



# Copernicus Emergency Management Services

## Wildfire Early Warning and Monitoring

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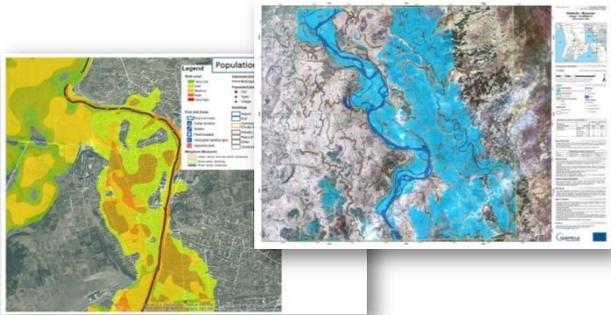


- ★ Addresses natural and man-made disasters **globally** supporting **all phases of DRM**
- ★ Provides **earth-observation, model & in-situ** based disaster management information

## On-demand Mapping

### Rapid Mapping

24/7 on-demand and fast provision of geospatial information



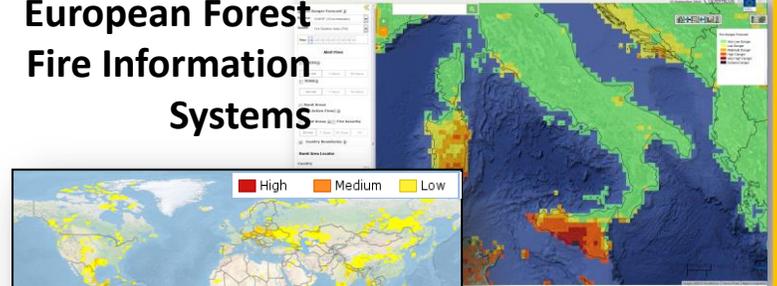
### Risk & Recovery Mapping

supporting prevention, preparedness, reconstruction, recovery



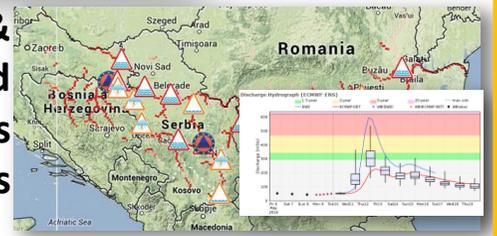
## Early Warning & Monitoring Systems

### European Forest Fire Information Systems



### European & Global Drought Observatory

### European & Global Flood Awareness Systems



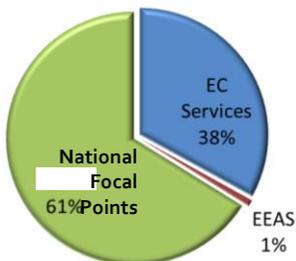


## Rapid Mapping

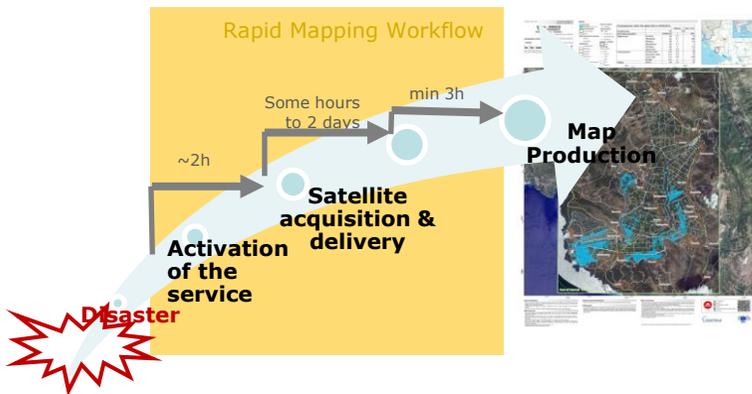
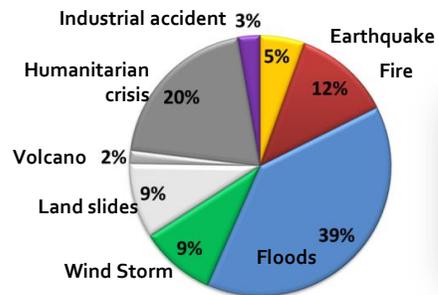
### In Brief

- 24/7/365
- Fast provision of geospatial information
- Supports emergency management activities (response)
- Standardised workflow and products
- 184 activations since April 2012

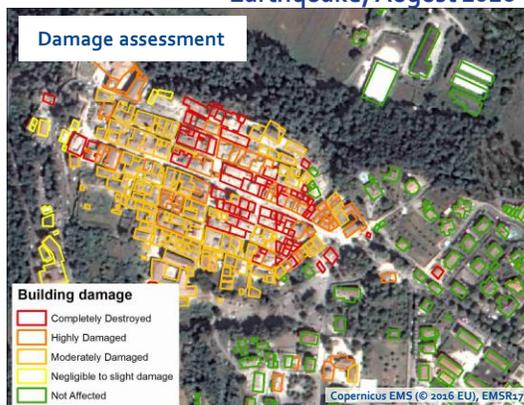
### Who activates?



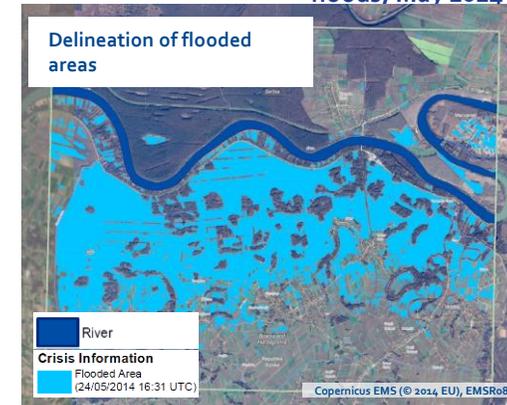
### For which Disasters?



### Assessment of damages after Central Italy Earthquake, August 2016



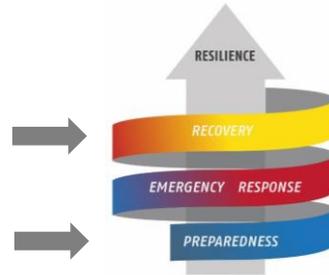
### Detection of flooded areas - Balkan floods, May 2014



## Risk and Recovery Mapping

### In Brief

- On-demand geospatial information supporting situations which do not require immediate action
- Supports pre- and post-disaster activities
- Tailored to user needs (case specific)
- Product delivery in weeks/months

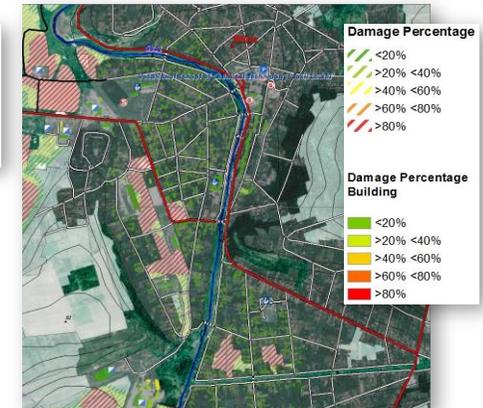
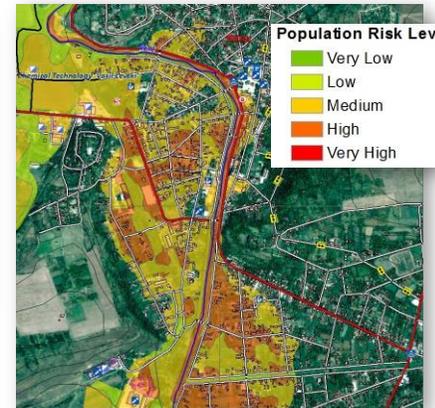
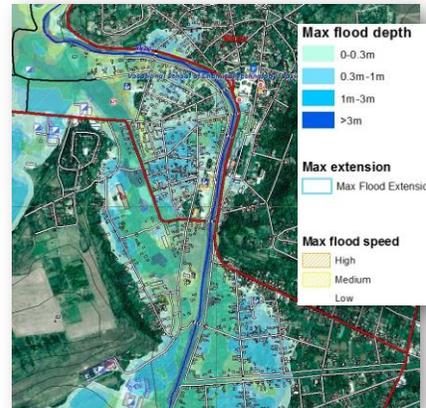
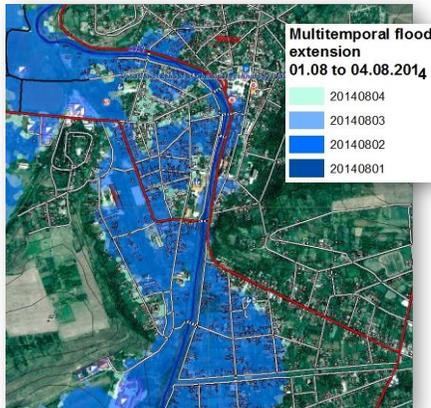


### Pre-disaster Mapping

- Hazard exposure
- Vulnerability & resilience of buildings or people
- Risk status for population and assets
- Evacuation plan
- Probabilistic risk assessment based on likely hazards

### Post-disaster Mapping

- Changes of Vulnerability and resilience of urban settlements
- Risk status for new assets
- Post-disaster needs assessment
- Recovery plans
- Reconstruction/rehabilitation monitoring

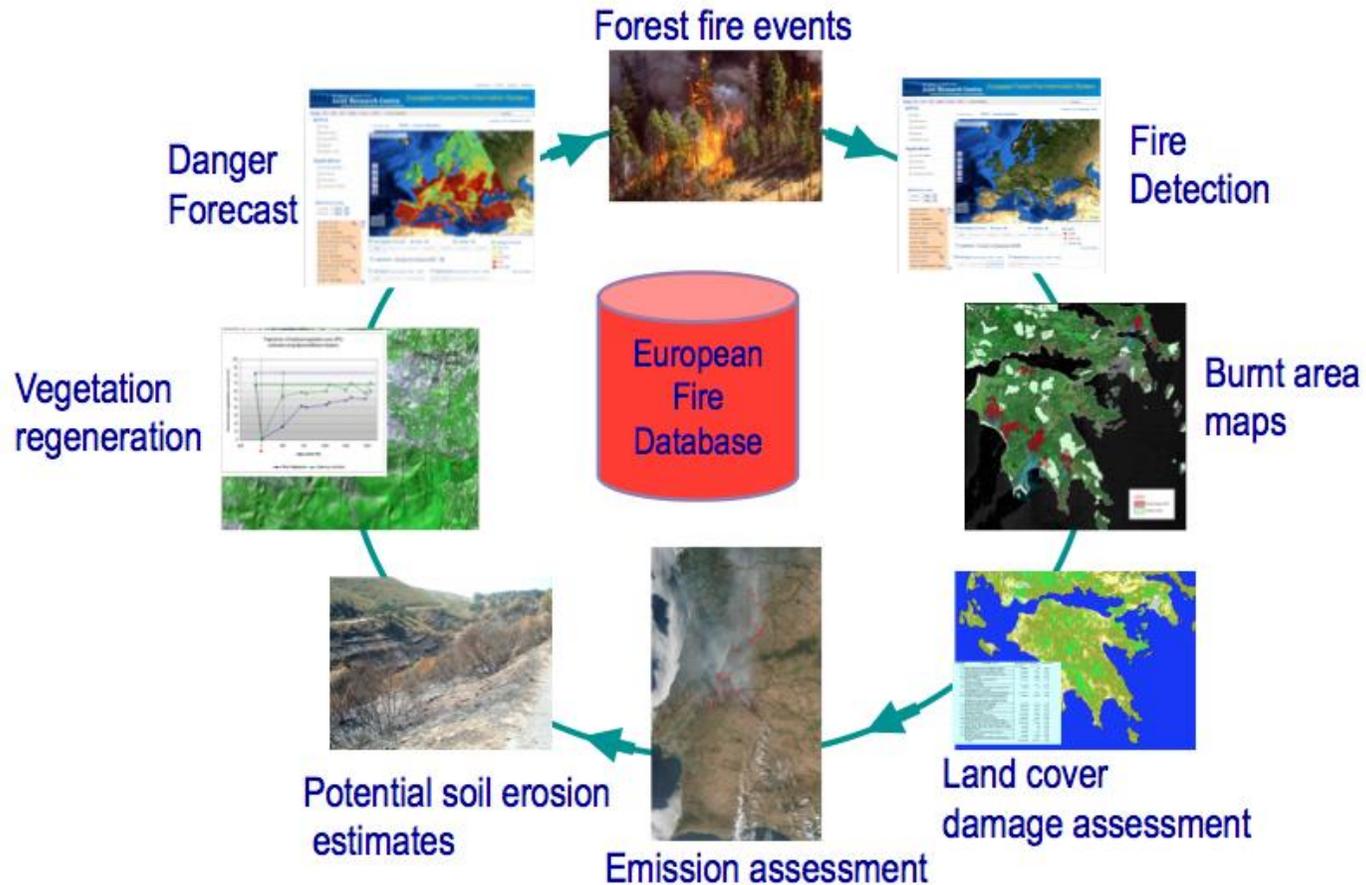




# **Wildfire Early Warning and Monitoring**

## **The European Forest Fire Information System (EFFIS) & The Global Wildfire Information System (GWIS)**

# European Forest Fire Information System (EFFIS)





COPERNICUS

Emergency Management Service



European Commission > JRC EU Science Hub > DRM > Copernicus EMS > European Forest Fire Information System (EFFIS)

- About EFFIS ▾
- Reports and Publications ▾
- Applications ▾
- Partners
- Contact Us

## 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:

Since 1998, EFFIS is supported by a network of experts from the countries in what is called the **Expert Group on Forest Fires**, which is registered under the Secretariat General of the European Commission. Currently, this group consists on experts from 40 countries in European, Middle East and North African countries. In 2015, EFFIS became one of the components of the Emergency Management Services in the EU Copernicus program.

The link to some of the most widely used applications is provided below. Additional applications such as the extension of EFFIS to the global level into a Global Wildfire Information System (GWIS) are available through the side "Applications" box.

### New feature

Make your specific requests of data by the new **Data Request Form**

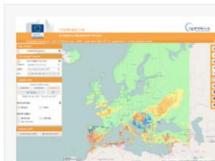
**Visit the brand-new Global Wildfire Information System Viewer**

### EFFIS Damage Assessment

**EFFIS Burned Area (ha)**  
**Total EU28 Countries**  
 Mapped: 193741 (19.2 % Forest)  
 Estimated: 258321.33

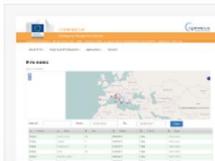
**Total EFFIS Coverage**  
 Mapped: 264051  
 Estimated: 352068

(Updated daily)



### Current Situation

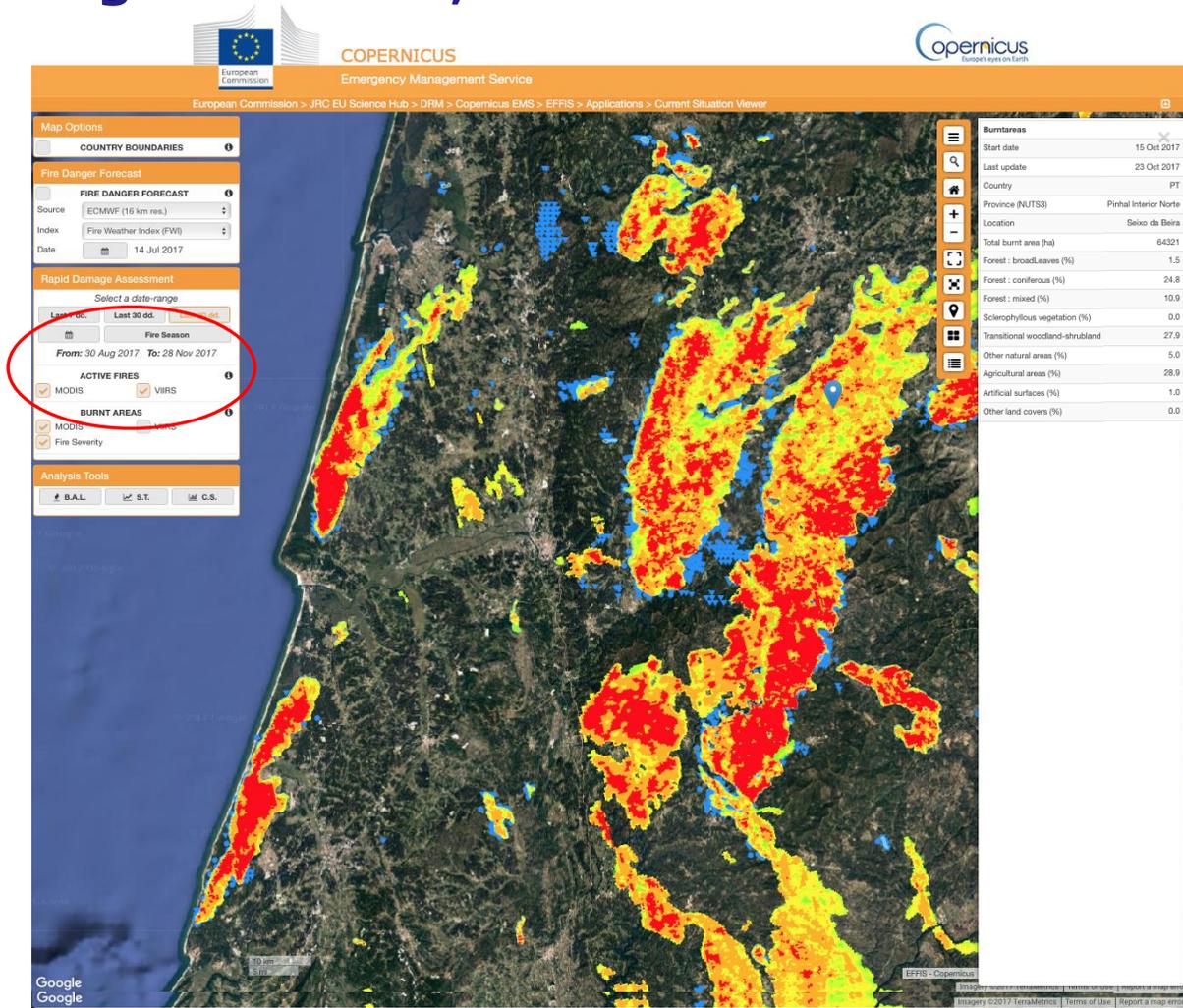
The most up to date information on the current fire season in Europe and in the Mediterranean area. This includes today meteorological fire danger maps and forecast up to 6 days, daily updated maps of hot spots and fire perimeters.



### Fire News

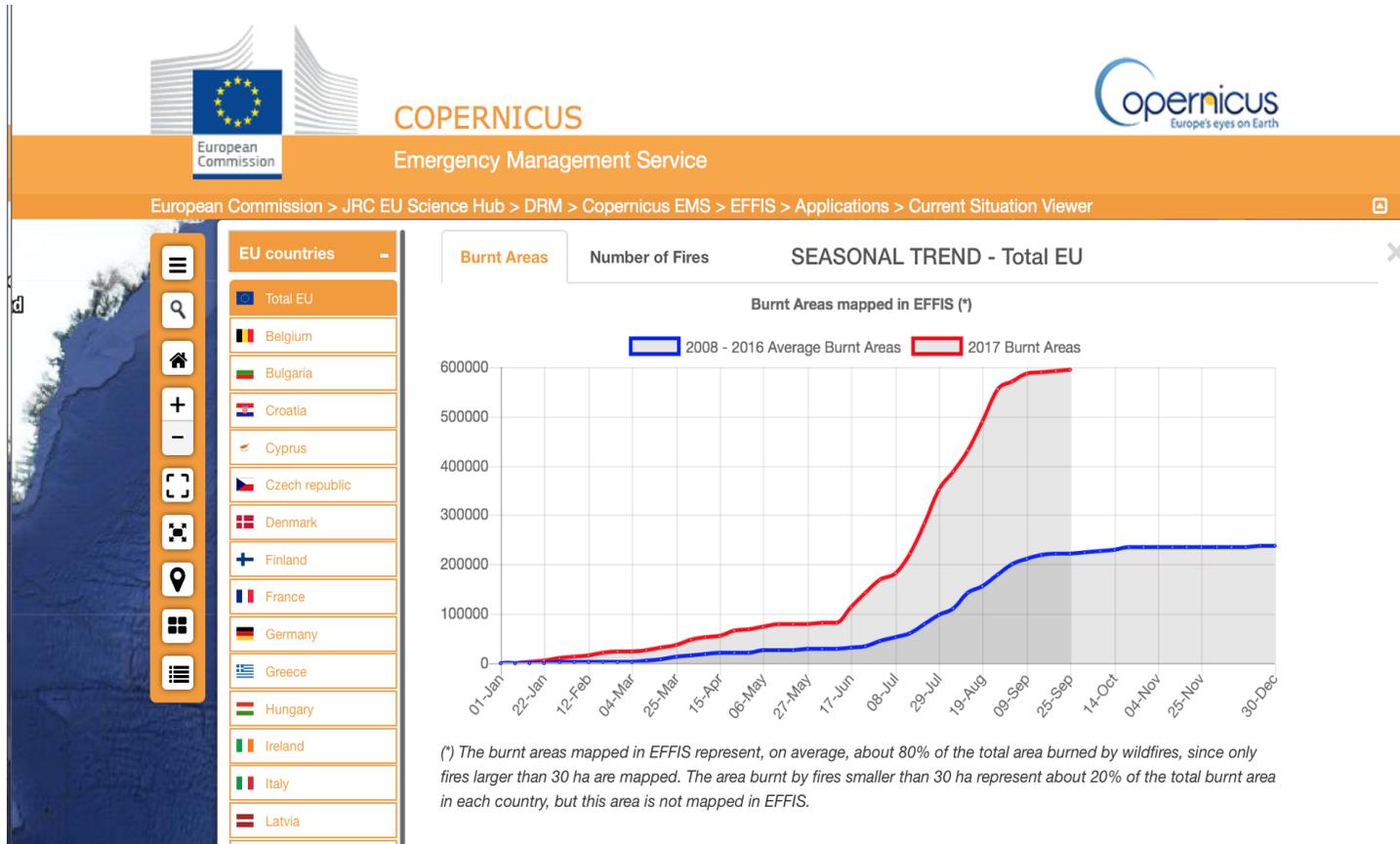
A selection of news from the press on wildland fires in Europe updated daily by the EFFIS team. News can be browsed for specific countries selected by the user from the news map.

# Fire danger forecast, active fire and burnt area mapping





# EFFIS wildfire monitoring



(\*) The burnt areas mapped in EFFIS represent, on average, about 80% of the total area burned by wildfires, since only fires larger than 30 ha are mapped. The area burnt by fires smaller than 30 ha represent about 20% of the total burnt area in each country, but this area is not mapped in EFFIS.

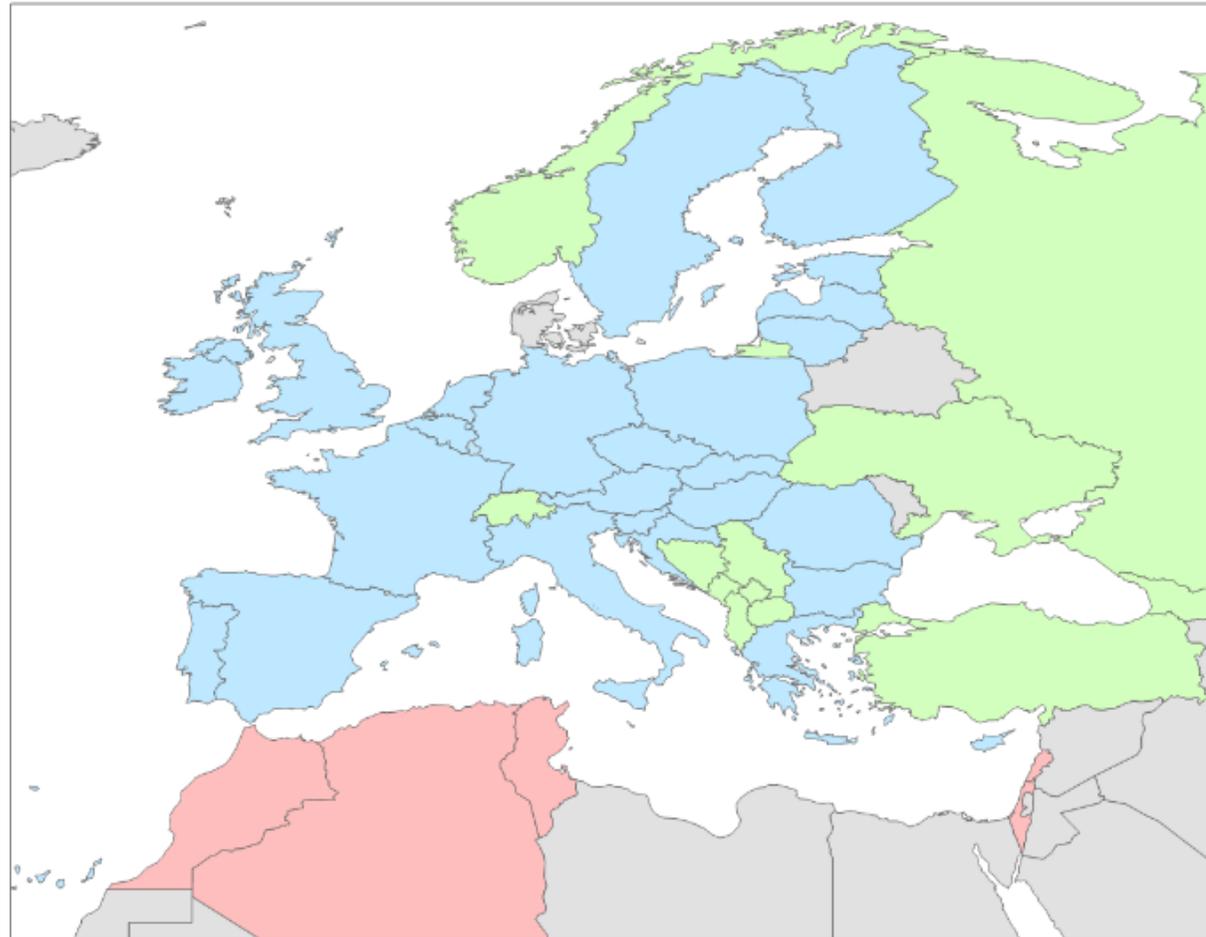


## Current EFFIS Network of 43 Countries

## EFFIS Network

Extension to MENA countries in collaboration with FAO

-  EU Countries
-  European non-EU countries
-  North Africa & Middle East



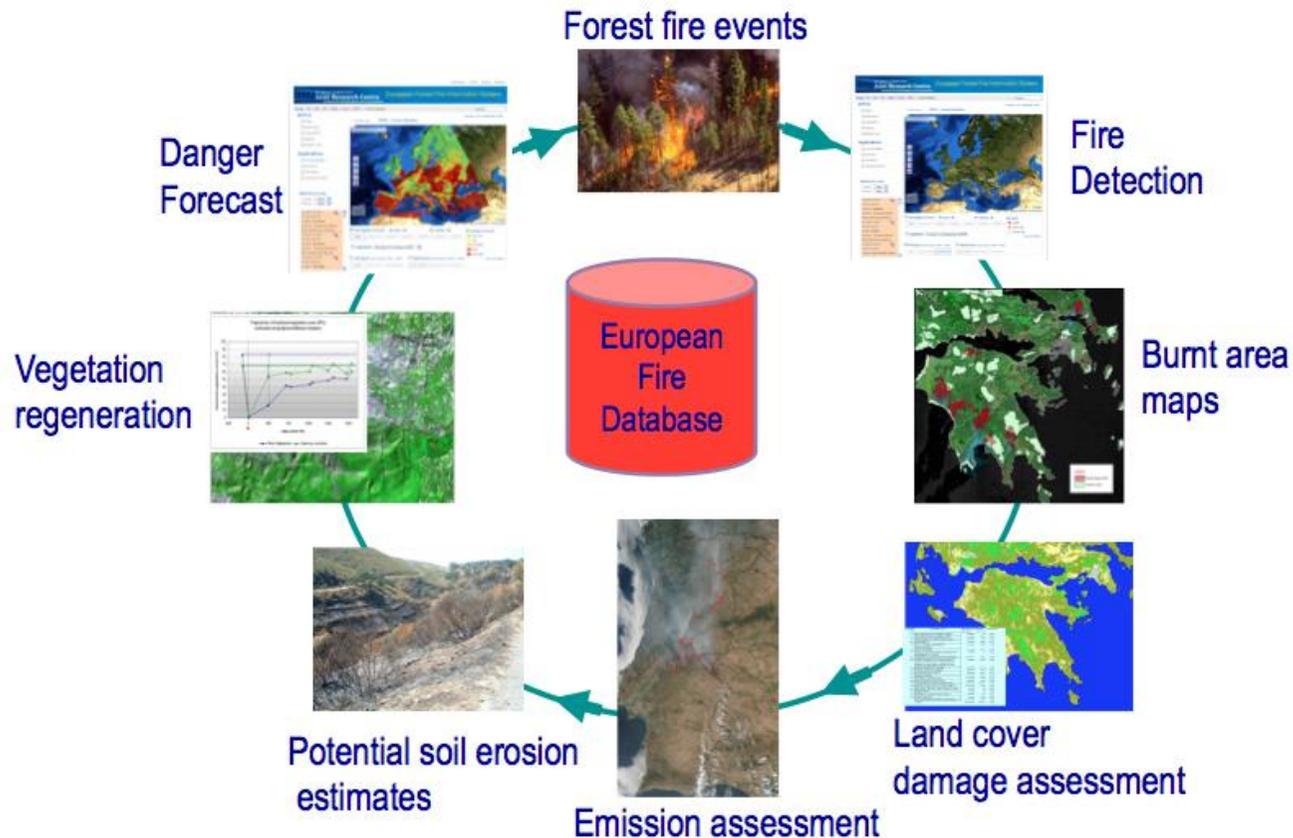


# **Global Wildfire Information System (GWIS)**



## GWIS concept:

follows the EFFIS (European Forest Fire Information System) fire cycle:





European Commission



About GWIS ▾ Applications ▾ Partners Contact Us Latest Updates

### Global Wildfire Information System (GWIS)



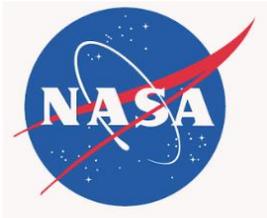
The Global Wildfire Information System is a joint initiative of the GEO and the Copernicus Work Programs. The Global Wildfire Information System (GWIS) aims at bringing together existing information sources at regional and national level in order to provide a comprehensive view and evaluation of fire regimes and fire effects at global level.

GWIS builds on the ongoing activities of the European Forest Fire Information System (EFFIS), the Global Terrestrial Observing System (GTOS) Global Observation of Forest Cover- Global Observation of Land Dynamics (GOFC-GOLD) Fire Implementation Team (GOFC Fire IT), and the associated Regional Networks, complementing existing activities that are on-going around the world with respect to wildfire information gathering. The development of GWIS is supported by the partner organizations and space agencies. Support to GWIS was just launched by NASA through its ROSES program

Access to worldwide information on wildfires is available through the GWIS viewer at [http://gwis.jrc.ec.europa.eu/static/gwis\\_current\\_situation/public/index.html](http://gwis.jrc.ec.europa.eu/static/gwis_current_situation/public/index.html)

**Applications**

- Current Situation Viewer
- Data and services



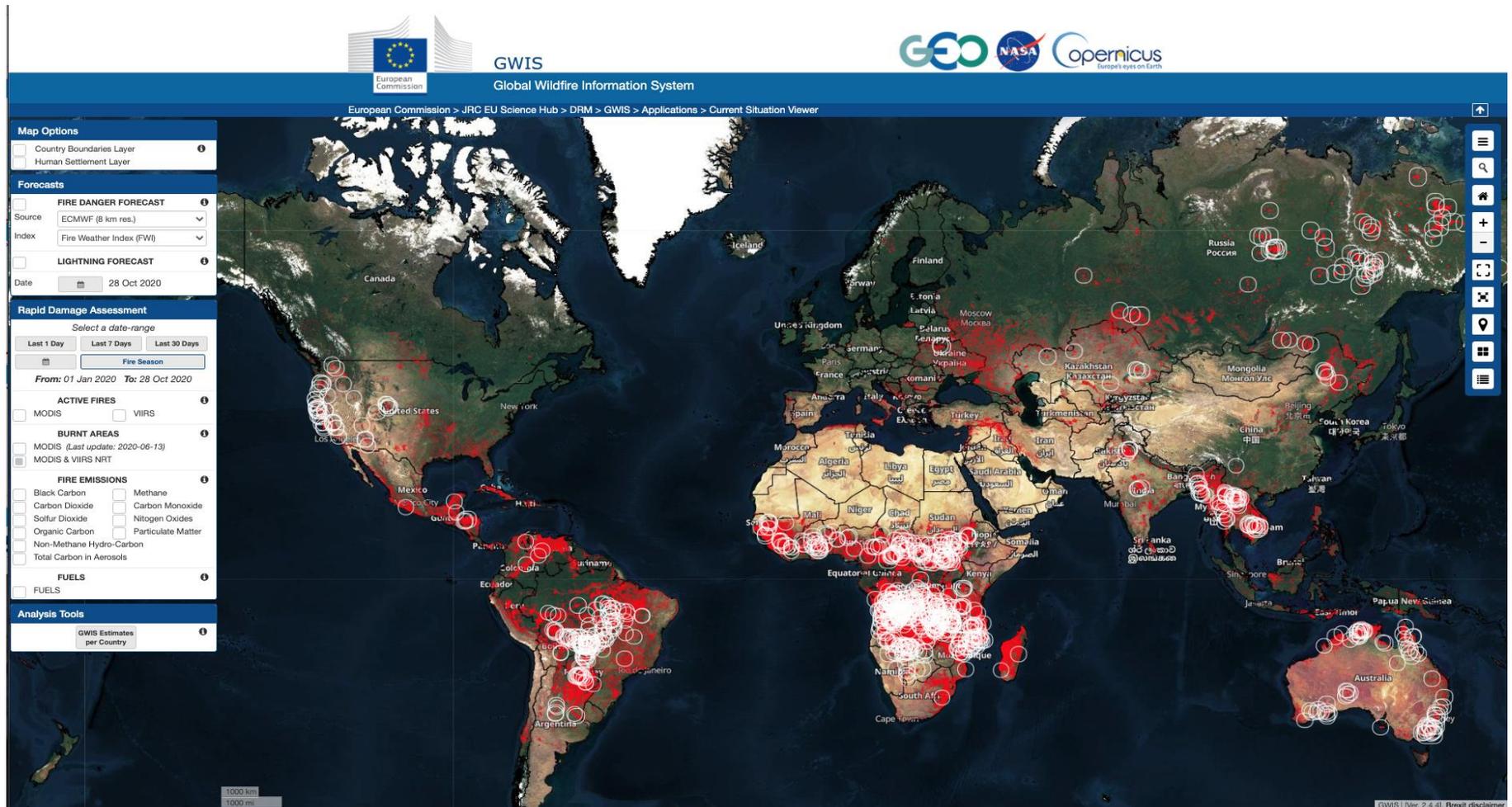


# GWIS applications – fire danger forecast





# GWIS applications – active fire and burnt area mapping





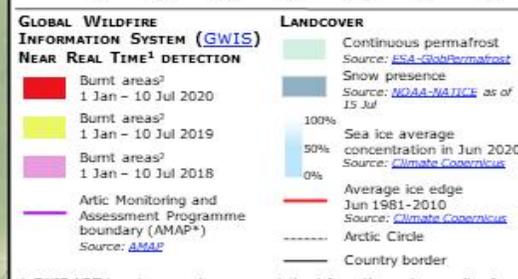
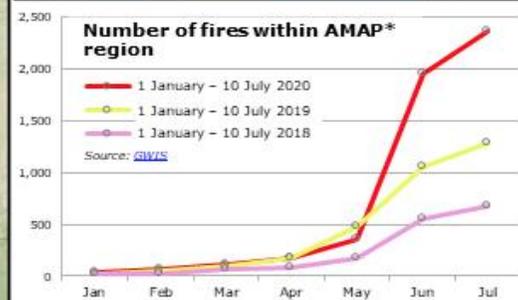
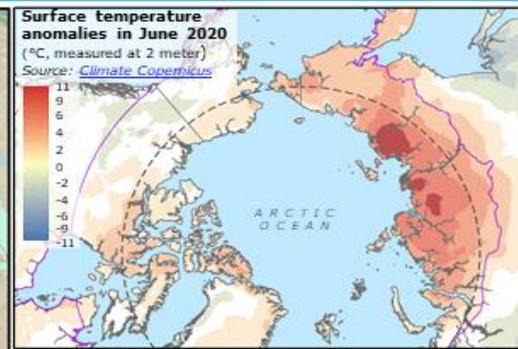
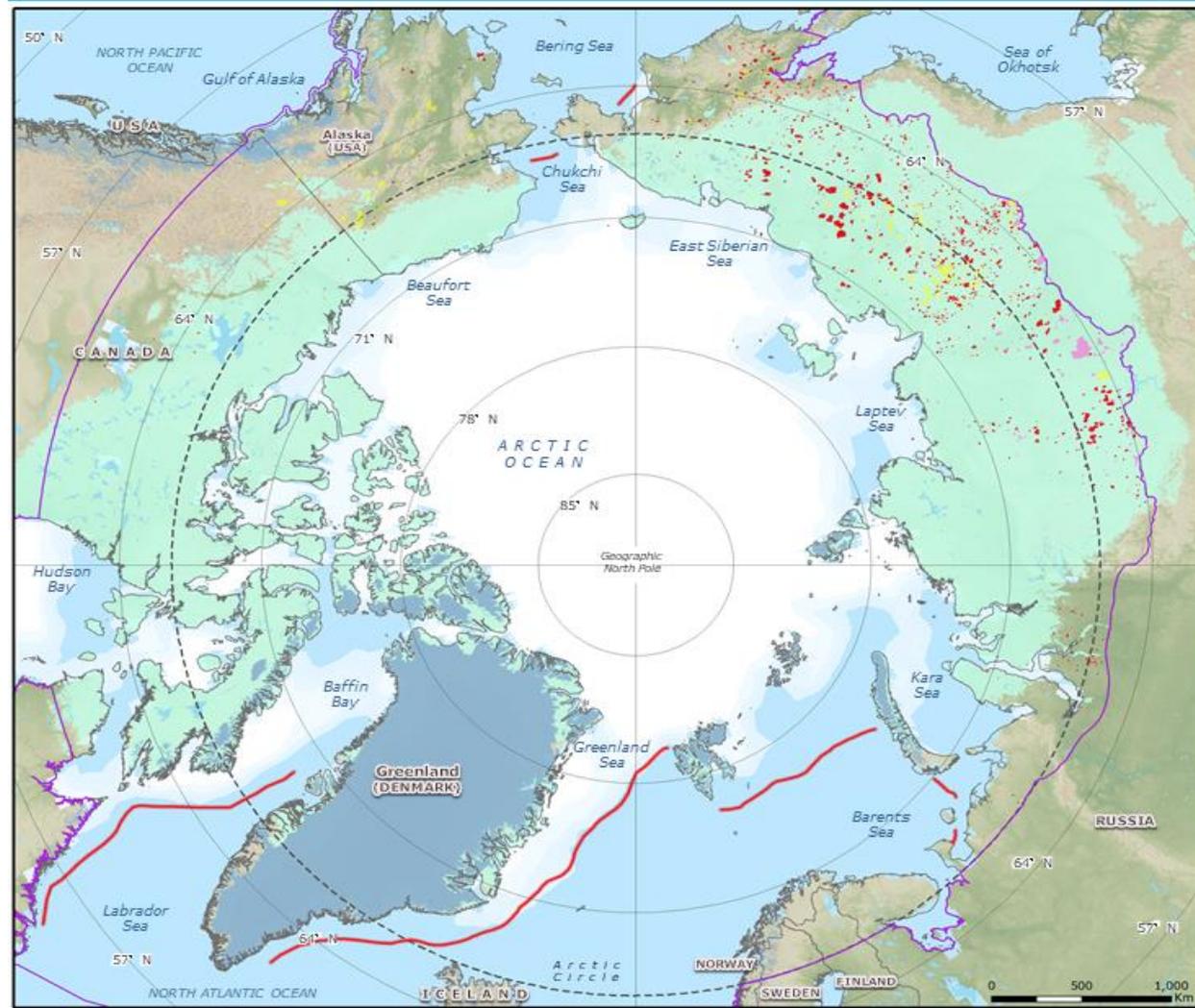
European Commission

# Most affected areas in 2020



European Commission

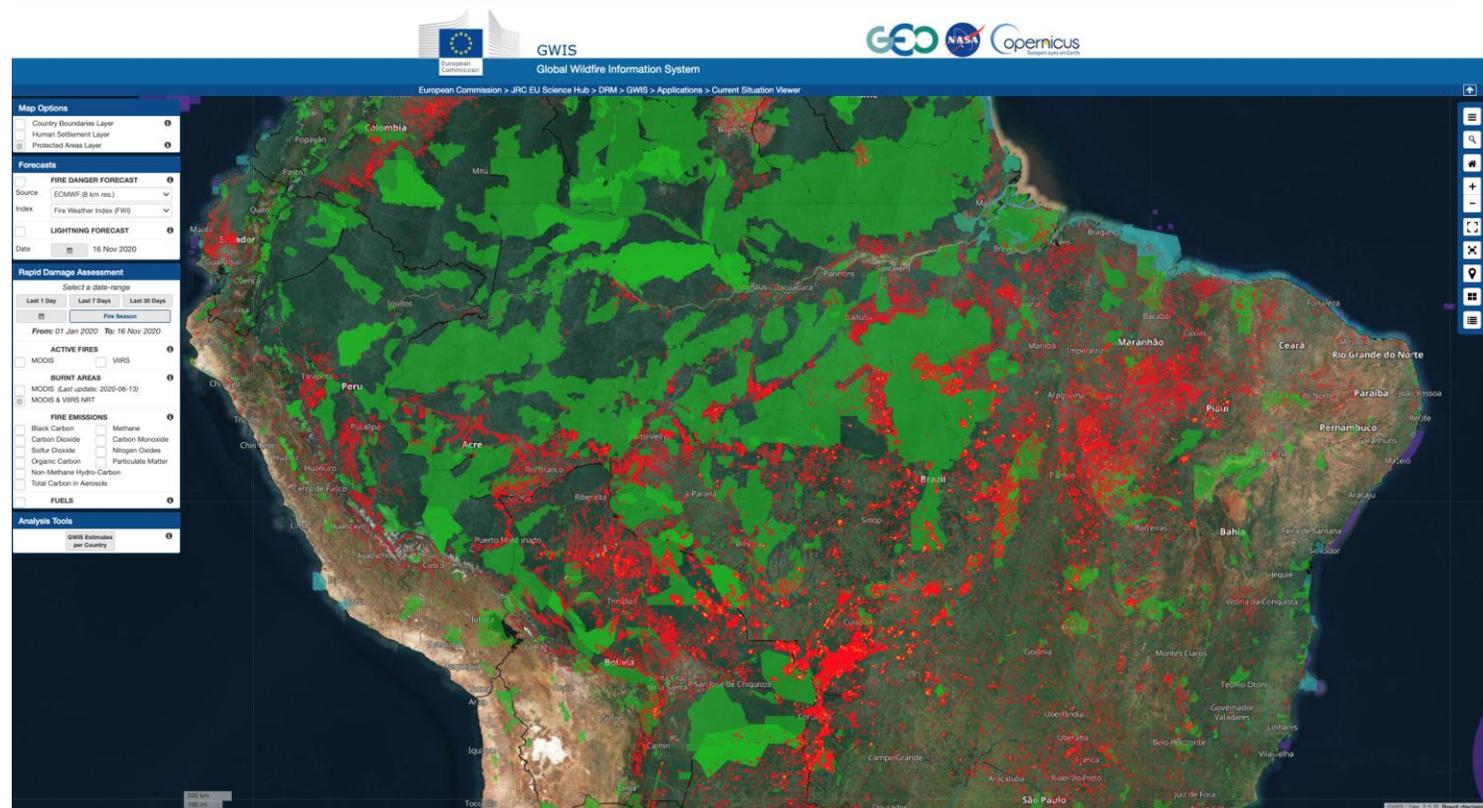
Emergency Response Coordination Centre (ERCC) – DG ECHO Daily Map | 17/07/2020  
Arctic Region | Overview Wildfires January to July 2020



<sup>1</sup> GWIS NRT burnt area polygons are derived from thermal anomalies from the NASA MODIS and VIIRS sensors. Additional information on the limitations and use of these data at: [JRC-GWIS Burnt Areas](#).  
<sup>2</sup> GWIS NRT Burnt area included in this map are: only those within AMAP region.  
© European Union, 2020. Map produced by JRC. The boundaries and the names shown on this map do not imply official endorsement or acceptance by the European Union.

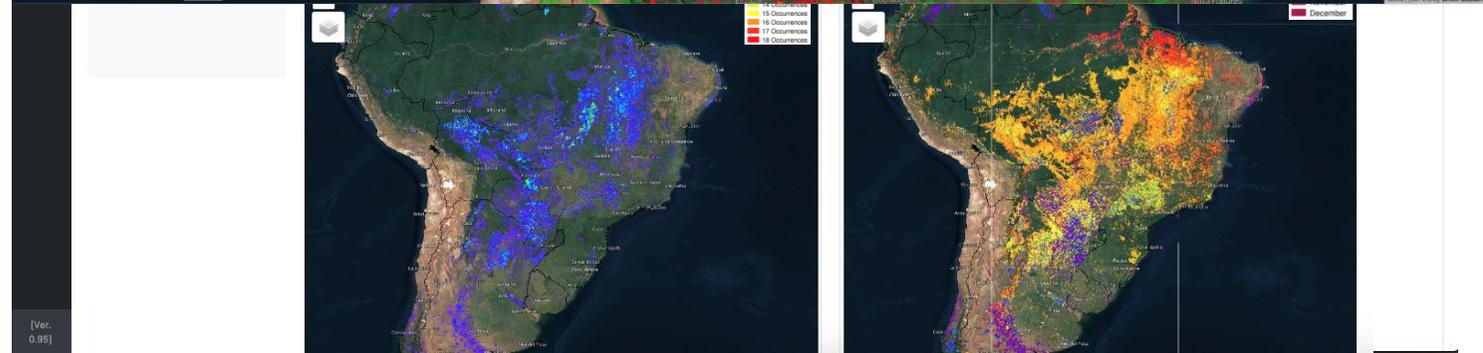


## GWIS Country Profiles (to be launched this year)



### GWIS – Country Profiles:

- Burnt area extent
- Fire frequency
- Seasonality
- Landcover damage
- Damage to protected areas
- Etc...

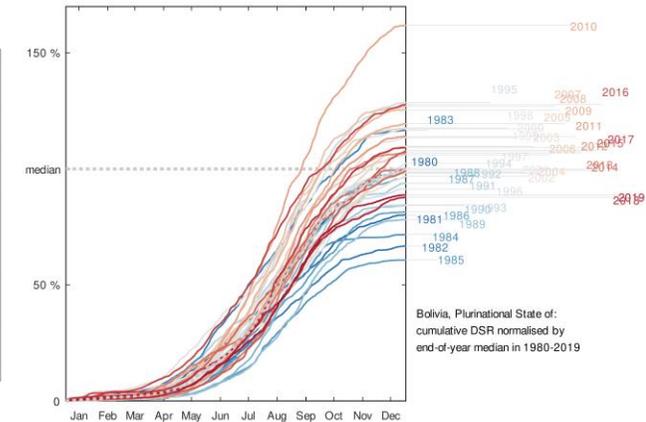
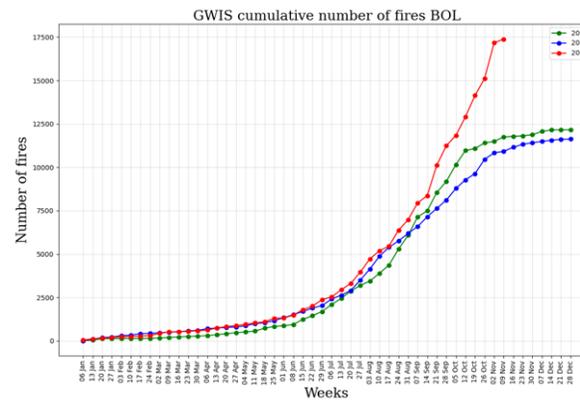
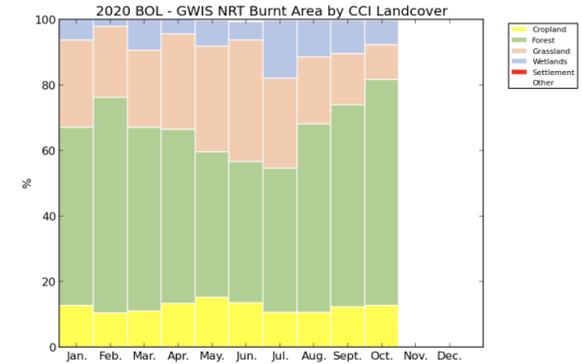
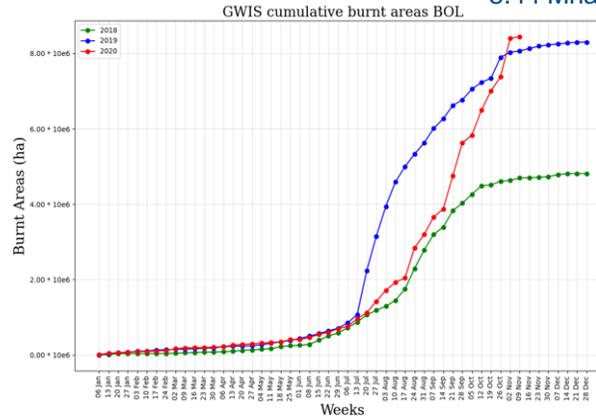




# Seasonal Trends (under development, e.g. Bolivia):

- Weekly evolution of active fires, burnt areas, land cover damage, fire emissions and fire danger

8.44 Mha



Daily severity rating (fire danger)

## What can GWIS provide for wildfire monitoring at global scale?

- Analysis of fire regimes and changes in different regions of the world
- Harmonized and up to date comparable data across the globe to assess wildfire effects
  - wildfire regime profiles, fire seasonality, impact, trends
- Methods for reliable analysis of fire damages and economic impacts, including near real time information on critical events
- Implementation of information systems reachable at national/regional/global scale
- Web information services reaching citizens (education/awareness)
- Development of tools supporting fire prevention/preparedness
- Repository for relevant global datasets for users
- Training and capacity building...



# Thank you

Contact at: [jrc-effis@ec.europa.eu](mailto:jrc-effis@ec.europa.eu)