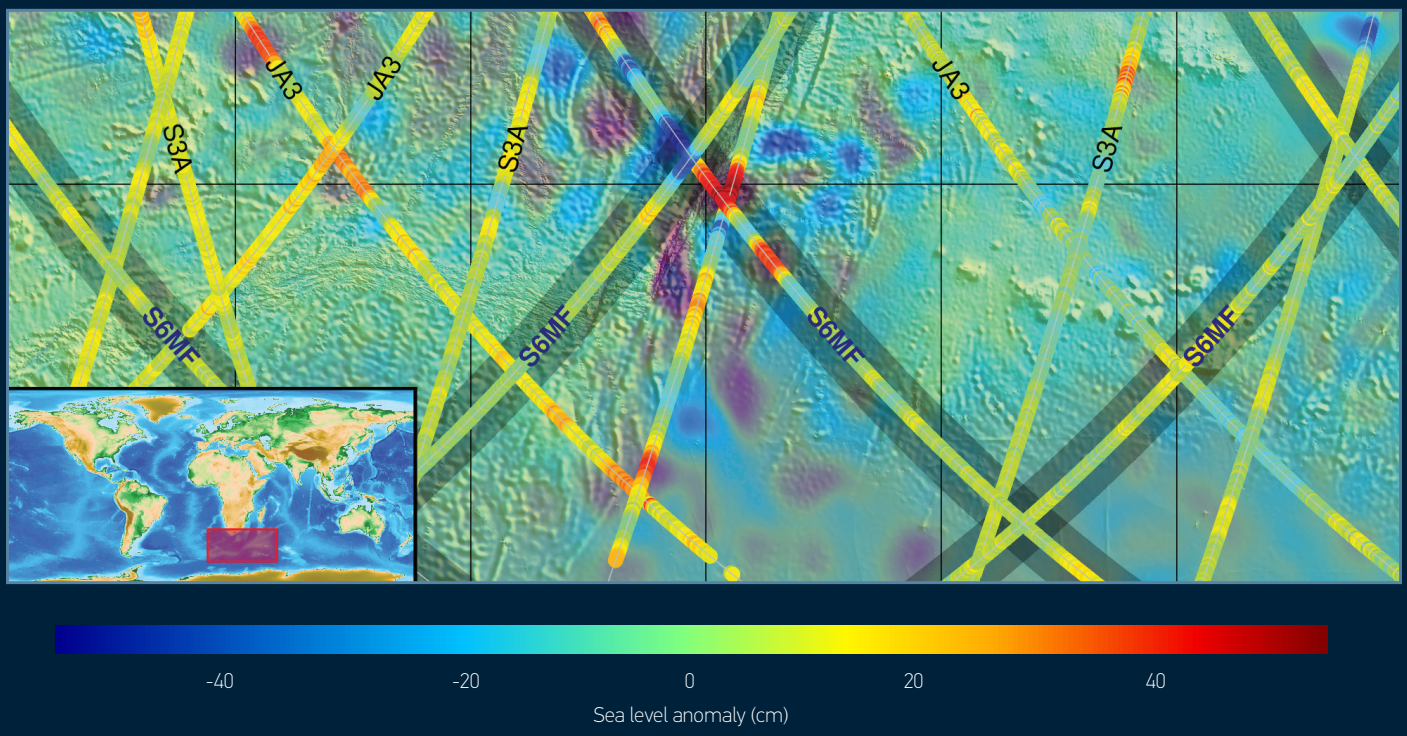

Sea level anomaly extracted from the first 19 hours worth of altimeter data received on 4 December, overlaid on a map showing similar data from all of the Copernicus altimetry missions - Jason-3, Sentinel-3A and -3B - confirmed Copernicus Sentinel-6 Michael Freilich was "seeing the same scene" in a dynamic area of the ocean south of South Africa.

The Copernicus Sentinel-6 Michael Freilich satellite lifts off on a Falcon 9 rocket from the Space Launch Complex 4 East at the Vandenberg Air Force Base, California, USA (source: ESA)

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MEMBER STATES

EUMETSAT also has established cooperation agreements with organisations involved in meteorological satellite activities, including the National Meteorological Services of Canada, China, India, Japan, Russia, South Korea and USA

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