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©European Union, Copernicus Sentinel-2 imagery

# CEMS On-Demand Mapping

A disaster just hit.

How do satellite and aerial imagery  
provide support?

*Pekel Jean-François (JRC)*

**Integrating Disaster Risk Data in Policy**

**13 October 2023**



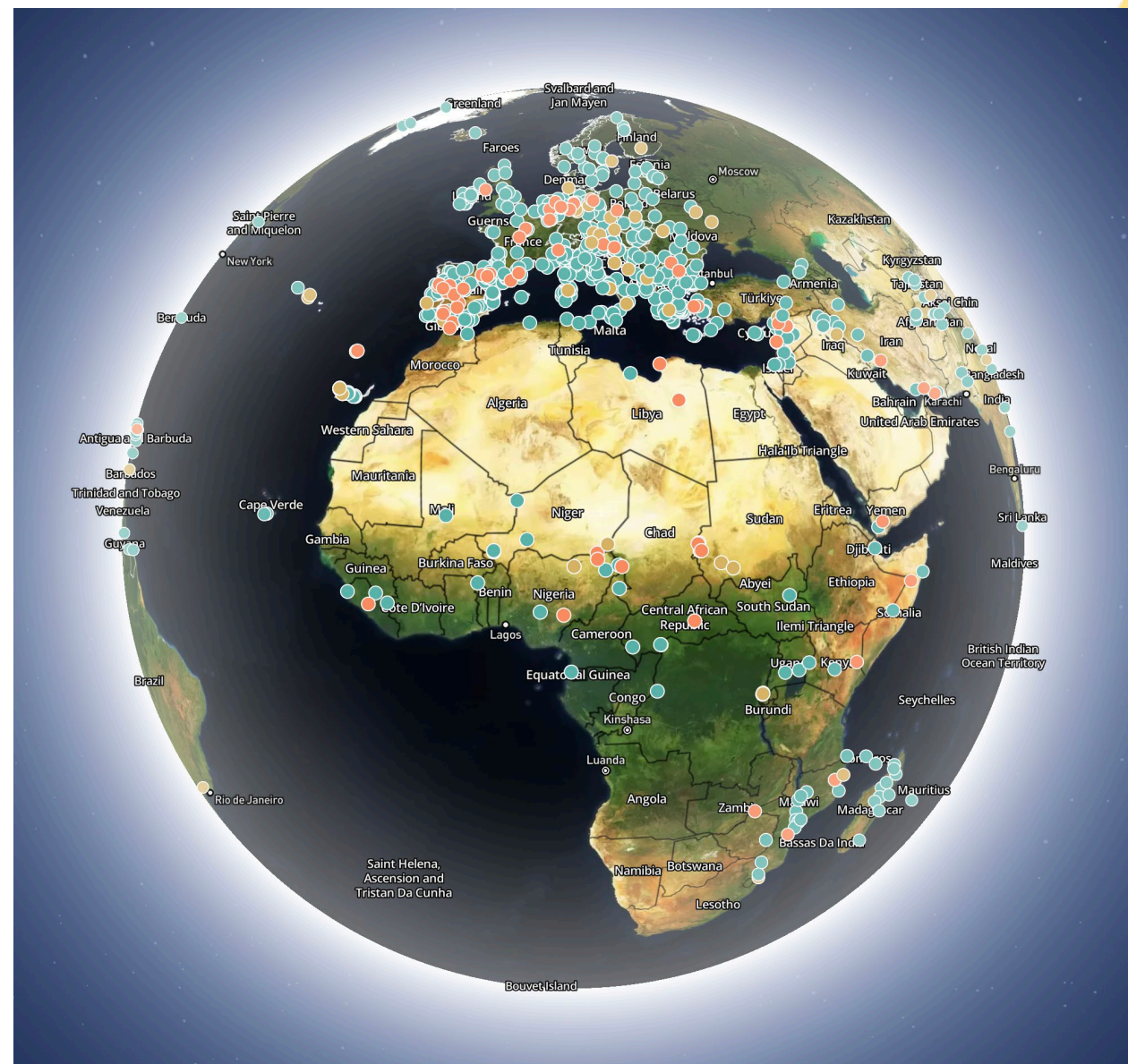
# Copernicus EMS



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# 11 years of CEMS On-demand Mapping:

- Over 800 activations
- More than 7000 products released
- More than 8000 images analyzed
- In more than 130 different countries





# Support provided in 2023

**Emergency Response:**  
**56 activations**

**Preparedness and Recovery:**  
**31 activations**







# Support for Emergency Response



Flood in Greece (October 2023)

© Thanassis Kalliaras/Eurokinissi via REUTERS



Earthquake in Morocco and Afghanistan (Oct-Nov 2023)

© IFRC



Landslide in Slovenia (August 2023)

© Slovenian Army



Fire in Spain (August 2023)

© REUTERS/Borja Suarez



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Copernicus  
Europe's eyes on Earth



# Support for Emergency Response

## BEFORE ACTIVATION





## ON-DEMAND MAPPING — SERVICE REQUEST FORM

What do you need the information for?

### PRE-EVENT (Preparedness)

Reducing the impact of potential disasters through risk assessment



[More details](#)

### EMERGENCY RESPONSE

Rapidly assessing and monitoring the extent and impacts of a disaster during the immediate aftermath



[More details](#)

### POST-EVENT (Recovery)

Assessing the impact of a disaster and planning for recovery efforts



[More details](#)

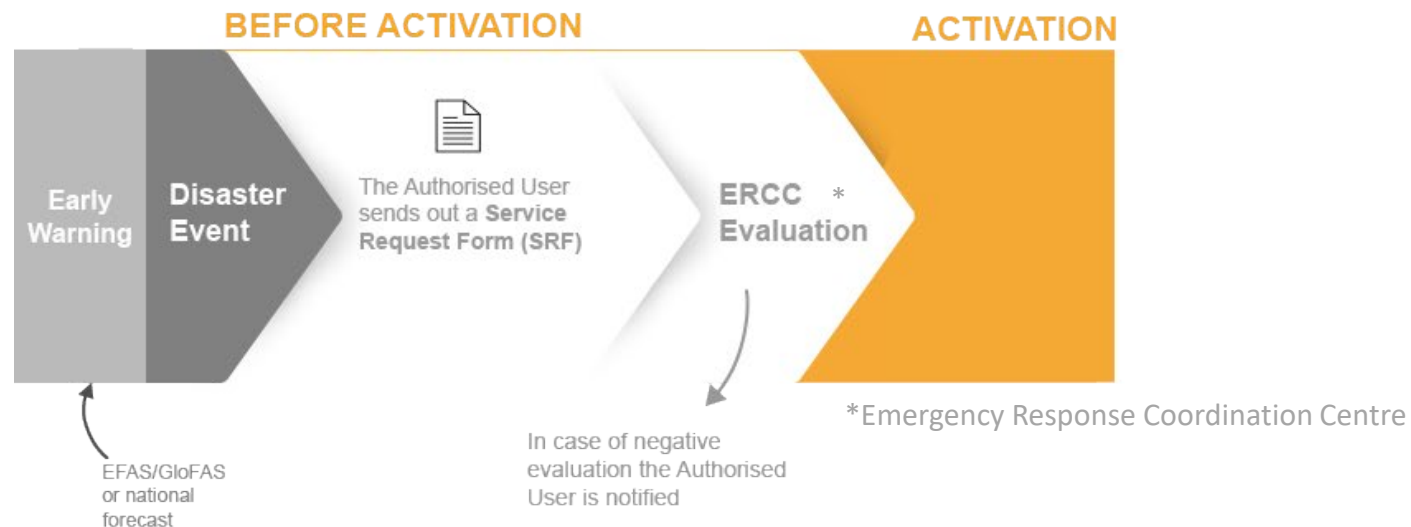
[Next Page](#)

Do you require assistance? ERCC is available 24/7: +32 2 29 21112

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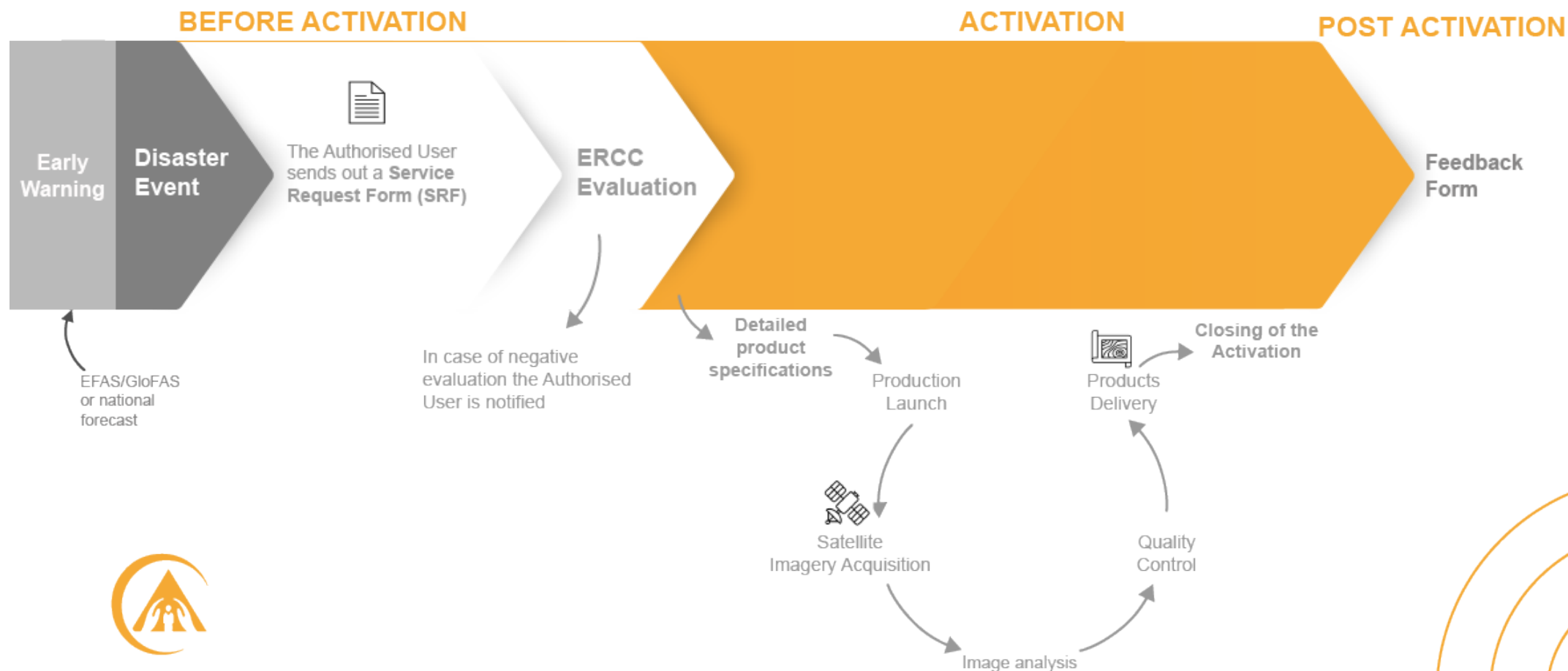
# Support for Emergency Response

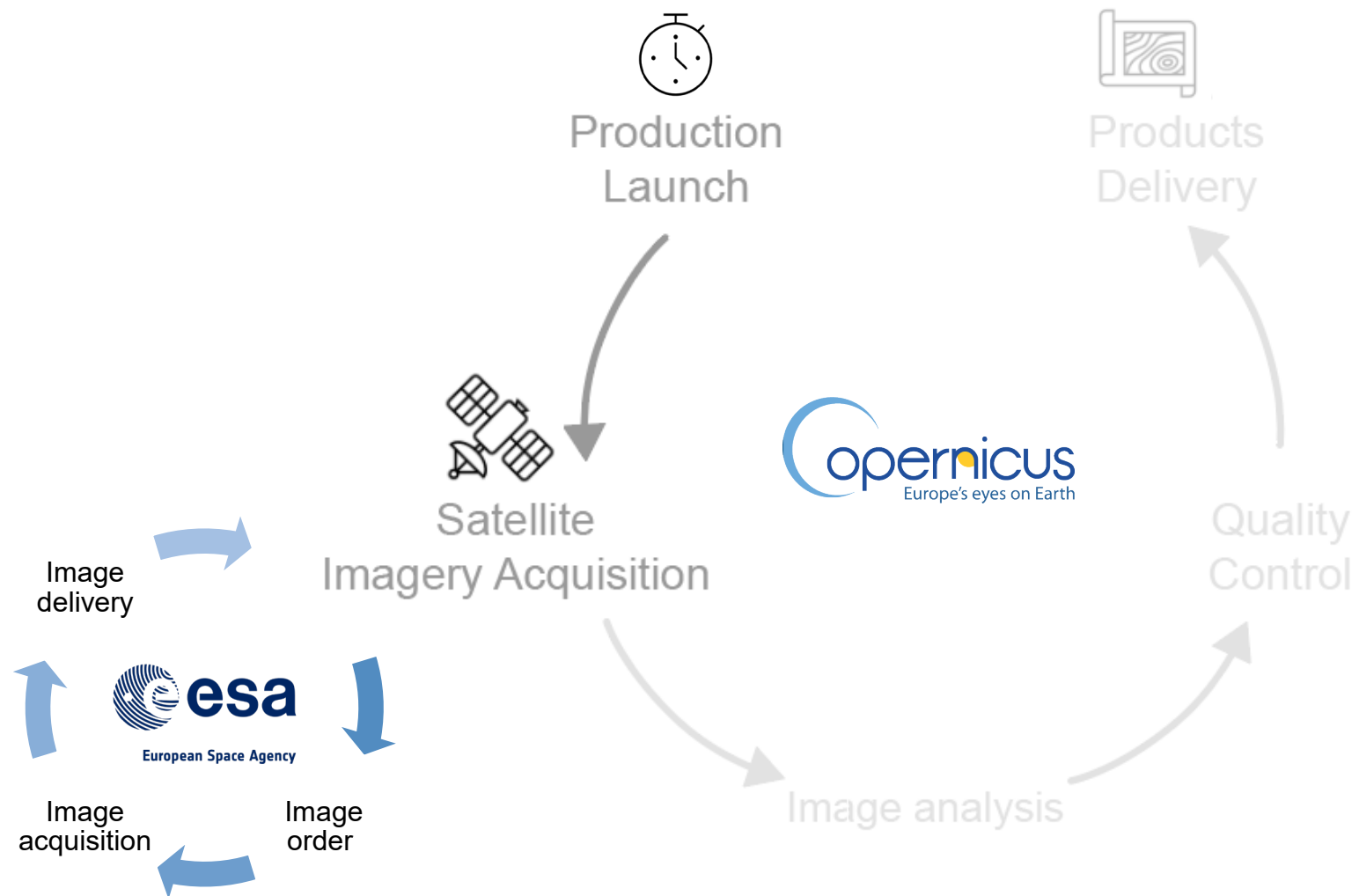






# Support for Emergency Response





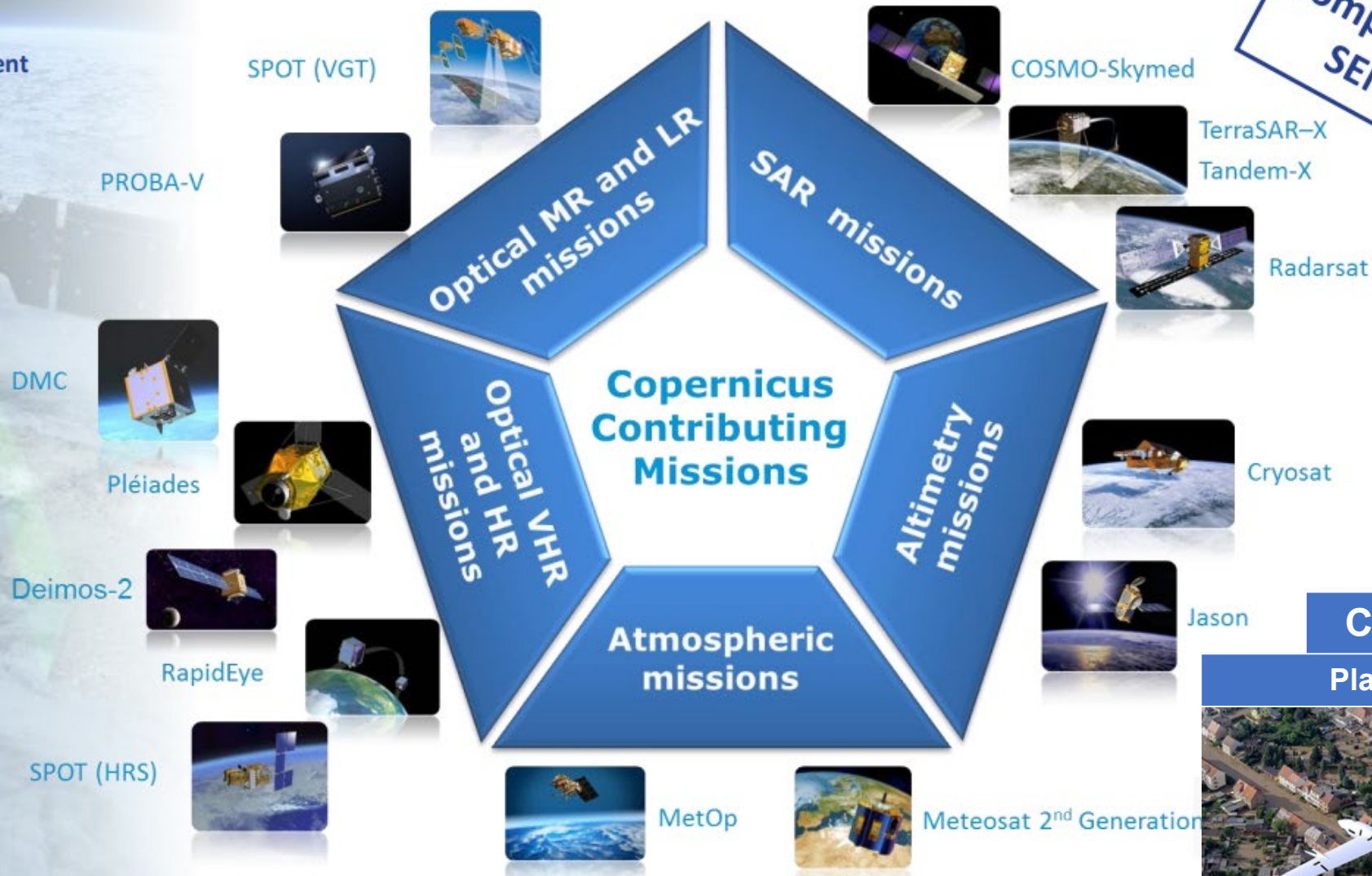




Space  
Component

# THE CONTRIBUTING MISSIONS

This offer  
complements the  
**SENTINELS**



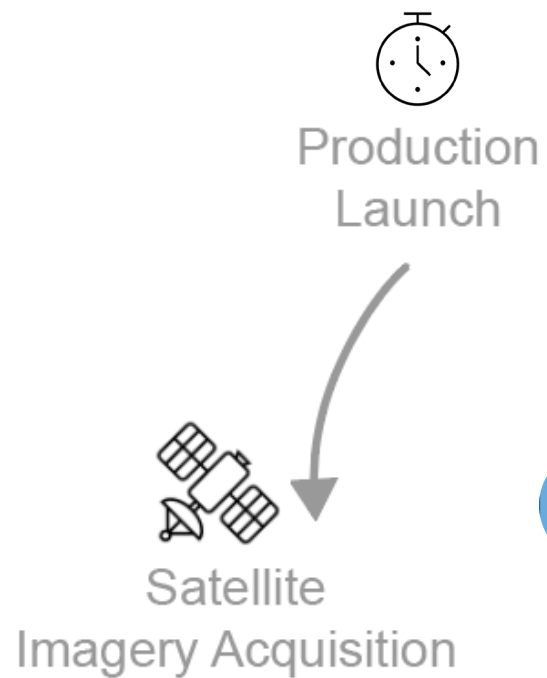
## CEMS – Aerial Component

Planes

Drones



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➤ To the Requester of the Activation  
(e.g. National Focal Points in EU Member States)

Quality Control

Image analysis

➤ **In 2 to 10 hours**  
by the CEMS Mapping Service Providers  
(consortiums of private companies)





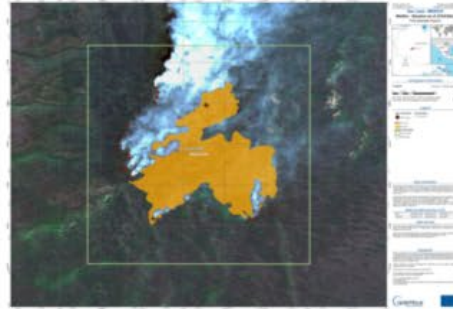
# Products for Emergency Response

## REFERENCE



Quick knowledge on the assets prior to the emergency

## FIRST ESTIMATE



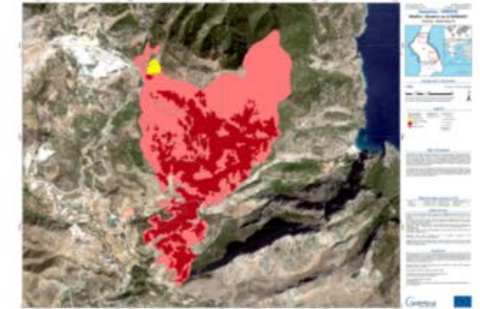
Fast assessment of most affected locations

## DELINEATION



More detailed assessment of the event impact

## GRADING



Damage grade, its spatial distribution and extent

NEW

## SITUATIONAL REPORTING

March 2023



### ➤ Centralize the information

- Display information from the activation, but not only ...
- Combine text, interactive maps, graphs, photographs, videos, swipe on pre/post-event satellite image, and more....

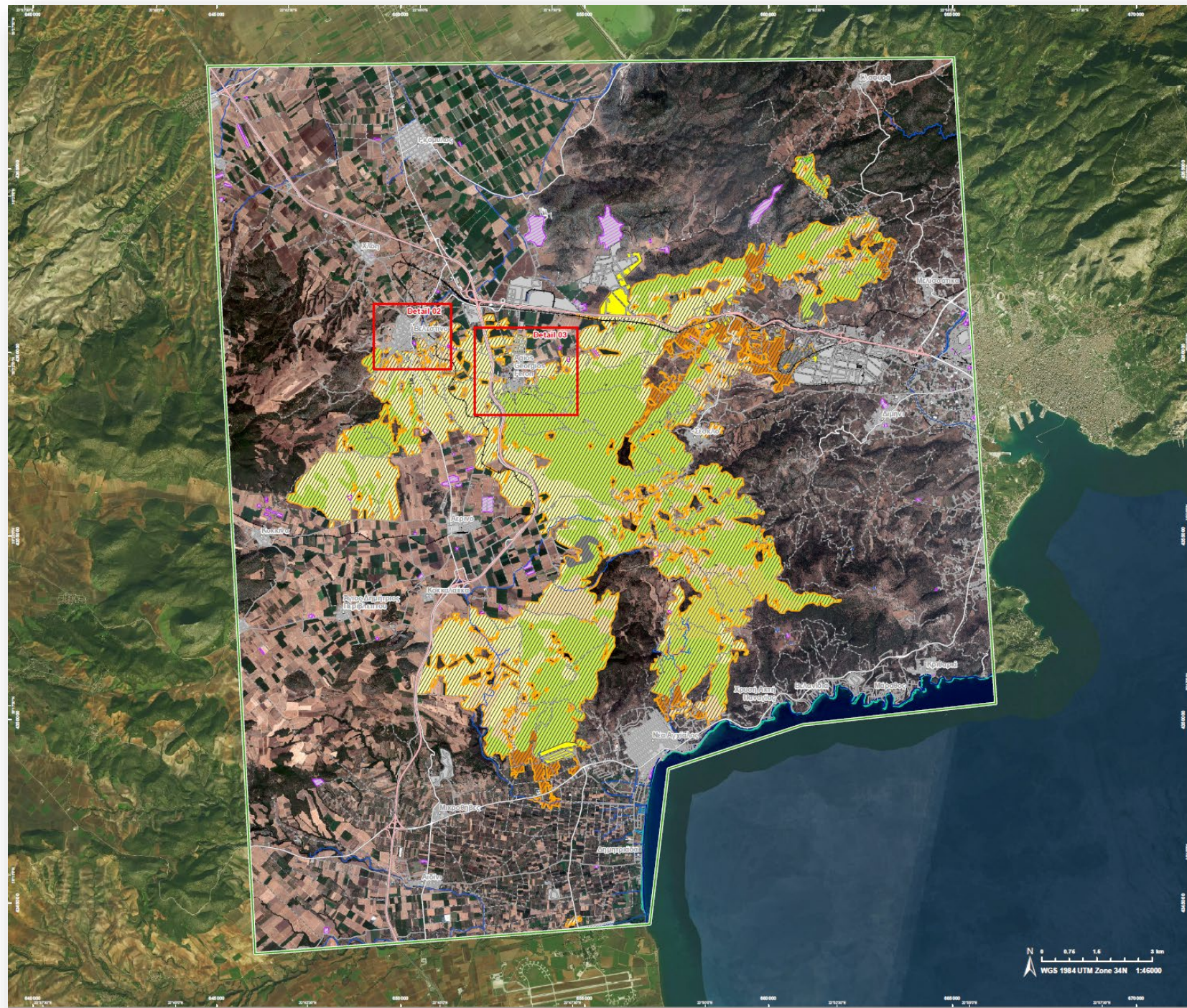
### ➤ Easy to access (one single webpage available online)

### ➤ Continuous update



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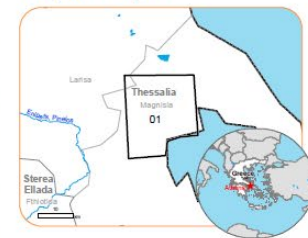




SLIDE number: N/A  
Int. Charter Act. ID: N/A  
GDACS ID: N/A  
Product version: 1

**EMSR679 - AO101**  
**Wildfire in Greece**  
**AGIOSGEORGIOSEFERON**

**Situation as of 29/07/2023 09:30 UTC**  
**Grading - Overview map 01**



**Burnt area 6,264.2 ha**  
**Potentially affected population ~1300**

**Affected Built-up and Transportations**  
**Built-Up 164.2 ha**  
**Road 1.3 km**

- |   |   |  |
|---|---|--|
| <b>Crisis Information</b>                         | <b>Facilities Grading</b>                       | <b>Permanent crops</b>                                 |
| <b>Burnt Area</b>                                 | <b>Destroyed</b>                                | <b>Pastures</b>  |
| <b>Built-Up Grading</b>                           | <b>Possibly damaged</b>                         | <b>Heterogeneous agricultural areas</b>                |
| <b>Non-residential Building, Not analysed</b>     | <b>Not Analysed</b>                             | <b>Forest</b>  |
| <b>Residential Building, Possibly damaged</b>     | <b>Transportation Grading</b>                   | <b>Shrub and/or herbaceous vegetation associations</b> |
| <b>Residential Building, Damaged</b>              | <b>Main road, No visible damage</b>             | <b>Other</b>   |
| <b>Residential Building, Not analysed</b>         | <b>Track, No visible damage</b>                 | <b>General Information</b>                             |
| <b>Non-residential Building, Possibly damaged</b> | <b>Local road, No visible damage</b>            | <b>Area of Interest</b>                                |
| <b>Non-residential Building, Damaged</b>          | <b>Road, Possibly damaged</b>                   | <b>Detail map</b>                                      |
| <b>Non-residential Building, Not analysed</b>     | <b>Railway, No visible damage</b>               | <b>Placenames</b>                                      |
| <b>Non-residential Building, Possibly damaged</b> | <b>Highway, No visible damage</b>               | <b>Hydrography</b>                                     |
| <b>Non-residential Building, Damaged</b>          | <b>Transportation Grading</b>                   | <b>Coastline</b>                                       |
| <b>Non-residential Building, Not analysed</b>     | <b>Airfield and Heliport, No visible damage</b> | <b>River</b>   |
| <b>Destroyed</b>                                  | <b>Affected Land Use-Cover</b>                  | <b>Stream</b>  |
|   | <b>Arable land</b>                              | <b>Lake</b>  |
|   |   | <b>Land Subject to Inundation</b>                      |
|   |   | <b>Open Water</b>                                      |

**Event:** On 26 July 2023 at 10:30 UTC, a wildfire took place in an agricultural area near Agios Georgios Fessy village in Thessaly region, Greece. The fire is ongoing and it is burning forest and agricultural areas. Residents of the villages Palouri, Dimi, Melasata, Kithara, Maratho, Vasilada, Panaga and Chrysi Axi were ordered to evacuate. The industrial area of the city of Voio was also evacuated. According to the Hellenic Fire Service, 72 firefighters are currently operating in the area, assisted by 1 ground force group, 34 vehicles, 6 water-bombing aircraft and 2 helicopters. Volunteers and municipality staff are helping out during the emergency as well. Copernicus EMS Rapid Mapping is requested to provide initial rough estimation, wildfire and the damage assessment emergency mapping Copernicus EMS Rapid Mapping is requested to provide an initial rough estimation, wildfire extent, and damage assessment emergency mapping.

**Data sources and analysis:** Pre-event image: ESRI World Imagery (2022) (acquired on 07/06/2022, resolution 3 m). Post-event image: GeoEye © Maxar Technologies, Inc. (2023), (acquired on 28/07/2023 at 09:30 UTC, resolution 2.5 m). This image is used as background image. All images are provided under COPERNICUS by the European Union and ESA, at rights reserved.

**Base vector layers:** OpenStreetMap © OpenStreetMap contributors (2023), Wikimapia.org, GeoNames 2018, Corine Land Cover (CLC) 2018, EuroBirdAtlasMap 2017 © EuroGeographics, Inset map: JRC 2013, GISC 2010 © EuroGeographics, Natural Earth 2012, CCM River DB © EUCO2007, GeoNames 2015.

**Population data:** GHs Population One © European Commission, 2022 <https://ghs.jrc.ec.europa.eu/ghs/pop2022.php>

The thematic layer has been derived from post-event satellite image using a semi-automatic approach.

**Disclaimer:** Full disclaimer and other helpful information available in the online manual: <https://emergency.copernicus.eu/mapping/online-manual-rapid-mapping-products>.

Map produced by GMV released by e-GEOS on the 29/07/2023.  
Details on this activation and service conditions available through the QR code or at the link: <https://emergency.copernicus.eu/EMSR679>









# Keep in touch

## Copernicus Emergency Management Service



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