Copernicus & COVID-19

Atmosphere Monitoring Service (CAMS)
Climate Change Service (C3S)

Earth Observation unit
Directorate-General for Defense Industry and Space
European Commission

European Centre for Medium-Range Weather Forecats (ECMWF)

ECMWF

Space

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www.copernicus.eu

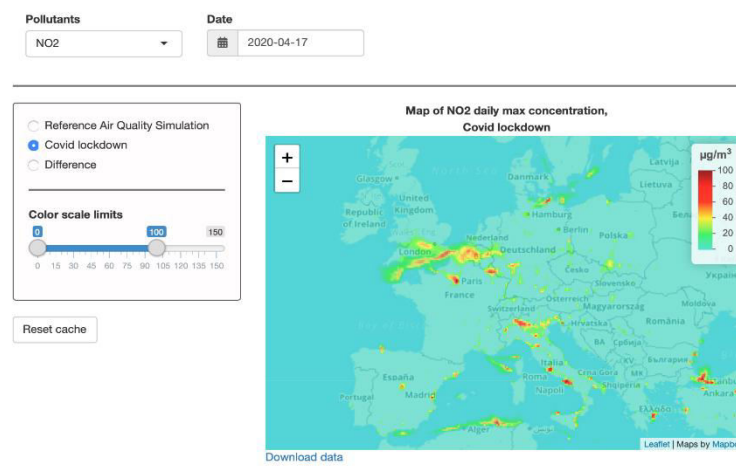Copernicus
Europe's eyes on Earth

Atmosphere Monitoring

- Dedicated EU Space webpage with initiatives launched by the Commission and its partners and members of the ecosystem is live : www.euspace-programme.eu/coronavirus
- Continued strong interest from international media/press

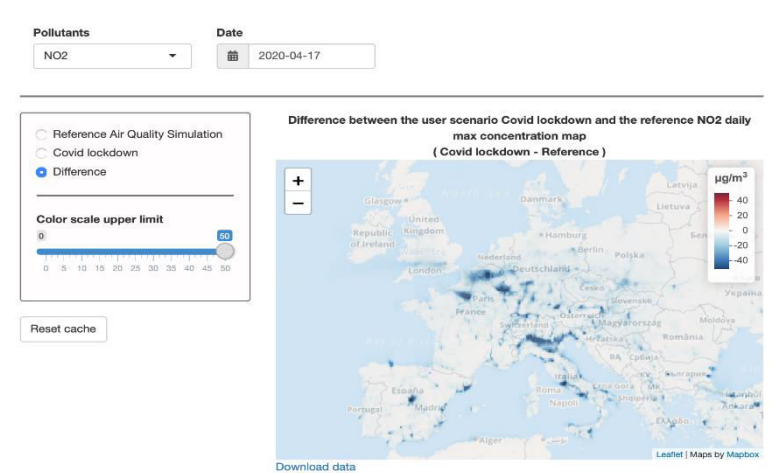Recent addition: daily "COVID-19 emissions" scenario runs + advanced "Air Control toolbox"
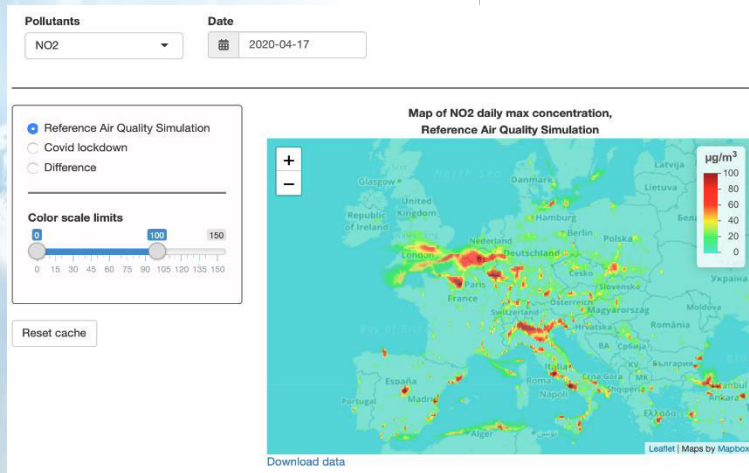
What would be today's forecast of NO2 (PM10, PM2.5) under normal circumstances?

What would be today's forecast of NO2 (PM10, PM2.5) with emissions changed because of COVID-19 related measures?

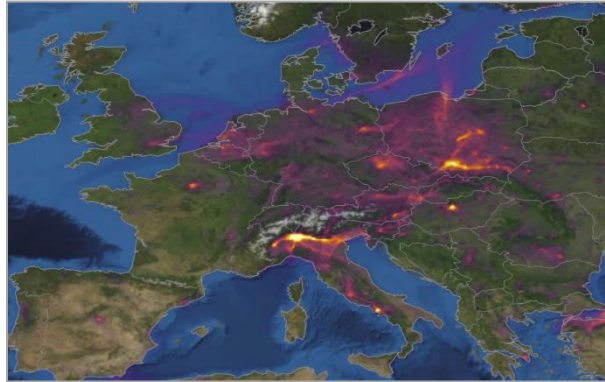**What is the difference between the two?**

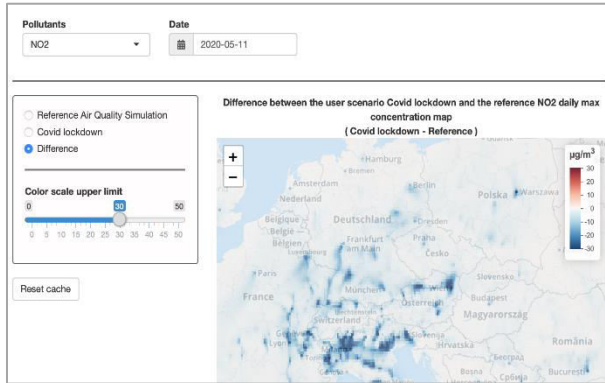Crude hypotheses at this stage: -60% for road traffic, -30% for industrial, +20% for residential, and no change for agricultural activities or maritime shipping as well as for natural sources. Powered by Ineris (France).

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https://atmosphere.copernicus.eu/european-air-quality-information-support-covid-19-crisis
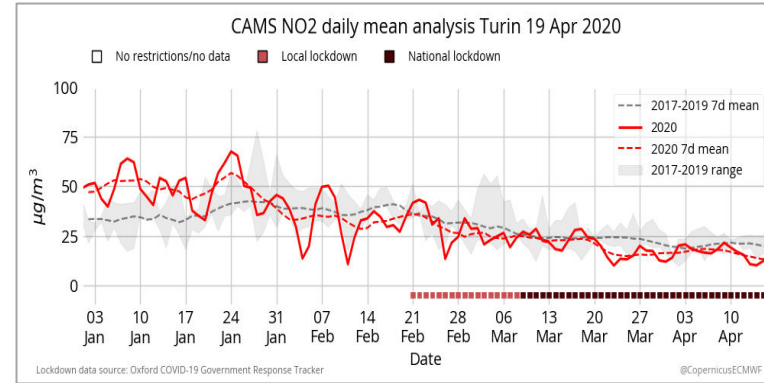
Maps and animations of the latest situation in Europe.

Air pollution across Europe compared to 2017-2019 and as a function of lockdown measures.

Forecast model estimate of reduction in air pollution is expected on a daily basis accounting for weather effects.

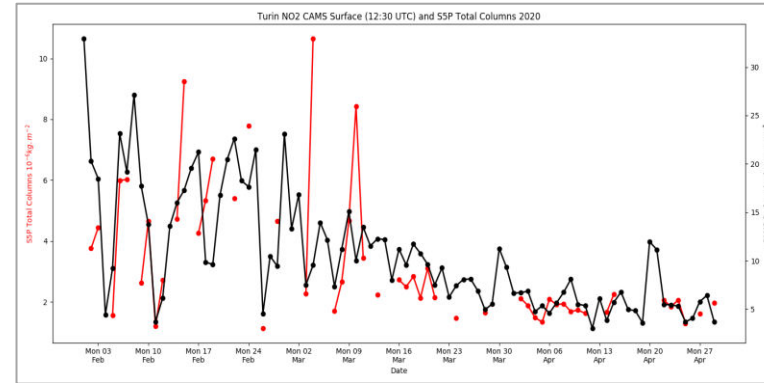How consistent are surface and satellite measurements?

CAMS currently contributes to a number of epidemiological studies trying to evaluate the links between air pollution and COVID-19 (effects of long- and short-term exposure; fine particulate matter as a potential vector in air for the virus?...)

CAMS regional air quality forecasts: Météo-France, Ineris (FR)
CAMS COVID-19 scenario forecasts: Ineris (FR)
CAMS website: ECMWF

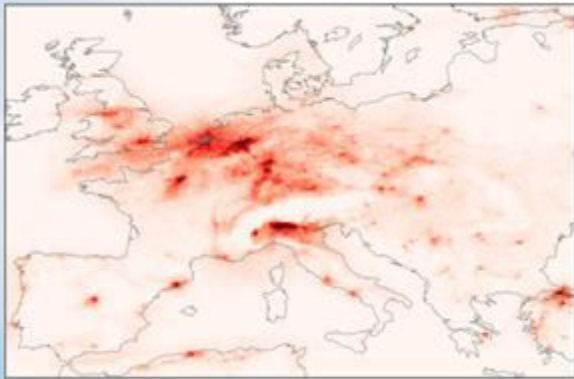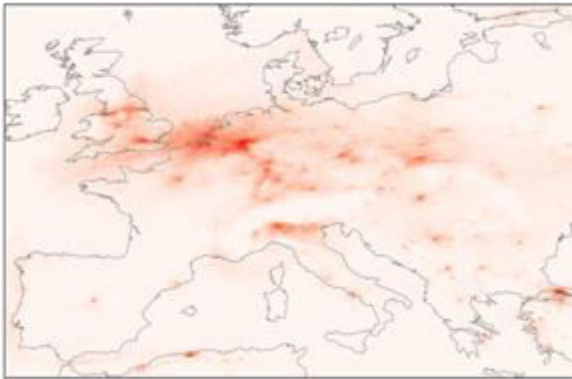ECMWF Copernicus Europe's eyes on Earth European Commission

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NO$_2$ Total Column
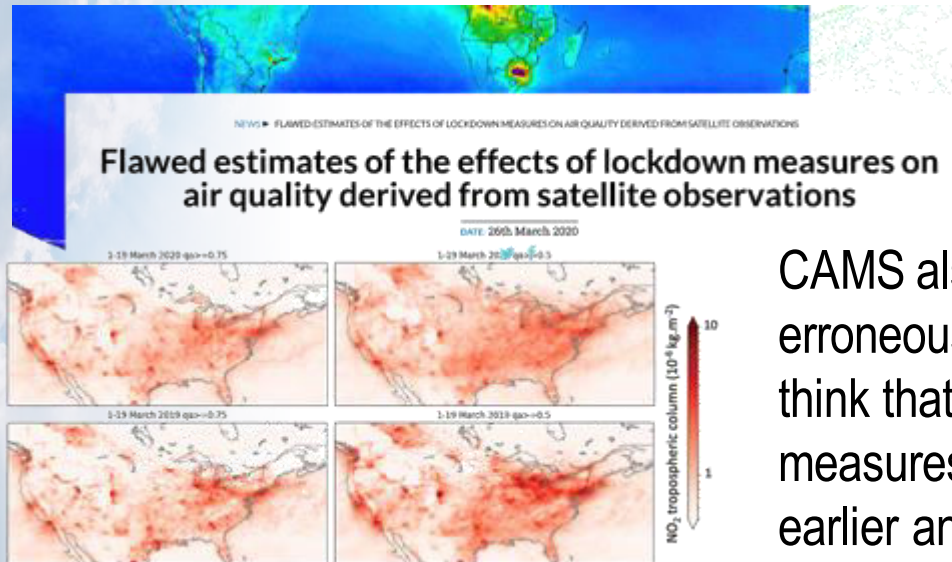
Mid-March to mid-April 2019   Mid-March to mid-April 2020

S-5P is the 1st satellite to provide credible measurements of air quality.

Flawed estimates of the effects of lockdown measures on air quality derived from satellite observations

CAMS also showed that erroneous use of S-5P data led to think that effect of restriction measures on US air quality were earlier and stronger than in reality.

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Science & Environment

Coronavirus: Lockdown prompts clear fall in UK air pollution

By Jonathan Amos
Science correspondent

31 March 2020

S-5P NO$_2$ total column provision: ESA, KNMI (NL)
S-5P NO$_2$ total column processing: ECMWF

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Climate Change

C3S helps health experts explore how temperature and humidity affect virus spread

https://climate.copernicus.eu/c3s-helps-health-experts-explore-how-temperature-and-humidity-affect-virus-spread

Recent research suggests that the spread of the new coronavirus (SARS-CoV-2) could be affected by temperature and humidity, so the C3S has worked with environmental software experts B-Open to develop an application that maps mortalities against temperature and humidity data. The application allows health authorities and epidemiology centres to explore the claims that temperature and humidity could affect the spread of coronavirus