

Met Office Fire Severity Index

Description

- A system to provide the Countryside Agency, Countryside Council for Wales and other relevant authorities with information on the severity of any fire that may occur, in particular during periods of exceptional conditions.
- A number of systems in use throughout the world have been assessed by the Met Office and ADAS Consulting Ltd. The Canadian system was chosen for use within the UK as it most accurately predicts peak times of fire severity, such as those seen in the springtime of 2003 and the summer of 1976.

System Features

- The model is drawn from a sound scientific basis of evidence.
- The index realistically emphasises periods of exceptional conditions.
- The index picks out the increased risk caused by prolonged drought.
- The system picks out risk due to combinations of high winds, low humidity and warm temperatures when drought is absent or not severe.
- The model discriminates well against observations of exceptional conditions.
- It is widely used successfully in other parts of the world, including New Zealand, Portugal, Mexico and across Europe.



The Fire Severity Index:

- is based on a system developed in Canada - the Daily Severity Rating;
- takes into account moisture conditions at various levels through the soil;
- incorporates the weather elements:
 - temperature;
 - relative humidity;
 - wind speed;
 - rainfall;
- incorporates the long term effects of the weather on ground conditions;
- quantifies the severity of potential fire;
- identifies fire severity according to a range of weather scenarios such as hot dry summers and short spells of hot windy weather;

Forecast Data

- Forecasts are based on data from the Met Office's operational weather forecast model.
- As with any forecast, it will be more accurate for the day of issue.
- Results are presented on a 10km sq grid.
- The model provides results for the whole of England and Wales.

Defining exceptional

A critical model value was chosen to represent when 'exceptional' conditions were present. This was based on extensive analysis of model results over long periods of time and during specific known periods of exceptional conditions, including:

- 30 years of weather and model results;
- key dates of known exceptional conditions both in hot years such as 1976 and 1995 at a wide variety of locations;
- 2003 data as Easter time was known for extensive fire outbreaks.

Operational setup

- The Fire Severity Index provides information for today and the 5 days ahead in terms of a 1 to 5 rating. A value of 5 signifies 'exceptional' conditions.
- The Index uses daily forecast data.
- Data files of index values are provided to the Countryside Agency and Countryside Council for Wales, who display the information graphically on their websites.

Aims of the system

- It is fully recognised that fires can occur in the countryside at *any value* of the Fire Severity Index. Fires may occur *even when* the fire severity index is low.
- The system highlights those few occasions when, should a fire occur, it is likely to build up and spread very quickly and be extremely difficult to control.
- These exceptional conditions occur rarely, as the years of 1976, 1995 and 2003 demonstrate.

Further information

The Met Office have a continuing research programme to further tailor and improve the forecast system and will continue to keep abreast of research and development both within the UK and across the world.

About the Met Office www.metoffice.gov.uk

Information for England www.openaccess.gov.uk

Information for Wales <http://csaw.ccw.gov.uk/fireriskindex.html>

About the Canadian model http://cwfis.cfs.nrcan.gc.ca/en/background/bi_FWI_summary_e.php

