



# ***L'utilizzo di software free and open source nello European Forest Fire Information System (EFFIS)***

*Paolo Corti*

European Commission  
**Joint Research Centre**

Foreign and Development > JRC


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**JRC** 

Research in service of society:  
**The Joint Research Centre**  
of the European Commission

**We are recruiting!**

**HEADLINES** October 2010 News

**FDI leading the way in newly installed solar cells**  

 The JRC's Institute for Energy (IE) published the ninth Annual Photovoltaic Status Report today. The study highlights that, in 2009, newly installed photovoltaic (PV) cells worldwide produced a peak maximum electricity generation of 7.4 GW, but only of 5.8 GW and 5.9 GW.

**Supporting EU and international efforts to help Pakistan**  
 The Overseas Mission Teams (OMT) based at the Research Institute for the Urban, Rural and Coastal Environment (IRCE) have been working in the coastal areas of Pakistan to help the population to deal with extensive damage to agricultural lands and infrastructure including houses.

**IRE monitors forest fires in Russia and quantifies effects**  
 The Institute for Environment and Sustainability of the European Commission's Joint Research Centre (JRC IES) has analysed the occurrence and distribution of forest fires in the European part of Russia, since the beginning of July 2010. A series of maps show the location of

Europe's green commission sets criteria for good environmental status

Britain's new Environment Act will allow for additional local green in captivity

JRC research will help improve health and space

From 2011, JRC will provide the world with the most accurate data on the world's population

JRC research will help detect and prevent illegal deforestation

- 6 Siti
- 7 Istituti
- 2750 Persone
- ~400M€ Budget



Visit us at [www.jrc.ec.europa.eu](http://www.jrc.ec.europa.eu)

- **Il sistema EFFIS:**

- E' un sistema informativo implementato dal Joint Research Centre (JRC) e dal DG Environment (ENV) della Commissione Europea che fornisce informazioni aggiornate relativamente agli incendi boschivi in Europa
- Consente valutazioni prima, durante e dopo le fasi di un incendio, consentendo la prevenzione e la lotta agli incendi e la stima dei danni causati dagli stessi
- Completa e centralizza i sistemi nazionali, con lo sviluppo e l'implementazione di metodi e standard comuni

- **Gli Utenti:**

- servizi della CE, Parlamento Europeo, stati membri, ...
- FAO UN-ECE, FAO *Silva Mediterranea*

- **Come e' reso possibile:**

- Continua attivita' di ricerca sulle foreste e gli incendi e sviluppo di metodologie a supporto delle attivita' operative (dal 1998)



**Ogni anno, in media:  
65.000 incendi  
500.000 ettari bruciati  
Enorme impatto ambientale ed economico**



European Commission  
**Joint Research Centre**  
Institute for Environment and Sustainability

**European Forest Fire Information System**

European Commission > Joint Research Centre > IES > Land Management & Natural Hazards > Forest > EFFIS > Map Viewer

**EFFIS Modules**

Fire Danger Forecast

Damage Assessment

Rapid Damage Assessment

EU Fire Database (by province)

Atmospheric Emissions

**THEMES**

Admin. Boundaries

Country Names

SRTM DEM

Land Covers

Fuel Map

Forest Map

Spatial Pattern

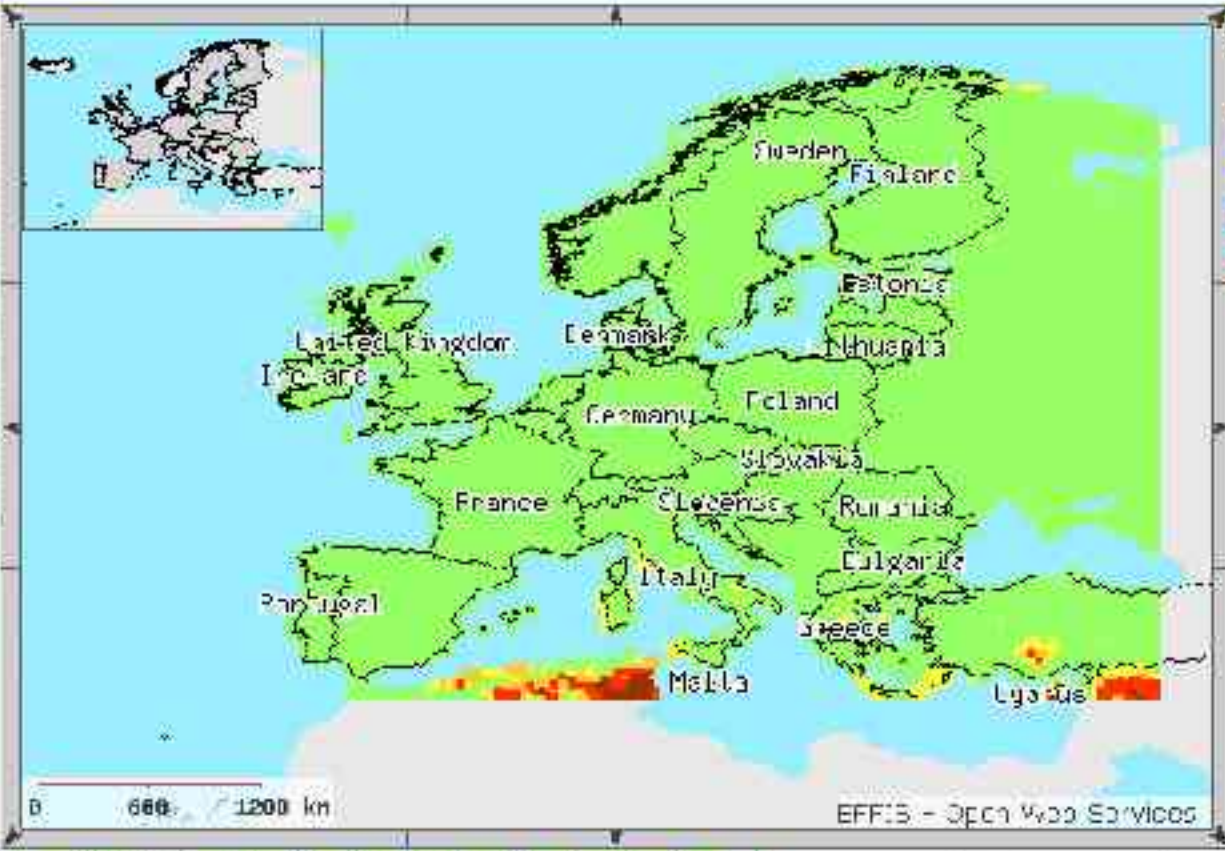
UN River Network

NASA

Modis Terra (Mosaic)

WFS-JRS

**MAP**



0 600 1200 km

EFFIS - Open Web Services

X: 35.27780888 Y: 73.276155717

**LEGEND**

By Administrative Boundaries / Countries

**FWI Danger Classes (Dwa)**

- Very Low Risk
- Low Risk
- Moderate Risk
- High Risk
- Very High Risk

**Fornisce informazioni  
PRIMA di un incendio  
(previsioni)**

**DURANTE un incendio  
(rilevazione, mappatura  
rapida delle aree  
bruciate)**

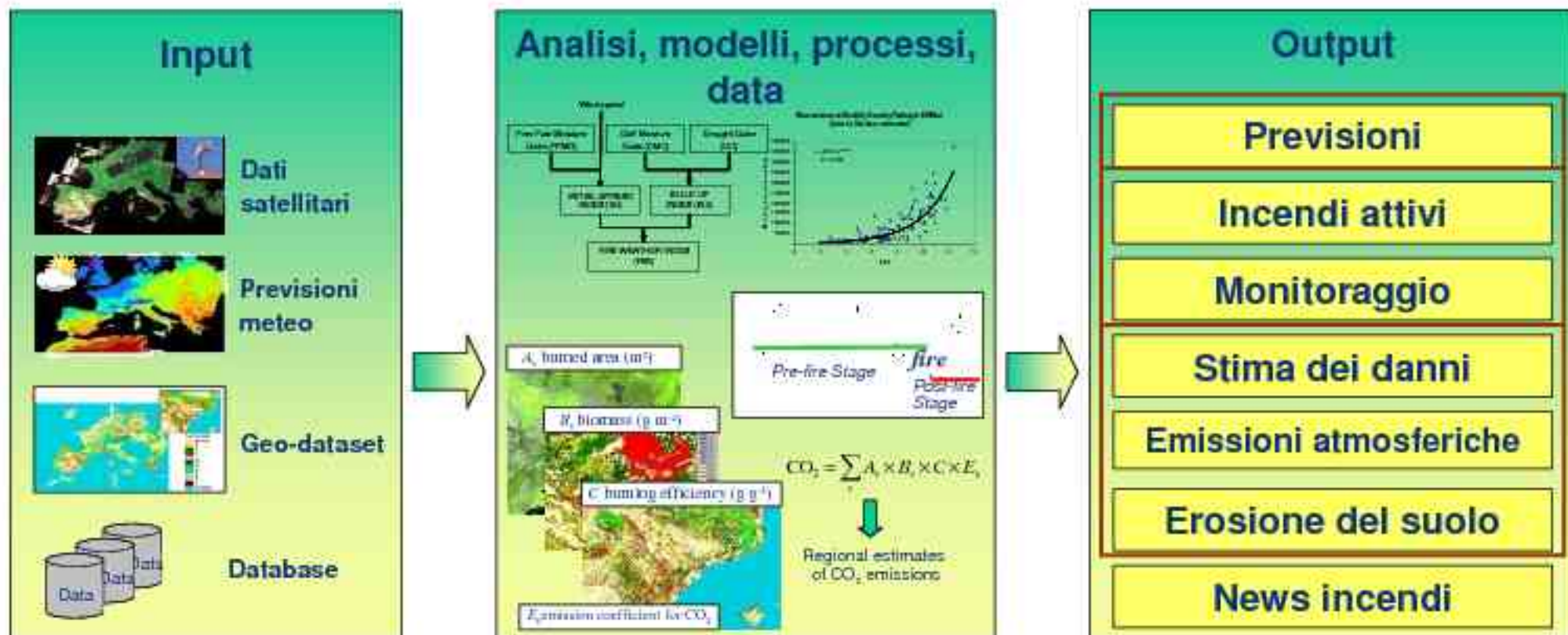
**DOPO un incendio ( stima dei danni sugli  
usi del suolo, emissioni  
e potenziale erosione  
del suolo)**



The screenshot shows the homepage of the European Forest Fire Information System (EFFIS). At the top, it features the logos of the European Commission, Joint Research Centre, and Institute for Environment and Sustainability, along with the title 'European Forest Fire Information System'. Below the header, there is a navigation menu with options like 'Home', 'About', 'Data', 'Tools', 'Contact', and 'Help'. The main content area is divided into several sections:

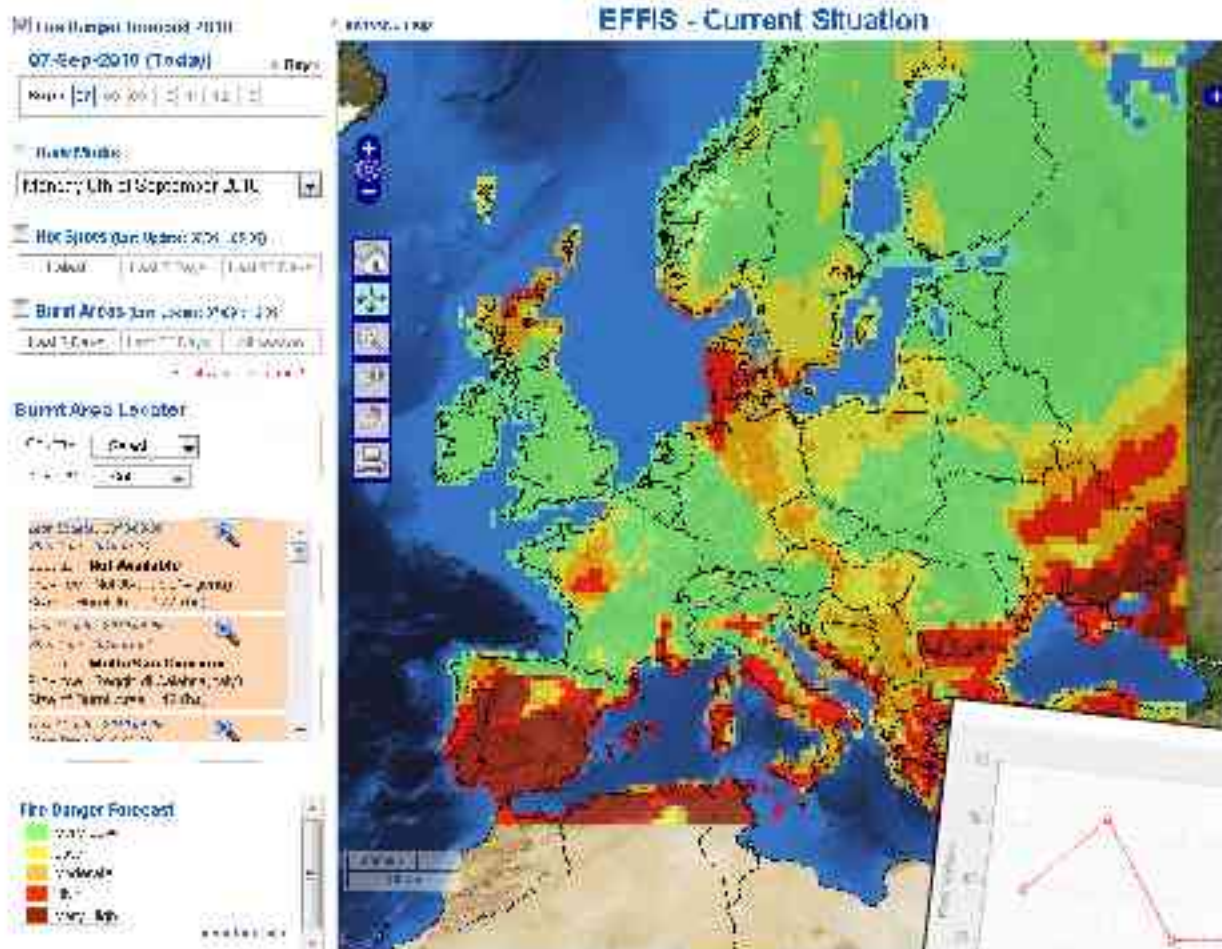
- WELCOME TO EFFIS:** A introductory text block explaining the system's purpose.
- EFFIS:** A list of menu items including 'Home', 'About', 'Data', 'Tools', 'Contact', and 'Help'.
- Applications:** A list of application areas such as 'Data', 'Tools', 'Contact', and 'Help'.
- CURRENT FIRE SITUATION:** A section featuring a map of Europe showing fire activity, accompanied by a text description.
- LIVE NEWS:** A section with a RSS feed icon and a text block providing the latest news on forest fires in Europe.
- EFFIS ADVANCED VIEWER:** A section with a map icon and a text block describing the advanced viewer tool.
- MEMBER AREA:** A section with a satellite dish icon and a text block regarding user access.

At the bottom of the page, there are logos for the JRC and IES, and a footer with the URL 'http://www.jrc.ec.europa.eu/ies/effis/'. The page number '7' is visible in the top right corner of the overall slide.

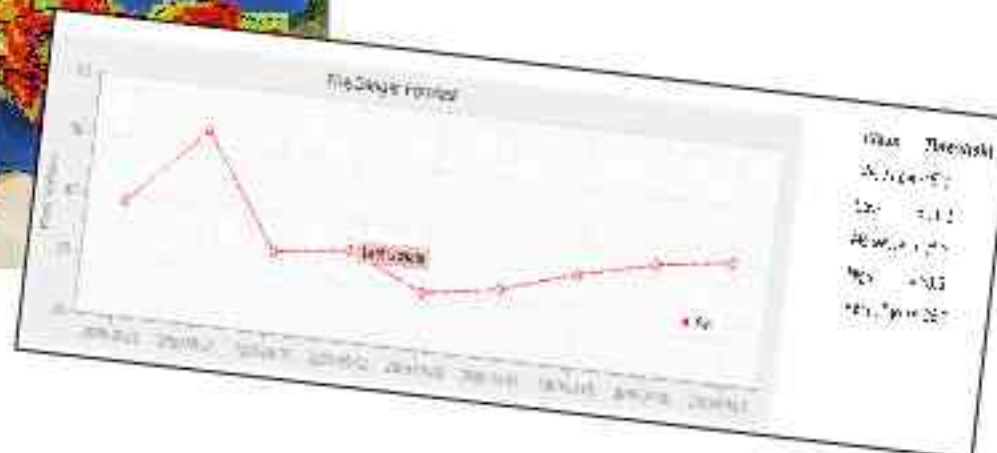


**Applicazione WEB:**  
**(<http://effis.jrc.ec.europa.eu>)**



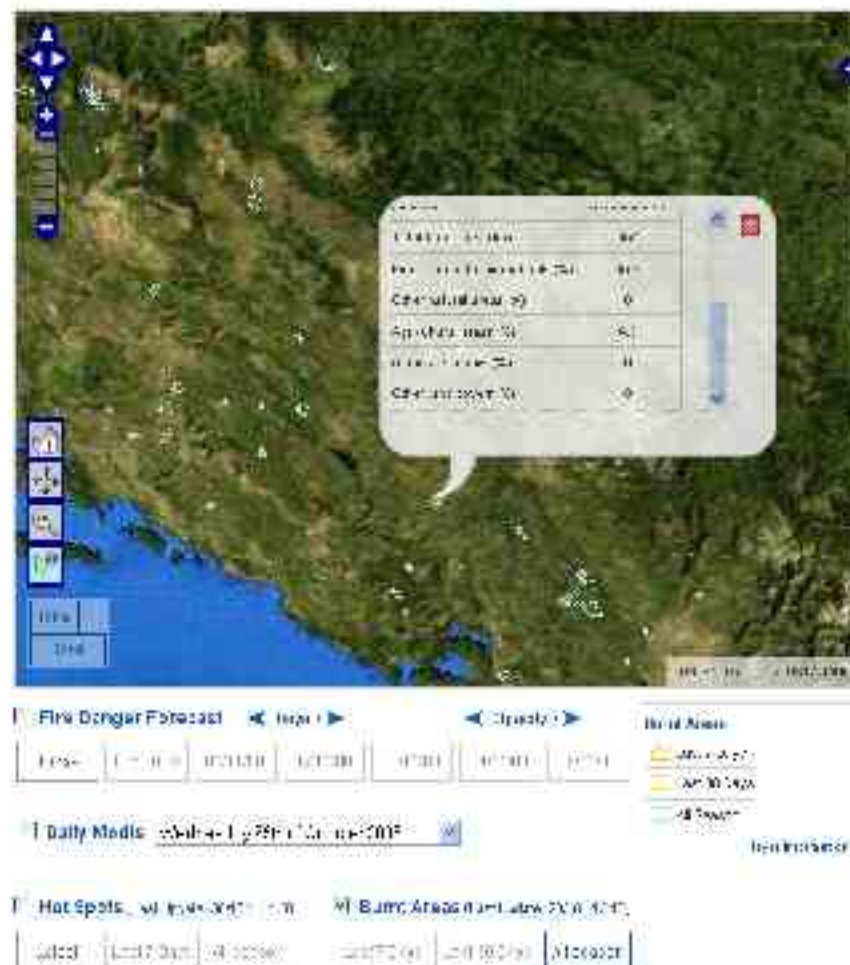


- le previsioni, a 6 giorni, vengono stimate giornalmente sulla base dei dati delle previsioni metereologiche
- fondamentali per il supporto alle decisioni

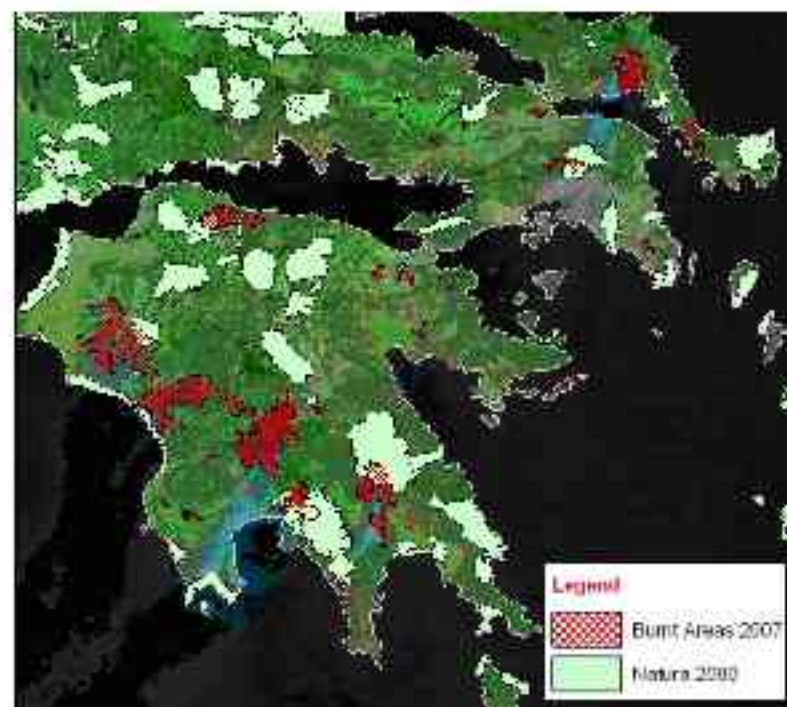




- Mappatura giornaliera delle aree percorse dagli incendi > 40 ha
- Processamento di immagini satellitari di media risoluzione, classificazione automatica, vettorializzazione dei perimetri, overlay sugli usi del suolo
- Monitoraggio delle aree percorse dagli incendi e individuazione di situazioni critiche



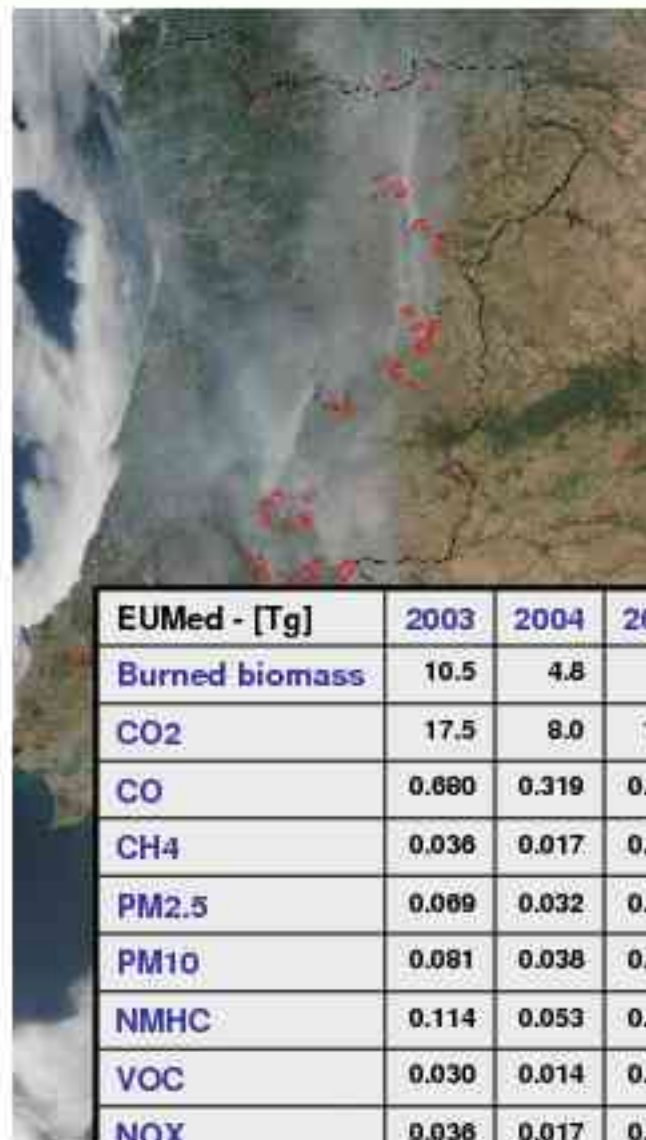
- Mappatura e stima dei danni per gli incendi > 20 ha nel sud Europa
- Processamento di immagini satellitari ad alta risoluzione, vettorializzazione dei perimetri, analisi incrociata con altri dataset ambientali
- Rilevazione omogenea delle aree percorse da incendi, analisi incrociata con gli usi del suolo e impatti sui siti di Natura-2000



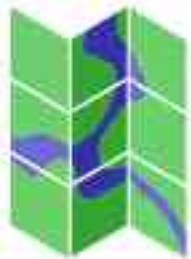
**Burned areas and Natura2000 sites**

Site Code	Site Name	Burned area (ha)
GR1250002	PIERIA ORI	1326.4
GR2330002	OROPEDIO FOLOIS	3555.6
GR2550006	OROS TAYGETOS	6501.8
GR3000001	OROS PARNITHA	2459.8
GR1340001	ETHNIKOS DRYMOS PRESPON	289.6
GR2130008	OROS MITSIKELI	387.6
...	...	...

- COSA: stima delle emissioni atmosferiche nella EU generate dalla biomassa boschiva bruciata
- COME: modelli di emissioni (considerate le aree e biomassa impattate dagli incendi, tenendo conto dell'efficienza)
- PERCHE': stima del ruolo delle foreste sulla qualita' dell'aria e dell'impatto sull'effetto serra



EUMed - [Tg]	2003	2004	2005	2006	2007
Burned biomass	10.5	4.8	7.9	4.2	5.6
CO <sub>2</sub>	17.5	8.0	13.2	7.0	9.4
CO	0.680	0.319	0.541	0.273	0.386
CH <sub>4</sub>	0.036	0.017	0.028	0.014	0.020
PM <sub>2.5</sub>	0.069	0.032	0.054	0.028	0.038
PM <sub>10</sub>	0.081	0.038	0.063	0.033	0.045
NMHC	0.114	0.053	0.089	0.012	0.016
VOC	0.030	0.014	0.023	0.014	0.020
NO <sub>X</sub>	0.036	0.017	0.028	0.019	0.027
OC	0.047	0.022	0.038	0.016	0.023



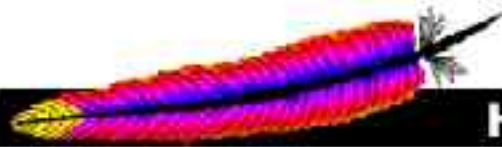
**MapServer**  
*open source web mapping*



**OpenLayers**



**Joomla!**<sup>™</sup>  
...because open source matters



**Apache**  
HTTP SERVER PROJECT



**GeoServer**



**GeoWebCache**



**django**

- Comunicazione WEB
- CMS

Log in / Home / Contact / Sitemap / Newsletter

European Commission  
**Joint Research Centre**  
Institute for Environment and Sustainability

## European Forest Fire Information System

Europe / EC / JRC / IES / **EFFIS** / Forest / Login / Logout / Login

SEARCH

### EFFIS LOGIN

- Home
- EFFIS Home
- About EFFIS
- Reports
- Member Area

#### Applications

- Climate Change
- Forest fires
- Forest fires
- Assessment
- Current Situation / Demos

Username:

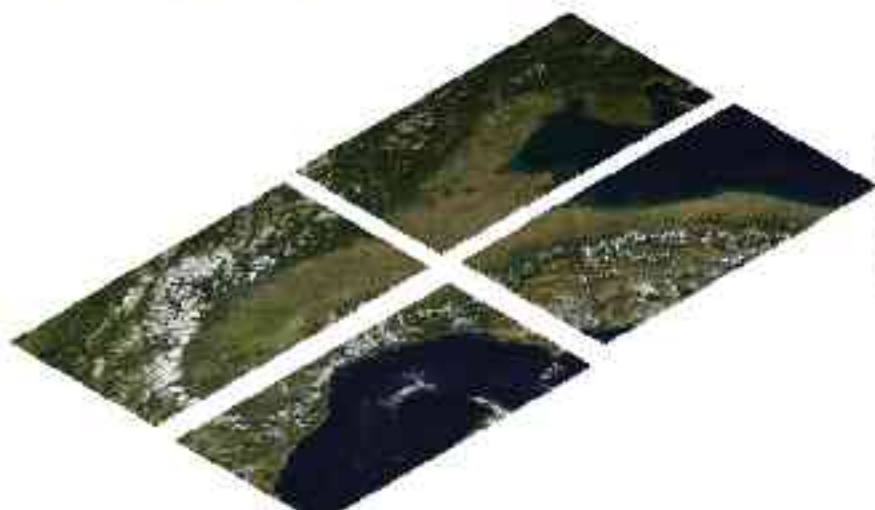
Password:

Remember Me



**...open source!**

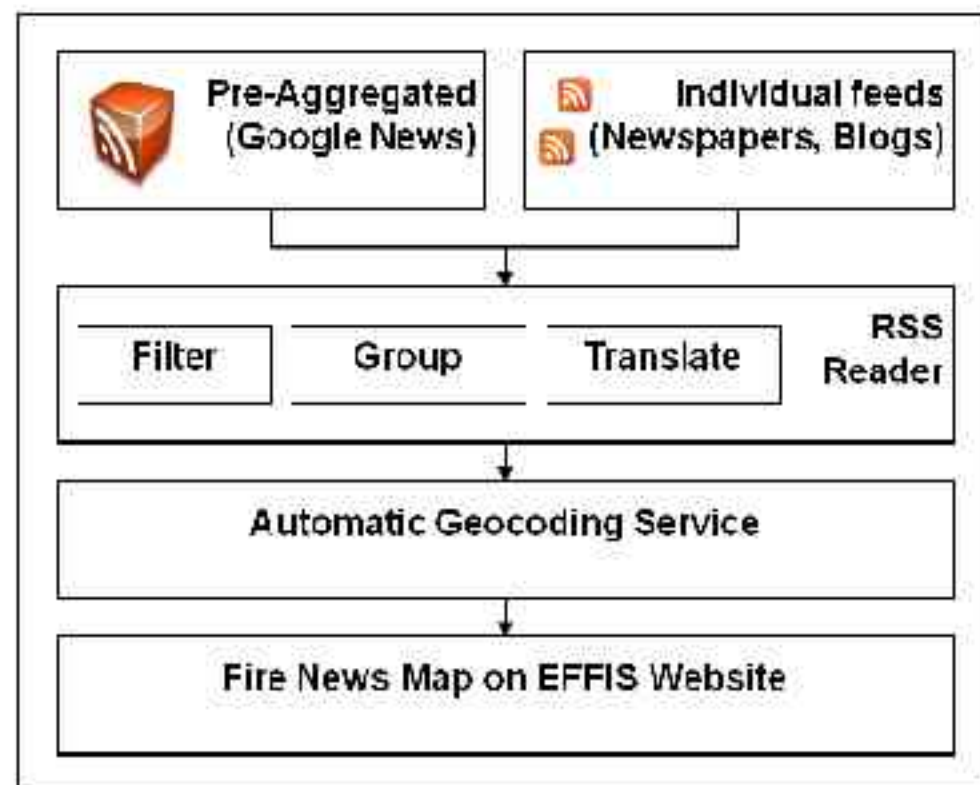
- Le immagini MODIS vengono ricevute e processate due volte al giorno
- MODIS quicklooks e FWI grids vengono pre-tiled per velocizzare la visualizzazione
- TileCache/GWC girano su un server di riprocessamento multi-core.



- Controllo degli Hotspots sugli usi del suolo per eliminare falsi incendi (e.g. emissioni industriali, aree urbane, vulcani...).
- Generazione di statistiche con l'overlay degli hot spot, delle aree impattate, degli usi del suolo e delle aree forestali
- Dati riproiettati e aggiornati ogni ora on demand su MapServer/Geoserver

Hot Spots

Detect on Date	2010-09-06
Latitude	37.0
Longitude	1.95
Country	IT
Province (N. TRV)	Aquila
Location	Palma di Montebiano
Cause and Cause	Agricultural areas





**Google reader** | All feeds | Search

AR.NR - Forest Fire

Lebanon fires: the absence Petrdja strong - [El-Akhbar](#)

Lebanon fires: the absence Petrdja strong - [El-Akhbar](#)

**Lebanon fires: the absence Petrdja strong** - [El-Akhbar](#)

Damage is very serious, but is gradually being contained, as firefighters work around the forest to control. Left thousands of buildings of wood and shanty and by alternative shanty with debris. Many lost animals. There are no reports of people injured people and houses in Mahalla Dimp near been through their participation in the firefighting operations. And two people were taken to hospital with serious injuries in the forest Majra. The largest fire had started in an abandoned driver, where the woman sleep agricultural residues are burned in the early morning of Wednesday, and went to the south of the fire spread rapidly to...

**Molte fonti:** Google News, EMM News Explorer, National and Local News Websites, Blogs

**Oltre 20 lingue:** Arabic, Bosnian, Bulgarian, Czech, German, Spanish, Russian, Suomi, Estonian, French, Greek, Italia, Lituanian, Latvian, Portuguese, Romanian, Slovakian, Maltese, Slovenian, Polish, Swedish, Turkish.

## the firenews app

HOME

ADD A FIRE

DOWNLOAD

REPORTS

ABOUT

### Fires

Place	Country	Size/Class	Today	Critical	News
<a href="#">A Goshika</a>	Spain	Small	17	False	<a href="#">Fuego en zona turística de Sierra de Guadalupe</a>
<a href="#">Aguila</a>	El Salvador	Large	9	True	<a href="#">Se declara un incendio en zona turística de El Salvador</a>
<a href="#">Aguilera</a>	Italy	NA	28	True	<a href="#">Sequía</a>
<a href="#">Aguilón</a>	Italy	NA	18	False	<a href="#">Incendio forestal en zona turística de El Salvador</a>
<a href="#">Aguilón</a>	El Salvador	NA	22	True	<a href="#">Un incendio forestal en zona turística de El Salvador</a>
<a href="#">Aguilón de El Salvador</a>	Spain	NA	8	False	<a href="#">Comunicación de incendio en zona turística de El Salvador</a>
<a href="#">Aguilón de El Salvador</a>	El Salvador	Small	28	False	<a href="#">El incendio</a>
<a href="#">Aguilón de El Salvador</a>	Italy	NA	22	True	<a href="#">Sequía</a>
<a href="#">Aguilón de El Salvador</a>	Portugal	NA	18	False	<a href="#">Fuego forestal en zona turística de El Salvador</a>
<a href="#">Aguilón de El Salvador</a>	El Salvador	NA	28	True	<a href="#">Un incendio forestal en zona turística de El Salvador</a>
<a href="#">Aguilón de El Salvador</a>	Italy	Major	6	False	<a href="#">Incendio forestal en zona turística de El Salvador</a>
<a href="#">Aguilón de El Salvador</a>	El Salvador	NA	28	True	<a href="#">Sequía</a>
<a href="#">Aguilón de El Salvador</a>	Italy	Medium	27	False	<a href="#">Incendio forestal en zona turística de El Salvador</a>
<a href="#">Aguilón de El Salvador</a>	El Salvador	NA	22	True	<a href="#">Un incendio forestal en zona turística de El Salvador</a>

Page 1 of 20 next



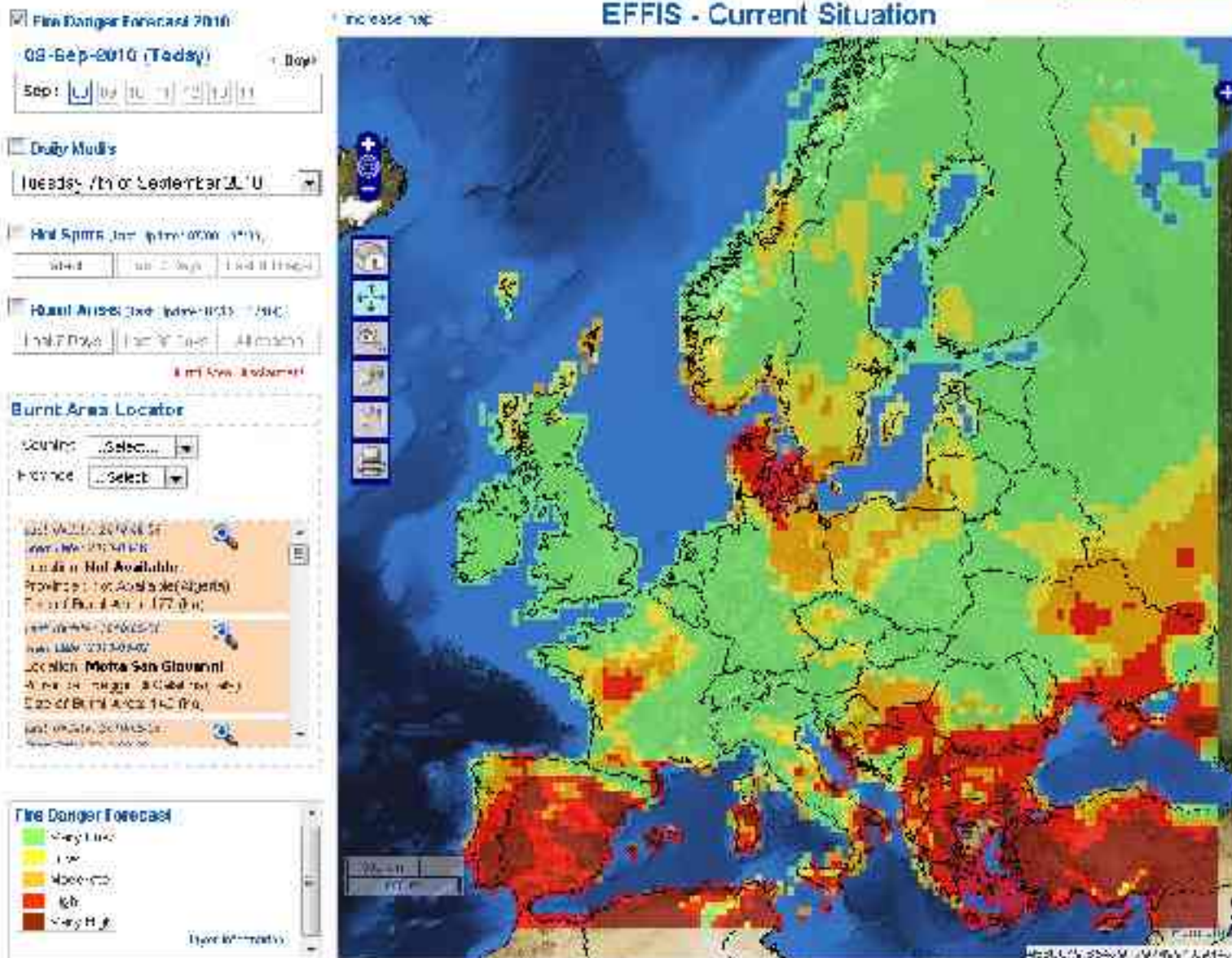
200 fire incidents (with 200 related news) - Review all items 200 400 600

Order by: Title - False

Size Class: [All](#) - [Small](#) - [Medium](#) - [Large](#) - [Major](#)

Country: [All](#) - [Spain](#) - [France](#) - [Italy](#) - [Germany](#) - [Austria](#) - [Czechia](#) - [Denmark](#) - [Estonia](#) - [Finland](#) - [Greece](#) - [Hungary](#) - [Ireland](#) - [Latvia](#) - [Lithuania](#) - [Luxembourg](#) - [Malta](#) - [Netherlands](#) - [Poland](#) - [Portugal](#) - [Romania](#) - [Slovakia](#) - [Slovenia](#) - [Sweden](#) - [Switzerland](#) - [Turkey](#) - [United Kingdom](#) - [Other](#) - [All](#)







## EFFIS

- Home
- EFFIS Home
- About EFFIS
- Reports
- Member Area

## Applications

- Current Situation
- Fire News
- Fire History
- Data and Services**

## DATA AND SERVICES



By using the data provided you acknowledge the EDA data disclaimer and agree to the terms of use under this license.

<b>WMS</b> Version 1.1.1	<b>WFS</b> Version 1.2.0 or 1.1.0	<b>WCS</b> Temporarily (days later)
-----------------------------	--------------------------------------	--

Layer Name	WMS	WFS	WCS	KML	TMS	CSV	SHP	RSS
<b>Fires</b>								
Last 7 Days	GetMap	GML2	-	KML	OL	CSV	ZIP	RSS
Last 30 Days	GetMap	GML2	-	KML	UL	CSV	ZIP	RSS
Entire Season	GetMap	GML2	-	KML	OL	CSV	ZIP	RSS
<b>Hot Areas</b>								
Last 7 Days	GetMap	-	-	KML	OL	-	-	-
Last 30 Days	GetMap	-	-	KML	UL	-	-	-
Entire Season	GetMap	-	-	KML	OL	-	-	-
<b>MCD 13 Hotspots</b>								
Last 24 Hours	GetMap	GML2	-	KML	OL	CSV	ZIP	RSS
Last 7 Days	GetMap	GML2	-	KML	OL	CSV	ZIP	RSS
Entire Season	GetMap	GML2	-	KML	UL	CSV	ZIP	RSS
<b>FWI</b>								
Today	GetMap	-	-	KML	UL	-	-	-
Tomorrow	GetMap	-	-	KML	OL	-	-	-
Last 7 Days	GetMap	-	-	KML	UL	-	-	-
<b>Fire News</b>								
Cancelled	GetMap	GML2	-	KML	UL	CSV	ZIP	RSS
Styled KML	Not part of the main OWS service, but published as a static KML updated daily							

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**European Forest Fire Information System**

Home | About | Contact | Help | Search

150 ch.

EUFFTR: European Forest Fire Information System Tuesday, 17th of November 2009



Fire ID	Start Date	Last Update	Area (km <sup>2</sup> )	Lat	Longitude	Place	Area (km <sup>2</sup> )	FWI	Population Affected	Infrastructure	Protected Area	Distance to Forest	Number of Records	Detected Region
 001	10/01	10/01	27,115	41.112	14,000	Valencia	100	1,100	100	No	Yes	2000	1000	EU
 002	10/02	10/02	7,117	40,200	14,000	Valencia	100	1,100	100	No	Yes	1000	1000	EU
 003	10/03	10/03	7,000	41,700	14,000	Valencia	100	1,100	100	No	Yes	1000	1000	EU

- Incendio: ampiezza in ettari, data di inizio e data di aggiornamento;
- coordinate LAT/LON coordinate dell'incendio e distanza dalla base di EUFFTR in Bastia;
- Overview delle localita' con incendi e perimetri in overlay con immagini satellitari ad alta risoluzione (ove disponibili) con l'API di Google Maps;
- FWI (Fire Weather Index) medio a 7 gg per l'area di ogni incendio;
- Report sintetico della popolazione, delle infrastrutture e delle aree protette interessate

- Geocodifica delle fire news
- Integrazione con data source non strutturati

- Twitter
- Flickr



**flickr**

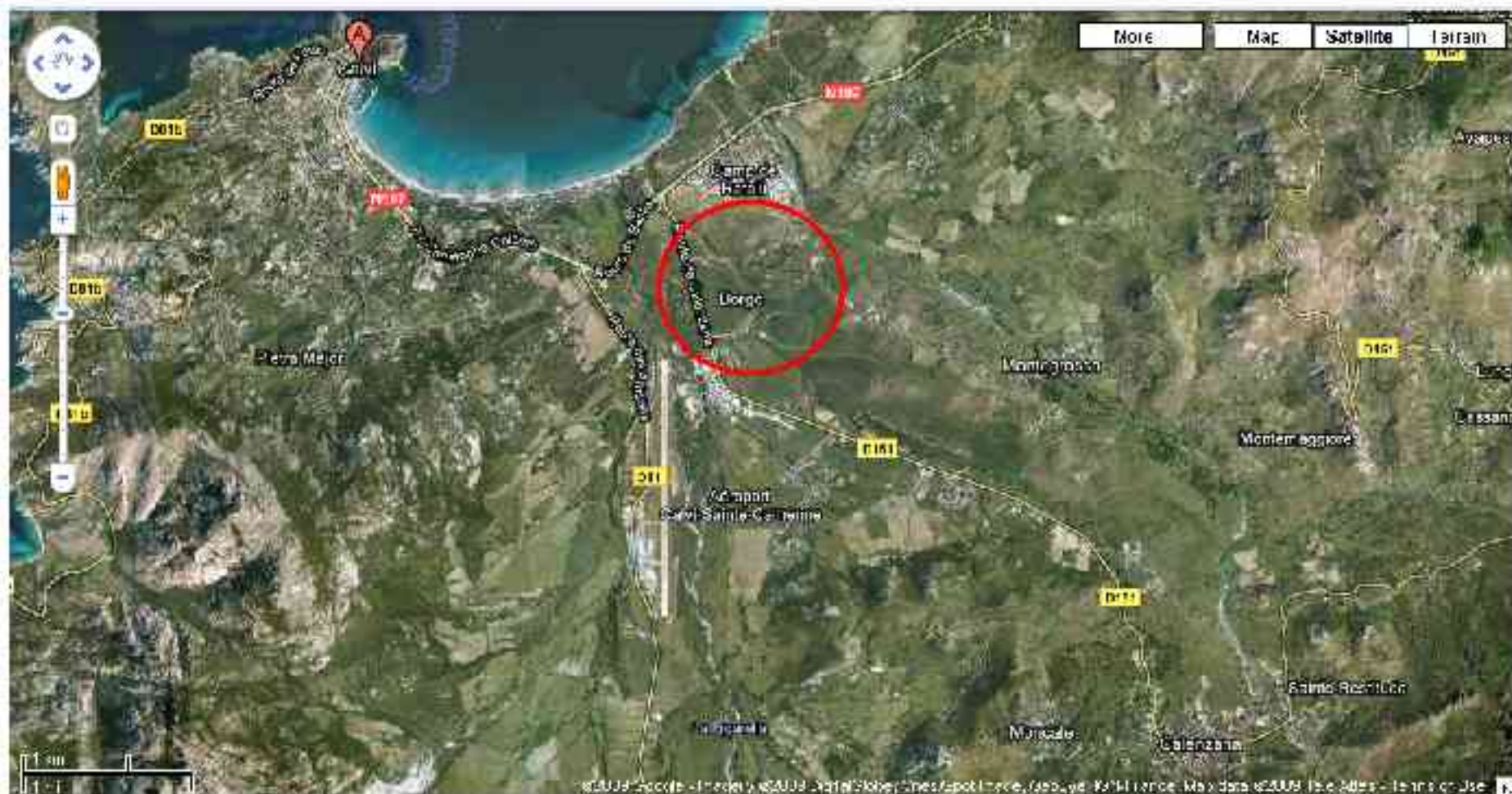
**Panoramio**  
by Google

- Integrazione di dati VGI strutturati
- Open Street Map





“Sitting on tarmac at Calvi airport, big smoke plumes to the right at the end of runaway”



- Favorisce lo sviluppo rapido
- Source code e strumenti di issue tracking disponibili
- Grande supporto della comunità (forum, mailing list, wiki, IRC...)
- Portabilità e scalabilità
- Assenza di problemi di licenze, manutenzioni e relativi costi
- Open source= sistema aperto e interoperabile





- Potenziamento degli OGC Web Services
- Sviluppo di un client FOSS desktop/cloud per la mappatura degli incendi
- Migrazione dei modelli di stima FWI ed emissioni a FOSS
- Integrazione con FIS (Fire Information Systems) locali e globali
- Integrazione con fonti di dati non strutturati
- Sviluppo di applicazioni per dispositivi mobili
- Rilascio di sorgenti, Joomla Web mapping component

**Thank you!**



**[paolo.corti@jrc.ec.europa.eu](mailto:paolo.corti@jrc.ec.europa.eu)**  
**<http://effis.jrc.ec.europa.eu>**