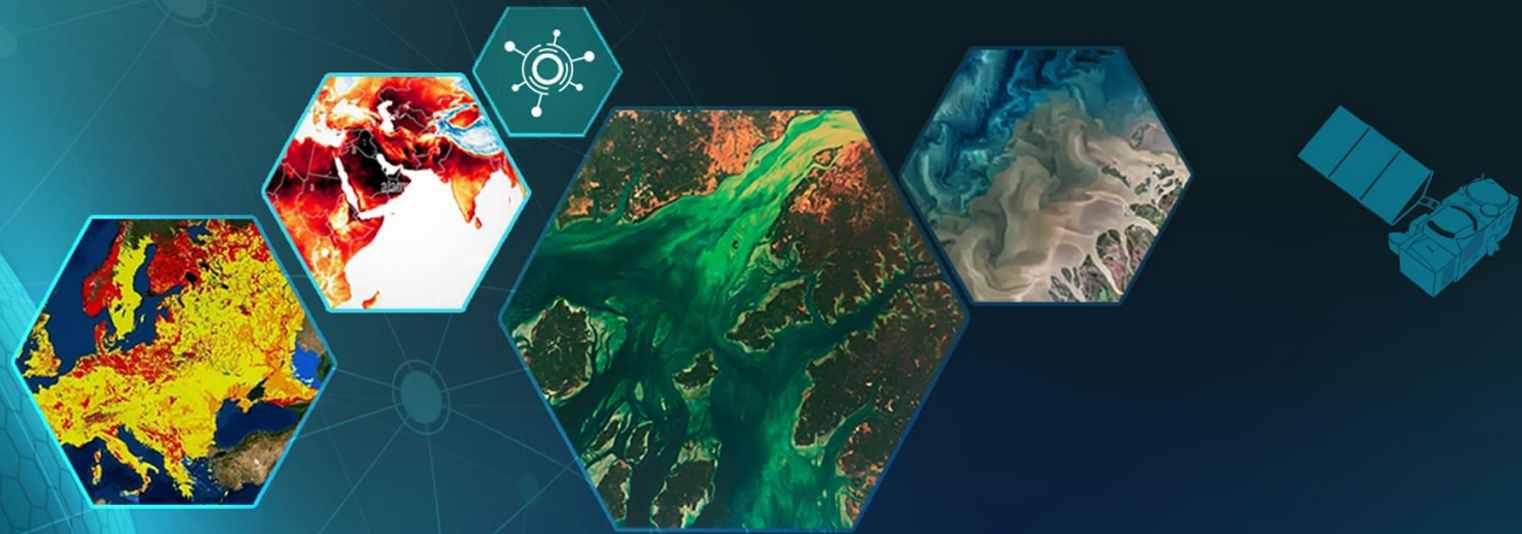


COPERNICUS EARTH OBSERVATION

DATA VISUALISATION WORKSHOP SERIES



PROGRAMME OF THE
EUROPEAN UNION



IMPLEMENTED BY



Introduction to EO Data Visualisation

Data visualisation and communication in the Copernicus Atmosphere Monitoring Service

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COPERNICUS ATMOSPHERE MONITORING SERVICE

CAMS provides consistent and quality-controlled information related to air pollution and health, solar energy, greenhouse gases and climate forcing, everywhere in the world.

• AIR QUALITY OBSERVATIONS



• MODELLING



• OUTPUTS



1. Monitoring the current situation

- Air quality
- Solar radiation
- Greenhouse gases
- Fire emissions



2. Forecasts for the next few days

- Global
- Europe



3. Tools to explore further

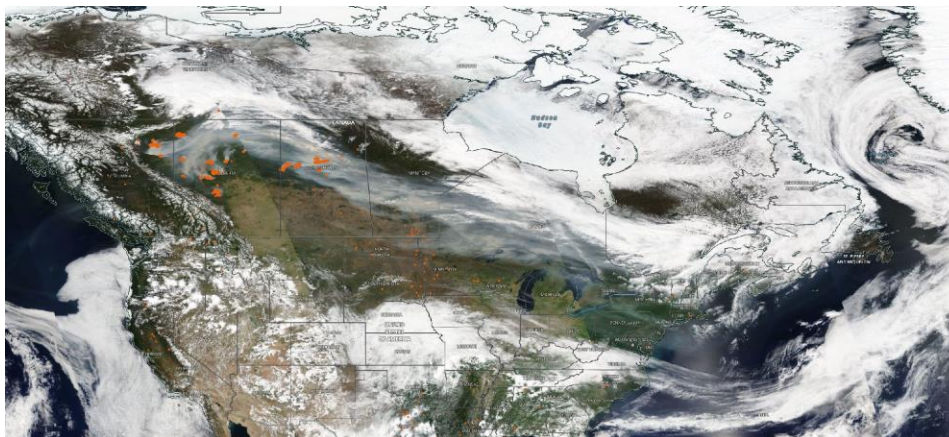
- Emissions and impact of reductions
- Origins of pollution
- Annual air quality assessments

• USERS

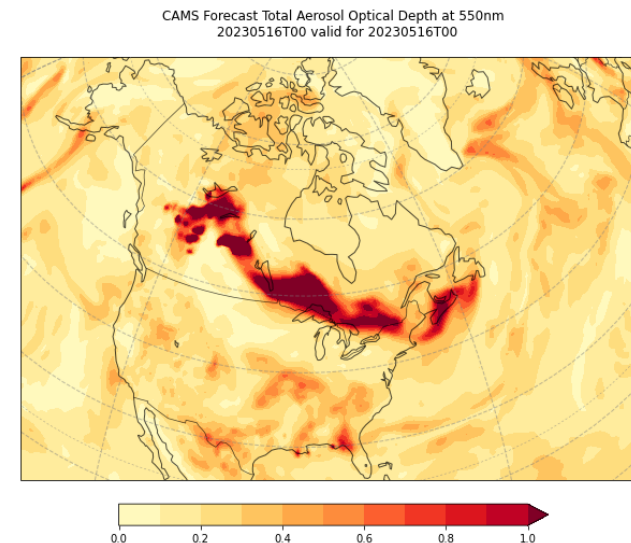
- Industry
- Businesses
- Government and policymakers
- Scientific community
- The public

Telling stories with Copernicus Atmosphere Monitoring Service data

- Utilising Earth Observation from many satellites/sensors to provide information on global atmospheric composition.
 - Essentially a “weather” forecast for atmospheric pollution/air quality.
 - Verified against independent measurements from the ground, aircraft, balloons and other satellites.
- Challenge to distill complex datasets (representing complex processes) to a wider audience.
 - Visualising “invisible” air pollutants

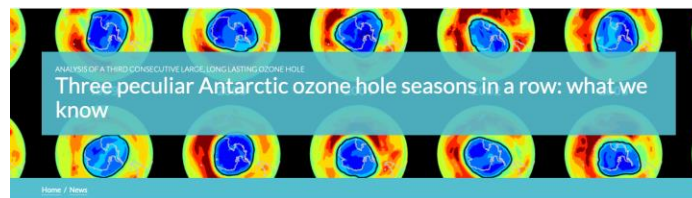
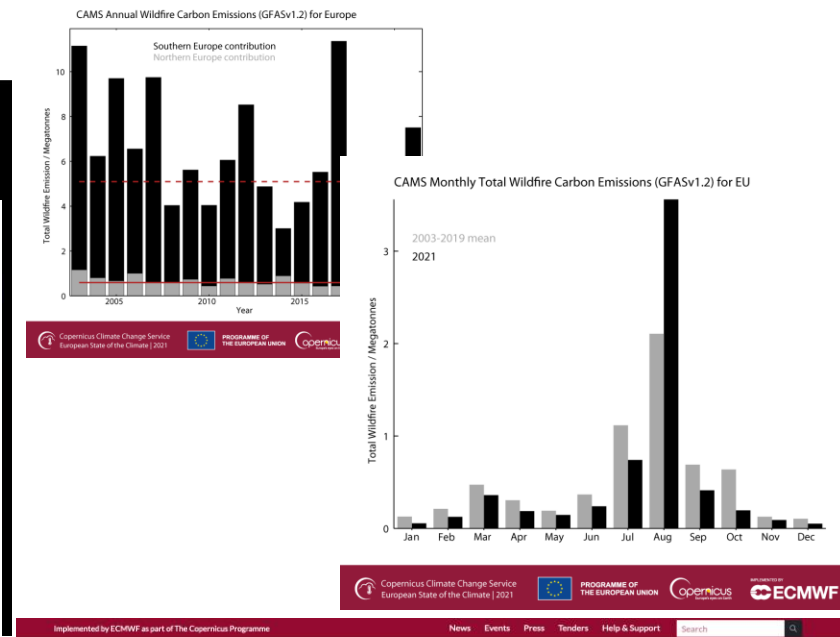
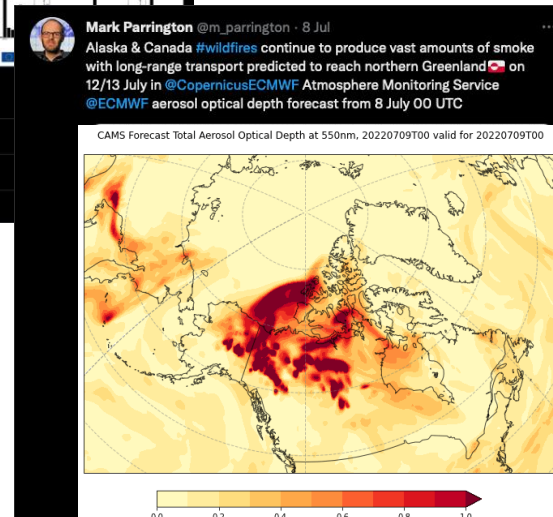
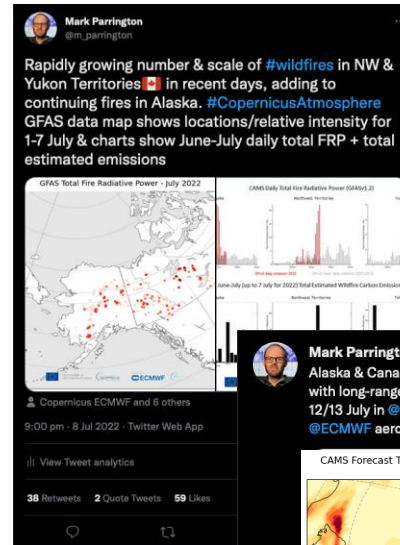
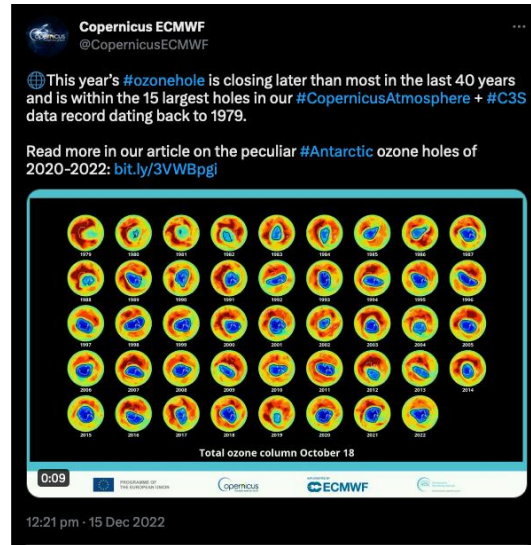


c/o NASA Worldview



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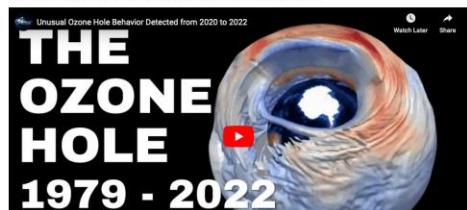
CAMS near-real-time monitoring used widely via social media to engage with general public, users and media.



13th December 2022

The Copernicus Atmosphere Monitoring Service (CAMS) data shows the 2022 ozone hole closed later than most of those of the previous 40 years and, despite the signs of recovery of the ozone layer, it is still within the 15 largest in our record dating back to 1979. A similar pattern was observed in 2020 (the longest-lived on record, closing on 28 December) and 2021, the 8th largest ozone hole, that extended until 23 December.

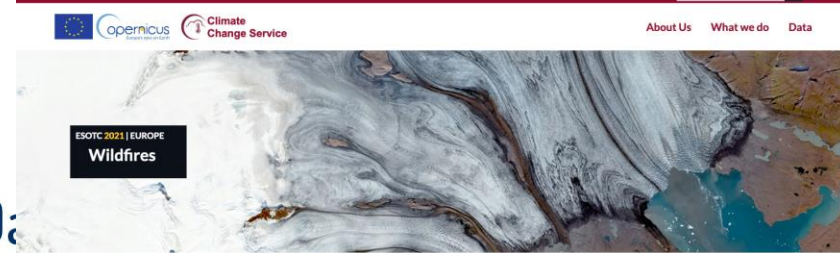
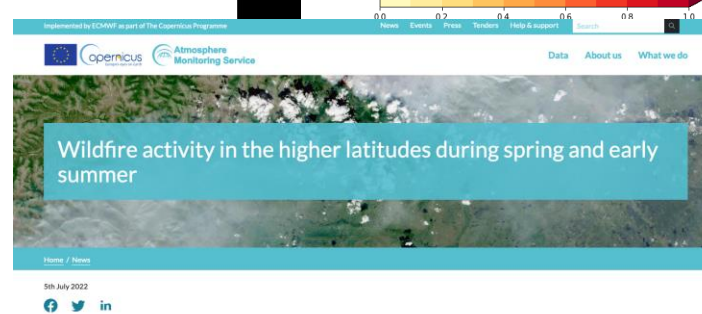
After the end of the 2022 Antarctic ozone hole season in mid-December, and amid a landmark United Nations report confirming the recovery of the ozone layer globally, the CAMS analysis shows this 2022 ozone hole followed a peculiar pattern, similar to those of the two previous years but quite distinctly different from the previous 40 years.



CAMS supports international efforts to preserve ozone layer. On 14 September the United Nations observes International Day for the Preservation of the Ozone Layer marking the anniversary of the signing of the Montreal Protocol.

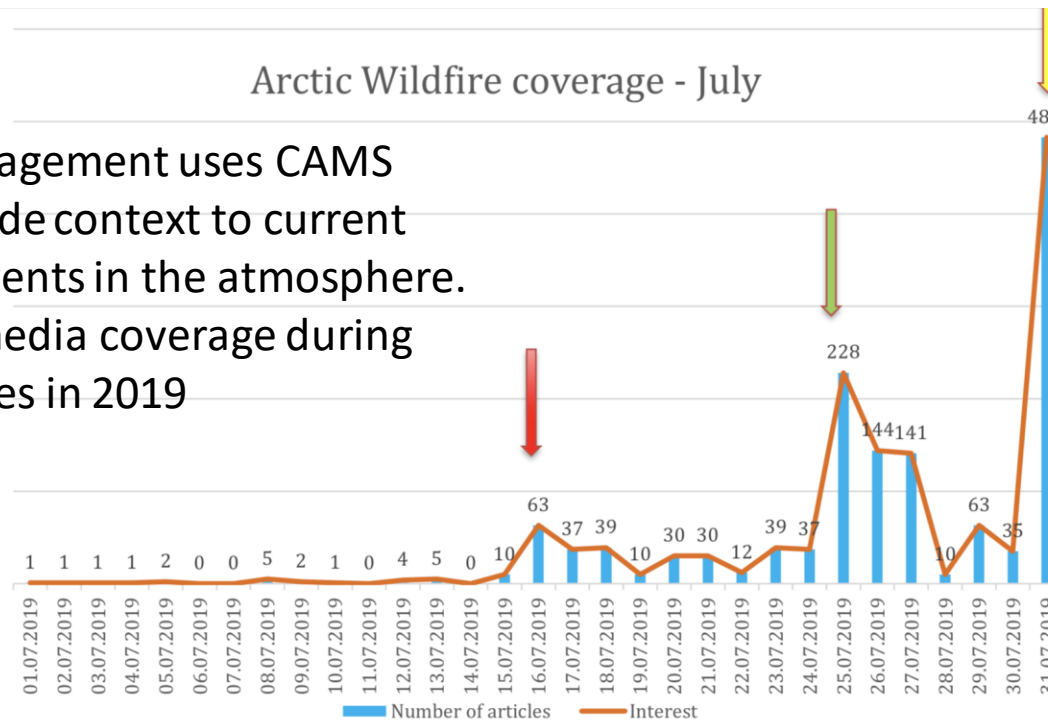
CAMS monitoring of the ozone layer webpage: easily accessible maps, charts and plots

CAMS ozone layer and ultraviolet radiation thematic output areas



Arctic Wildfire coverage - July

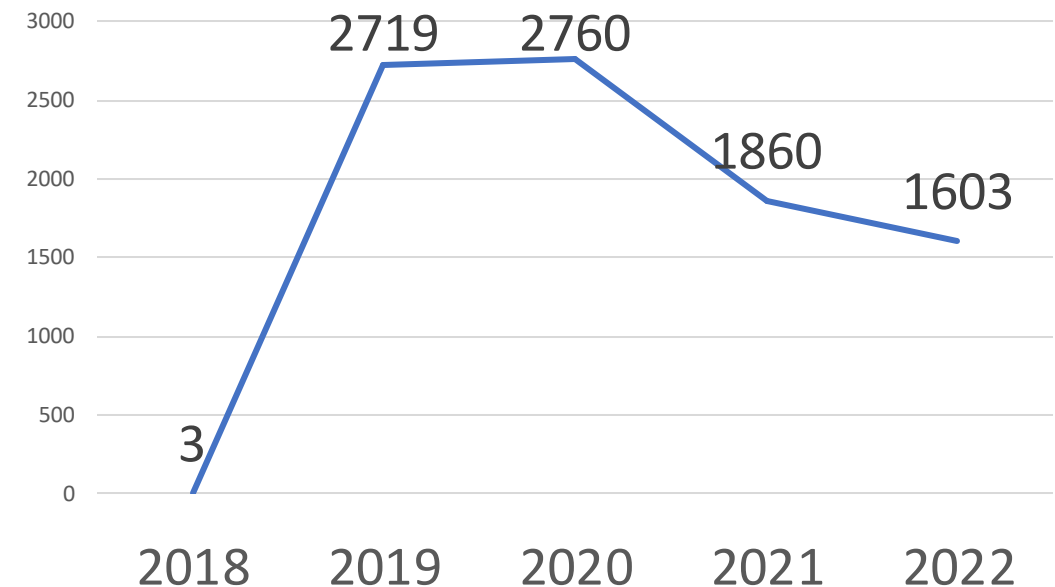
Effective engagement uses CAMS data to provide context to current significant events in the atmosphere.
E.g., CAMS media coverage during Arctic wildfires in 2019



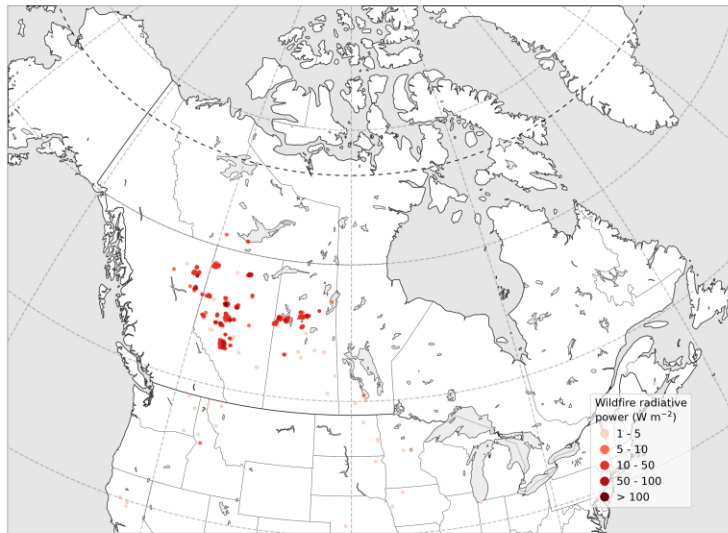
Timeline of Arctic wildfire media coverage before and after the distribution of the official newsflash

- **2019 Coverage: 1434** pieces of coverage **worldwide** in 87 countries
- **Quality of coverage:** major international key broadcasters and publications: CNN, Washington Post, BBC, Zeit
- **Media inquiries and interviews: 32**

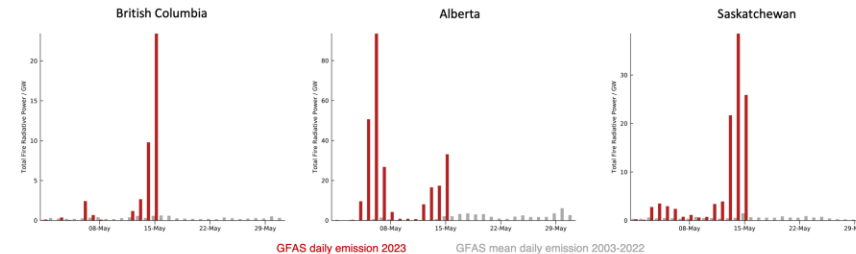
More than 5 years coverage of global wildfires



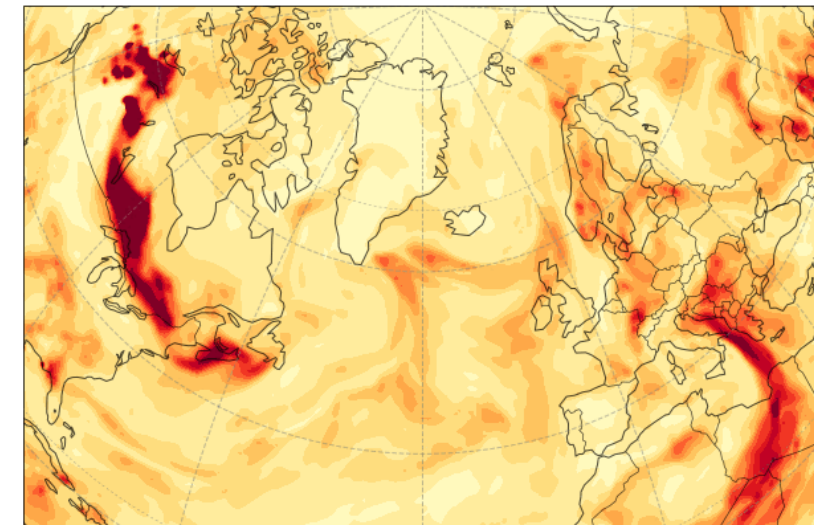
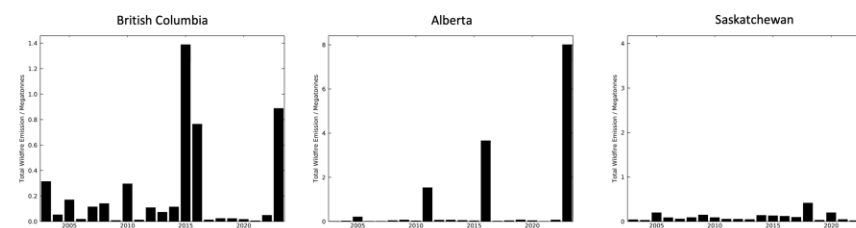
GFASv1.2 Total Fire Radiative Power: 2023-05-01 - 2023-05-15



CAMS Daily Total Fire Radiative Power (GFASv1.2)



1-15 May Total Estimated Wildfire Carbon Emissions



CAMS data visualisation, story telling and communication is based on active monitoring of atmospheric composition events as they are occurring (e.g., Canadian wildfires in May 2023).

- Information can be provided quickly in response to, e.g., journalists questions.
- Social media allows on-the-fly scientific analysis with experts from different fields as well as local, on the ground, information.

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Thank you! Questions?



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