An illustration of the Earth from space, showing the continents of Europe and Africa. Several colorful orbital paths (blue, yellow, red, green) are shown around the planet. A satellite is depicted in one of the orbits. The background is a dark blue gradient.

Copernicus EMS in support of crisis preparedness and response operations

Copernicus Emergency Management Service



Space



Copernicus EU



Copernicus EU



Copernicus EU



www.copernicus.eu

The European Forest Fire Information System

1998

First meeting of the "Forest Fire Experts Group" of the Member States, established @DG JRC
Set up of a research group to work on advanced methods for the evaluation of forest fire danger and mapping of burnt areas.

2000

The EFFIS becomes operational

2003 and 2004

Rapid damage assessment introduced to provide quasi-real time maps of burned areas in southern Europe. EU fire database was established and since then the number of participating countries has been continuously increasing.

2005

New web map viewer introducing additional functionalities and the query tools.

2007 and 2008

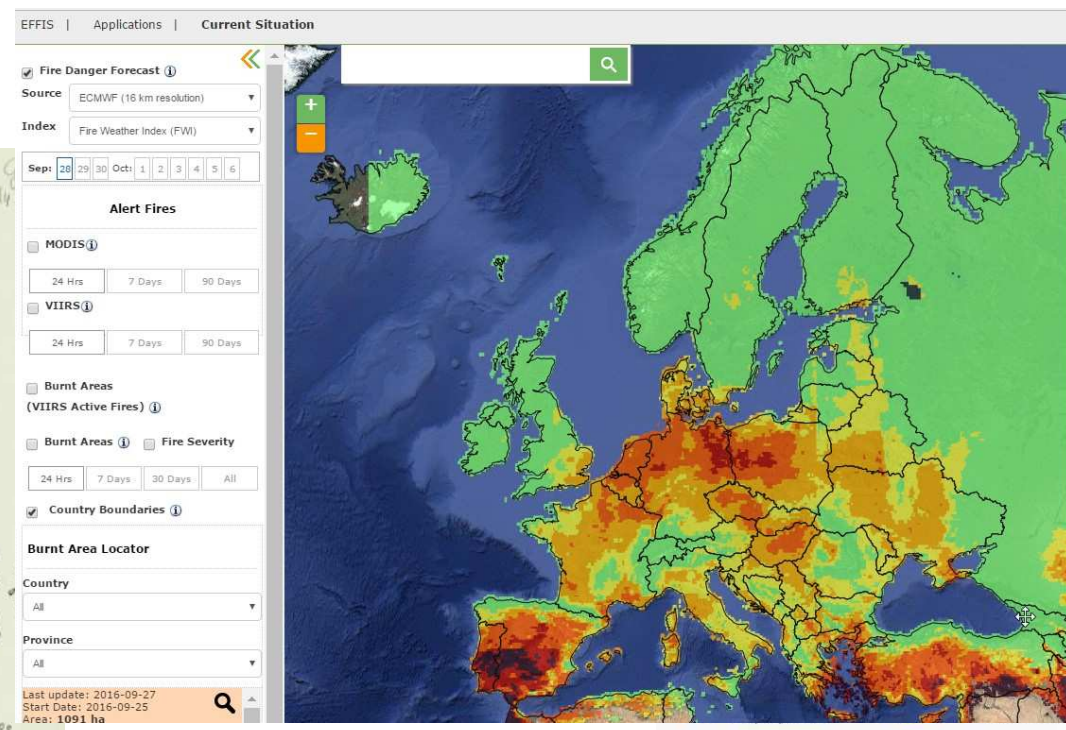
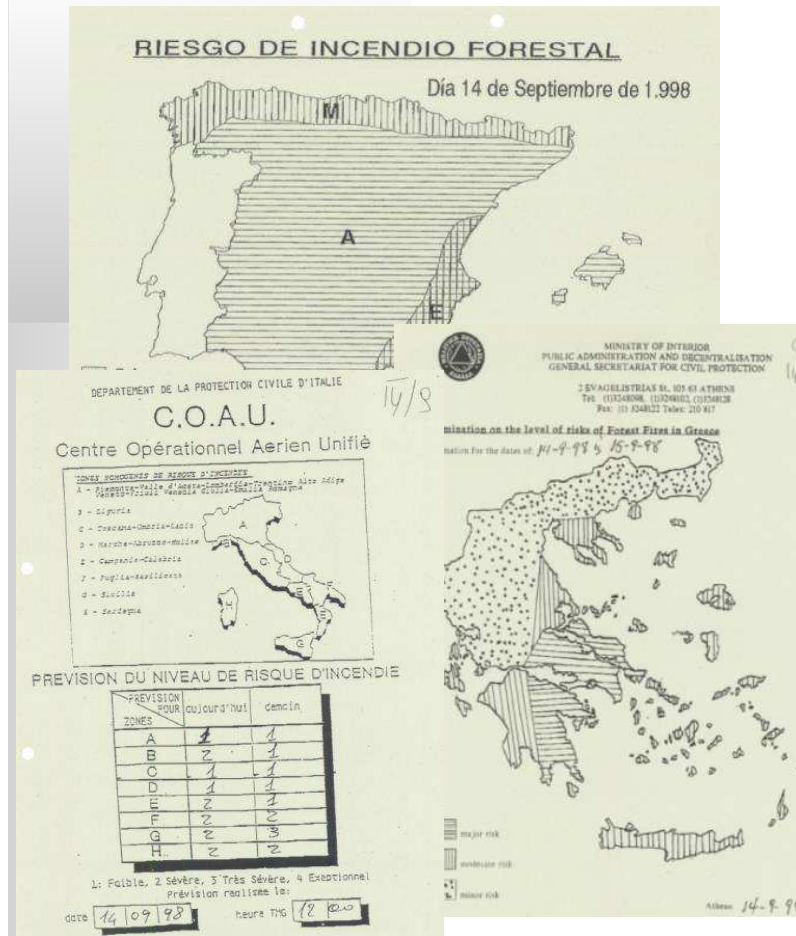
New products and functions: "current situation" interface with additional real-time information such as hot spots maps or news from the internet press. Unified fire danger assessment method was adopted in EFFIS and fire danger forecasts were extended to 6 days. New products providing maps of fire danger anomalies and absolute ranking based on the fire danger index.

2015

EFFIS became one of the components of the [Emergency Management Services](#) in the EU Copernicus program

Scope of EFFIS

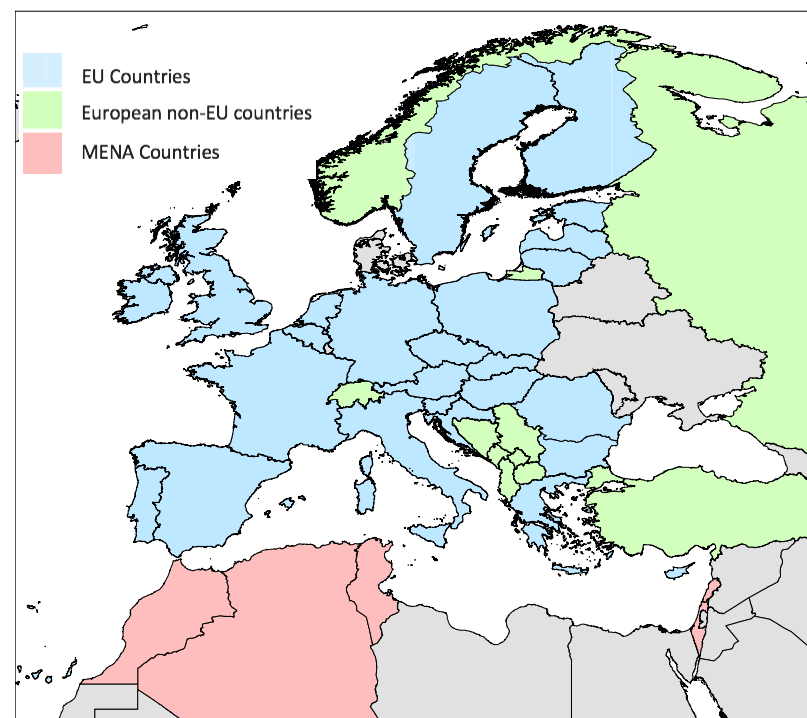
Harmonize the fire information exchange



The EFFIS network

- EFFIS services and products are freely accessible via the EFFIS portal at <http://forest.jrc.ec.europa.eu/effis/>
- EFFIS users include:
 - EC DGs and Services,
 - European Parliament,
 - associated national/regional forest fire and civil protection services,
 - FAO, Silva Mediterranea,
 - UNECE

2016 EFFIS Network – 40 countries



PT-ES-FR-UK-IT-CH-DE-SE-NO-BE-CZ-AT-SI-HR-FI-PL-SK-HU-MK-GR-EE-LV-LT-RO-BG-TR-CY-IE-MA-LB-ME-BS-KO-AL-RU-ALG-LEB-MOR-TUN

EFFIS under the Copernicus programme

- Provides EU level assessments during both pre-fire and post-fire phases, thus supporting fire prevention, preparedness, fire fighting and post-fire operations
- Complements national fire information systems through the provision of harmonised data, methods and standards



Fire danger forecast

1. Fire danger forecast

Short and long-term fire danger forecast

daily maps of 1 to 10 days of forecasted fire danger level using numerical weather predictions

Monthly and seasonal fire weather forecast

temperature and rainfall anomalies expected over European and Mediterranean areas. Based on the [ECMWF](#) (European Centre for Medium-Range Weather Forecasts) Monthly and Seasonal Forecasting

JOINT RESEARCH CENTRE
EFFIS - European Forest Fire Information System

Europa » EC » JRC » IES » FRC » FOREST » EFFIS

EFFIS

- About EFFIS
- Reports and Publications
- Applications
 - Current Situation**
 - Long-term fire weather forecast**
- Fire History
- Firenews
- Data and Services
- Global Wildfire Information System (beta viewer)
- VGI (Beta)

WELCOME TO EFFIS

The European Forest Fire Information System (EFFIS) supports the services in charge of the protection of forests against fires in the EU countries and provides the European Commission services and the European Parliament with updated and reliable information on wildland fires in Europe.

A number of specific applications are available through EFFIS:

EFFIS Damage Assessment

EFFIS Burned Area (hectares)

Total EFFIS Coverage

Mapped 84194

Estimated 112258.67

(Updated daily) [information](#)

CURRENT SITUATION

The most up to date information on the current fire season in Europe and in the Mediterranean area. This includes today meteorological fire danger maps and forecast up to 6 days, daily updated maps of hot spots and fire perimeters.

FIRE NEWS

A selection of news from the press on wildland fires in Europe updated daily by the EFFIS team. News can be browsed for specific countries selected by the user from the news map.

Fire danger forecast

EFFIS | Applications | Current Situation

☒ Fire Danger Forecast ⓘ

Source ECMWF (16 km resolution) ▼

Index Fire Weather Index (FWI) ▼

Nov: 11 12 13 14 15 16 17 18 19

Alert Fires

☐ MODIS ⓘ

24 Hrs

7 Days

90 Days

☐ VIIRS ⓘ

24 Hrs

7 Days

90 Days

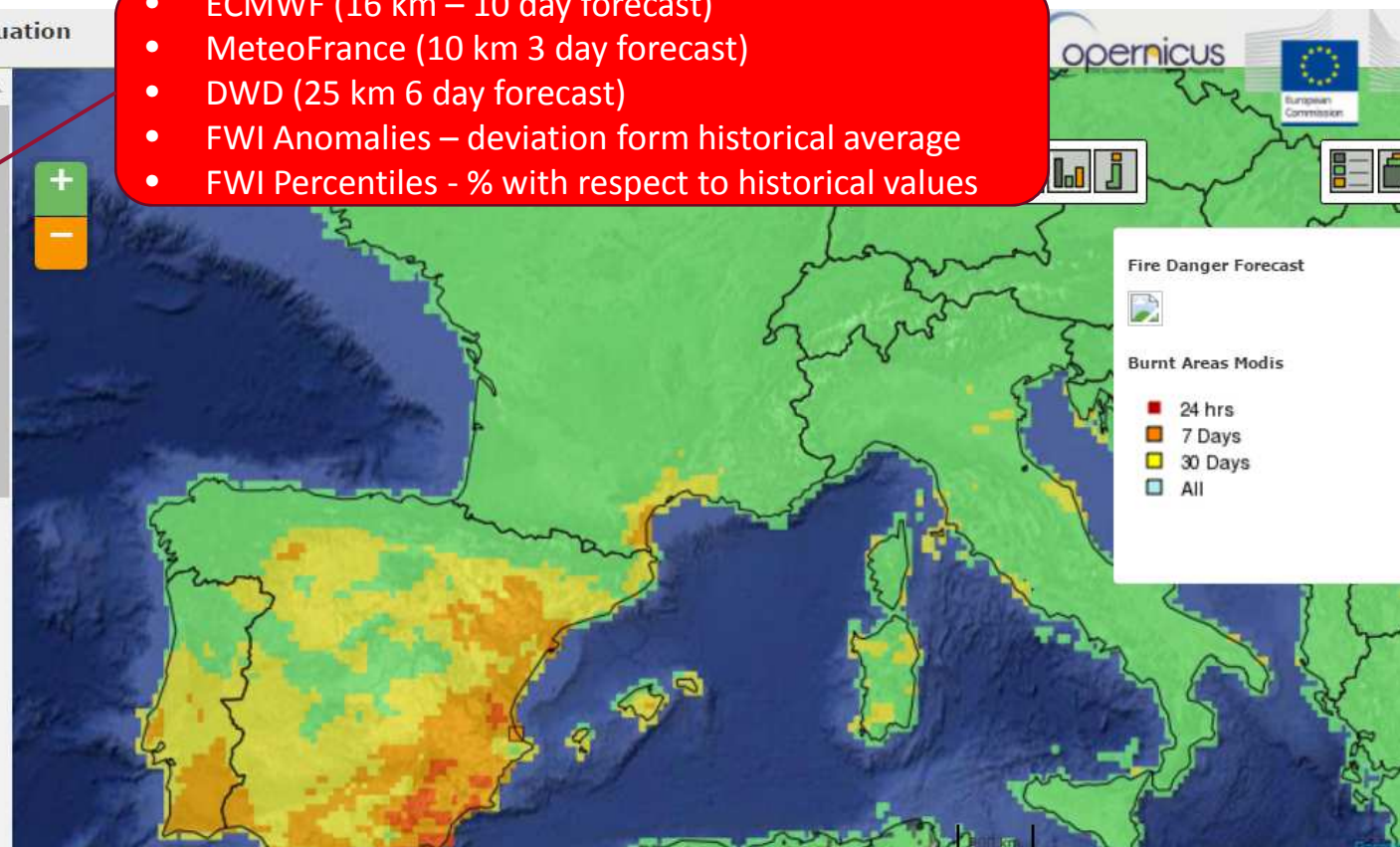
☐ Burnt Areas

(VIIRS Active Fires) ⓘ

☒ Burnt Areas ⓘ

☐ Fire Severity

- ECMWF (16 km – 10 day forecast)
- MeteoFrance (10 km 3 day forecast)
- DWD (25 km 6 day forecast)
- FWI Anomalies – deviation from historical average
- FWI Percentiles - % with respect to historical values



opernicus



Fire Danger Forecast

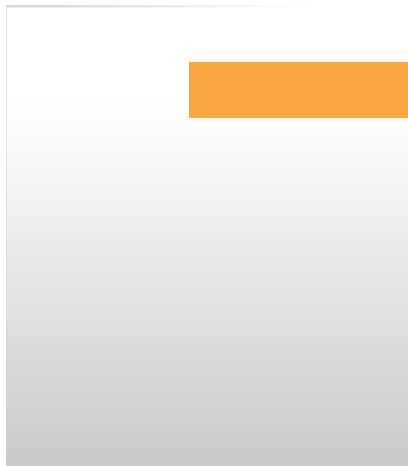


Burnt Areas Modis

- 24 hrs
- 7 Days
- 30 Days
- All

Europe's eyes on Earth

Commission



Fire danger forecast - classes

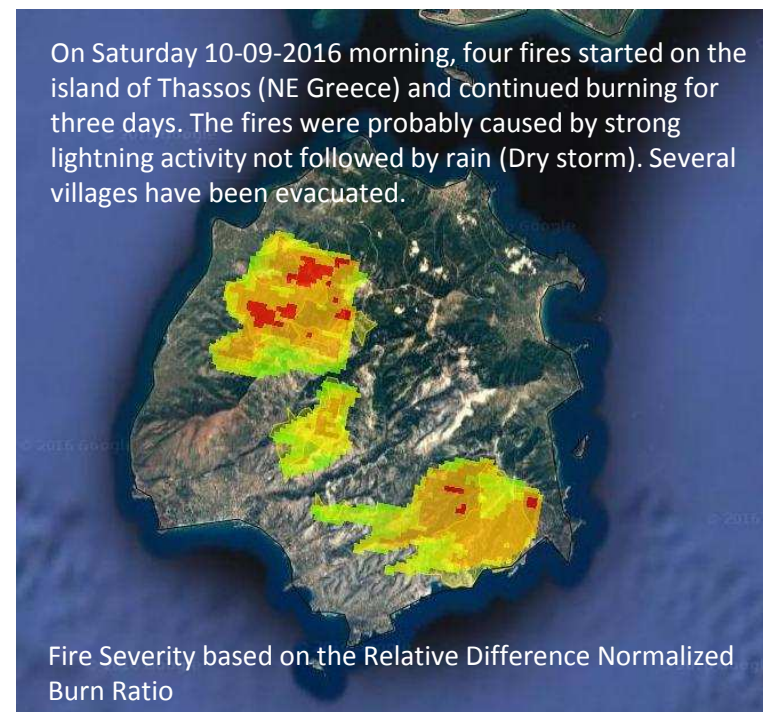
- 6 classes (very low, low, medium, high, very high and extreme)
- spatial resolution of about 16 km (ECMWF data), 10 km (MF data) and 36 km (DWD data)
- harmonized picture of the spatial distribution of fire danger level throughout EU

Fire Danger Classes	FWI ranges (upper bound excluded)
Very low	< 5.2
Low	5.2 - 11.2
Moderate	11.2 - 21.3
High	21.3 - 38.0
Very high	38.0 - 50.0
Extreme	≥ 50.0

2. Active fire and burnt area mapping

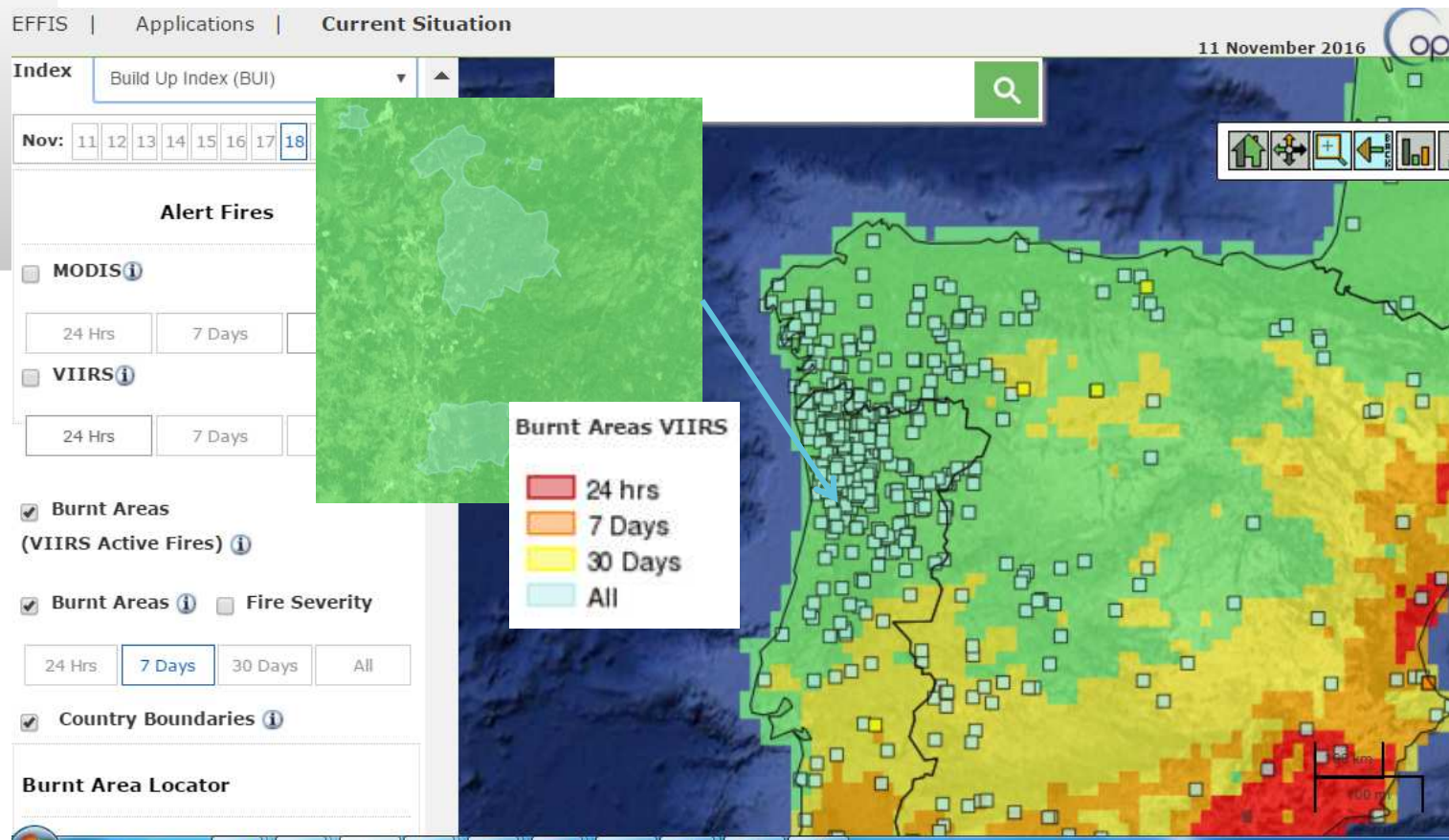
- Active fire mapping (MODIS/VIIRS/Sentinel2&3),
- Firenews, items selected from a large set of RSS feeds published by various forest fires related sites
- Medium spatial resolution (~ 300 m) Near-real time mapping of burnt areas (twice a day in pan-European region) (MODIS/VIIRS/Sentinel3)
- High spatial resolution(~10-30 m) weekly (or bi-weekly) mapping of burnt areas (e.g. Sentinel2, Landsat8, SPOT)

On Saturday 10-09-2016 morning, four fires started on the island of Thassos (NE Greece) and continued burning for three days. The fires were probably caused by strong lightning activity not followed by rain (Dry storm). Several villages have been evacuated.



Post fire assessment – burnt area

Hot spots and perimeters of the burnt areas have different colours depending on the time frame they belong to.

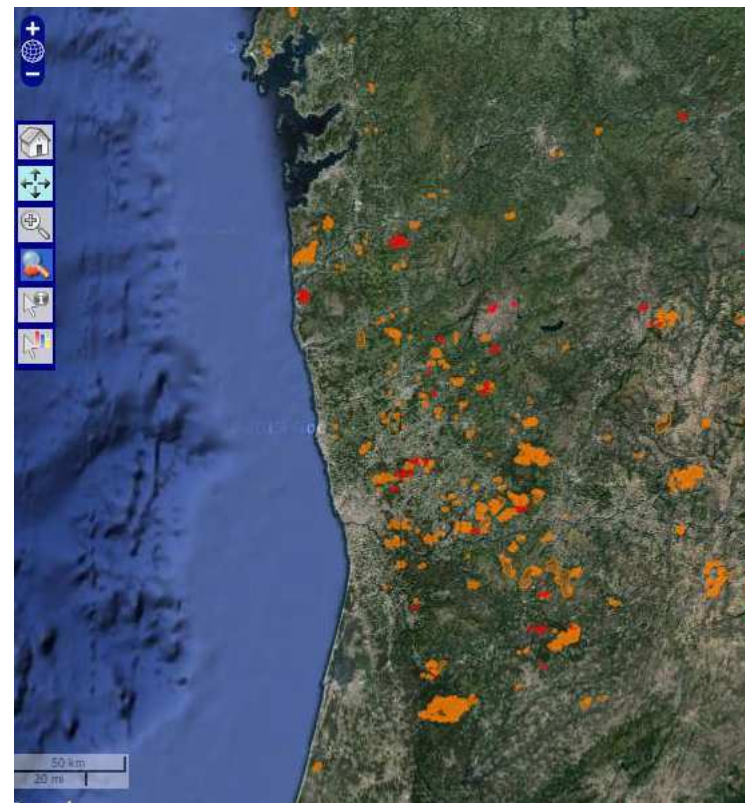


Post fire - Rapid damage assessment



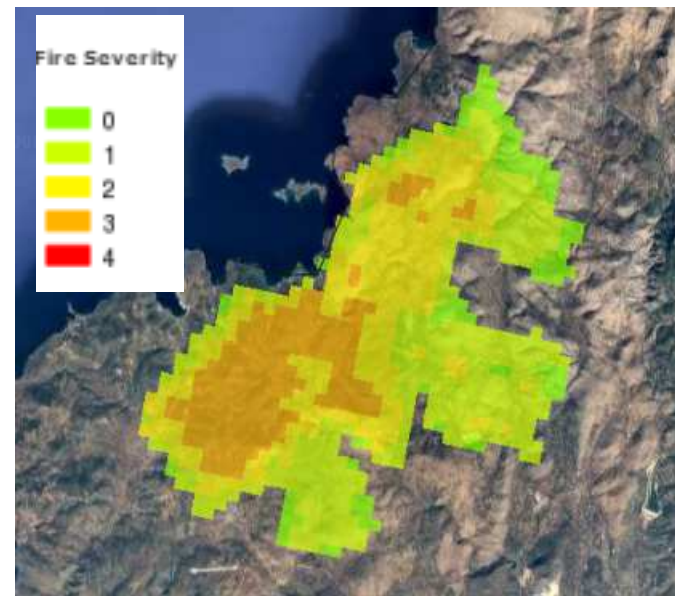
Burnt area mapping (Rapid Damage Assessment)

- burned areas during the fire season, derived from MODIS daily images with 250 m spatial resolution
- daily update of the perimeters of burnt areas in Europe for fires of about 40 ha or larger:
 - Location
 - Fire duration
 - Total burnt area
 - Landcover affected



Post damage assessment - fire severity

- Fire severity: based on the Relative Difference Normalized Burn Ratio (Miller et al. 2009)
- Under development:
 - Post-fire vegetation regeneration to assess the vegetation recovery in a time series of images
 - Post-fire soil erosion risk to assess the potential soil loss

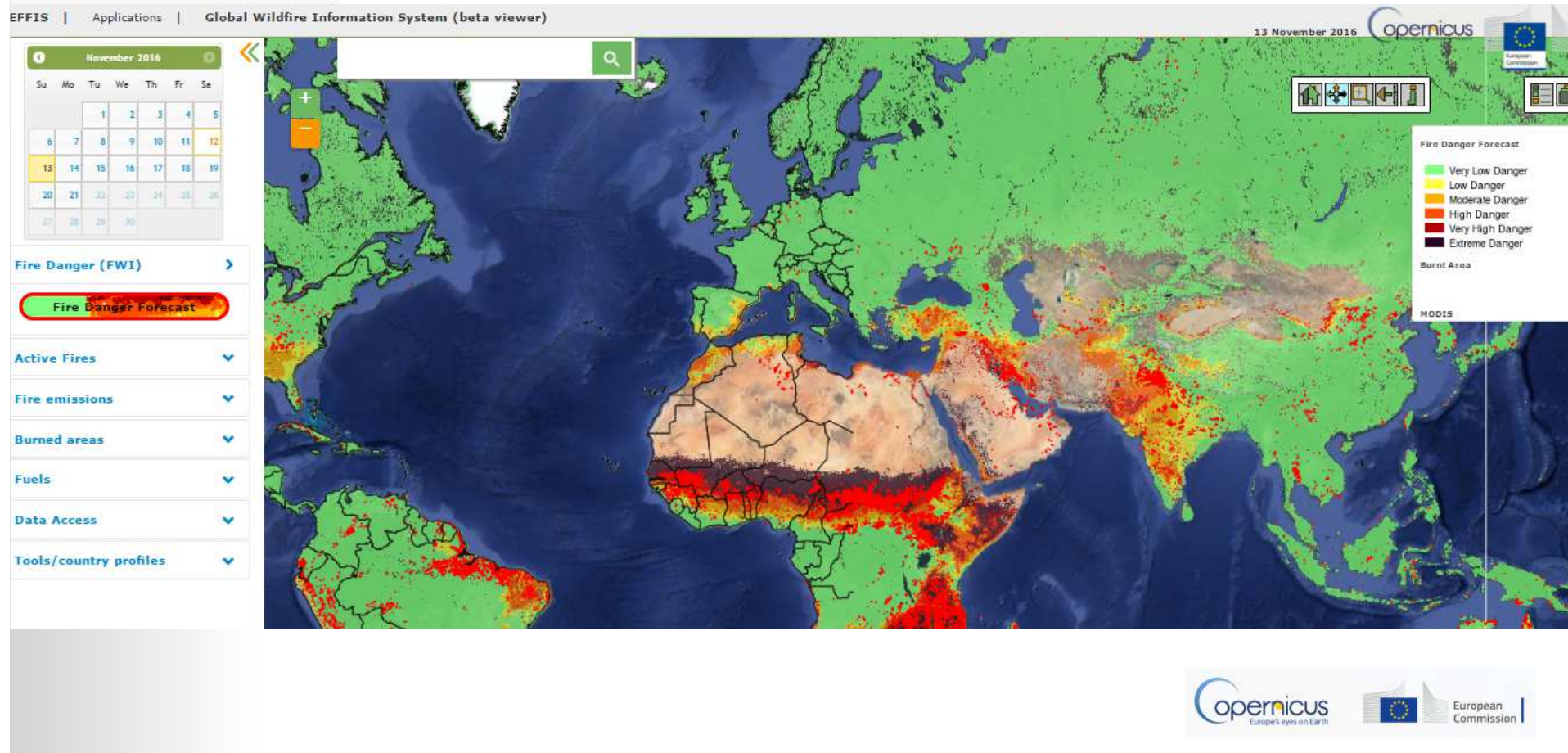


EFFIS components - next enhancement

The following EFFIS components are operated by the JRC:

- 3. Enhancements of other existing modules of EFFIS e.g. fire database, fire emissions and dispersion, soil erosion, vegetation regeneration, fire spread prediction for large fires, etc.**
- 4. Dissemination services – operation of web services & contact with countries**
- 5. Development of a Global Wildfire Information System (GWIS) in cooperation with GOFC Fire IT (Global Observation of Forest Cover Fire Implementation Team) and GEO (Group on Earth Observations).**

Global Wildfire Information System - preview





How can I access EFFIS?

- The EFFIS landing page provides fire danger forecast and active fire and burnt area mapping in a freely accessible Web-GIS at: <http://forest.jrc.ec.europa.eu/effis/>
- WMS are available at <http://forest.jrc.ec.europa.eu/effis/applications/data-and-services/> , serving Hot Spot, Burnt Area Points, Burnt Area Perimeters (24 hours, 7 days, 30 days, entire season)
- Get additional support by filling in the data request form for any request of data which is not available through the EFFIS web services (e.g. historic data, extracts of the fire database, or raw burned area perimeters) can be asked.