EMS7/ECAM8 Abstracts,
Vol. 4, EMS2007-A-00219, 2007
7th EMS Annual Meeting / 8th ECAM

Fire Weather Index application in North-Western Italy

D. Cane (1), N. Ciccarelli (2), F. Gottero (2), A. Francesetti (2), F. Pelfini (3)

(1) Regional Agency for Environmental Protection - Arpa Piemonte, Torino, Italy, (2) Forestry Environment Institute - IPLA S.p.A., Torino, Italy, (3) Settore Antincendi boschivi - Regione Piemonte (corresponding author: daniele.cane@arpa.piemonte.it)

Piedmont region is located in North-Western Italy and is surrounded by the alpine chain in the North and in the West and by the Appennines in the South. The region is covered by a wide extension of forests, mainly in its mountain areas (the forests cover 36% of the regional territory).
In the the period 1997-2005 Piedmont was interested by an average 387 forest fires per year, covering an average 1926 ha of forest per year.
The last winter and summer seasons were characterized by long periods without precipitation, contributing to create favourable conditions to forest fire development (as a consequence a large number of forest fires was recorded during summer 2003 and summer 2006).
The fire propagation is also made easier by meteorological conditions like the foehn winds, frequently interesting the region in winter and spring particularly.
A fire weather index (FWI) was developed by Van Wagner, 1987 for the Canadian Forestry Service, providing a complete description of the behaviour of the different forest components in response to the changing weather conditions.
We applied the Candadian FWI to the Piedmont region, with the definition of warning areas for the forest fires and the FWI evaluation based on the data of the very-dense non-GTS network of weather stations managed by ARPA Piemonte. The tuning of the index threshold for the definition of danger scenarios is a critical issue for a useful forest fire alert system.
The implementation of a prognostic FWI prediction system is planned for the early 2008, involving the use of good forecasts of weather parameters at the station locations obtained by the Multimodel SuperEnsemble post-processing technique (Krishnamurti T.N. et. al, 1999 and Cane Milelli, 2006).

Cane D., Milelli M., Meteorologische Zeitschrift, 2006, Vol. 15, No. 2, 207-214
Krishnamurti T.N. et. al, 1999, Science 285, 1548–1550.
Van Wagner, C.E. 1987, Can. For. Serv., Ottawa, Onto For. Tech. Rep. 35.