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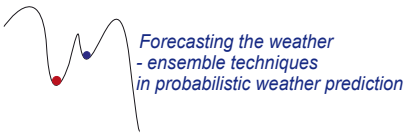

Coupling FEPS, WRF and CALPUFF to assess forest fires air quality impact in Castilla y León (Spain)

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Modeling techniques are increasingly taking more relevance as a predictive tool and as a study behaviour of pollutants emitted into the atmosphere. There are currently numerous mathematical models able to predict more or less exactly this behaviour. The models used are based on weather prediction, identification and characterization of different kinds of emission focuses and the assimilation of different land use coverages. In this study, a methodology to study the air quality impact of a great number of forest fires events is proposed. The most important 2009 Castilla y León (Northwest of Spain) forest fire events are selected in order to define and validate the methods. To achieve this end, different forest fire evolution assumptions related to starting point, starting and ending times, types of surface, burned surface ratio, time evolution and environmental conditions are done. The mesoscale and microscale meteorological simulations are carried on by means of WRF and CALMET models, the forest fire emission evolution is obtained by means of FEPS model and the final air dispersion is identified by CALPUFF model. The previous steps are applied to different study cases and validated with data coming from a station network. The validation is done by using the obtained concentration values of CO and PM10, which are the most important pollutant species on these events. Besides all used stations were located far away 13 km from starting forest fire point, the accuracy of the whole process has been accepted for exporting the methodology to more regions.