



# Overview of the Global Wildfire Information System

## EFFIS

Jesús San-Miguel-Ayanz  
& the EFFIS Team

Joint Research Centre

Follow us on:



## Outline:

1. The Global Wildfire Information System under GEO
2. The EU Copernicus program: EFFIS → GWIS
3. Developments in GWIS so far
4. The Global Wildfire Information System program under GEO
5. Main potential services in GWIS
6. Next steps
7. Further discussion during the meeting

## The Global Wildfire Information System under GEO – 1

- Background - 2009-2011 GEO WP Wildland Fire Warning System at Global Level (dropped)
- October 2011, GOFC Fire IT Stresa (IT) JRC proposal to develop a global wildfire information system under GOFC – wide acceptance of the group
- April 2013, GOFC Fire IT Wageningen (NL) development of beta system under EFFIS
- October 2013, Earsel (GOFC Fire IT meeting) Coventry (UK) discussion on the implementation of the GWIS by including task under GEO WP – no funding, but potential gain in support/visibility for the initiative

## The Global Wildfire Information System under GEO - 2

- November 2013, proposal of a Global Wildfire Information System under GEO and GOFC Fire IT, within the GEO WP 2012-2015 (Short proposal prepared by C. Justice, J. San Miguel and F. Gaetani and info sent by email to GOFC Fire IT network for consultation)
- March 2014, adoption of the GEO WP 2015-2016, including GWIS as GI-09
- July 2016 – update of the GEO WP 2017-2019 – GWIS cont. proposal
- August 2016 – GWIS adopted for inclusion in the GEO WP 2017-2019



## The EU Copernicus Program:

It is the European Program for the establishment of a European capacity for Earth Observation, following GMES (Global Monitoring for Environment and Security) and EU RTD program 2006-2012.

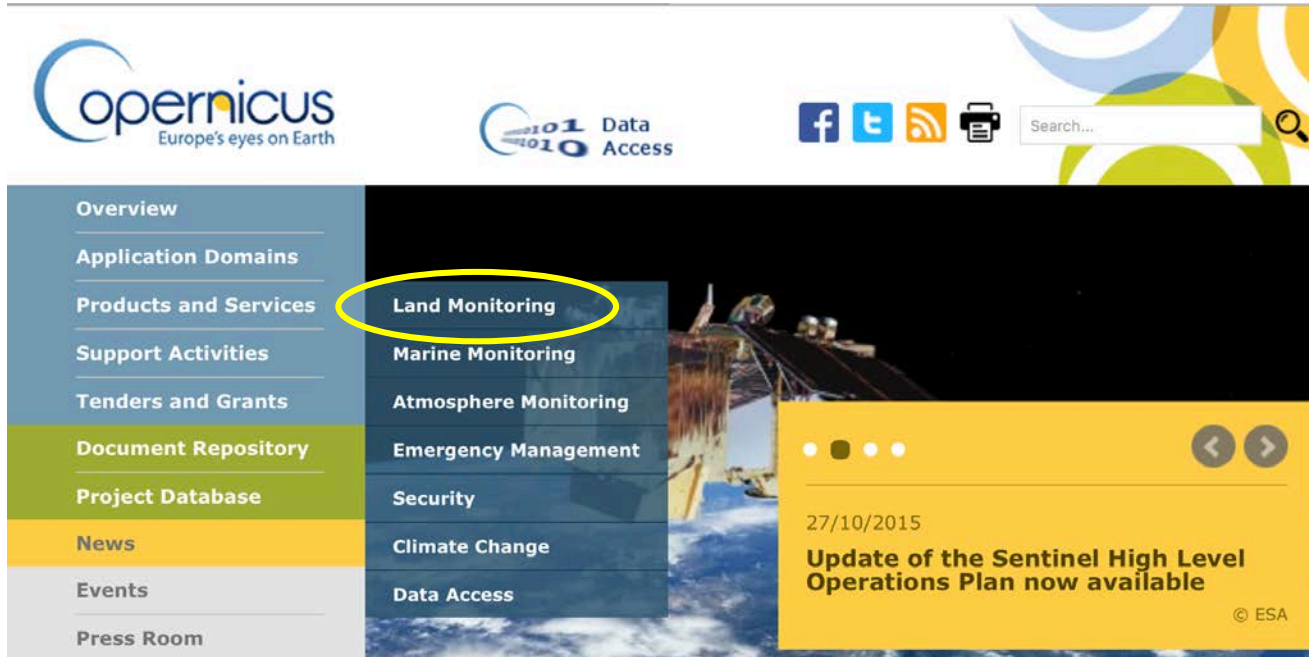
Consists of a complex set of systems which collect data from multiple sources and process them to provide users with reliable and up to date information

Services address areas such as land, marine, atmosphere, climate change, emergency management and security.

Operation of the services is mandated and structured in the so-called Copernicus European Union Regulation (2014), covering the period up to 2020.


Several services contribute to the monitoring of wildfires...

## Copernicus SERVICES: Land Monitoring



The screenshot shows the Copernicus website header with the logo "Copernicus Europe's eyes on Earth" and the "Data Access" logo. Social media icons for Facebook, Twitter, and RSS are present, along with a search bar. The navigation menu on the left includes "Overview", "Application Domains", "Products and Services", "Support Activities", "Tenders and Grants", "Document Repository", "Project Database", "News", "Events", and "Press Room". The "Products and Services" menu is expanded, showing "Land Monitoring" (circled in yellow), "Marine Monitoring", "Atmosphere Monitoring", "Emergency Management", "Security", "Climate Change", and "Data Access". A yellow banner on the right side of the page reads "27/10/2015 Update of the Sentinel High Level Operations Plan now available © ESA".

### In Focus




The "In Focus" banner features a satellite image of Earth with a satellite in orbit. The text "CO<sub>2</sub>" is prominently displayed in large blue letters. Below it, the text reads "Final Report from the expert group" and "October 2015". Navigation arrows are visible on the left and right sides of the banner.

# Copernicus Servces: Land cover monitoring


[About](#) | [Contact us](#)

## Copernicus Global Land Service

*Providing bio-geophysical products of global land surface*



[Home](#)
[Products](#)
[News](#)
[Product Access](#)



LAI

VPI

FAPAR

VCI

FCOVER

DMP

NDVI

Burnt Area

### Burnt Area

The Burnt Area product maps the burnt scars, and gives temporal information on the fire season. The maps of Burnt Area are recognized as an Essential Climate Variable (ECV) by the Global Climate Observing System (GCOS).

#### BA Alerts

Burnt Area PROBA-V reprocessed to V1.5


Burnt Area version 1 products available

[Read more or Subscribe](#)


### BA characteristics

Access	Algorithm	Quality	Application	Technical	Documents	Gallery
<b>Product version</b>	<b>Access</b>	<b>Status</b>	<b>Sensor</b>	<b>Temporal coverage</b>	<b>Spatial information</b>	<b>Timeliness</b>
1	Product Portal	Pre-operational	PROBA-V	Apr 2014 - present	Global, 10°x10° tiles, continental tiles, 1km	Within 3 days after end of synthesis period
1	Product Portal	Pre-operational	SPOT-VGT	Apr 1999 - March 2014	Global, 10°x10° tiles, continental tiles, 1km	Archive only

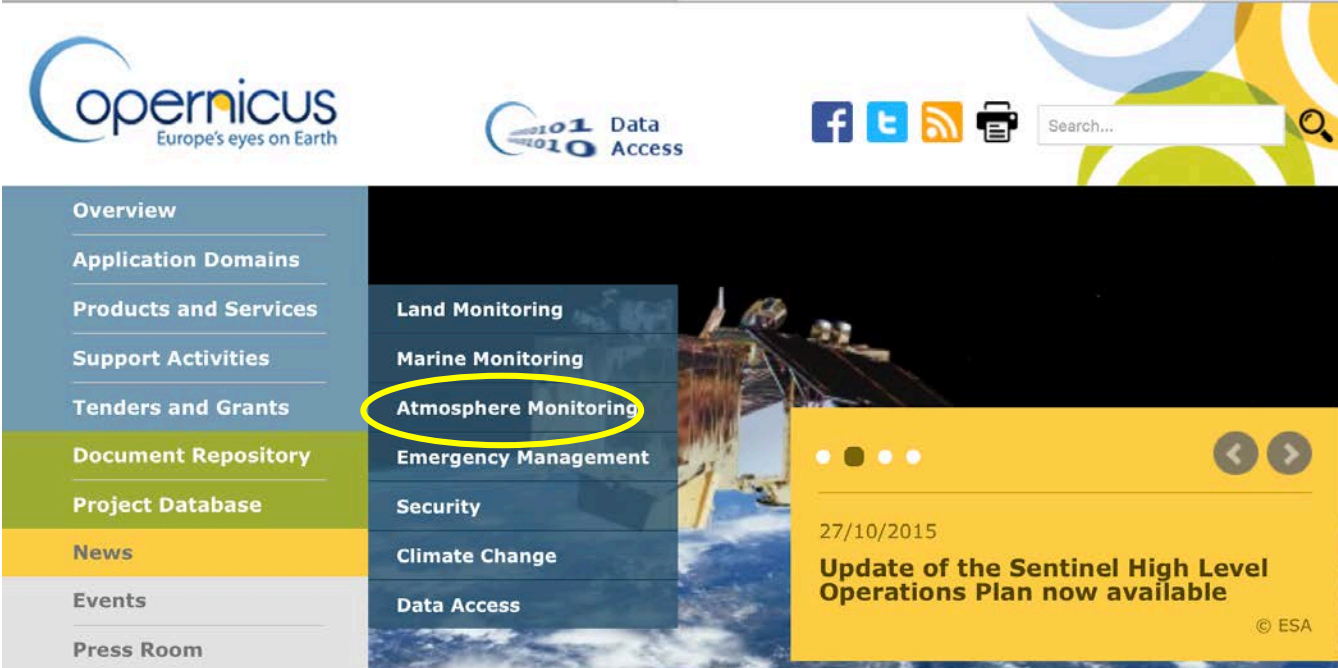
For access via GEONETCast satellite broadcast, please register for Global Land products on EUMETSAT's EO Portal. If you're looking for information on older product versions, please contact us.



Copernicus Global Land service web site is hosted by VITO NV. All rights reserved.



## Copernicus Servcies: Atmospheric Monitoring



The image shows the top section of the Copernicus website. At the top left is the Copernicus logo with the tagline "Europe's eyes on Earth". To its right is the "Data Access" logo. Further right are social media icons for Facebook, Twitter, and RSS, along with a printer icon and a search bar. Below these is a navigation menu with two columns. The left column lists: Overview, Application Domains, Products and Services, Support Activities, Tenders and Grants, Document Repository, Project Database, News, Events, and Press Room. The right column lists: Land Monitoring, Marine Monitoring, Atmosphere Monitoring (which is circled in yellow), Emergency Management, Security, Climate Change, and Data Access. To the right of the menu is a large banner image of a satellite in space. Overlaid on the bottom right of the banner is a yellow box containing the date "27/10/2015" and the text "Update of the Sentinel High Level Operations Plan now available" with a copyright notice "© ESA".

### In Focus



The "In Focus" section features a banner. On the left is an image of a satellite in orbit over Earth. On the right is a grey box with the text "CO<sub>2</sub>" in large blue letters. Below this, it says "Final Report from the expert group" and "October 2015". Navigation arrows are visible on the left and right sides of the banner.


## Copernicus services – Atmospheric Monitoring

Provides continuous data and information on atmospheric composition.

Compiles emission inventories which serve as input to the atmospheric chemistry-transport models and estimates net fluxes of e.g. CO<sub>2</sub> at the Earth's surface.

- Provides global fire radiative power datasets
- Provides global biomass burning dataset based on Fire Radiative Power


## Copernicus services: Atmospheric Monitoring



Atmosphere Monitoring Service BETA


Contact us

Search



About CAMS Contact us

Search Search



Copernicus  
Atmosphere Monitoring Service

NEWS EVENTS CATALOGUE RESOURCES USER SUPPORT

Product

Emissions and flu

Fire

-- Please select a

-- Please select a

-- Please select a

Area

Global

Africa

Australia

North America

South America

Europe

Asia

SE Asia

Show overview

Area

Forecast base time

Download...

PDF (214.4 Kbytes)

Fire Radiative Power

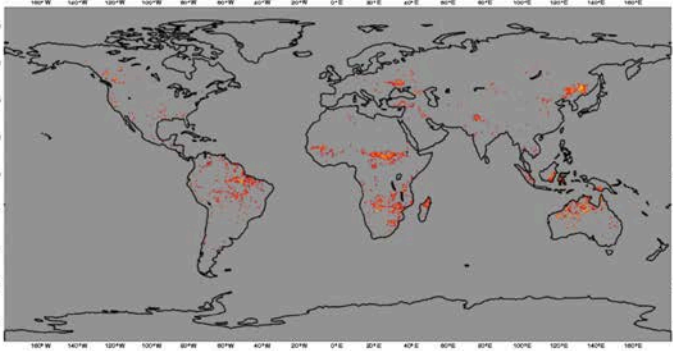
Forecast base time

Sun 1 Nov 2015 00UTC

CAMS GFAS Daily Fire Products Sunday 01 November 2015

Average of Observed Fire Radiative Power Areal Density (mW/m<sup>2</sup>)

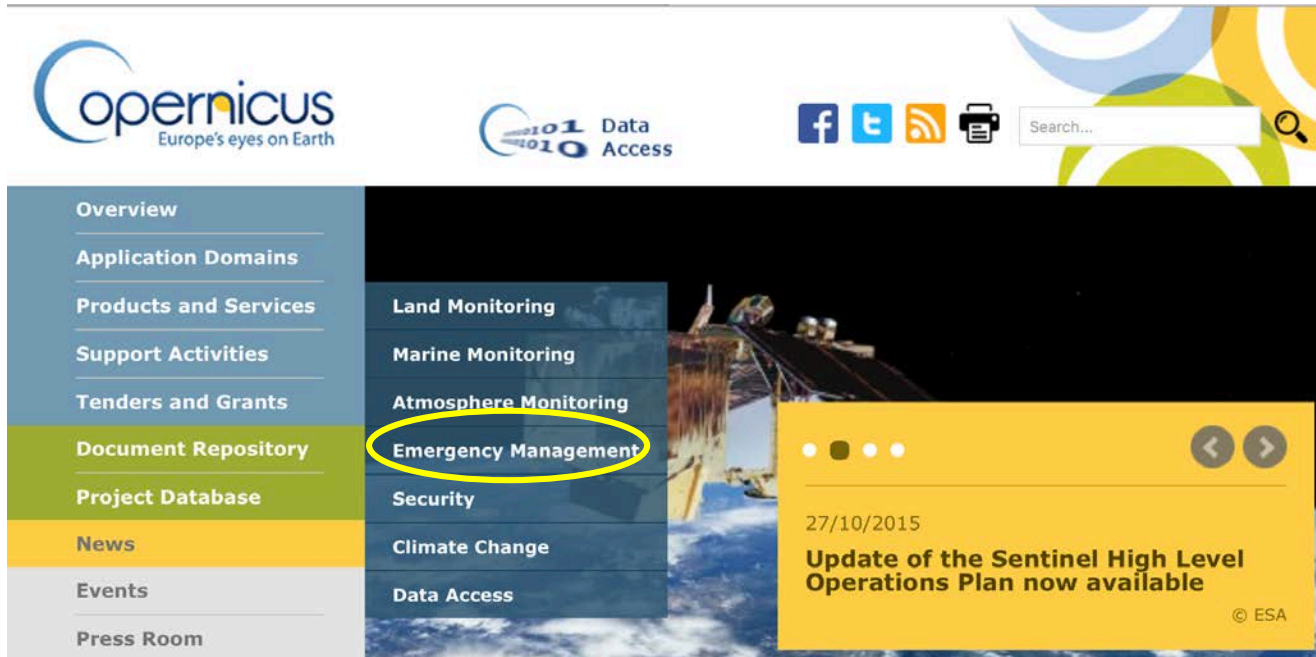
max value = 0.66 W/m<sup>2</sup>



More information on the fire monitoring service of MACC is available here.

About CAMS Site map Contact us Disclaimer / Privacy

## Copernicus Services: Emergency management



The screenshot shows the Copernicus website interface. The top header includes the Copernicus logo (Europe's eyes on Earth), the 101 Data Access logo, social media icons for Facebook, Twitter, and RSS, and a search bar. The main navigation menu on the left lists: Overview, Application Domains, Products and Services, Support Activities, Tenders and Grants, Document Repository, Project Database, News, Events, and Press Room. The 'Document Repository' menu item is highlighted in green. To the right of this menu is a secondary list of categories: Land Monitoring, Marine Monitoring, Atmosphere Monitoring, Emergency Management (circled in yellow), Security, Climate Change, and Data Access. The background of the page features a satellite image of Earth. A yellow banner on the right side of the page, dated 27/10/2015, reads: 'Update of the Sentinel High Level Operations Plan now available' with a copyright notice for ESA.

### In Focus



The 'In Focus' section features a banner with a satellite image of Earth on the left and a large 'CO<sub>2</sub>' graphic on the right. Below the graphic, the text reads: 'Final Report from the expert group' and 'October 2015'. Navigation arrows are visible on the banner.



## Copernicus Emergency Management Services

Support the management of natural disasters, man-made emergency situations, and humanitarian crises

Provides timely and accurate geo-spatial information derived from satellite remote sensing and available in situ or open data sources.

Made up of 3 different components:

- Mapping services – emergency (rapid mapping), risk and recovery (on demand) – since 2012
- European Flood Alert System (EFAS) – since 2012
- European Forest Fire Information System (EFFIS) – since 2015

# Copernicus Emergency Management Services



**COPERNICUS**  
Emergency Management Service



## Copernicus Emergency Management Service

Copernicus Emergency Management Service (Copernicus EMS) provides information for emergency response in relation to different types of disasters, including meteorological hazards, geophysical hazards, deliberate and accidental man-made disasters and other humanitarian disasters as well as prevention, preparedness, response and recovery activities. Three modules constitute the Copernicus EMS:

### Copernicus EMS - Mapping

The Copernicus EMS - Mapping addresses, with worldwide coverage, a wide range of emergency situations resulting from natural or man-made disasters. Satellite imagery is used as the main datasource. The service covers in particular:

 **Floods**

 **Tsunamis**

 **Earthquakes**

 **Landslides**

 **Fires**

 **Severe Storms**

 **Volcanic eruptions**

 **Technological disasters**

 **Humanitarian crises**



Copernicus EMS - Mapping

### European Flood Awareness System

The European Flood Awareness System (EFAS) is the first operational system that monitors and forecasts flood events across Europe. It provides its partners (national/regional authorities, as well as the European Commission's Emergency Response Coordination Centre) with a wide range of complementary, added value flood early warning information including related risk assessments up to 10 days in advance.



European Flood Awareness System

### European Forest Fire Information System

Specific applications are available in EFFIS:



**Current Situation**

Latest data on the current fire season in Europe and in Mediterranean area. Today's meteorological fire danger maps + forecast up to 6 days, daily maps of hot spots and perimeters.




**Fire News**

News on wildland fires in Europe updated daily by the EFFIS team.

European Forest Fire Information System

# Copernicus Services: Emergency management – Rapid Mapping service



European Commission

## COPERNICUS

Emergency Management Service

Home >>

Home | What is Copernicus | EMS - Mapping | EMS - Early Warning System

News

2015-10-16 | [EMSR142] Flood in Croatia 2015-

### EMS - MAPPING

- Service Overview
- Who can use the service
- How to use the service
- Products: Rapid Mapping
- Products: Risk and Recovery
- Quality control / Feedback
- New phase in brief
- User Guide

### RAPID MAPPING

- List of Activations
- Map of Activations
- GeoRSS Feed 201 readers


### RISK AND RECOVERY

- List of Activations
- Map of Activations
- GeoRSS Feed 18 readers

### OTHER

- Map of Activations of Other Organizations
- Map Coverage Planner
- Meetings, Workshops
- Citations
- Calls for Tender

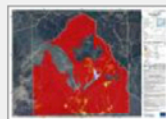
## EMSR132:

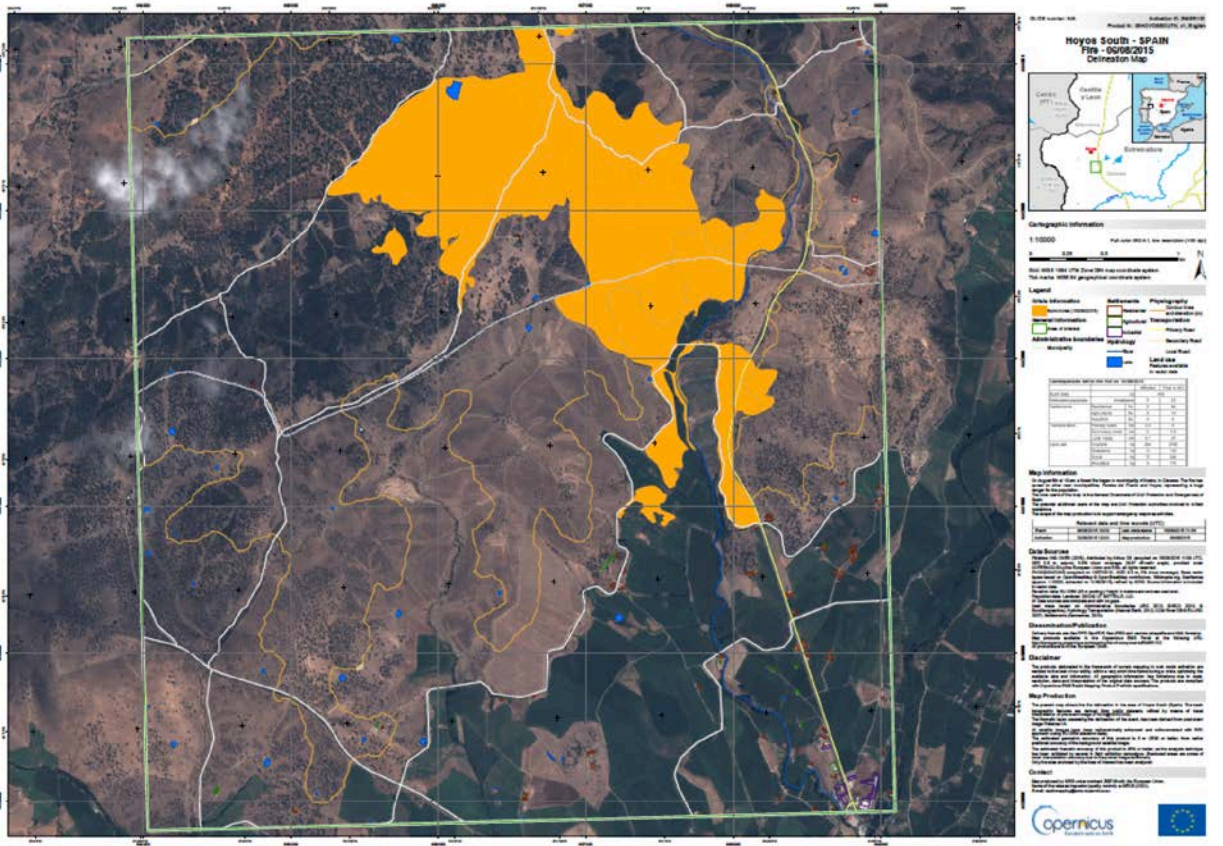
**Event Time (UTC):** 2015-10-16T10:00:00Z  
**Event Time (LOC):** 2015-10-16T10:00:00Z  
**Event Type:** Forest fire  
**Activation Time (UTC):** 2015-10-16T10:00:00Z  
**Reference maps:** 0  
**Delineation maps:** 6  
**Grading maps:** 6  
**Activation Status:** Open  
**Affected Countries:**  Kingdom of Spain  
**Area Descriptor:** Acebo  
**Authorized User:** Spain|Centro de Coordinación de Emergencias  
**Activation Reason:** On August 6th at 10 am, a fire started in the municipalities, Perales de Guadalupe, active.  
**Requested Product:** Delineation maps

Filter by map type:

Filter by product:

[EMSR132] ACEBO





**Map Information**

**Map Title:** Moyos South - SPAIN  
**File:** 00082015  
**Generation Date:** 2015-10-16T10:00:00Z  
**Scale:** 1:100000  
**Projection:** UTM  
**Zone:** 30N  
**Datum:** WGS 1984  
**Units:** Meter

**Legend**

- Administrative boundaries
- Water bodies
- Topography
- Land use
- Fire area
- Fire perimeter
- Fire intensity
- Fire risk
- Fire recovery
- Fire management
- Fire prevention
- Fire protection
- Fire suppression
- Fire investigation
- Fire research
- Fire education
- Fire training
- Fire awareness
- Fire communication
- Fire coordination
- Fire collaboration
- Fire partnership
- Fire network
- Fire system
- Fire framework
- Fire environment
- Fire context
- Fire situation
- Fire status
- Fire progress
- Fire outcome
- Fire impact
- Fire consequences
- Fire effects
- Fire results
- Fire achievements
- Fire successes
- Fire failures
- Fire challenges
- Fire opportunities
- Fire threats
- Fire risks
- Fire hazards
- Fire dangers
- Fire perils
- Fire hazards
- Fire dangers
- Fire perils

**Map Information**

**Map Title:** Moyos South - SPAIN  
**File:** 00082015  
**Generation Date:** 2015-10-16T10:00:00Z  
**Scale:** 1:100000  
**Projection:** UTM  
**Zone:** 30N  
**Datum:** WGS 1984  
**Units:** Meter

**Map Information**

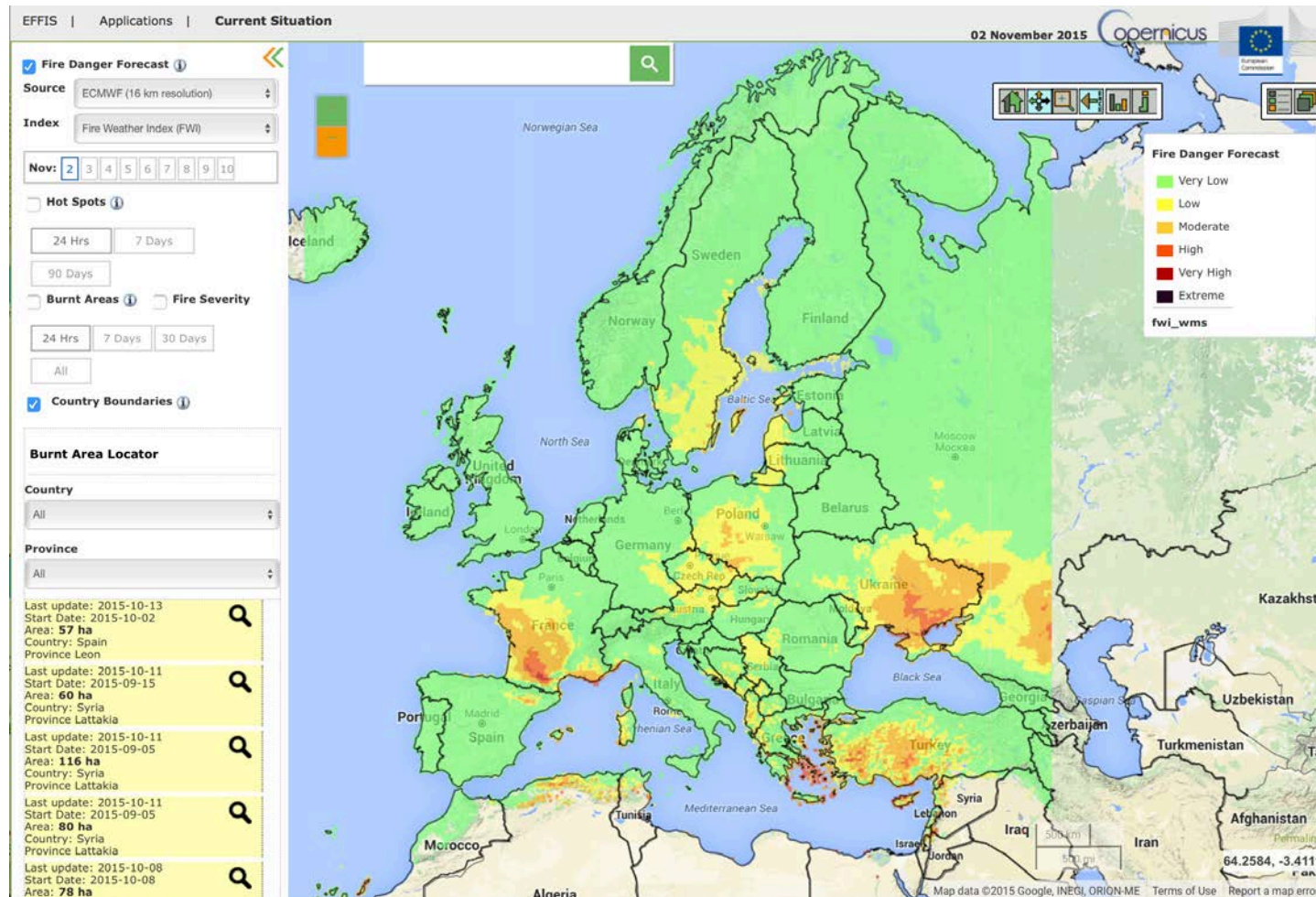
**Map Title:** Moyos South - SPAIN  
**File:** 00082015  
**Generation Date:** 2015-10-16T10:00:00Z  
**Scale:** 1:100000  
**Projection:** UTM  
**Zone:** 30N  
**Datum:** WGS 1984  
**Units:** Meter

**Map Information**

**Map Title:** Moyos South - SPAIN  
**File:** 00082015  
**Generation Date:** 2015-10-16T10:00:00Z  
**Scale:** 1:100000  
**Projection:** UTM  
**Zone:** 30N  
**Datum:** WGS 1984  
**Units:** Meter

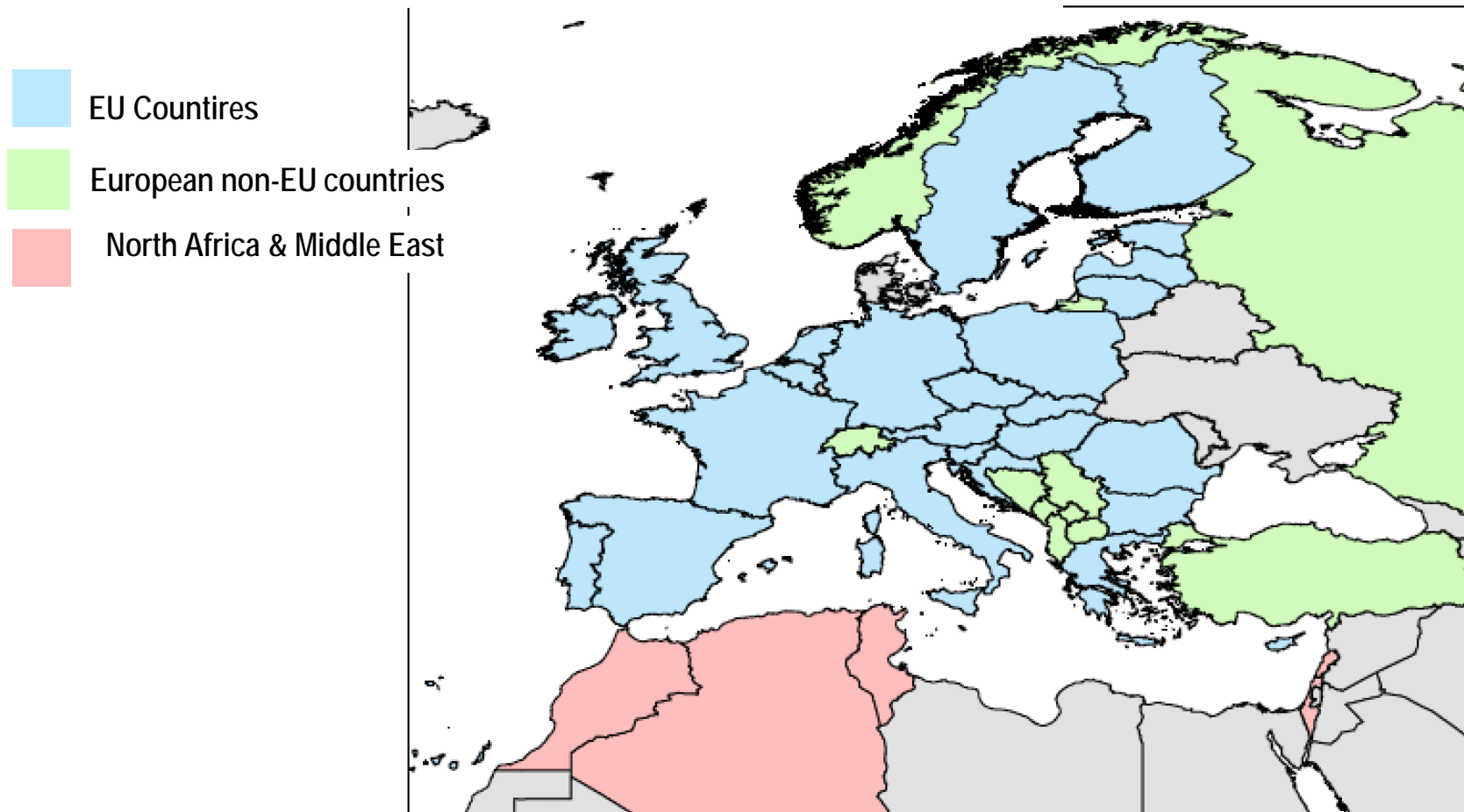
Forestsatsat2016 -

# Copernicus Components: Emergency management services: European Forest Fire Information System



## EFFIS Network of 40 Countries

Extension to MENA countries in collaboration with FAO



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, IL

# Developments of GWIS so far

## Global Wildfire Information System (beta version)



The screenshot shows the EFFIS (European Forest Fire Information System) website. The header includes the European Commission logo and the text 'JOINT RESEARCH CENTRE EFFIS - European Forest Fire Information System'. Below the header is a navigation bar with the path 'Europa » EC » JRC » IES » FRC » FOREST » EFFIS'. The main content area is titled 'EFFIS' and features a 'WELCOME TO EFFIS' section. A sidebar on the left lists various services, with 'Global Wildfire Information System (beta viewer)' circled in red. The main content area also includes a 'CURRENT SITUATION' section with a map of Europe and a 'FIRE NEWS' section. On the right, there is a 'EFFIS Damage Assessment' section with statistics on burned area and coverage.

**EFFIS**

**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

**Global Wildfire Information System (beta viewer)**

**CURRENT SITUATION**

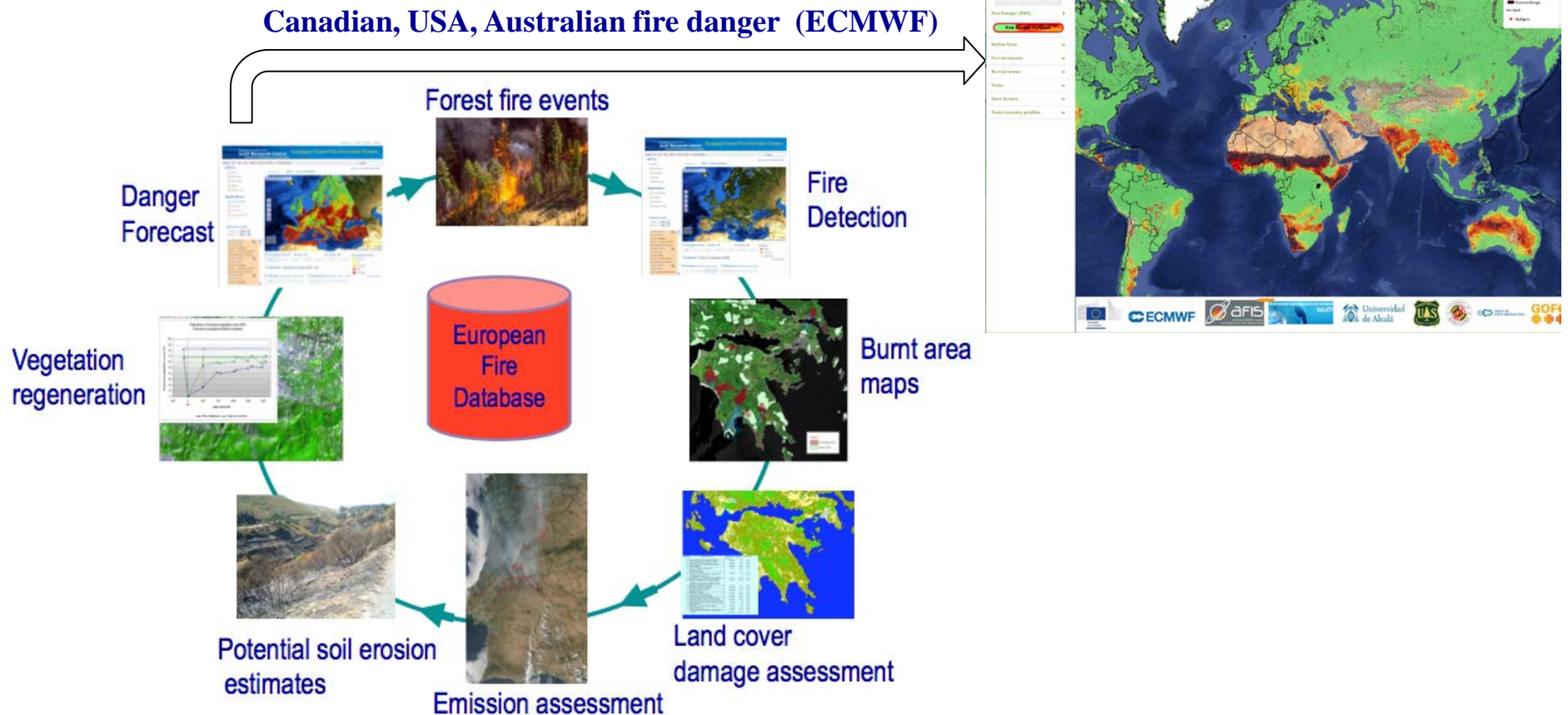
The most up to date information on the current fire season in Europe and in the Mediterranean area. This includes today meteorological fire danger maps and forecast up to 6 days, daily updated maps of hot spots and fire perimeters.

**FIRE NEWS**

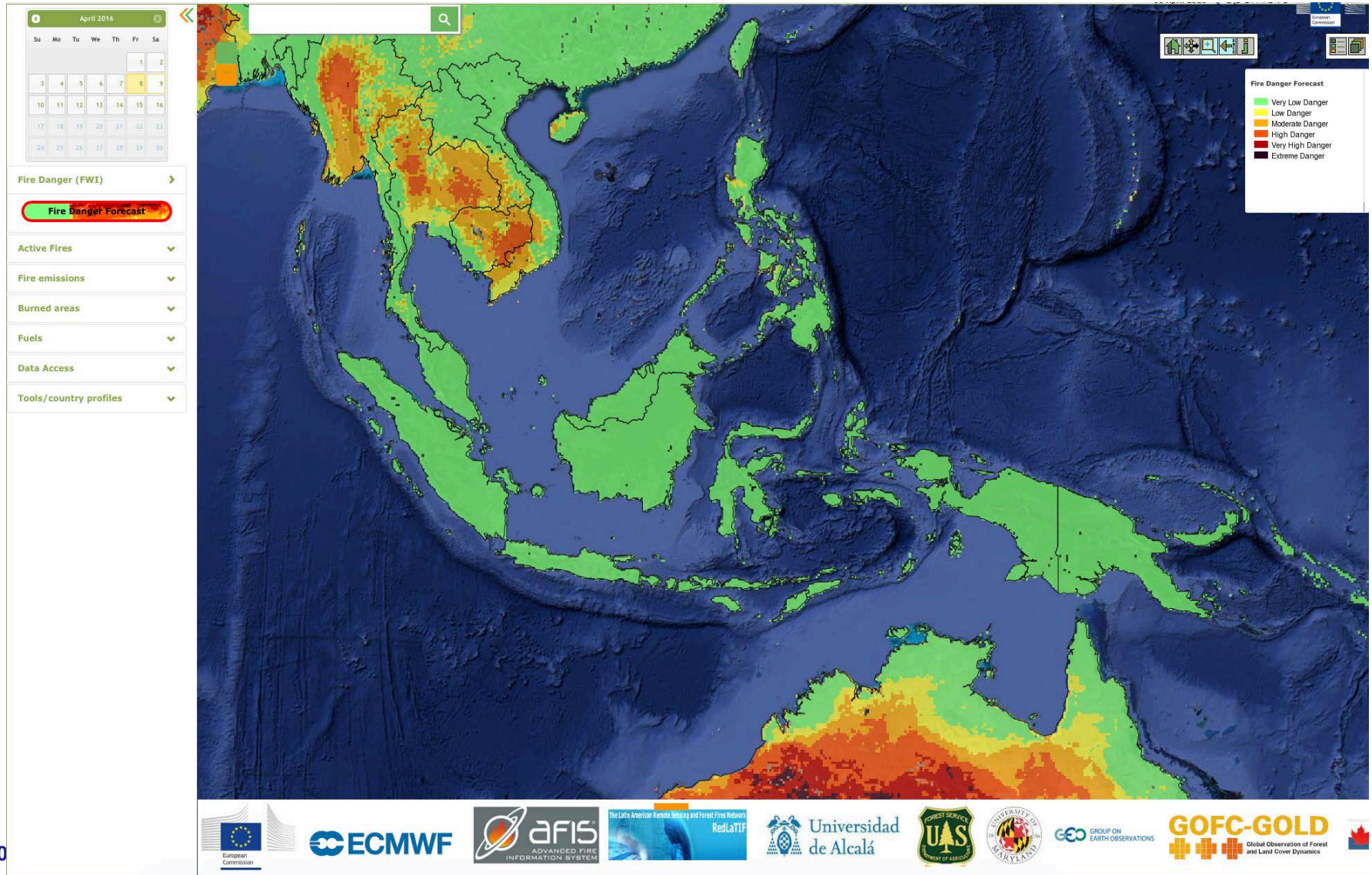
A selection of news from the press on wildland fires in Europe is updated daily by the EFFIS team. News can be browsed for specific countries selected by the user from the news map.

<http://effis.jrc.ec.europa.eu/applications/global-viewer>

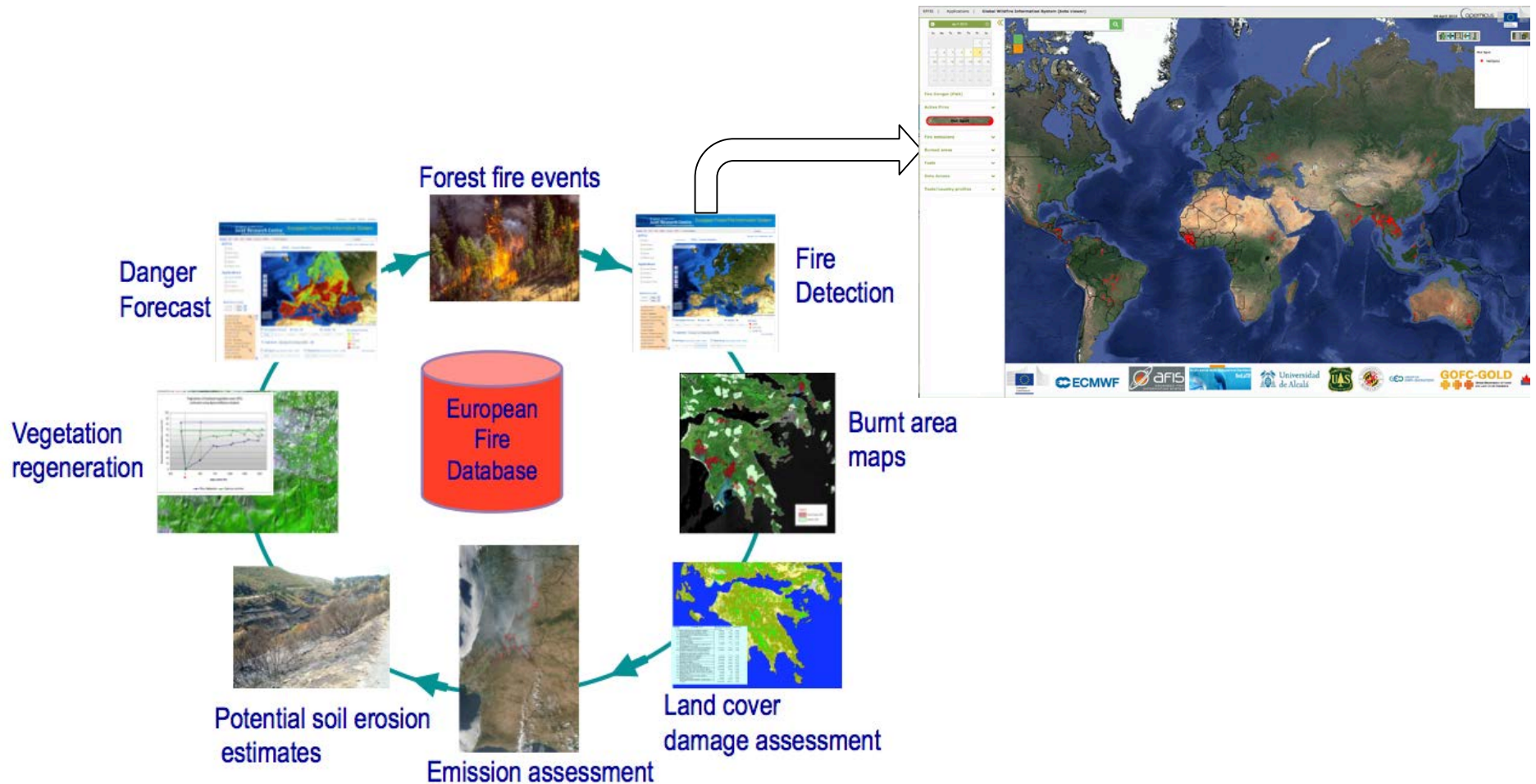
# EFFIS model – Extension to a Global Wildfire Information System (beta system in partnership with the GOFC Fire IT, supported by GEO and Copernicus)



# Global Wildfire Information System – Fire danger forecast



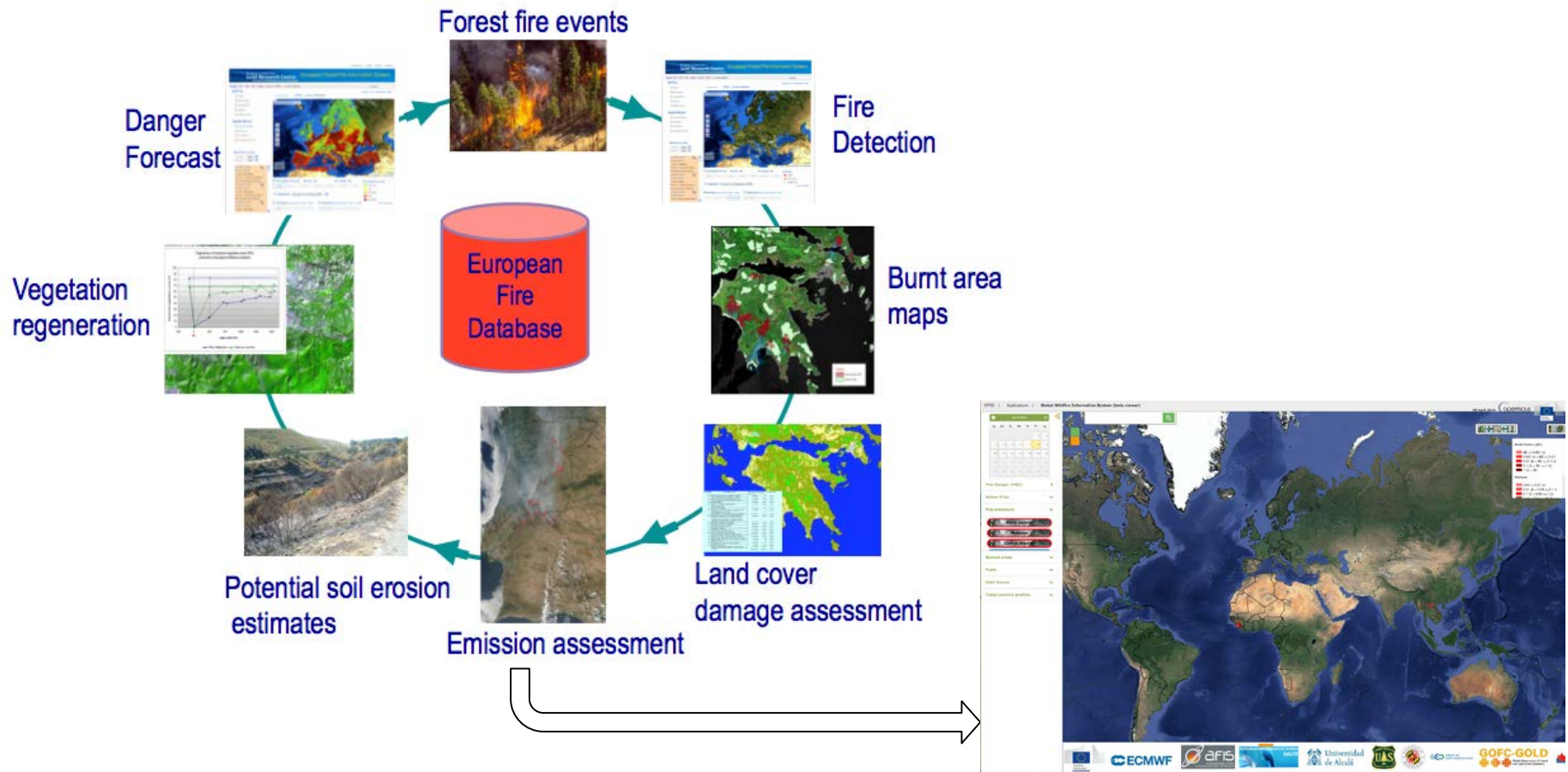
# EFFIS model – Extension to a Global Wildfire Information System (beta system in partnership with the GOFC Fire IT, supported by GEO and Copernicus)



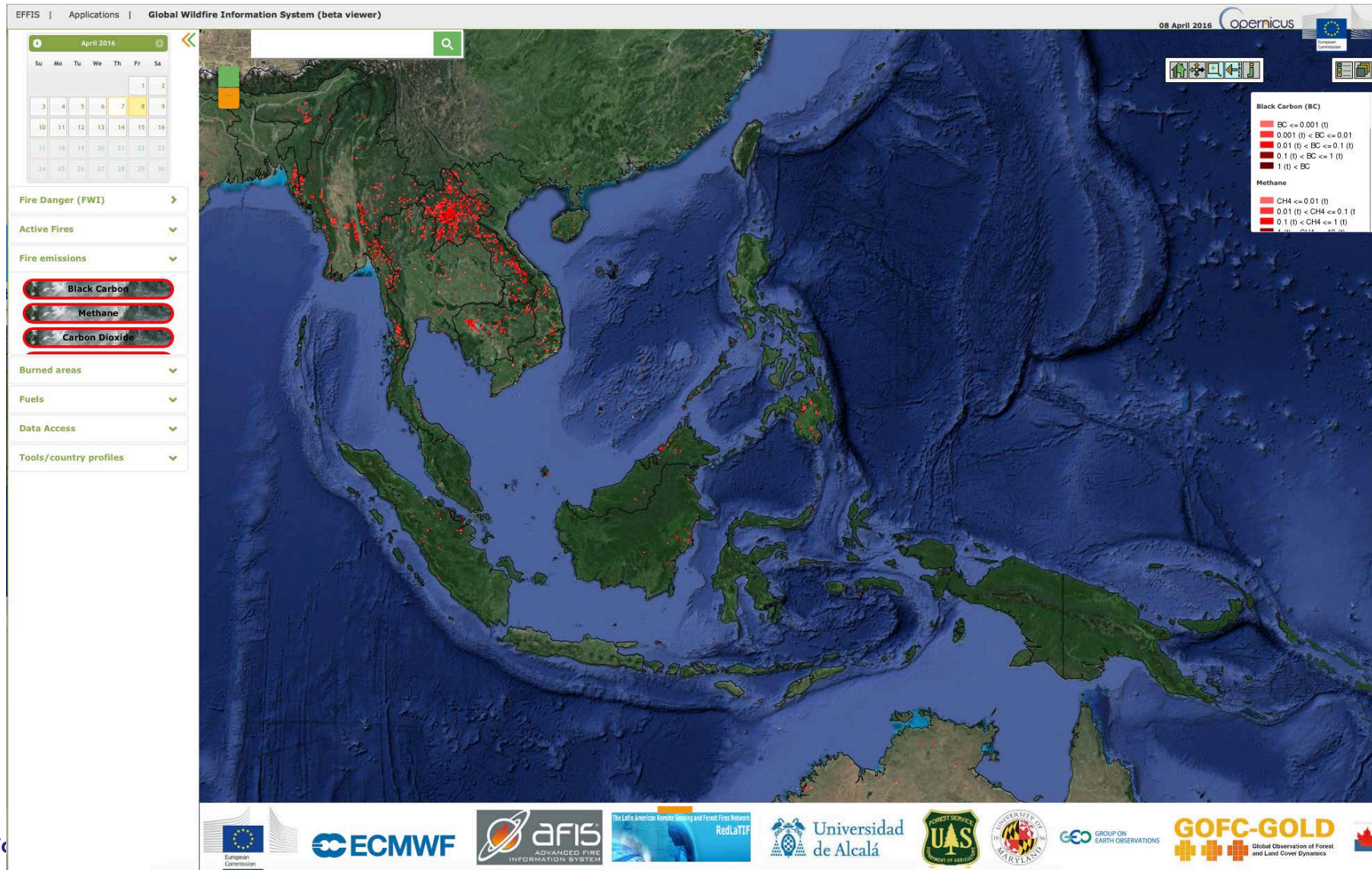
# Global Wildfire Information System – Active fires



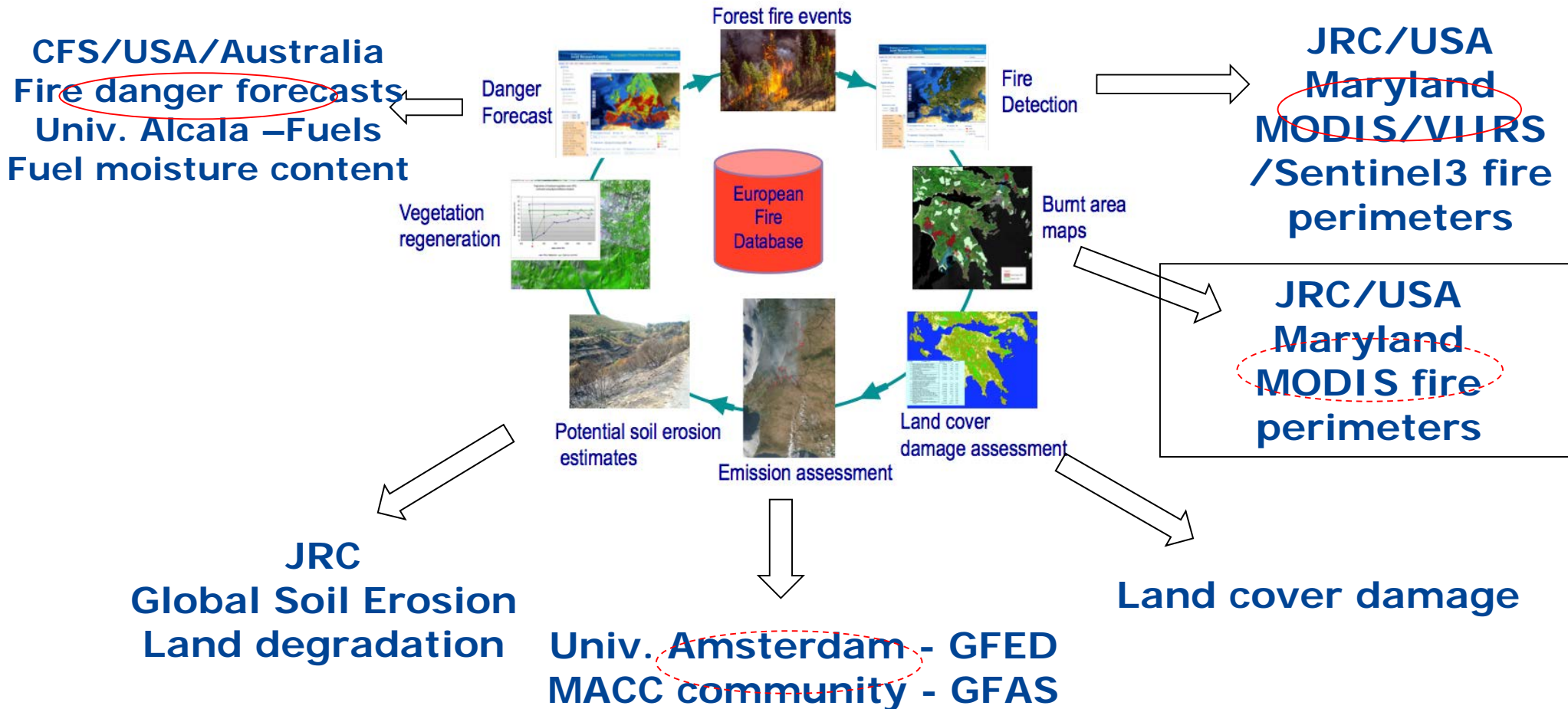
# EFFIS model – Extension to a Global Wildfire Information System (beta system in partnership with the GOFC Fire IT, supported by GEO and Copernicus)



# Global Wildfire Information System - Emissions



# EFFIS model – Extension to a Global Wildfire Information System (beta system in partnership with the GOFC Fire IT, supported by GEO and Copernicus)



## The Global Wildfire Information System program under GEO 2017-2019 (tasks-1):

1. Establish and further develop a prototype Global Wildfire Information System (GWIS) providing harmonized fire information (e.g. fire danger) – building on initial activities of the European Commission in the European Forest Fire Information System and the Global Observation of Forest Cover-Global Observation of Land Dynamics Fire Implementation Team (GOFC-GOLD Fire IT).
2. Promote the networking of major national and regional fire information providers by organizing an annual workshop convening key international organizations and initiatives (e.g. GOFC-GOLD Fire IT) and national and regional providers, e.g. Australia, Canada, China, Central and South America and South Africa.
3. Establish operational links and, if possible, arrangement with other wildfire communities dealing with wildfire aspects at global scale (e.g. burnt area assessment, emission estimation).

## The Global Wildfire Information System program under GEO 2017-2019 (tasks -2):

4. Further develop the GWIS by integrating and harmonizing as much as possible regional wildfire information data/sources.
5. Develop, implement and promote the establishment of mechanisms for interoperability and communication among national, regional and global wildfire information systems following OGC standards and guidelines, and the GEOSS Data Sharing Principles.
6. Coordinate and promote capacity building and training activities in close cooperation with the GOFC-GOLD Fire Implementation Team regional networks and the EFFIS network.

## Main potential services in GWIS

- Harmonized up-to-date wildfire info at local/regional/global scale
- Country/region of interest wildfire regime profile
- Fire seasonality and impact, affected land cover
- Detailed information of single large wildfire events
- Links to regional wildfire information providers (AFIS, RedlaTIF, ...)
- Integration of existing regional/thematic fire information systems

## Next steps

Foreseen steps since 2014 until now:

- Further development of GWIS as a partnership system (logos of contributing organizations) -
- Interaction with national/regional service providers for integration (as far as possible) of data and services.
- Workshop of GWIS partners – Nov. 2016
- October 2015 – Integration of EFFIS (and GWIS) under Copernicus up to 2020.
- Enhanced integration of Copernicus services with GWIS.

## Further discussion during the meeting:

- Enhance cooperation to further develop GWIS
- GOFC Fire IT & GWIS liaison
- GWIS Partnership
- Cooperation with global/regional/national fire data service providers
- Cooperation with the GOFC Regional Networks – fire data users
- Next yearly meeting of GWIS partners (financed under EU Copernicus Program).
- Other areas of potential collaboration:
  - IT/data interoperability issues
  - Contribution to regional validation of products (outsourcing of some EFFIS services)

.....