



International Forum to Advance
FIRST RESPONDER INNOVATION



IFAFRI

The International Forum to Advance First Responder Innovation focuses on enhancing and expanding the development of affordable technology and innovative solutions to improve first responder safety, efficiency and effectiveness.



Climate tools

IFAFRI Network
2023

Original call from Denmark

"As Europe have seen the implications of climate change unfold this summer (e.g. wild fires, flooding etc.) Denmark are curious to learn from the IFAFRI network, if there might be useful digital tools that can be used before, during and after these events.

As examples in Denmark we have a map that each day tracks the possibility of wild fires in Denmark taking the dryness of the soil, wind and other factors into consideration – this can be seen at www.brandfare.dk. Furthermore, we have developed – together with our friends at the Danish Metrological Institute – a climate atlas that shows the future implications of temperature and water rise in Denmark.

The question from Denmark is:

- *Do your country have any digital tools in this area? – would you share them with us?*
- *Or do you have any suggestions for new tools?*

Denmark

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- Furthermore, we have developed – together with our friends at the Danish Metrological Institute – a climate atlas that shows the future implications of temperature and water rise in Denmark.



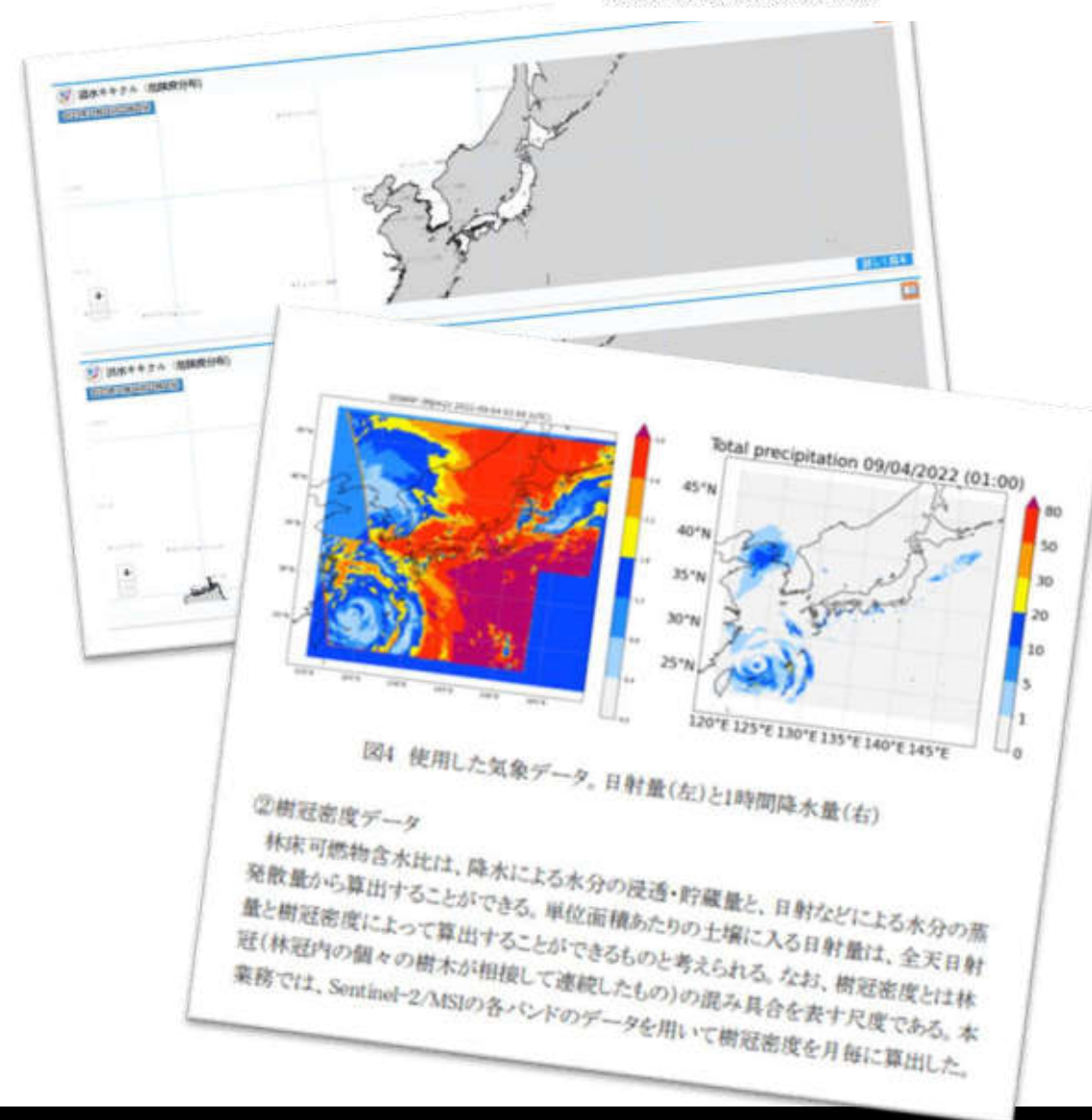
Finland

- [Report](#) from Emergency Service Academy:
“Forest fire simulations and enhanced forest resource information as part of the situational awareness in fire and rescue services”
- Additionally looking into how Finland can benefit from SAR-satellites



Japan

- The Japanese Meteorology Agency broadcasts real-time and is forecasting risk maps
- The Forestry Agency is doing multiple studies



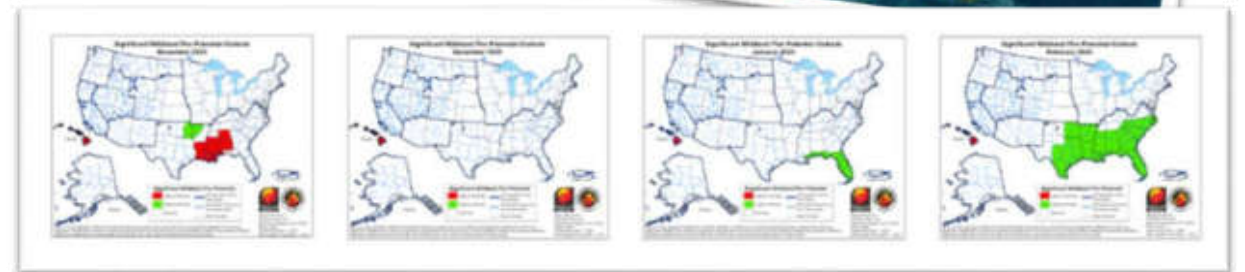
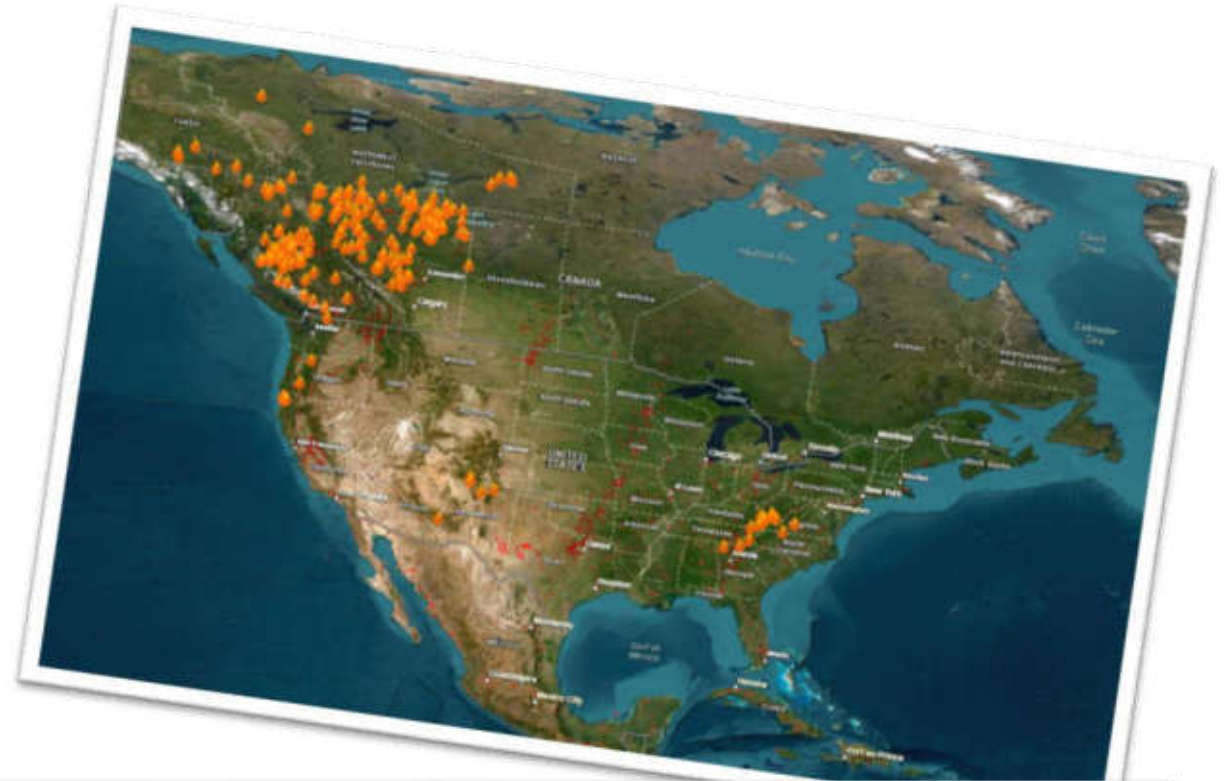
Sweden

- MSB provides fire danger forecast (the public as target group), on both hourly and daily temporal resolution
- MSB also has a smartphone app with fire danger forecasts and information about fire safety for the public.
- For professional/advanced users (for example municipal fire and rescue services, local/regional/national authorities and the forestry industry) they have a fire danger system called "Brandrisk skog och mark". That system includes fire danger forecasts, meteorological data, lightning, forecasts of thunder and satellite detection of active fire with VIIRS



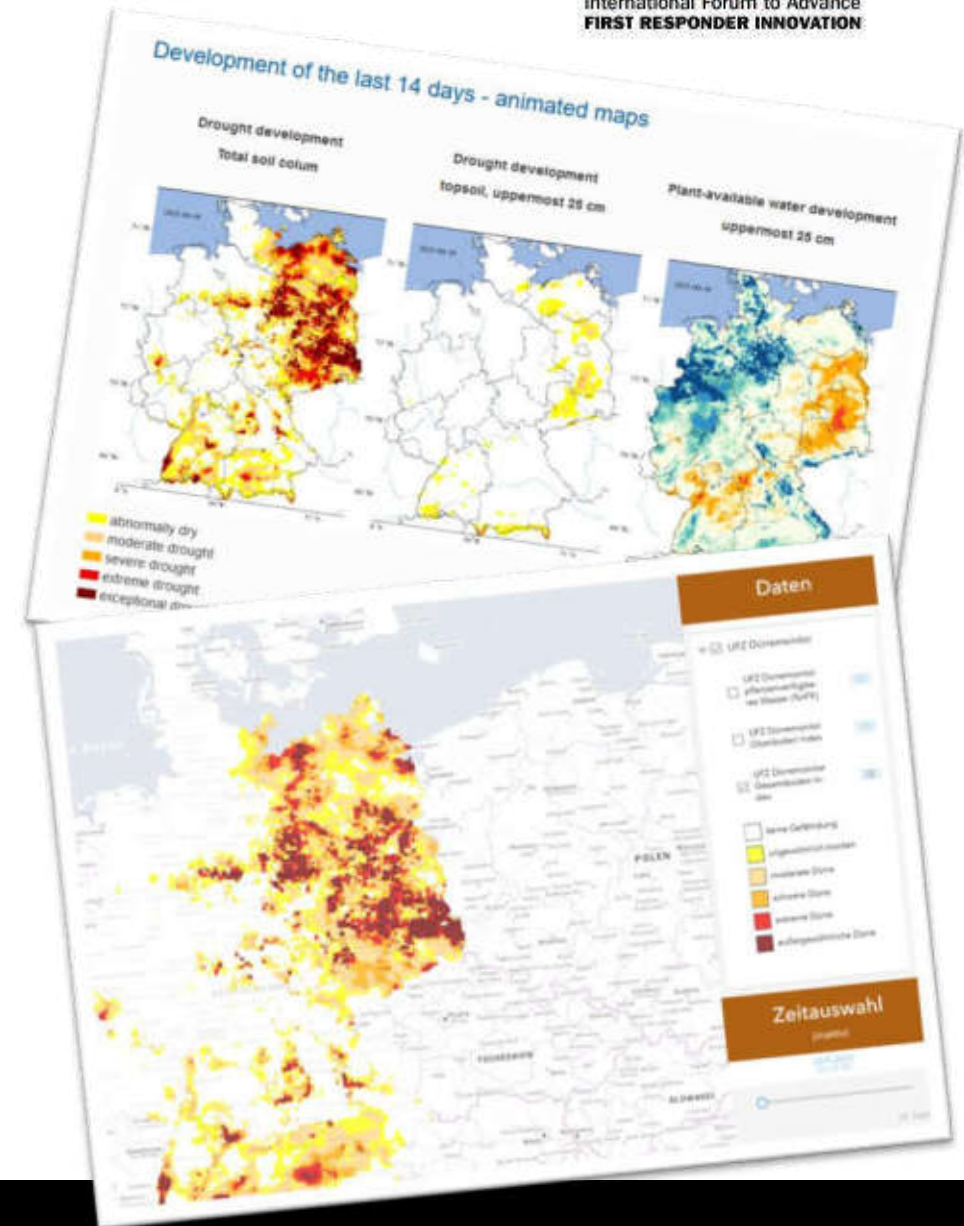
USA

- The Wildfire Predictive Services of NIFC has information available with a mapping application, that many of the state foresters finds very helpful
- There are many wildfire predictive risk analysis tools in the U.S. by private companies like Microsoft, First Street, Planet Lab or Universities. Some of these tools are used by the federal, state and local government agencies.
- FEMA has just started a project to analyze wildfire risk mapping in the U.S



Germany

- The UFZ Drought Monitor provides daily information on drought and soil moisture throughout Germany. This information is based on simulations using the mHM meso-scale hydrological model developed at the UFZ. Furthermore, animated maps demonstrate the development of drought over the last 14 days and the development of the quantity of water available to plants in the topsoil.
- With the drought atlas, information on soil moisture, precipitation, wind, water levels, heat and much more is brought together and made available centrally. Users have the possibility to analyze the data sets individually or in combination with the help of interactive functions.



Germany

- The Flood Atlas of the BKG (federal agency for cartography and geodesy) combines data sets with further up-to-date information, differentiated according to the focus of analysis - from the country to the global level.
- The heat atlas of the BKG (federal agency for cartography and geodesy) shows the temperature forecasts, the metropolitan areas, the population figures and their age structure. The user can use the visualization of the data and interaction options to make his or her own statements about the change in temperature in the cities, as well as display the analysis layer created by the BKG about the risk within the conurbations.




Germany










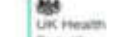
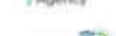
- Copernicus is a modern and powerful infrastructure for Earth observation for the application areas "land", "ocean", "atmosphere", "climate", "emergency management" and "security". This infrastructure includes the operation of its own satellites, the so-called Sentinels. The aim of the Copernicus programme is the evaluation of satellite images and the provision of information products (maps, geodata) for the above-mentioned application areas. This is done through so-called core services. In addition, the Copernicus EMS also offers products and analyses to prepare for potential hazard situations, such as vulnerability or risk analyses for different scenarios.



England

- Currently developing a number of tools: which includes a wildfire danger rating alert system
- Uses a daily hazard assessment to warn and inform when condition dictate the risk and severity of wildfires.


**Natural Hazards
PARTNERSHIP**
www.naturalhazardspartnership.org.uk

Daily Hazard Assessment

Issued on Friday, 08 September 2023 at 13:26 Local time

The Daily Hazard Assessment is intended to provide an 'at a glance' top level overview only. The links provided to the relevant Partner Organisations should then be used to obtain further information.

Hazards Five-Day Summary – AIR QUALITY: YELLOW, UKHSA TEMPERATURE ALERT: AMBER, WILDFIRE: AMBER, FLOOD: YELLOW, THUNDERSTORM: YELLOW.

AIR QUALITY: Widespread Moderate air pollution for many areas Friday to Sunday. High levels likely in parts of England Friday and Saturday.

UKHSA TEMPERATURE ALERT: High day and night-time temperatures are expected until the new working week for much of England.

WILDFIRE: Elevated wildfire conditions forecast for eastern and southeastern England from the weekend, with Severe conditions possible Sunday and Monday.

FLOOD: Significant surface water flooding impacts are possible but not expected on Saturday across parts of England and Wales. The overall flood risk is LOW.


THUNDERSTORM: The Met Office has issued a Yellow NSWWS warning for thunderstorms on Saturday in parts of Wales and England.

Hazards Five-Day Summary Maps

Friday 08-Sep 1400 - 2359	Saturday 09-Sep 0000 - 2359	Sunday 10-Sep 0000 - 2359	Monday 11-Sep 0000 - 2359	Tuesday 12-Sep 0000 - 2359

These maps provide an 'at a glance' indication of the natural hazards that could occur over the next five days. The area covered by each ellipse is indicative only to alert the user to which areas of the UK are at risk of a hazard. More detailed information will be found using the links provided. The highest level of alert will be shown, but each ellipse could indicate more than one hazard. For non-area specific hazards, the alert level is indicated by a coloured rectangle underneath the maps. Please see user guide on Hazard Manager for further detail.

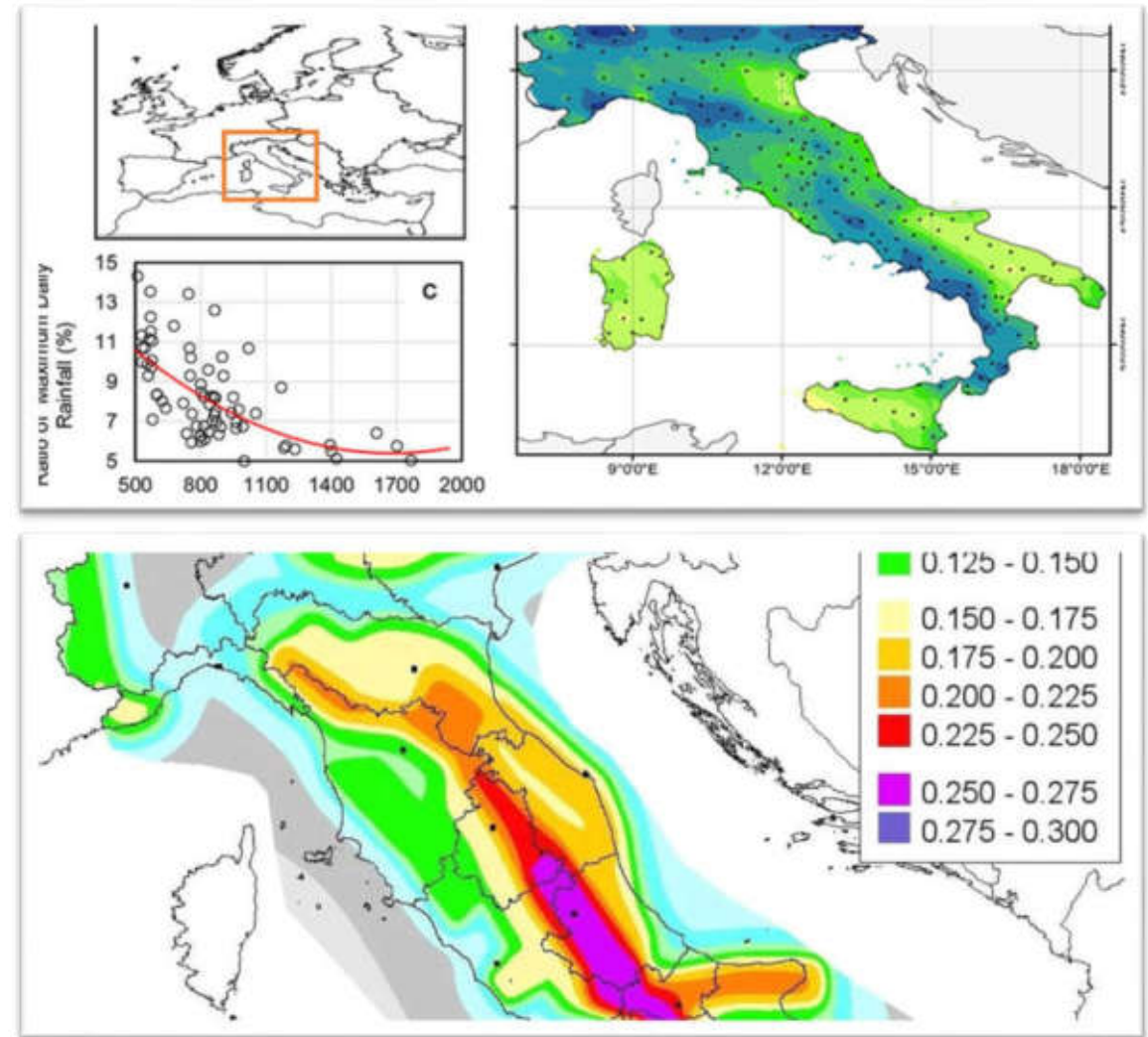
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Daily Hazard Assessment

Hazards Five-Day Summary Detail

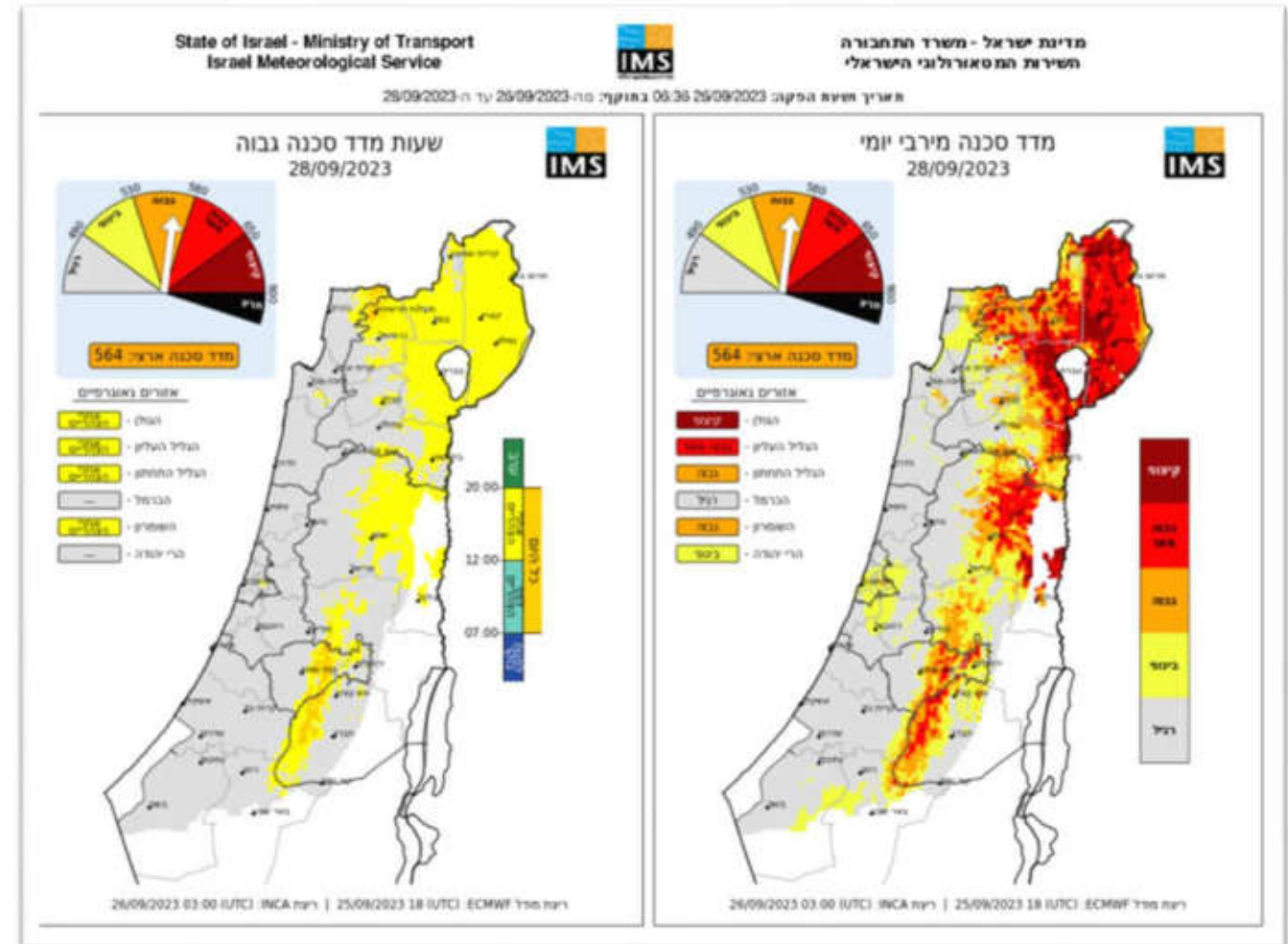
Italy

- The hydrological districts (there are 7 hydrographic districts) publish the cartography of the hazard and risk flood areas of all Italian rivers.
- For the seismic part, there is seismic microzonation of all national areas, which is dealt with by civil protection, INGV and universities and research centres. Contact them for more information



Israel

- The Israeli Meteorological Service generates a report every day for the use of Israel Fire & Rescue. The report estimates the threat of fire across the country



Greece

- The General Secretariat of Civil Protection issues a daily prognosis of the current risk of fire that is being used as an operational tool across the country



Greece

- The Hellenic National Meteorological Service (HNMS) is the designated authority for monitoring and forecasting meteorological hazards. HNMS maintains an extensive observational network, including automatic weather stations, lightning detectors, upper air stations and weather radars



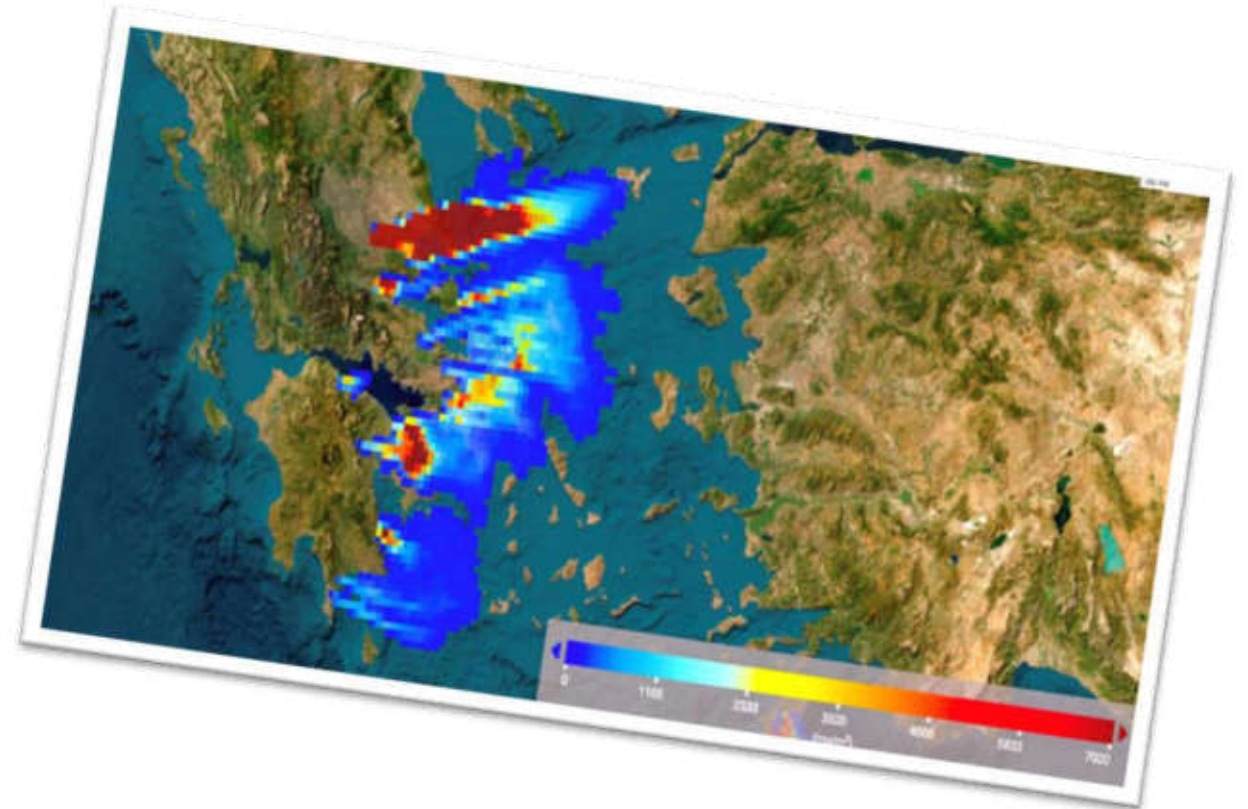
Greece

- BEYOND Center for Earth Observation Research and Satellite Remote Sensing operates the Forest Fire Information System. The center is responsible for providing a range of rapid satellite based active fire detection and burned area assessments products covering the entire region of Europe, Balkans, North Africa, the Black Sea and the Middle East around the clock



Greece

- Wildfire smoke is strongly correlated to climate change. NOA' smoke dispersion application provides forecasts of wildfire smoke dispersion, for real or simulated events. Data from high resolution weather forecasts, alongside ground based and satellite observations are used to enhance simulations of particle dispersions that provide a look into the transport and evolution of the atmospheric hazards.



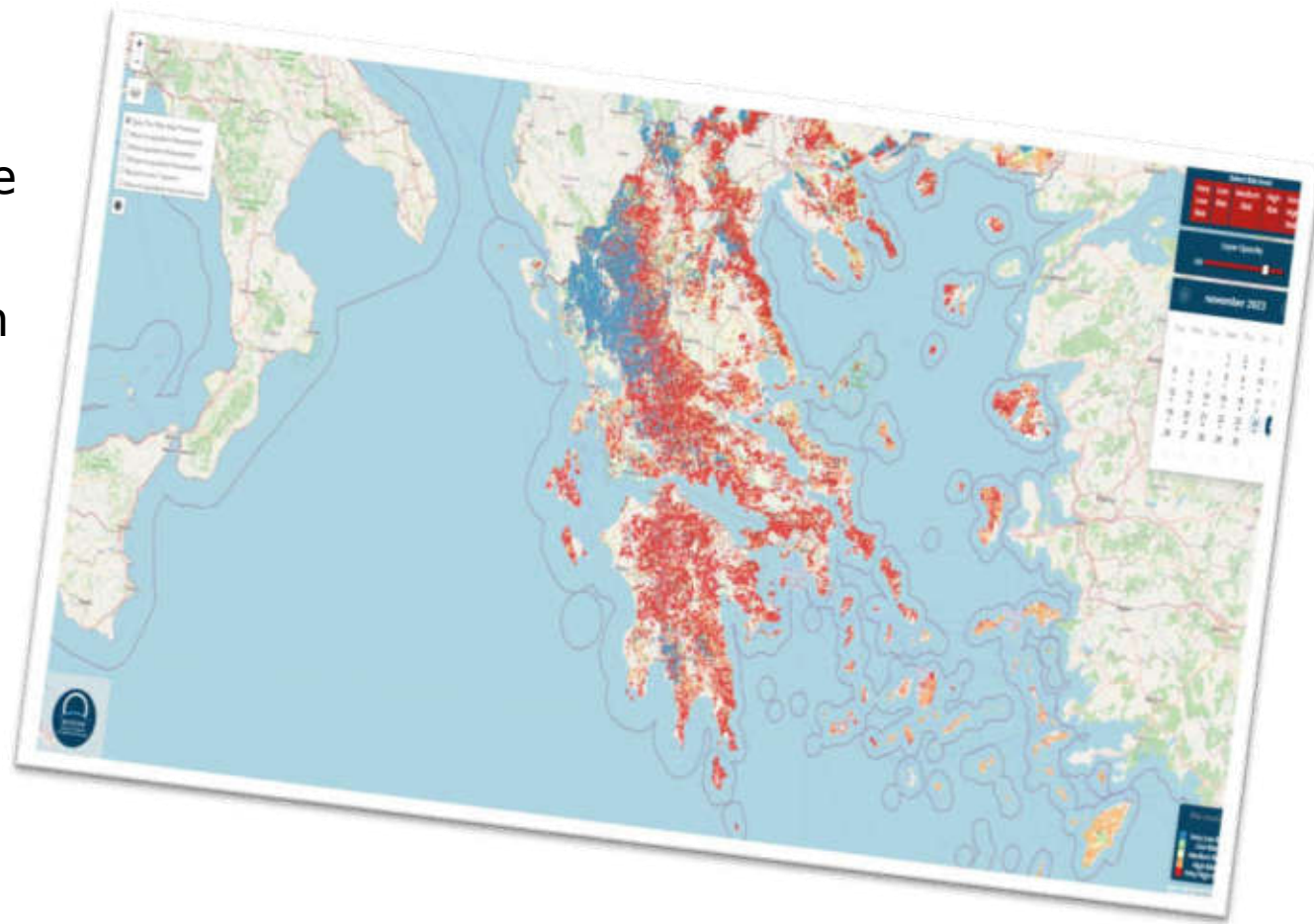
Greece

- Real-Time Fire Monitoring Service is a 24/7 active fire detection service for effectively monitoring forest fires all over Greece in near-real time. It is continuously ingesting real time satellite acquisitions from every 5 minutes to a few hours from various missions



Greece

- This service focuses on the next day fire prediction task. The importance of this task is twofold. Next day fire prediction is crucial for the short-term (daily) organization and optimal distribution of Fire Services' forces, as well as for informing the public about the daily local fire risk on a high-resolution map.



For further information

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