The European Forest Fire Information System

User Guide to EFFIS applications



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Current Situation Application

The current situation enables the user to view and query map layers, giving an indication of the fire situation across Europe for the current date and surrounding short term time frame. The application can also be used to view the situation in past years from 2014.

Overview



Map Tools

A set of map tools are on the right side of the map image.

The following table explains how the tools work.

ΤοοΙ	Icon	Details	
Open/close layers sidebar	Ш	Shows or hides the options bars on the left of t screen. Click once to hide, click again to show.	
Search	ď	Opens a box to search for place names	
Reset map	×	Returns the map to the original extent covering Europe	
Zoom in/out	+ 1	Click to increase or decrease resolution. The same effect can also be obtained using the roller button on the mouse.	
Zoom to specific area	0	Click and use the mouse to highlight a specific area for the zoom	
Full screen	×	Click to put map on whole screen. Click again to restore to previous view.	
Show me where I am	Ŷ	Click to zoom in on current location (may not work if permission has not been granted to the browser to find location)	
Switch base layer	:	Default layer is GoogleMap Satellite . Other alternatives are: •GoogleMap Hybrid •OpenStreetMap •Open TopoMap •OpenMapSurfer_Roads •Country_Boundaries.	
Show legend	III	Opens a box on the screen with the legends for all the layers that are currently displayed.	

Layer controls

On the left of the map are 3 windows containing the map options.

In all cases clicking on ¹ opens a new screen containing detailed information. (See Appendix on page 13 for full text of information on the burnt areas and active fires).

Icon	Details
Map Options Country Boundaries	Adds or removes country boundaries on the map.
	Displays Fire Danger information
	Source : Choose from ECMWF (default) or Meteo France.
Fire Danger Forecast	Index : choice of 8"
FIRE DANGER FORECASTImage: SourceSourceECMWF (16 km res.)Image: SourceIndexFire Weather Index (FWI)Image: SourceDateImage: Source15 Oct 2017	 Fire Weather Index (FWI) - default Initial Spread Index (ISI) Build up Index (BUI) Fine Fuel Moisture Code (FFMC) Duff Moisture Code (DMC) Drought Code (DC) Ranking (percentile vs historical 30 years values) Anomaly (standard deviation with respect to a 30 year average)
	Date: Choice of today, up to 8 days in the future or any date in the past back to 2014.
Rapid Damage Assessment	Displays active fires and burnt area information
Select a date-range	The data range must be selected from the
Last 7 dd. Last 30 dd. Last 90 dd.	pre-calculated ranges or a custom range.
🛗 Fire Season	Active fires may be displayed from MODIS,
From: 08 May 2018 To: 15 May 2018	VIIRS or both together (¹) gives details about each of them. The information is also
ACTIVE FIRES 0 MODIS VIIRS	shown in this guide on page 13). Burnt areas can be displayed from MODIS,
BURNT AREAS 0 MODIS VIIRS Fire Severity	VIIRS or both. (instead of or together with active fires). Additional information on Fire Severity can be displayed on top of the burnt areas (gives details about each of them. The information is also shown in this guide on page 13).
Analysis Tools Burnt Area Seasonal EFFIS Estimates Locator trend by Countries	The three buttons in this section open up a window at the right of the screen for more detailed analyses (described in full below)

Analysis tools Burnt Area Locator

France					
		Fron	n: To:		
Legend:	Last 7	7 dd.	Last 30 de	d. All	
Fire d	ate	Are	a (ha)	Province	_
▼ 2018-0)4-21	58	Pyrenee	es-Atlantiques	(FF
)4-21	35		Ardeche	(FF
)4-19	60	Pyrenee	es-Atlantiques	(FF
)4-19	45	Pyrenee	es-Atlantiques	(FF
▼ 2018-0)4-19	39	Pyrenee	es-Atlantiques	(FF
▼ 2018-0)4-19	30	Hau	utes-Pyrenees	(FF
)4-18	37	Pyrenee	es-Atlantiques	(FF
)4-02	64	Pyrenee	es-Atlantiques	(FF
	3-14	50		Isere	(FF
 2018-0 	3-03	47		es-Atlantiques	· · · · ·
▼ 2018-0		28	Hau	utes-Pyrenees	· · · · ·
▼ 2018-0		111		Landes	· · · · ·
2018-0	2-10	50	Bouch	nes-du-Rhone	· · · · ·
@ Zo	om to	burnt	area	Haute-Corse	· · · · ·
	re danç			Haute-Corse	(FF
🕐 Fire	e evolu	ition			
[A PD	F repo	rt			

Burnt Area

×

The Locator tool allows you to choose a country and a province to see the details of the fires that have been recorded there over the current season as in the example below. Fires are colour coded depending on how recently they occurred. The time range for the display must be selected at the "Rapid Damage Assessment" menu, on the left-hand side of the EFFIS display.

An arrow on the left of the fire list, allows you to select the retrieval of 4 types of information on the single fire (see Figure 1):

(1) Zoom to the burnt area (Figure 1a),

(2) Fire danger chart at the fire location (Figure 1b)

(3) fire evolution of the burnt area and information on the damage assessment (Figure 1c) and

(4) pdf single-fire report with all the details of the event.



Figure 1. Burnt area locator – detailed information per single fire.

Seasonal Trend

Seasonal trend

The tool opens a window showing the current season's cumulative burnt areas or number of fires mapped in EFFIS against the long-term average 2008-2017 (see Figure 2). <u>Please note that the fires mapped in EFFIS are those of approximately 30 ha or larger.</u> Data are available for total EU, European non-EU, Middle East and North Africa (MENA) and individual countries. The weekly data displayed on the graph are provided below the graph in table format.

EU countries _	Burnt Areas Number of Fires	SEASONAL TREND - Tota	al EU	EU countries -	Burnt Areas Number of Fires	SEASONAL TREND - Tota	al EU
Total EU		Burnt Areas mapped in EFFIS (*)		Total EU	Numbers of	f Fires mapped in EFFIS (of approx. 30 ha or lar	rger)
Belgium	2008	- 2017 Average Burnt Areas 2018 Burnt	årase	Belgium		2017 Average Num of Fires 2018 Fires	Count
🔳 Bulgaria	350000	2017 Average Burnt Areas	Artes	Eulgaria	008		
I Croatia	300000			Croatia	700		
< Cyprus	250000			✓ Cyprus	600	/	
Czech republic	20000			Czech republic	500		
Denmark				E Denmark	400		
Estonia	150000			Estoria	300		
+ Finland	100000			+ Finland	200		
France	50000			II France	100		
Germany	0			Germany	0		
🛄 Greece	Strift Orige Street Street Brand	and and and and and and and and and	Stade Martin Contract States	E Greece	and the star of the star star of	and and the state of the state state	Star And And Bridge Bridge
Hungary	Ai The hund areas managed in EEEIC and	ment on surgery shout 90% of the total and	a humand humiddfina airean antu	Hungary			
I Ireland	(*) 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			II Ireland	Period	2018 Fires Count	2008 - 2017 Average Burnt Areas
II taly	area in each country, but this area is not	mapped in EFFIS.		II Italy	01-Jan	0	2000 - 2017 Average built Areas
🚍 Latvia				E Latvia	08-Jan	3	8
Poland	Period	2018 Burnt Areas	2008 - 2017 Average Burnt Areas	Poland		-	-
Portugal	01-Jan	0	7	Portugal	15-Jan	4	1
Bomania	08-Jan	1771	124	Romania	22-Jan	4	2
🖮 Slovenia	15-Jan	1905	223	🚔 Slovenia	29-Jan	5	4
E Spain	22-Jan	1905	500	Spain	05-Feb	8	5
Sweden	29-Jan	1939	1505	Sweden	12-Feb	13	7
The Netherlands	05-Feb	2071	1605	The Netherlands	19-Feb	13	10
🗮 United Kingdom	12-Feb	2290	2258	🗮 United Kingdom	26-Feb	39	14
European non EU +	19-Feb	2290	3237	European non EU +	04-Mar	59	19
MENA countries +	26-Feb	3948	3847	MENA countries +	11-Mar	68	29
MENA countries +	04-Mar	8169	4967		18-Mar	71	43



EFFIS Estimates per country

EFFIS Estimates

The **per Countries** tool displays the cumulative number of fires mapped in EFFIS or burnt areas from the start of the year with the 10-year average for each of the countries covered (see Figure 3). The countries are ordered from the highest to the lowest values of number of fires or burnt areas mapped in EFFIS during the current season. The values displayed on the graph are provided in table format below the graph. The last column of the table provides the ratio of the values in the current season to the long-term average.



Figure 3. EFFIS estimates by country.

Working with the "Current Situation Viewer"

Fire Danger Assessment

Click in the small box (upper left) of the Fire Danger Forecast menu to display the Fire Weather Index (default index).

The right button of the mouse allows the user to display information for a single location (Figure 4a). This:

- (1) Displays layer information (Figure 4b) (all the fire danger indices for the location),
- (2) Displays the chart of the fire danger indices (Figure 4c) and
- (3) centres the map at the location (Figure 4d).



Figure 4. Fire danger information display on the current situation viewer.

Active Fire Information

First, select a range of days for which the active fire information will be displayed. Then click on MODIS, VIIRS or both to display active fires. Active fires are colour-coded according to the period in which they were recorded by the satellite sensor into: green (older than 90 days), blue (last 90 days), orange (last 7 days) and red (last 24 hours) (see

Figure 5a).

The right button of the mouse placed on the active fire allows the user to display the lat/long position of the active fire (

Figure 5b &

Figure 5c) and the fire danger charts on the fire location (Figure 5d).



Figure 5. Information on active fires in the "current situation viewer"

Burnt Area Information

First, select a range of days for which the burnt area information will be displayed. Then click on MODIS, VIIRS or both to display burnt areas. Burnt areas are color-coded according to the period in which they were recorded by the satellite sensor into: green (older than 90 days), blue (last 90 days), orange (last 7 days) and red (last 24 hours) (see Figure 5a).



Burnt area perimeters can be displayed for MODIS, VIIRS, or for both sensors (see Figure 6).





(b)



(c) Figure 6. Display of burnt area perimeters.

When selecting a single fire on the screen, it is possible for the user to display additional information for the single fire using the right button of the mouse for those perimeters mapped with MODIS data, only. The information that can be displayed is shown in Figure 7. This information includes: (a) available data for the single feature, (b) Display layer information (details of the land cover types damaged by the fire), (c) Display Fire Danger Charts (Fire danger situation around the current date).



Figure 7. Display of additional information with the use of the right button of the mouse.

Additionally, it is possible to display the layer of fire severity on top of the burnt area perimeter, by clicking on the "fire severity" box in the menu.



Additional information

Fire Danger Forecast

• The fire danger forecast module of EFFIS generates daily maps of 1 to 10 days of forecasted fire danger level using numerical weather predictions. The module is active all year around, although the core of the wildfire season is, in most countries, from 1st of March to 31st of October

EFFIS normally operates using meteorological forecast data received daily from 3 systems, the European Centre for Medium-Range Weather Forecast (ECMWF), French (MeteoFrance).

After a test phase of 5 years, during which different fire danger indices were implemented to compute fire danger, in 2007 the EFFIS network has adopted the Canadian Forest <u>Fire</u> <u>Weather Index (FWI)</u> System as the method to assess the fire danger level in a harmonized way throughout Europe.

Fire danger is mapped in 6 classes (very low, low, medium, high, very high and extreme) with a spatial resolution of about 16 km (ECMWF data), 10 km (MF data) and 36 km (DWD data). The fire danger classes are the same for all countries and maps show a harmonized picture of the spatial distribution of fire danger level throughout EU.

The following are the FWI values used as thresholds of the fire danger classes in the map:

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

The maps of forecasted fire danger level can be consulted through the web mapping interface of EFFIS and are also emailed daily to the users.

Active Fire Detection

Active fires are located on the basis of the so-called thermal anomalies produced by them. The algorithms compare the temperature of a potential fire with the temperature of the land cover around it; if the difference in temperature is above a given threshold, the potential fire is confirmed as an active fire or "hot spot."

EFFIS uses the active fire detection provided by the NASA FIRMS (Fire Information for Resource Management System).

MODIS Active fires

The MODIS sensor, on board the TERRA and ACQUA satellites, identifies areas on the ground that are distinctly hotter than their surroundings and flags them as active fires. The difference in temperature between the areas that are actively burning with respect to neighbouring areas allows active fires to be identified and mapped. The spatial resolution of the active fire detection pixel from MODIS is 1 km.

Additional information on the MODIS active fire product is available at <u>https://earthdata.nasa.gov/what-is-new-collection-6-modis-active-fire-data</u>

VIIRS Active fires

The MODIS sensor, on board the TERRA and ACQUA satellites, identifies areas on the ground that are distinctly hotter than their surroundings and flags them as active fires. The difference in temperature between the areas that are actively burning with respect to neighbouring areas allows active fires to be identified and mapped. The spatial resolution of the active fire detection pixel from MODIS is 1 km.

Additional information on the MODIS active fire product is available at

https://earthdata.nasa.gov/earth-observation-data/near-real-time/firms/viirs-i-band-active-fire-data

The mapping of active fires is performed to provide a synoptic view of current fires in Europe and as a means to help the subsequent mapping of burnt fire perimeters. Information on active fires is normally updated 6 times daily and made available in EFFIS within 2-3 hours of the acquisition of the MODIS/VIIRS images.

When interpreting the hotspots displayed in the map, the following must be considered:

- Hotspot location on the map is only accurate within the spatial accuracy of the sensor;
- · Some fires may be small or obscured by smoke or cloud and remain undetected;
- The satellites also detect other heat sources (not all hotspots are fires);

To minimize false alarms and filter out active fires not qualified as wildfires (e.g. agricultural burnings), the system only displays a filtered subset of the hotspots detected by FIRMS. To this end a knowledge based algorithm is applied that takes into account the extent of surrounding land cover categories, the distance to urban areas and artificial surfaces, the confidence level of the hotspot.

With the identify feature tool, key information attached to each active fire is provided such as geographic coordinates, administrative district (commune and province) and the main land cover category affected.

Rapid Damage Assessment

The Rapid Damage Assessment (RDA) module of EFFIS was initially implemented in 2003 to map burned areas during the fire season, by analyzing MODIS daily images at 250 m spatial resolution. For the monitoring of burned areas during the summer, daily images from the MODIS instruments on board of TERRA and AQUA satellites are acquired and processed few hours after the acquisition. The EFFIS Rapid Damage Assessment provides the daily update of the perimeters of burnt areas in Europe for fires of about 30 ha or larger, twice every day. Since the year 2016, the RDA incorporates the mapping of active fires and burnt areas from the VIIRS Sensor, onboard the NASA/NOAA Suomi National Polar-orbiting Partnershp (SNPP), which allows the update of burnt areas maps one more time, every day.

MODIS Burnt Areas

<u>IMPORTANT NOTE - For any use of the EFFIS Burnt Area product the conditions listed below</u> <u>must be taken into consideration</u>:

- The product is derived from the daily processing of MODIS satellite imagery at 250 m ground spatial resolution.
- The perimeters of the burned scars in the represent areas burned by fires as detected from MODIS satellite imagery. Therefore, no distinction is made between wildland fires, environmental burnings or prescribed fires.
- Burnt scars of approximately 30 hectares in size are mapped, although the product may also include the perimeters of burned areas of smaller dimension.
- Small burnt or un-burnt areas below the spatial resolution of the MODIS imagery are not mapped; these may include small unburned islands inside the burnt area perimeter.
- The Burnt Area product is updated up two times every day. The perimeter of burnt areas due to different fires happening between two sequential updates may be merged into a single perimeter.
- The dates reported as Start date and Last update may not correspond to the date of ignition and extinction of the fire
- The EFFIS burnt area product is intended to provide estimates of burnt areas at European level. Caution should be taken when comparing this product to other data that may have been produced using different methodologies and scopes.
- Although the burnt area perimeters are overlaid on the Google imagery, it must be noted that the original EFFIS product is produced at 250 m spatial resolution, not at the resolution of the underlying Google images.

Although only a fraction of the total number of fires is mapped, the area burned by fires of this size represents about 75% to 80% of the total area burned in EU. Modelling historical fire data from the EFFIS European fire database, equations have been set up for the different countries, which make it possible to predict the total area burned with good accuracy; that is, the total burnt area in a country is obtained as a function of the area burned by fires larger than 30 ha.

In order to obtain the statistics of the burnt area by land cover type, the data from the CORINE Land Cover database are used. Therefore the mapped burned areas are overlaid to land cover maps, allowing an assessment of damage to be made that is harmonized for all the European Countries.

The burnt area mapping in the RDA is based on the identification of active large fires from the MODIS, the expansion of the burnt areas from these initial points on the basis of regiongrowing algorithms, and the refinement of the final perimeter of the fire through visual interpretation of the images. The process is aided by the systematic collection of fire news from a variety of media. An alternative to the current methodology is being developed. This method is based on abrupt post-fire vegetation change detected from MODIS daily time series. Once implemented, this method will allow for a better and less user-dependent classification of the burned areas.

VIIRS Burnt Areas

Data from the VIIRS VIIRS (Visisble Infrared Imaging Radiomer Suite) on board the NASA/NOAA Suomi National Polar-orbiting Partnership (SNPP) are also used for the mapping of burnt areas in EFFIS. The perimeters of the fires derived from VIIRS are generated using algorithms that derive polygons on the basis of the active fires retrieved from this sensor. Accordingly, the fire perimeters are directly derived from the coordinates of active fires, which permits a near-real time processing, even in light cloudy or smoke situations.

These fire perimeters are thus produced just after the pass of the satellite and the acquisition of the data, without the need to perform the classification of the satellite imagery. Since the procedure is automatic and based on delineating polygons, the fire perimeters may have sharper shapes than those produced from the classification of MODIS imagery (above section). For the spatial resolution of the fire perimeters, it must be noted that the nominal spatial resolution of VIIRS is 375 m.

VIIRS derived data on burnt areas are not yet used in EFFIS to compute burnt area statistics; they are only displayed in the EFFIS "current situation viewer."

Long-term monthly forecast of temperature and rainfall anomalies

This page shows temperature and rainfall anomalies that are expected to prevail over European and Mediterranean areas during the next 2 weeks. This service started in April 2014; these weekly anomalies shown will be updated every week during the fire season. Normally in the beginning of each week a forecast for the next 2 weeks will be made available.

The maps are based on the ECMWF (European Centre for Medium-Range Weather Forecasts) Monthly Forecast System (MFS) and are provided to EFFIS users as experimental products. MFS anomalies of temperature and rainfall are estimated from the mean deviation of the monthly forecast from the model climate. The maps highlight the areas which are expected to be colder/warmer and dryer/wetter (than normal) over Europe and Mediterranean countries, with an obvious linkage to potentially higher forest fire danger.

Additional details on monthly forecasting can be found below, while detailed technical illustration of the Monthly Forecast System MFS can be consulted on the related pages of the ECMWF web site (<u>https://www.ecmwf.int/en/forecasts/datasets/set-vi</u>.)

Temperature anomalies

Rain anomalies



Clicking on any of the images will give a zoomed-in view. Click again to restore the image to the smaller size.

Monthly forecast – additional information

Two ensemble forecasting systems are currently operational at ECMWF: (1) the EPS (Ensemble Prediction System) for medium-range weather forecasting and (2) the seasonal forecasting (Seasonal Forecast System, so-called: S4). The EPS produces weather forecasts out to 15 days, whereas seasonal forecasting (S4) produces forecasts out to 7 months.

The two systems have different physical bases. Medium-range weather forecasting (EPS) is essentially an atmospheric initial value problem. Since the time scale is too short for variations in the ocean significantly to affect the atmospheric circulation, the ECMWF medium-range weather forecasting system is based on atmospheric-only integrations. Sea Surface Temperatures (SSTs) are simply persisted.

Seasonal forecasting (S4), on the other hand, is justified by the long predictability of the oceanic circulation (of the order of several months) and by the fact that the variability in tropical SSTs has a significant global impact on the atmospheric circulation. Since the oceanic circulation is a major source of predictability in the seasonal scale, the ECMWF seasonal forecasting system is based on coupled ocean-atmosphere integrations. Seasonal forecasting is also an initial value problem, but with much of the information contained in the initial state of the ocean.

It becomes obvious that between EPS and S4 there exists a certain gap. The main goal of the experimental monthly forecasting is to fill the gap between these systems and produce forecasts for the time range 10 to 30 days. The time range 10 to 30 days is probably still short enough that the atmosphere retains some memory of its initial state and it may be long enough that the ocean variability has an impact on the atmospheric circulation.

Therefore, the monthly forecasting system, so-called: MFS (Monthly Forecast System) has been built as a continuation of the medium-range VAREPS (VAriable Resolution EPS), but in ocean-atmospheric coupled mode after day 10.

For technical reasons it is not possible to coupled EPS from day 0 at present but it should be possible when the next ocean system is implemented.

Furthermore, an important source of predictability over Europe in the 10-30 day range is believed to originate from the Madden Julian Oscillation (MJO). The MJO is a 40-50 day tropical oscillation. Several works suggest that the ocean-atmosphere coupling has a significant impact upon the speed of propagation of an MJO event in the Indian Ocean and western North Pacific. The use of a coupled system after day 10 may therefore help to capture some aspects of the MJO variability.

Long-term seasonal forecast of temperature and rainfall anomalies

This page shows temperature and rainfall anomalies that are expected to prevail over European and Mediterranean areas during the next 7 months. This service started in June 2013; the set of 7 months shown will be updated monthly during the fire season. Normally within the first week of each month a forecast for the next 2 months will be made available.

The maps are based on the ECMWF (European Centre for Medium-Range Weather Forecasts) Seasonal Forecasting System named S4 (System 4) and are provided to EFFIS users as experimental products. S4 anomalies of temperature and rainfall are estimated from the mean deviation of the seasonal forecast from the model climate. The maps highlight the areas which are expected to be colder/warmer and dryer/wetter (than normal) over Europe and Mediterranean countries, with an obvious linkage to potentially higher forest fire danger.

Please take into account that the longer the forecast horizon, the less accurate the forecast will be.

Additional details on seasonal forecasting can be found below, while detailed technical illustration of the Seasonal Forecast System S4 can be consulted on the related pages of the ECMWF web site https://www.ecmwf.int/en/forecasts/datasets/set-vi.)



Clicking on any of the images will give a zoomed-in view. Click again to restore the image to the smaller size.

Temperature anomalies

Rain anomalies

Seasonal forecast – additional information

Seasonal forecasting attempts to provide useful information about the "climate" that can be expected in the coming months. The seasonal forecast is not a weather forecast: weather can be considered as a snapshot of continually changing atmospheric conditions, whereas climate is better considered as the statistical summary of the weather events occurring in a given season.

Despite the chaotic nature of the atmosphere, long term predictions are possible to some degree thanks to a number of components which themselves show variations on long time scales (seasons and years) and, to a certain extent, are predictable. The most important of these components is the ENSO (El Nino Southern Oscillation) cycle, which refers to the coherent, large-scale fluctuation of ocean temperatures, rainfall, atmospheric circulation, vertical motion and air pressure across the tropical Pacific. El Niño episodes (also called Pacific warm episodes) and La Niña episodes (also called Pacific cold episodes) represent opposite extremes of the ENSO cycle. The ENSO cycle is the largest known source of year-to-year climate variability.

Changes in Pacific sea surface temperature (SST) are not the only cause of predictable changes in the weather patterns. There are other causes of seasonal climate variability. Unusually warm or cold sea surface temperatures in the tropical Atlantic or Indian Ocean cause major shifts in seasonal climate in nearby continents.

In addition to the tropical oceans, other factors that may influence seasonal climate are snow cover and soil wetness. All these factors affecting the atmospheric circulation constitute the basis of long-term predictions.

Overall, seasonal forecasting is justified by the long predictability of the oceanic circulation (of the order of several months) and by the fact that the variability in tropical SSTs has a significant global impact on the atmospheric circulation.

Seasonal forecasts provide a range of possible climate changes that are likely to occur in the season ahead. It is important to bear in mind that, because of the chaotic nature of the atmospheric circulation, it is not possible to predict the daily weather variations at a specific location months in advance. It is not even possible to predict exactly the average weather, such as the average temperature for a given month.

The European Centre for Medium-Range Weather Forecasts (ECMWF) Seasonal Forecasting System (S4) is based on a global model which, since the oceanic circulation is a major source of predictability in the seasonal scale, is based on coupled ocean-atmosphere integrations.

The S4 has a surface grid with 80 km spacing representing large scale weather patterns. Local weather and climate is much influenced by features too small to be included in the relatively low-resolution model (hills, coastlines, land surface properties). Thus, trying to read off local values from the maps could be very misleading.

The seasonal forecasts consist of a 51-member ensemble. The ensemble is constructed by combining the 5-member ensemble ocean analysis with SST perturbations and the activation of stochastic physics. The forecasts have an initial date of the 1st of each month, and run for 7 months.

Every seasonal forecast model suffers from bias - i.e., the climate of the model forecasts differs to a greater or lesser extent from the observed climate. Since shifts in predicted seasonal climate are often small, this bias needs to be taken into account, and must be estimated from a previous set of model integrations. Forecast monthly mean anomalies (of temperature and rain) are calculated relative to a climate mean formed from the appropriate 1981-2010 re-forecasts. The set of re-forecasts (otherwise known as hindcasts or back integrations) are made starting on the 1st of every month for the years 1981-2010. They are identical to the real-time forecasts in every way, except that the ensemble size is only 15 rather than 51.

Fire News Application

The purpose of this application is to display geo-located news items about forest fires from a number of sources. News items are added to the map daily by team members during the fire season. The resulting list can be sorted by any of the displayed variables and filtered by date, size class or country.

[N.B. It is important to note that not all fires are displayed here: only those with an identifiable location. Fires are not always reported individually in the press, as the amount written about them depends on other current world events].

Click on a point on the map to give a link to the original news item associated with that point.

Click on the name in the list for a table with details of the fire and a close-up of the map.

By default the display shows fires occurring in the last week, but the From and To boxes can be used to select other time periods – even for past years. The Search box allows the user to narrow down the display from among the total selected in the date filters.

