EMS Annual Meeting Abstracts,
Vol. 6, EMS2009-575, 2009
9th EMS / 9th ECAM

9th EMS Annual Meeting
9th European Conference on Applications of Meteorology
High resolution meteorology
- applications and services

Potential impact of climate change on fire meteorological danger in France : observed trends and projections

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Fire meteo indices provide efficient guidance tools for the prevention, early warning and surveillance of forest fires. These indices are only based on meteorological input data. The underlying approach is to exploit meteorological information as fully as possible to model the soil water content, biomass condition and fire danger. Fire meteorological danger is estimated by Météo-France at national level through the use of Fire Weather Index. This kind of products can also be used for climatological purpose: study of long-term trends or climate change impact.

Increasing trend in terms of fire frequency or fire severity is difficult to assess by using Civil Protection databases. Those kind of databases which give access to past fire events data (size, duration, place....) are usually incomplete and inhomogeneous. Moreover this approach mainly identifies the anthropogenic effect (due to changes in human activities and soil occupation) rather than climate change impact.

This trend can be also studied through Fire Weather Index reanalysis on a long period. In France the statistical link between FWI and fire frequency or size is clearly assessed. In order to assess a long-term trend FWI has been recomputed on a 50 year period by Météo-France. Preliminary results show a clear increase in fire meteorological danger over the last 50 years with strong regional trends. At last this study will also integrate climate change scenarios. Spatial distribution of area affected by forest fire forest fire risk by 2030 is currently investigated by Météo-France.