

# COPERNICUS EARTH OBSERVATION

## DATA VISUALISATION WORKSHOP SERIES



PROGRAMME OF THE  
EUROPEAN UNION

Copernicus  
Europe's eyes on Earth



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## Climate Extremes: Heatwaves, Changes in Ice, Drought, Floods

Visualising CEMS data – overview and Pakistan flood example

Peter Salamon, Joint Research Centre, European Commission

# Overview

CEMS supports actors involved in the management of natural and man-made disasters with complementary data and products.

CEMS is managed by the Joint Research Center of the European Commission.

It addresses all phases of the disaster management cycle:

## Pre-disaster:


- Risk & vulnerability assessments, prevention, mitigation
- Preparedness and early warning

## Immediate response

- Event mapping and monitoring
- Damage assessment

## Post-disaster

- Recovery assessment, reconstruction and monitoring
- Associated risk assessment



It provides **timely and accurate geospatial information** (derived from satellite remote sensing data supplemented by available in situ or model data).



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## THE COPERNICUS EMERGENCY MANAGEMENT SERVICE

On-demand  
mapping



Rapid  
Mapping



Risk & Recovery  
Mapping

Early warning  
and monitoring



Floods



Fires



Droughts

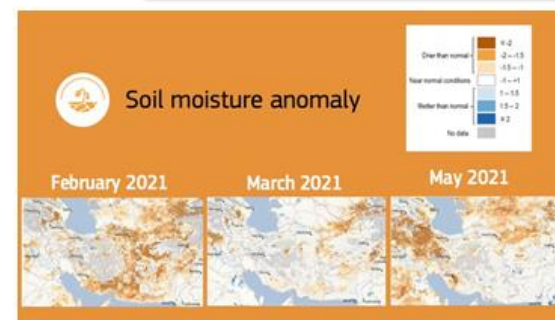
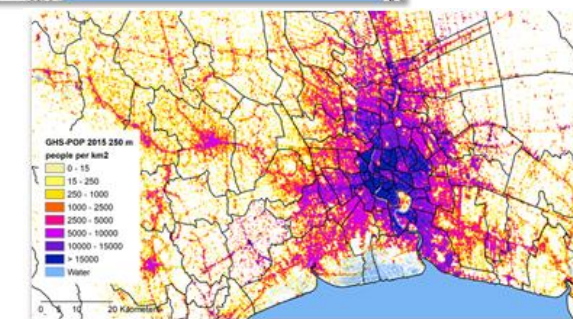
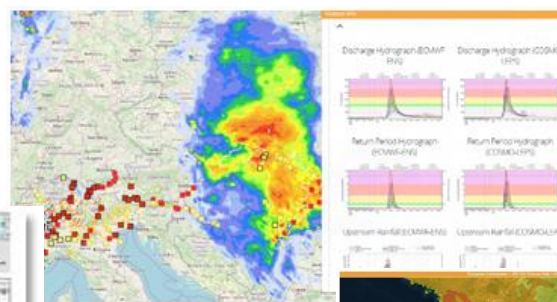
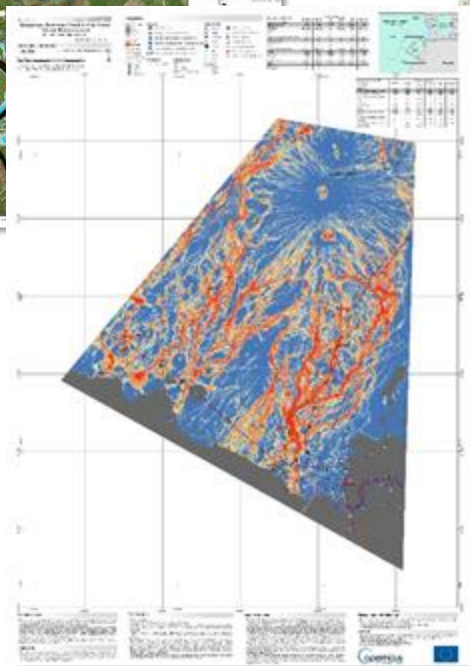
Exposure  
Mapping



Population



Built-up  
areas



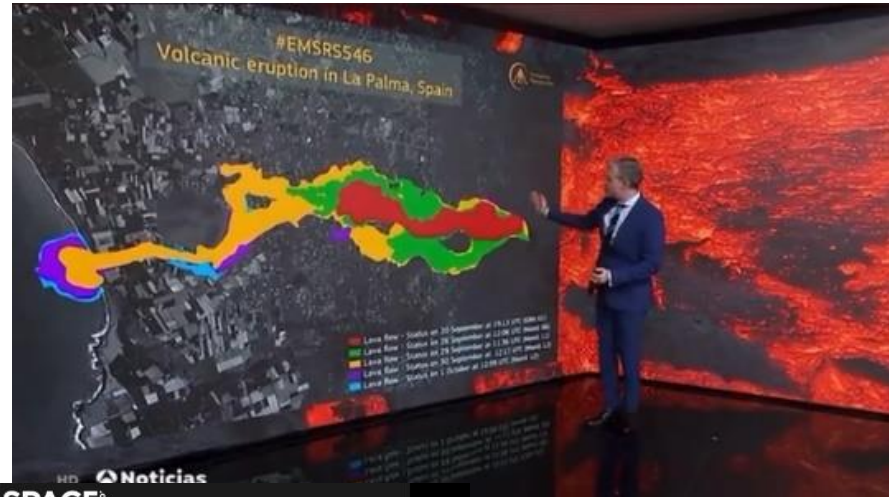
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# CEMS in the Media



Data from the Copernicus Emergency Management Service reveal the scale of destruction on the La Palma island. (Image credit: Copernicus Emergency Management Service)



et atmosphérique avec la participation de la Nasa et du département de la Défense a propose une résolution plus puissante que Modis et permet de détecter de plus petits incendies.

● A LIRE AUSSI. Incendies en Gironde : des effets qui se font ressentir jusque dans les départements

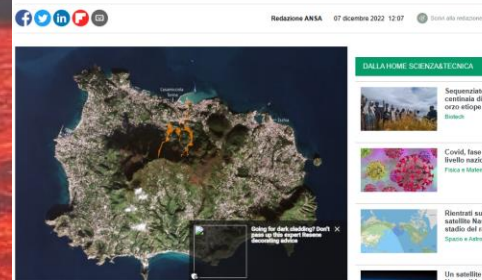


Les feux en Gironde. Les services de Copernicus ont utilisé des images de radar du satellite Sentinel-1 pour délimiter la zone affectée par la lave.



Images de radar du satellite Sentinel-1 pour délimiter la zone affectée par la lave.

Ischia, le conséquences della frana viste dai satelliti  
Immagini utili ai soccorsi grazie al programma europeo Copernicus

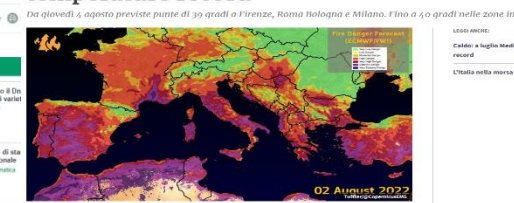


The European Commission's Joint Research Centre warned this week that drought conditions will get worse and potentially affect 47 percent of the continent.



Andrea Toreti, a senior researcher at the European Drought Observatory, said a drought in 2018 was so extreme that there were no similar events in the last 500 years, "but this year, I think, it is really worse".

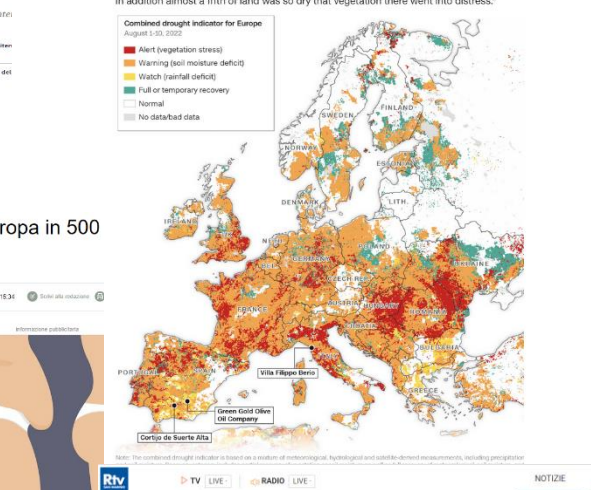
Caldo, una nuova ondata africana in arrivo:  
temperature record



Nell'estate 2022 la peggiore siccità d'Europa in 500 anni  
Le immagini dai satelliti del programma Copernicus



This summer's extreme heat caused drought across much of Europe  
In early August, nearly half of European Union territory had drier than normal soil. In addition almost a fifth of land was so dry that vegetation there went into distress.



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# CEMS data – Where can I find it?

## On-Demand mapping:

- Activation viewer: <https://rapidmapping.emergency.copernicus.eu/>
- Rapid mapping activations: <https://emergency.copernicus.eu/mapping/list-of-activations-rapid>
- Risk & Recovery Mapping Activations: <https://emergency.copernicus.eu/mapping/list-of-activations-risk-and-recovery>

## Flood early warning and monitoring:

- EFAS\*: <https://www.efas.eu/en/data-access>
- GloFAS: <https://www.globalfloods.eu/general-information/data-and-services/>
- Global Flood Monitoring: <https://extwiki.eodc.eu/GFM/PUM/DataAccess>

## Drought early warning and monitoring:

- EDO & GDO: <https://edo.jrc.ec.europa.eu/gdo/php/index.php?id=2112>

## Forest Fire early warning and monitoring:

- EFFIS: <https://effis.jrc.ec.europa.eu/applications/data-and-services>

## Exposure mapping:

- GHSL: <https://ghsl.jrc.ec.europa.eu/download.php>

\* EFAS real time forecasts not available publicly!

### Keep in mind:

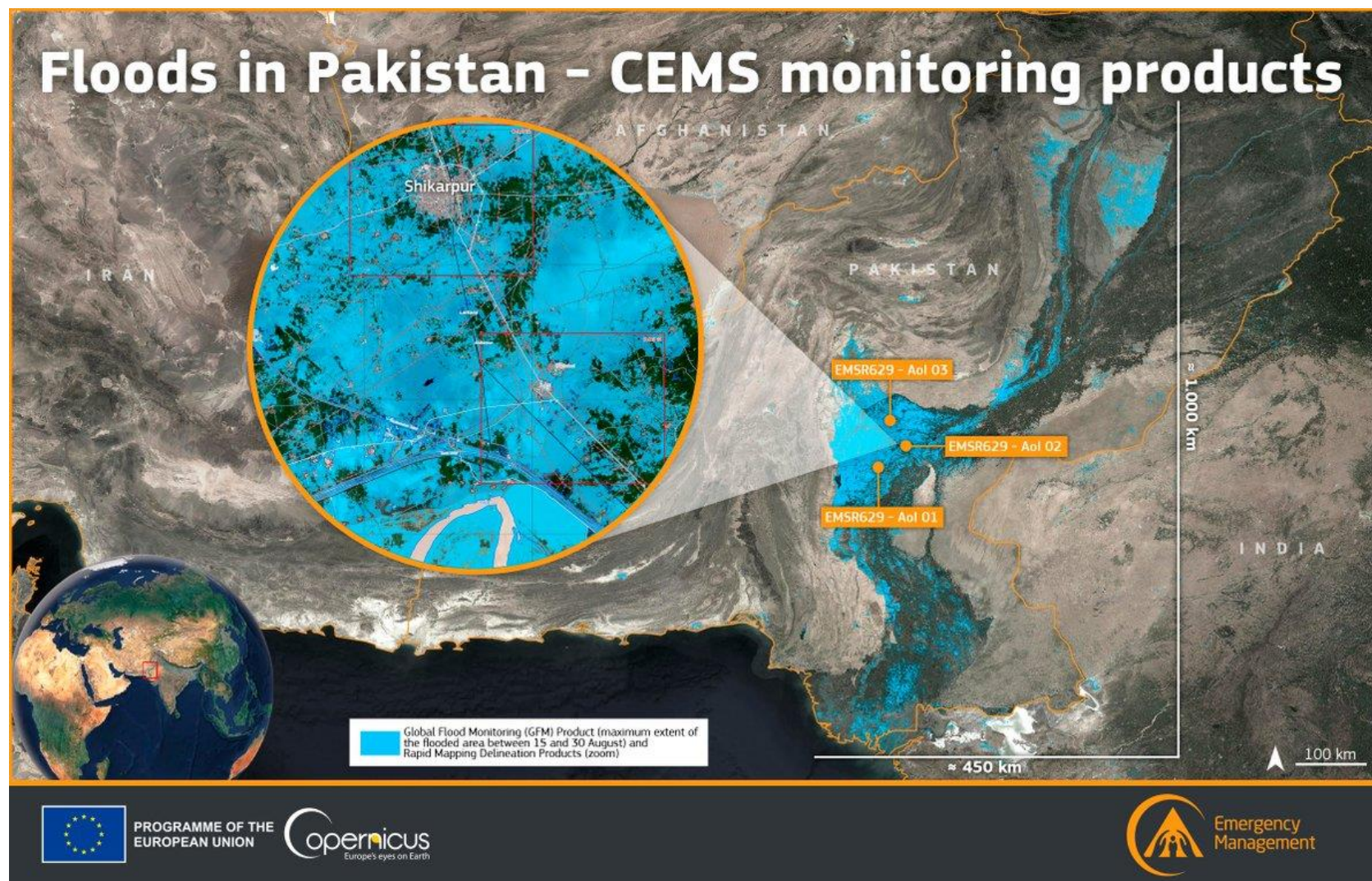
- Data may sometimes contain errors!
- Variety of data formats requires different levels of processing

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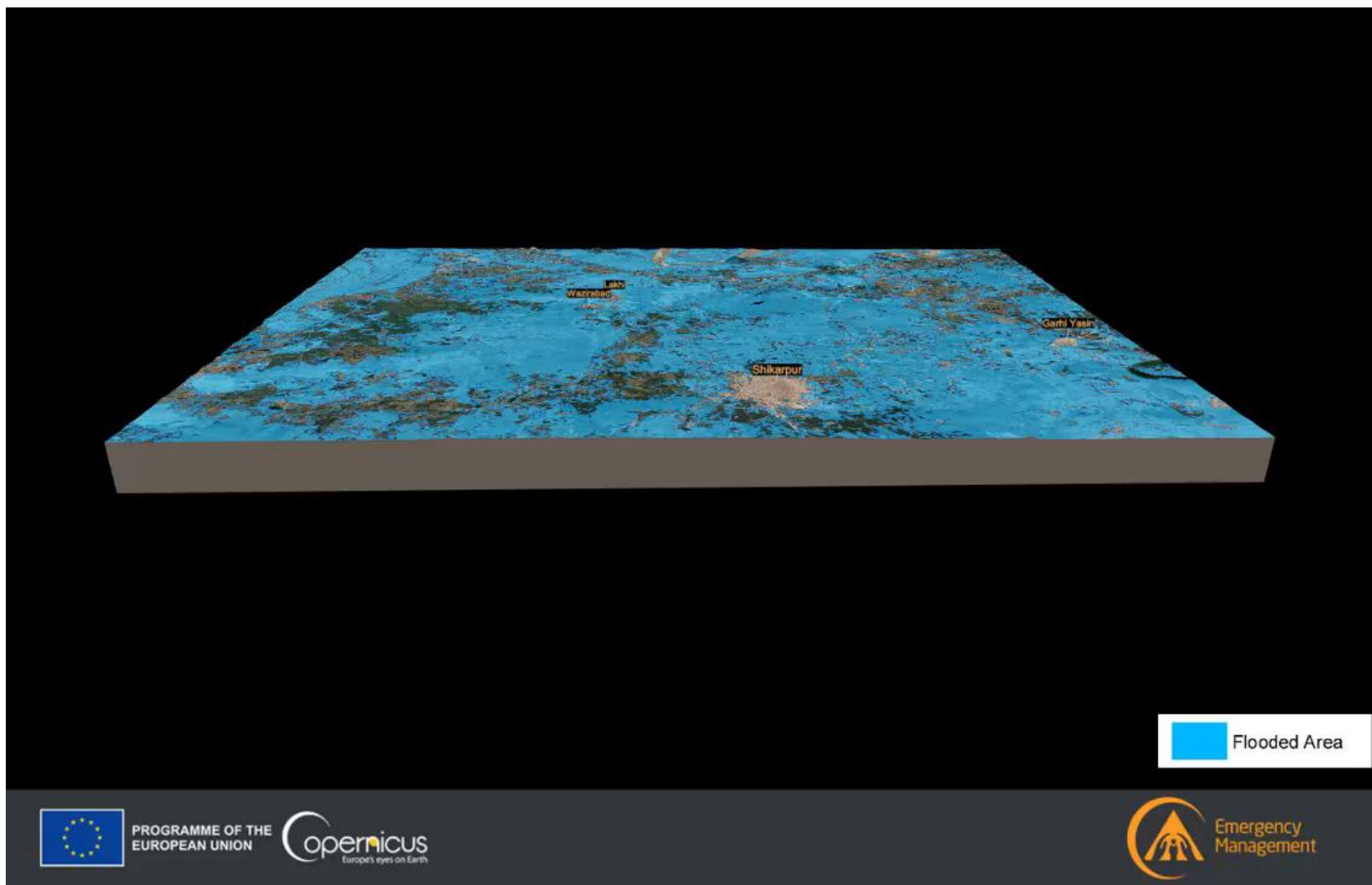


# CEMS data visualisation examples – Pakistan floods





# CEMS data visualisation examples – Pakistan floods



# Thank you for your attention!



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