



The Copernicus Emergency Management Service



Early warning and monitoring

Copernicus is an EU programme aimed at developing European information services based on satellite Earth Observation and in situ data. The Copernicus Emergency Management Service (CEMS) supports all actors involved in the management of natural or manmade disasters by providing geospatial data and images for informed decision making. CEMS constantly monitors Europe and the globe for signals of an impending disaster or evidence of one happening in real time. It immediately notifies national authorities of their findings or can be activated on-demand and offers to provide them with maps, time-series or other relevant information to better manage disaster risk. CEMS products show information about a disaster event on a scale, timeline, and perspective that only geospatial information can provide. They can examine changes to an area of Earth over a series of days, weeks, months, or years. The CEM service, which is always free of charge for users, has two main components: On-Demand Mapping, and Early Warning and Monitoring.

On-demand mapping



Rapid Mapping



Risk and Recovery Mapping

Early warning and monitoring



Floods



Fires

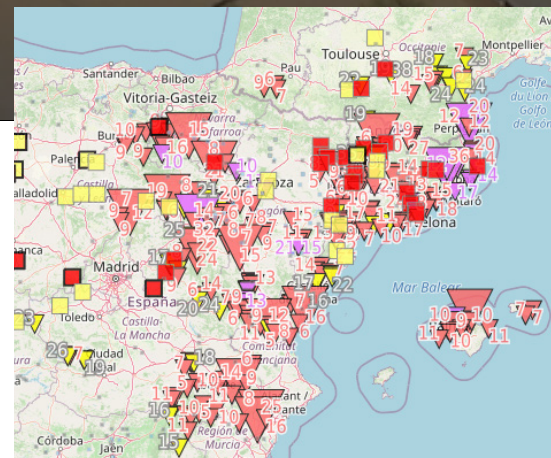


Droughts

FLOODS – EUROPEAN FLOOD AWARENESS SYSTEM (EFAS)

The CEMS Early Warning and Monitoring component supports the preparedness and emergency response at the European and global level, through the provision of early warning, risk and impact assessment, and monitoring of specific natural hazards – namely floods, forest fires and droughts – through publicly accessible on-line services.

FLOODS: The **European Flood Awareness Systems (EFAS)** is the first operational pan-European flood forecasting and monitoring system. EFAS provides a wide range of early flood forecasting information to support national and regional authorities with flood risk management duties in arranging preparatory measures before an event strikes. In addition, EFAS provides a unique overview across Europe and neighbouring countries on currently observed and forecasted flood events. It is an asset to the flood risk management of large trans-national river basins as well as the European Civil Protection Mechanism. In addition to forecasting where and when large riverine and flash floods will likely occur, the service also estimates and maps the potential socio-economic impact of those events.



EFAS map viewer example with information about different flood types.

Space



Examples from the EFAS product family



EFAS Products derive from flood forecast simulations. Users receive products as a set of easily readable maps aimed at offering users a fast and dynamic situational awareness about possible flood risks. EFAS Products are also accessible via web services and direct download.

EFAS medium-range flood forecast provides an overview of upcoming flood events for the next 10 days, including possible flood impacts. The forecasts are updated twice daily and are used to send flood notifications to EFAS partners of predicated high risk of flooding. EFAS can also warn our On-Demand mapping component to enable a faster mapping of a flood through pre-tasking.

EFAS sub-seasonal and seasonal hydrological outlooks summarise the hydrological situation over the next 6 and 8 weeks respectively, and predict changes with respect to the hydrological extremes (high and low flows). Outlooks can be used to support various water-related applications such as reservoir management, navigation, irrigation or drought risk management. The seasonal hydrological outlook is issued monthly, while sub-seasonal is issued twice weekly.

EFAS indicators of flash floods are based on high-resolution numerical weather predictions with up to 5 days lead-time as well as radar-based precipitation monitoring and “nowcasting” with up to 6 hours.



Access to EFAS Map Viewer



Access to GloFAS global component

KEY NUMBERS

200+ FLOOD NOTIFICATIONS SENT PER YEAR

500+ FLASH FLOOD NOTIFICATIONS SENT PER YEAR

75+ EFAS PARTNERS

24/7/365 SERVICE AVAILABILITY

1,800+ HYDROLOGICAL AND **23,000+** METEOROLOGICAL NEAR REAL-TIME STATIONS

HOW TO ACCESS THE SERVICE

Any national, regional or local authority that is legally responsible for providing flood forecasting services, or that has a national role in flood risk management within its country and the European Commission Services, can become an EFAS partner. To respect the responsibilities of Member States regarding flood warnings, only EFAS partners can access real-time EFAS forecasts and products through a customisable website and web services. Archived EFAS forecasts and all other EFAS products are freely available. More details of flood forecasts can be found on the EFAS website.

<https://www.efas.eu/>

The EFAS and GloFAS services are currently used, for example, by:

- Emergency Response Coordination Centre (ERCC)
- National hydro-meteorological services
- National civil protection services
- NGOs and international aid organizations

