

EFFIS

European Forest Fire Information System

and other

Early Warning Activities

European Commission
Joint Research Centre

Peter Strobl

- **About the JRC**
- **JRC early warning in Europe:**
- **Forest Fires – EFFIS**
- **Floods – EFAS**
- **Droughts – EDO**
- **Perspectives**

Contribution to UN-SPIDER

Where does the JRC fit in the European Commission?



Our Mission

... is to provide customer-driven **scientific and technical support** for the conception, development, implementation and monitoring of **EU policies**.

As a service of the European Commission, the JRC functions as a **reference centre of science and technology** for the Union.

Close to the policy-making process, it serves the **common interest of the Member States**, while being independent of special interests, whether private or national.



7 Institutes in 5 Member States

IRMM - *Geel, Belgium*

Institute for Reference Materials and Measurements

ITU - *Karlsruhe, Germany*

Institute for Transuranium Elements

IE - *Petten, The Netherlands and Ispra, Italy*

Institute for Energy

IPSC - *Ispra, Italy*

Institute for the Protection and Security of the Citizen

IES - *Ispra, Italy*

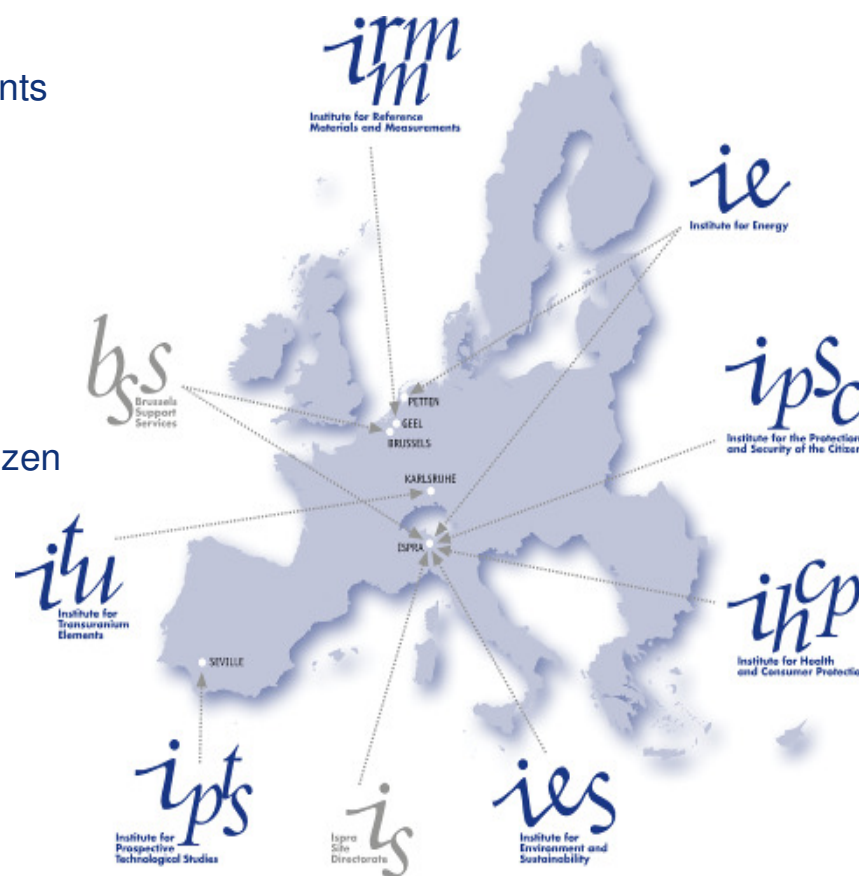
Institute for Environment and Sustainability

IHCP - *Ispra, Italy*

Institute for Health and Consumer Protection

IPTS - *Seville, Spain*

Institute for Prospective Technological Studies

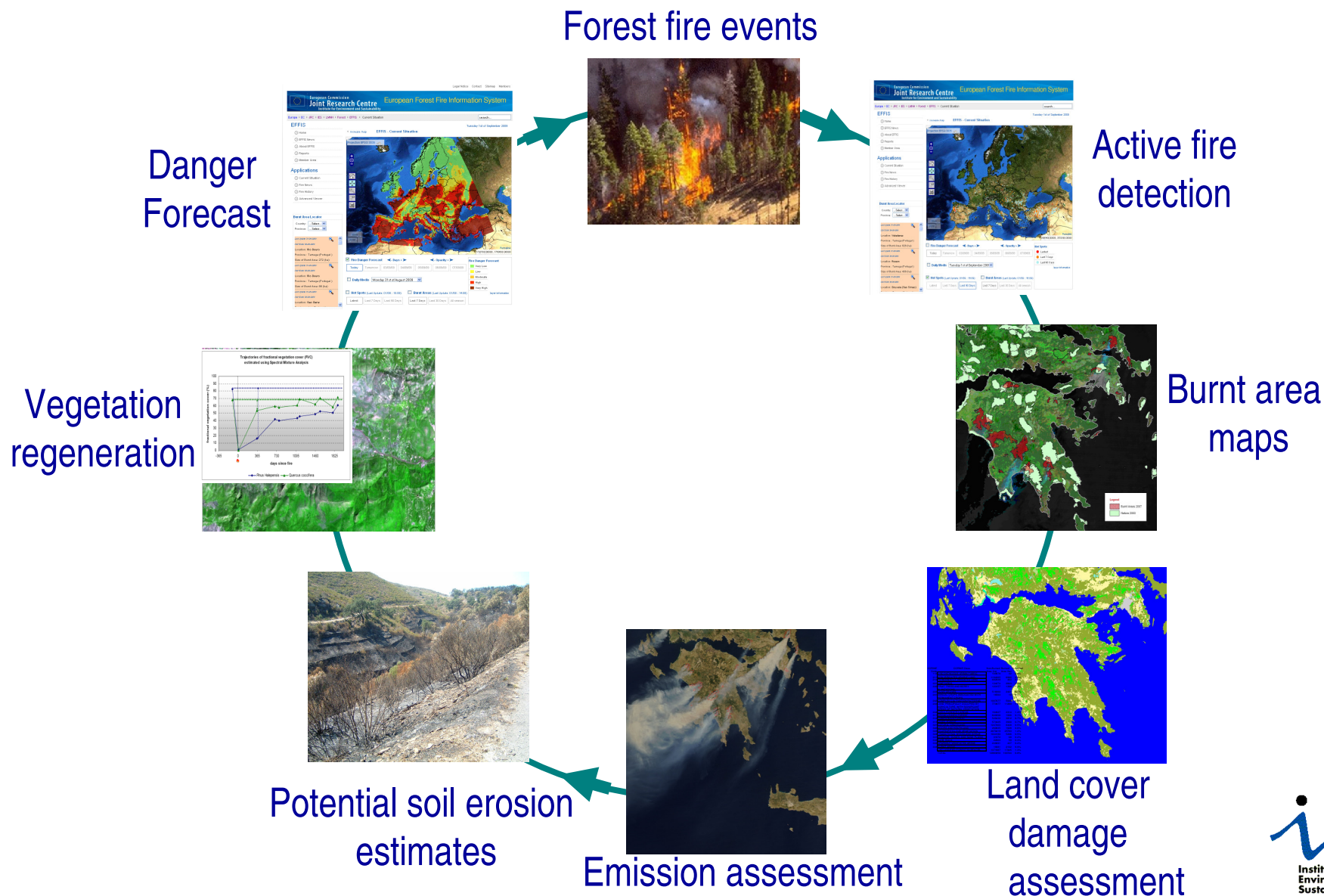


~ **2650 staff + 250 competitive**
~ **330 M€/y budget** (+ ~ 40 M€/y competitive income)

FOREST FIRES

European Forest Fires Information System - EFFIS

- The European Forest Fire Information System (EFFIS) has been **established by the Joint Research Centre (JRC) and the Directorate General for Environment (DG ENV) of the European Commission (EC)** in close collaboration with the **Member States** and neighbor countries.
- It **supports the services** in charge of the protection of forests against fires **in EU and neighbor countries**, and provides the **EC services** and the **European Parliament** with information on forest fires in Europe.
- Aims at providing **up-to-date, reliable information on forest fires at the European level**, providing European level assessments during both pre-fire and post-fire phases, thus supporting fire prevention, preparedness, fire fighting and post-fire evaluations.
- EFFIS is intended as **complementary system to national and regional systems** in the countries, which provides **harmonized information required for international collaboration** on forest fire prevention and fighting and in cases of trans-boundary fire events.



European Commission
Joint Research Centre
Institute for Environment and Sustainability

European Forest Fire Information System

Europa ▸ EC ▸ JRC ▸ IES ▸ LMNH ▸ Forest ▸ EFFIS ▸ Current Situation

search...

EFFIS

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Advanced Viewer

Burnt Area Locator

Country: ...Select...
Province: ...Select...

Last Update: 17-10-2009
Start Date: 17-10-2009
Location: **Alvadia**
Province: Tamega (Portugal)
Size of Burnt Area: 186 (ha)

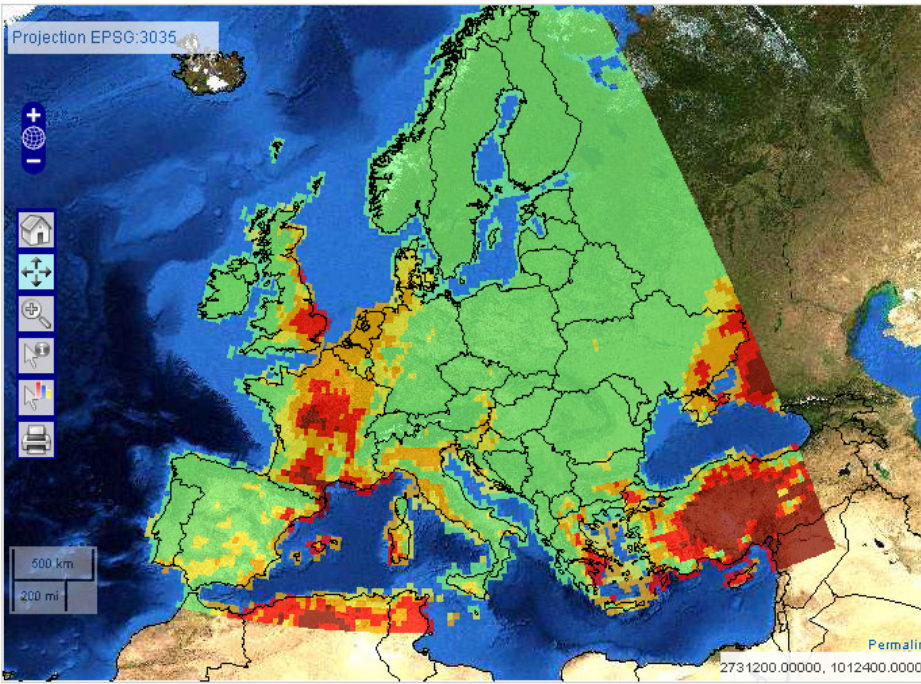
Last Update: 17-10-2009
Start Date: 16-10-2009
Location: **Parada de Monteiros**
Province: Alto Tras-os-Montes (Portugal)
Size of Burnt Area: 115 (ha)

Last Update: 16-10-2009
Start Date: 16-10-2009

increase map

EFFIS - Current Situation

Projection EPSG:3035



500 km
200 mi

Permalink
2731200.00000, 1012400.00000

☒ Fire Danger Forecast <- Days +> <- Opacity +>

Today Tomorrow 22/10/09 23/10/09 24/10/09 25/10/09 26/10/09

☐ Daily Modis Monday 19th of October 2009

☐ Hot Spots (Last Update: 20/10 : 10:10) ☐ Burnt Areas (Last Update: 19/10 : 13:10)

Latest Last 7 Days Last 90 Days Last 7 Days Last 30 Days All season

Fire Danger Forecast

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

layer information

- 365/24 Availability
- Public access
- Actual Fire Danger
- +6 day forecast

<http://effis.jrc.ec.europa.eu/>

EFFIS

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Burnt Area Locator

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Start Date: 17-10-2009

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Province: Alto Tras-os-Montes

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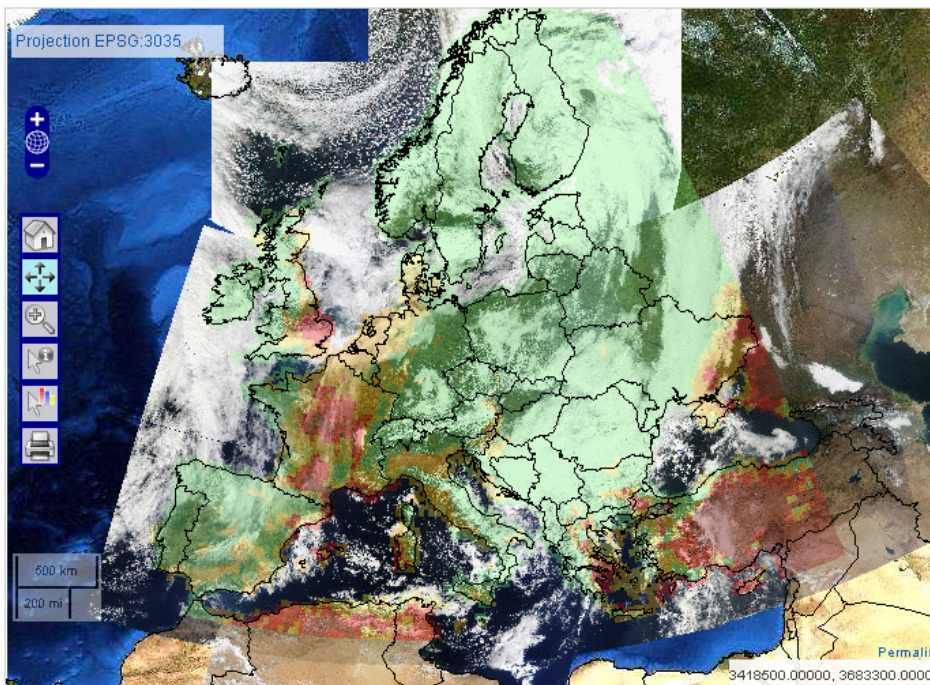
Last Update: 16-10-2009

Start Date: 16-10-2009

increase map

EFFIS - Current Situation

Tuesday 20th of October 2009



Fire Danger Forecast

< - Days + >

< - Opacity + >

Today

Tomorrow

22/10/09

23/10/09

24/10/09

25/10/09

26/10/09

Daily Modis

Monday 19th of October 2009

Hot Spots

(Last Update: 20/10 : 10:10)

Burnt Areas

(Last Update: 19/10 : 13:10)

Latest

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Last 90 Days

Last 7 Days

Last 30 Days

All season

Fire Danger Forecast

Very Low

Low

Moderate

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Very High

layer information

Daily Modis

layer information

- 365/24 Availability
- Actual Fire Danger
- 6 day forecast
- Near real time satellite data

EFFIS

Tuesday 20th of October 2009

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Tomorrow

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24/10/09

25/10/09

26/10/09

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☐ Burnt Areas (Last Update: 19/10 : 13:10)

Latest

Last 7 Days

Last 90 Days

Last 7 Days

Last 30 Days

All season

Daily Modis

layer information

Hot Spots

● Lastest

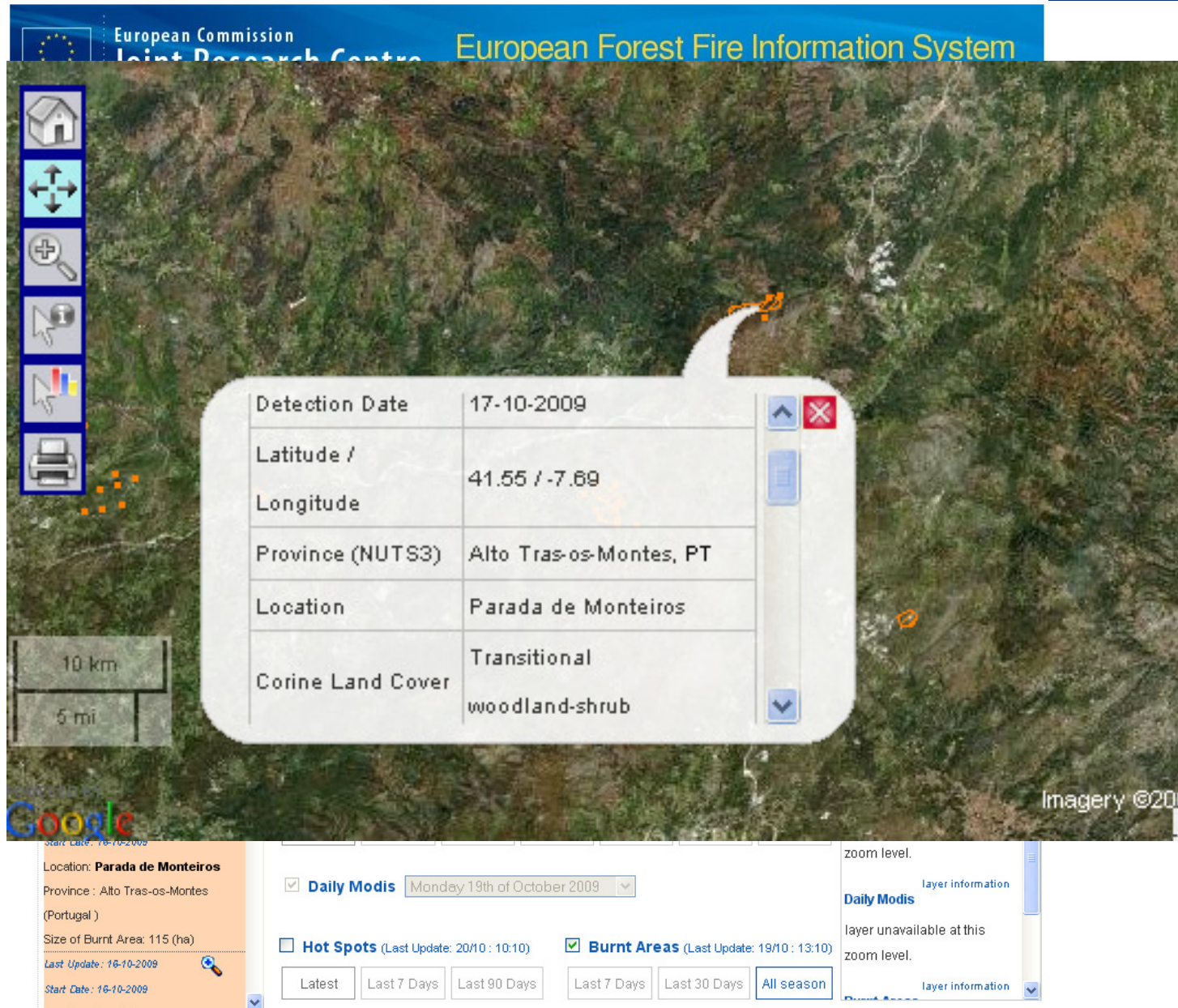
● Last 7 Days

● Last 90 Days

layer information

- 365/24 Availability
- Actual Fire Danger
- 6 day forecast
- Near real time satellite data
- Current and past Hot spots

European Commission
Joint Research Centre
European Forest Fire Information System



Detection Date	17-10-2009
Latitude / Longitude	41.55 / -7.69
Province (NUTS3)	Alto Tras-os-Montes, PT
Location	Parada de Monteiros
Corine Land Cover	Transitional woodland-shrub

Location: **Parada de Monteiros**
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Size of Burnt Area: 115 (ha)
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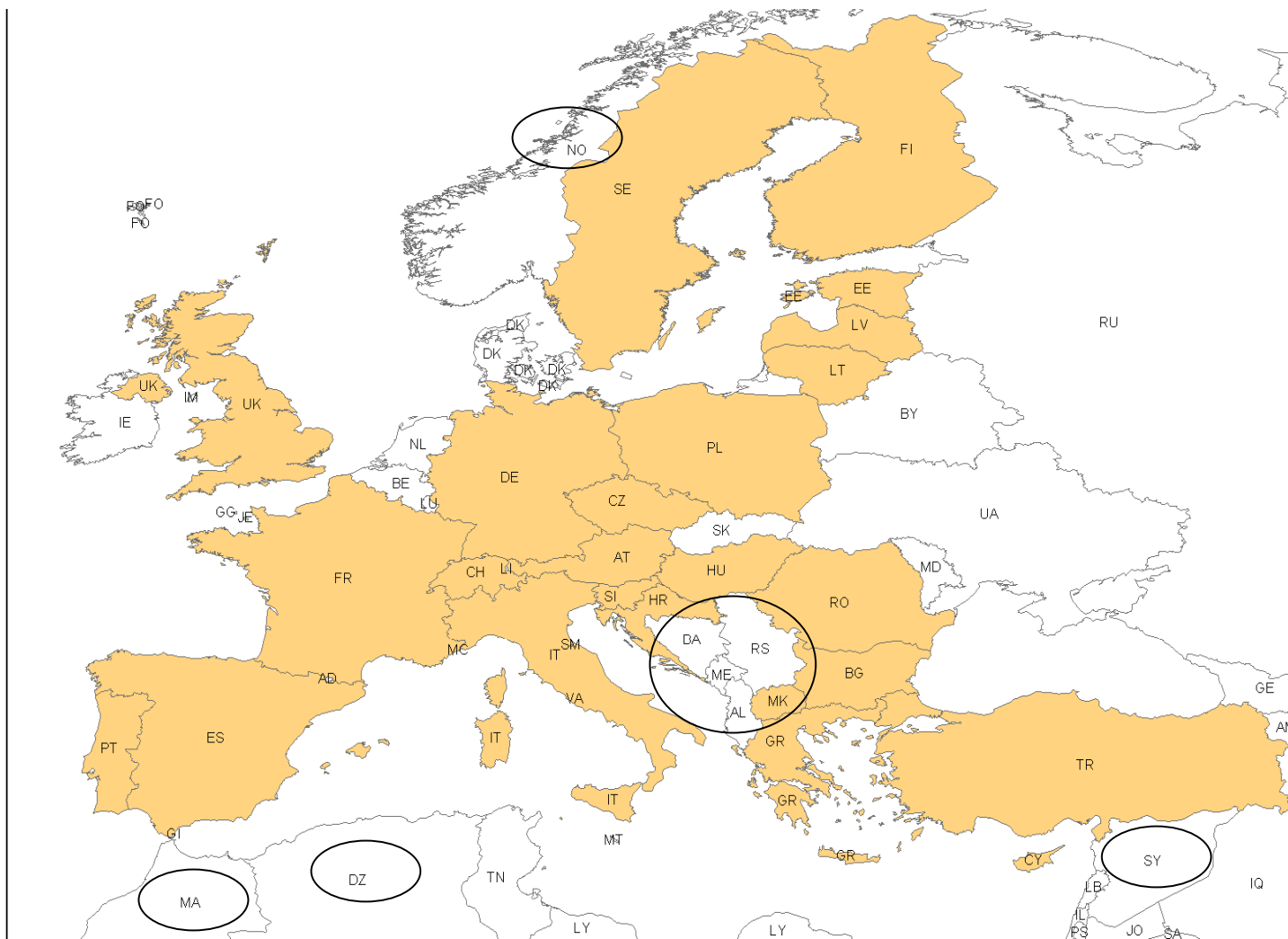
☒ **Daily Modis** (Monday 19th of October 2009)
☐ **Hot Spots** (Last Update: 20/10 : 10:10)
☒ **Burnt Areas** (Last Update: 19/10 : 13:10)

Latest Last 7 Days Last 90 Days Last 7 Days Last 30 Days All season

zoom level.
layer information
Daily Modis
layer unavailable at this zoom level.
layer information

24 Availability
Fire Danger
forecast
real time
data
spots
burnt area

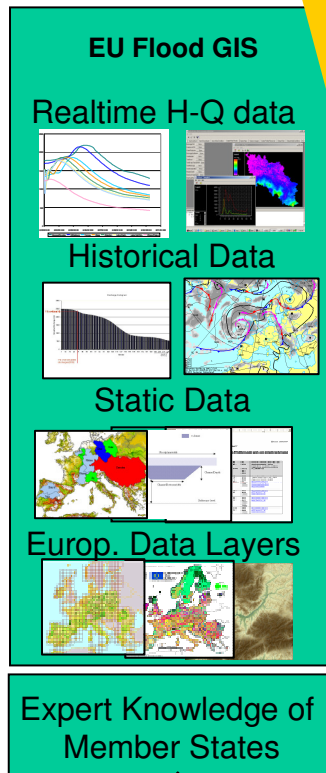
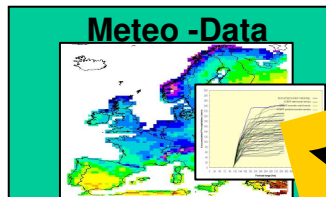
Nearly 2 million records of individual fire events provided by European countries
Network of 26 countries + FAO SilvaMediterranea (non-EU Med countries)



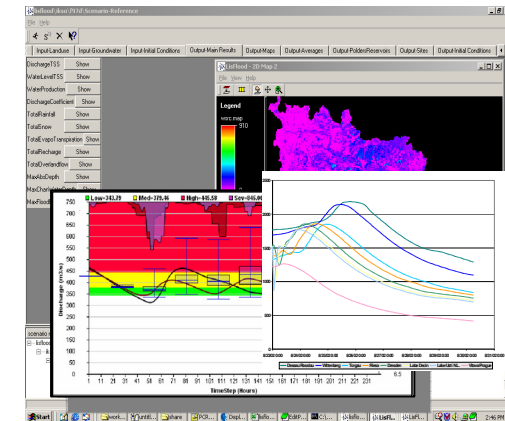
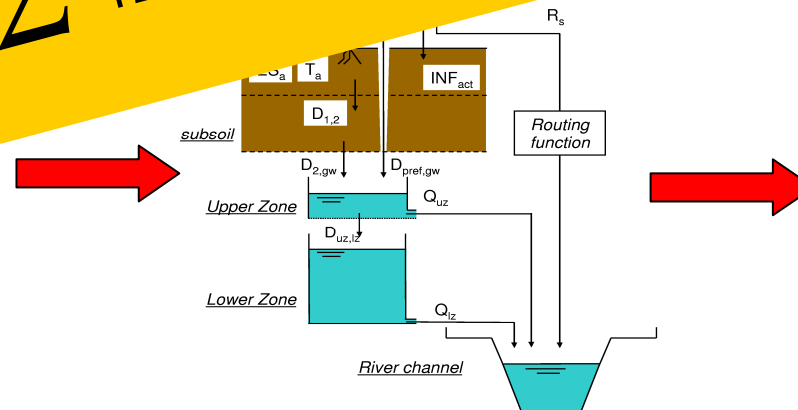
FLOODS

European Flood Alert System - EFAS

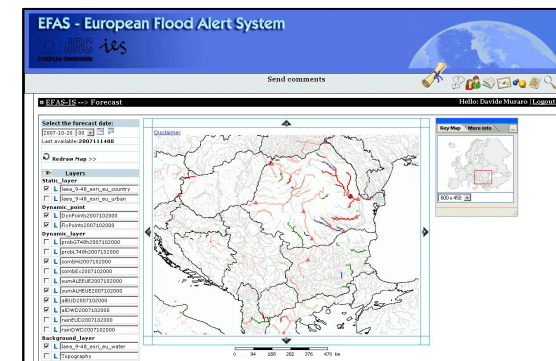
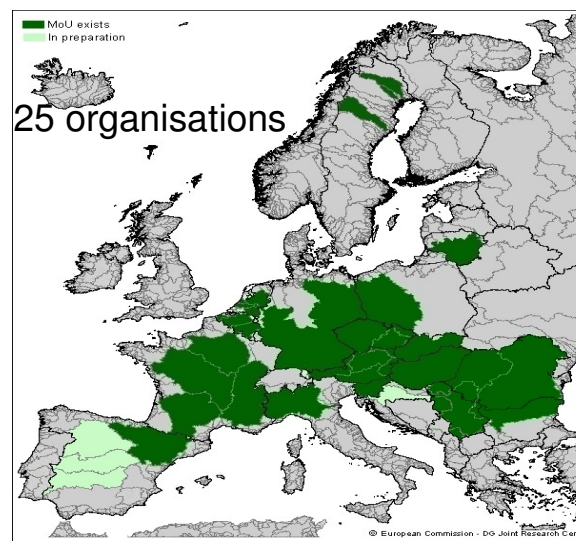
EFAS – System Setup



Σ 120 forecasts per day



24/365 Web-Interface



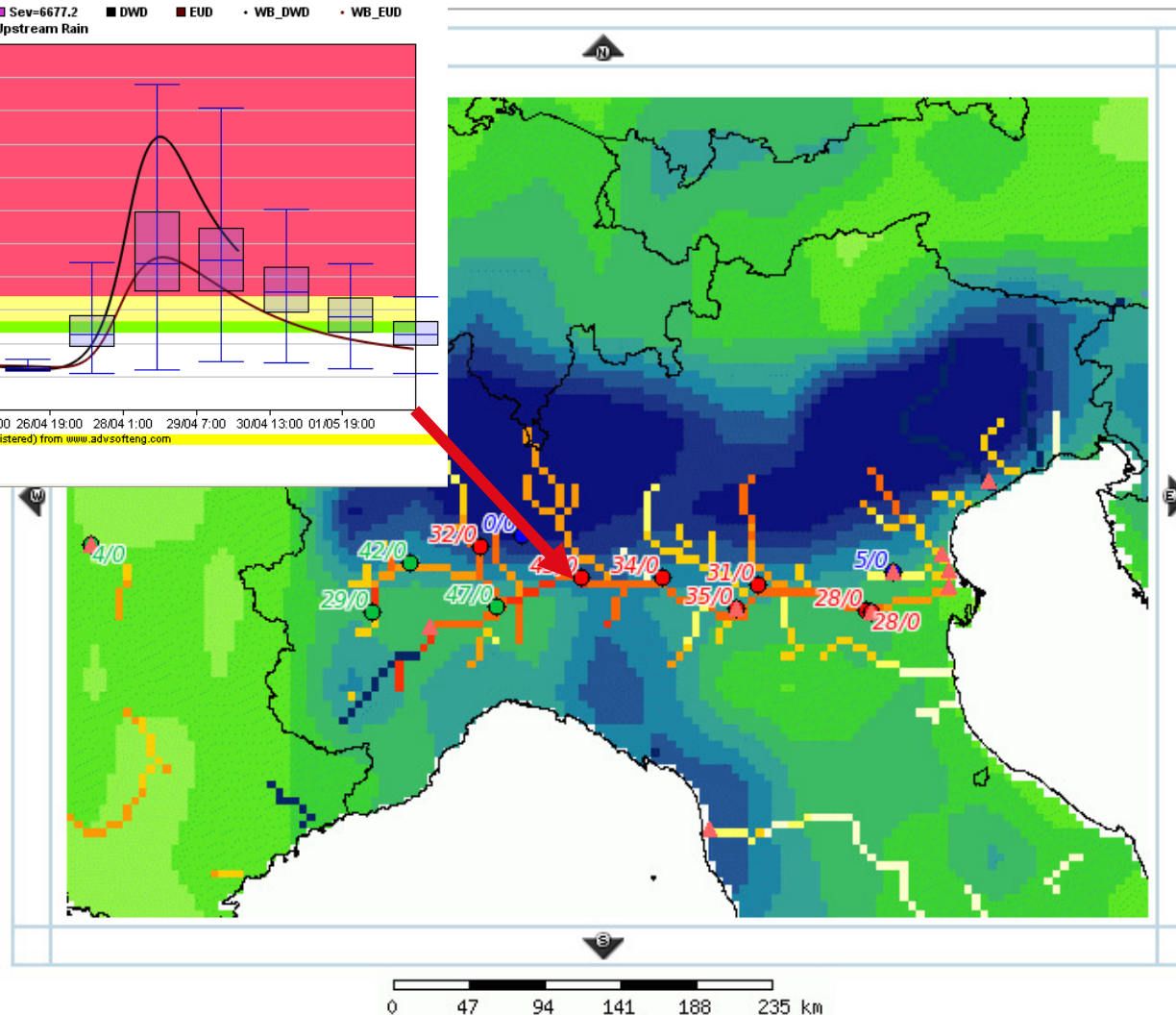
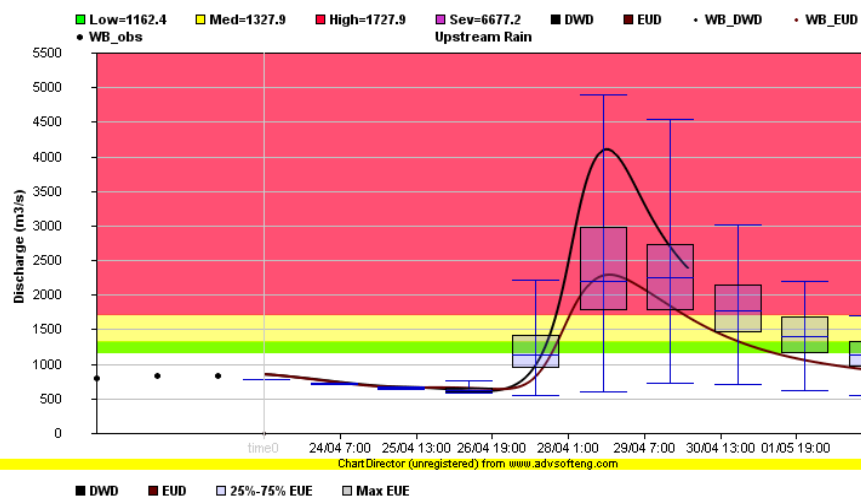


Example: Po flood 2009 (28-29 April)



EFAS-IS --> Forecast

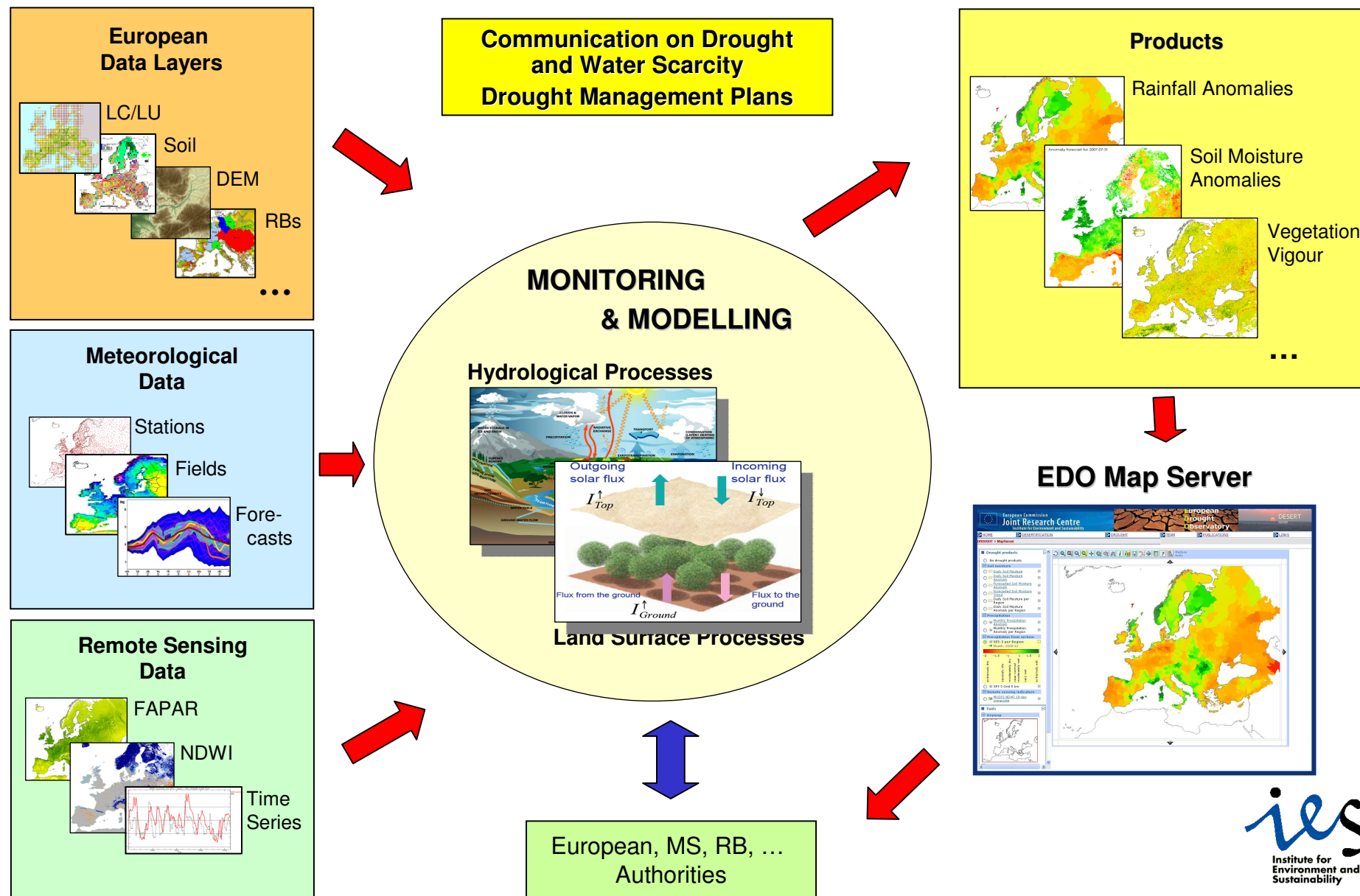
Hello: [Ad De Roo](#) | [Logout](#)

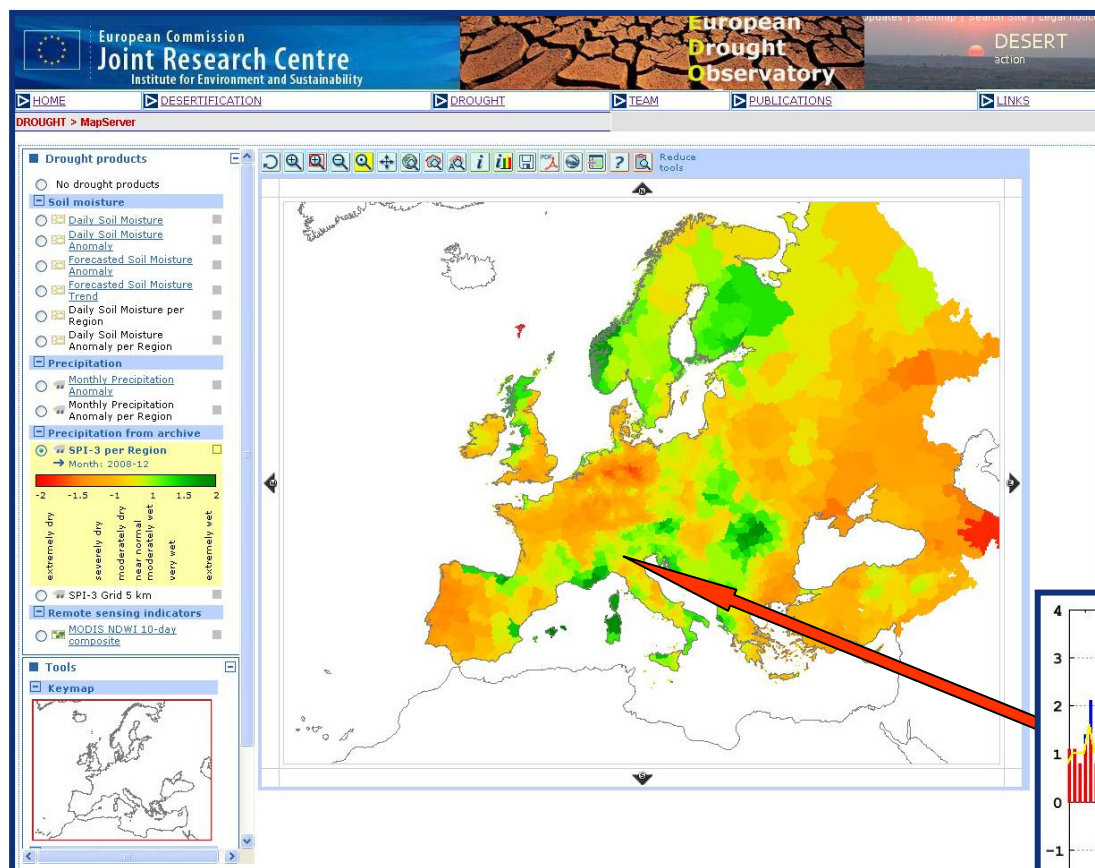


- ☒ ? Fixed Rep. Points
- Flood Alert Layers**
- ☒ ? Flood Probability > 48h
- ☒ ? Flood Probability < 48h
- ☐ ? Combined Det. High Alert
- ☐ ? Combined Det. Severe Alert
- ☐ ? No. EPS Above Severe
- ☐ ? No. EPS Above High
- ☐ ? No. COSMO Above Severe
- ☐ ? No. COSMO Above High
- ☐ ? Det. ECMWF
- ☐ ? Det. DWD
- Meteorological Layers**

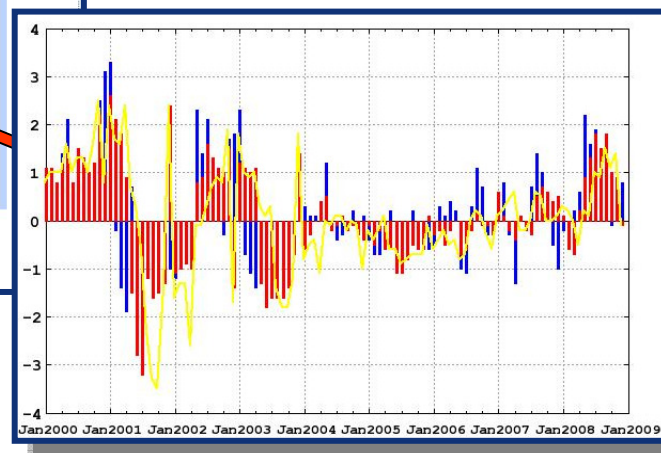
DROUGHTS

European Drought Observatory - EDO





3-month Standardized Precipitation Index (SPI)
for 10-12/2008 aggregated to regional level



- Precipitation Indicators
- Modelled Soil Moisture
- Remote Sensing Indicators

<http://edo.jrc.ec.europa.eu/>

EFFIS → **GWIS** (Global Wildfire Information System)

- q Feasibility fire danger at global scale (EFFIS extension to N. Africa)

EFAS → **GFAS**

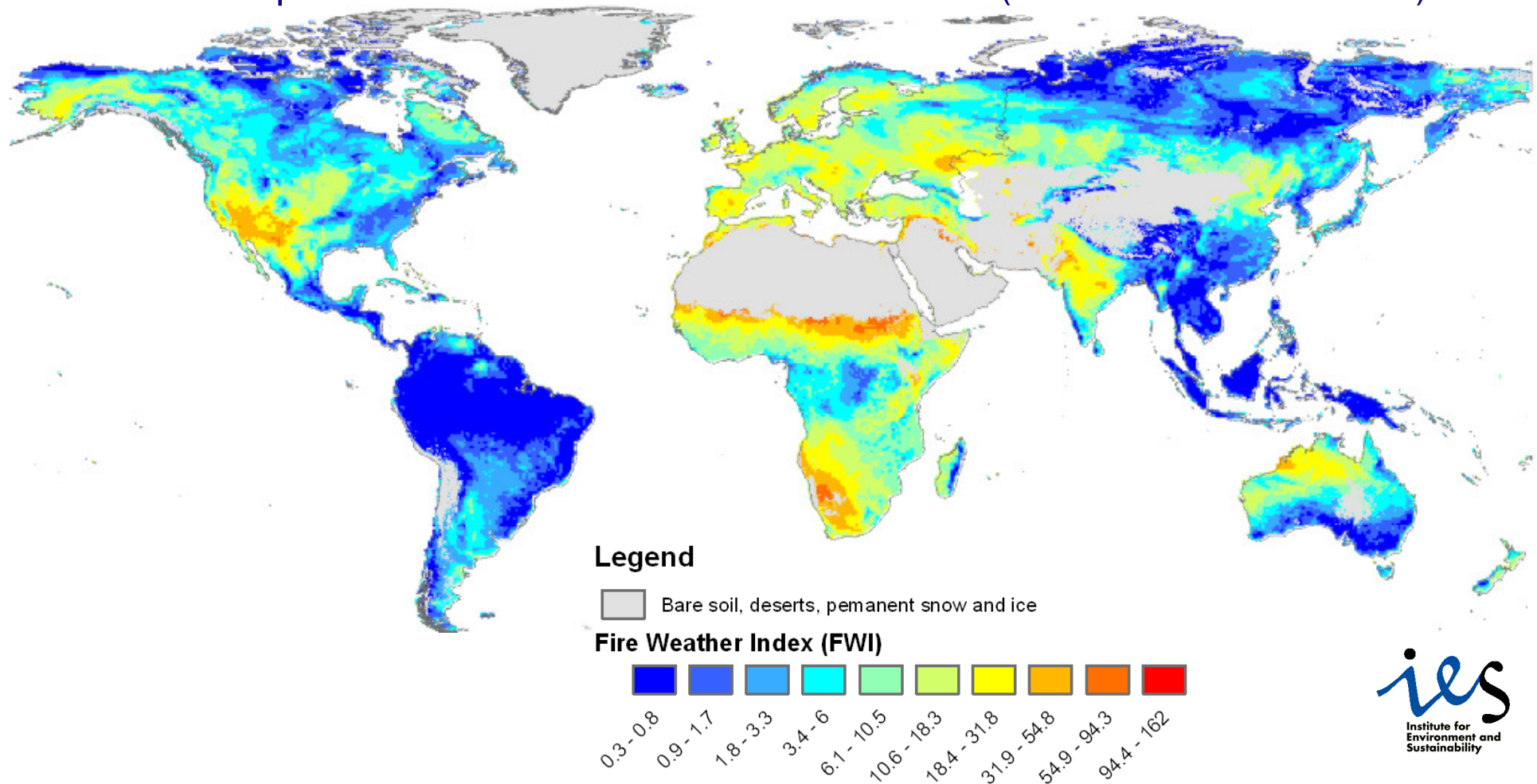
- q Feasibility flooding at global scale (pilot regions Africa)

EDO → **GDO**

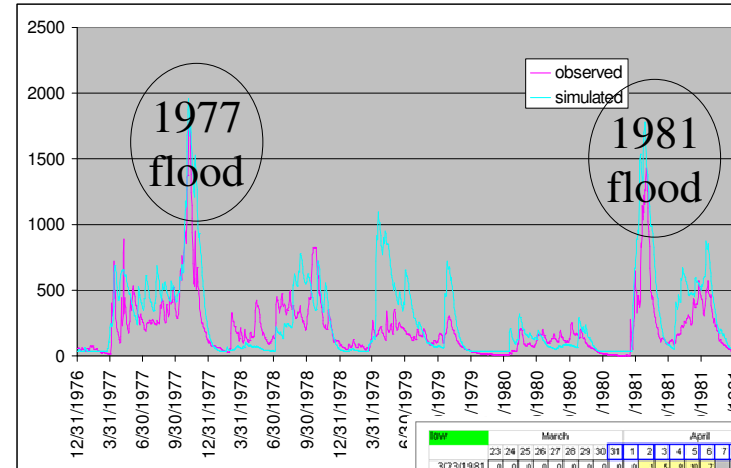
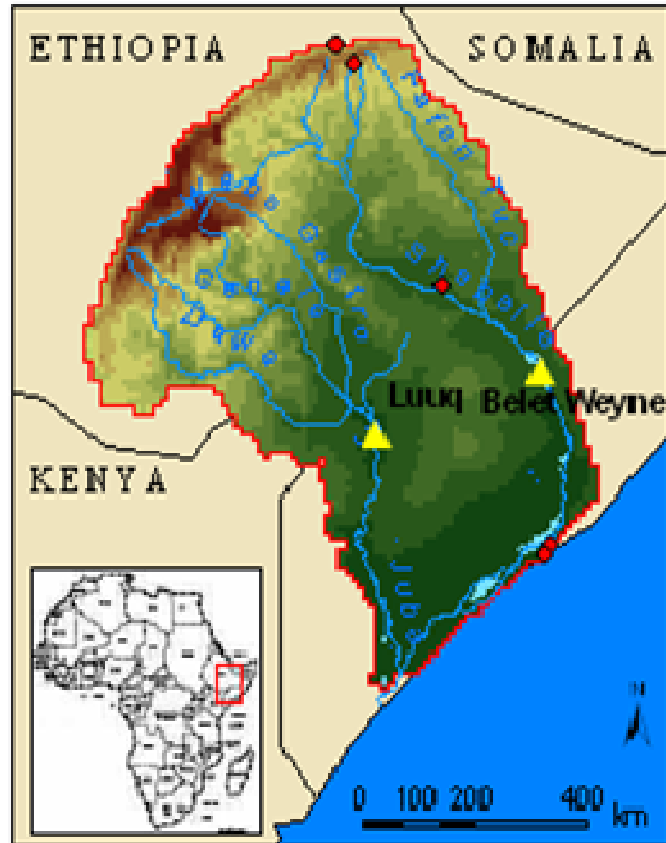
- q Monitoring of drought and desertification (pilot regions Africa, Latin America)

- q Partners: GOFC-GOLD, GEOSS, ECMWF, DWD, NASA, NOAA, World Food Programme,
Universities: Maryland, Washington State, Princeton, Dartmouth, Utrecht, ...

Objective: Contribute to the development of a **globally-coordinated warning system** for wildland fires, including improved prediction capabilities, analysis tools and response support through sensors, information products and risk assessment models (as defined in GEOSS).



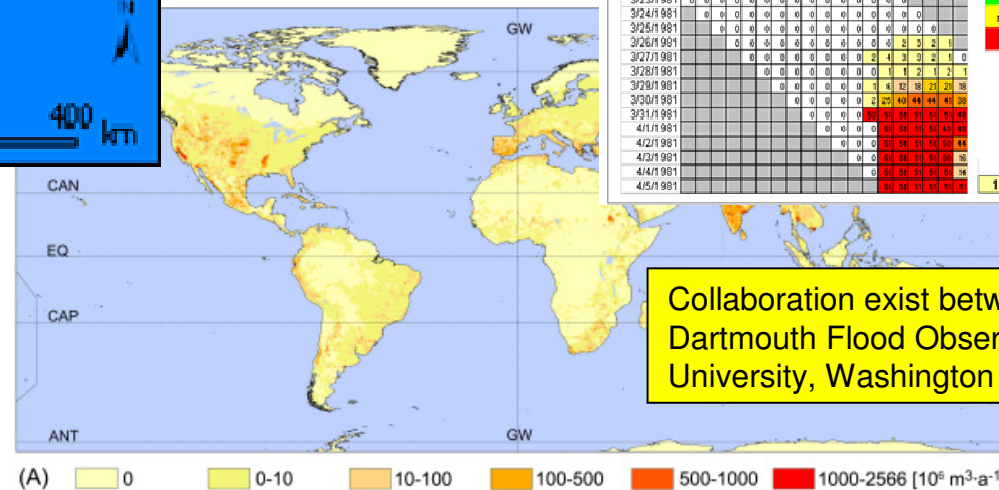
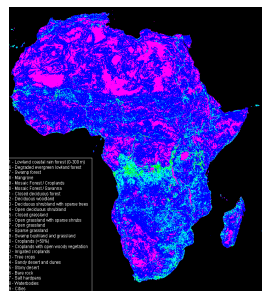
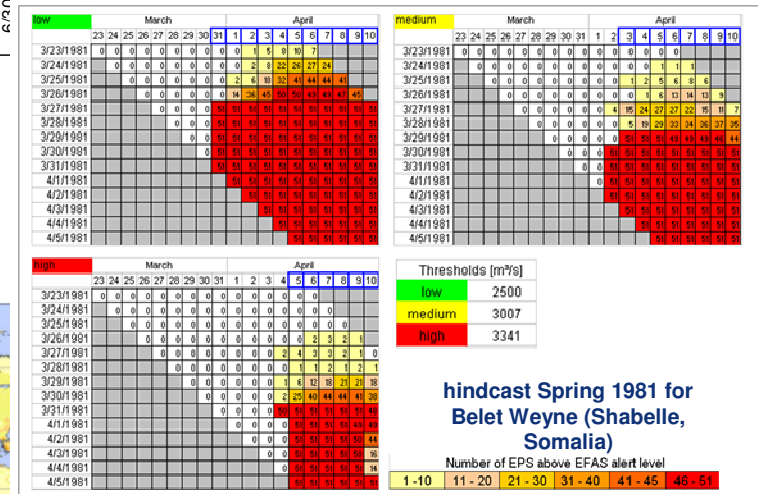
GFAS – Ethiopia Pilot



Two pilot studies:

Juba/Shabelle river basins Somalia - Ethiopia)

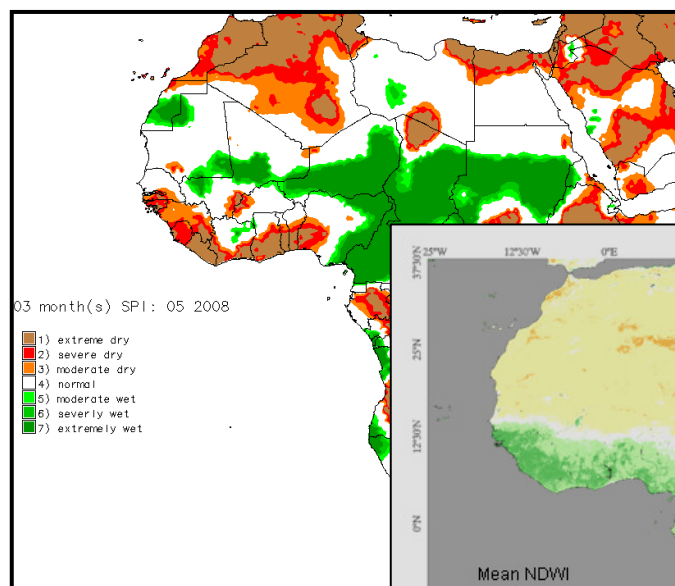
Zambesi river basin (Southern Africa)



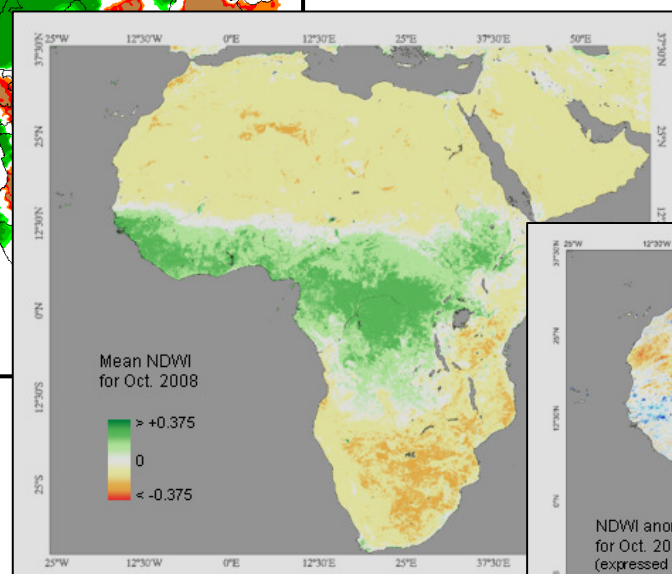
Collaboration exist between JRC and Dartmouth Flood Observatory, Princeton University, Washington State University

Testing Remote Sensing and Meteorological Indicators

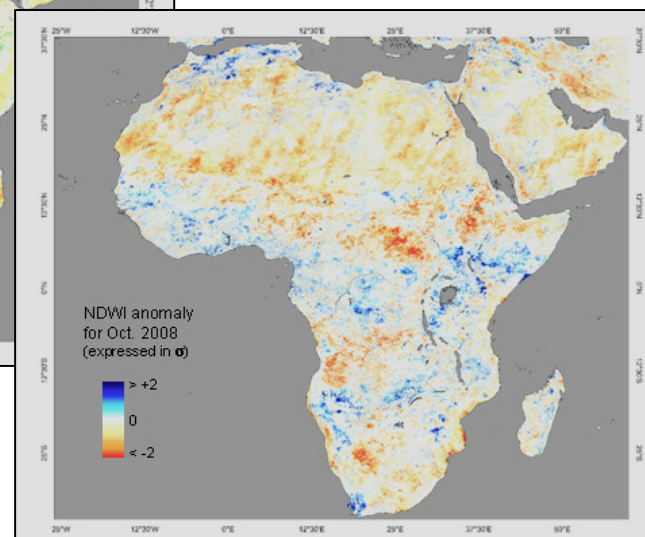
SPI (rainfall anomaly)



NDWI (normalised difference water index)



NDWI anomaly



- **Models, Databases, Platforms are ready to be expanded and adapted beyond Europe**
- **Pilots with various partners are ongoing**
- **Further partners are welcome, especially local knowledge and local data are wanted**

If you are interested contact:

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FLOODS: Ad.deRoo@jrc.ec.europa.eu

DROUGHTS: Juergen.Vogt@jrc.ec.europa.eu

**Thank you for your
attention !**

Any Questions ?