



Assessing Spatial Uncertainty of the Portuguese Fire Risk through Direct Sequential Simulation

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Portuguese Fire Risk was assessed through Bayes Formalism, where fire risk was given by the conditional probability of fire $I(x)$ given the class of DSR predicted for that specific period of time - $p(I(x)|R(x))$. The evaluation of the *a posteriori* $p(I(x)|R(x))$ was based on the update of marginal local probability of fire in each chosen county x (Durão et al, 06).

DSR values were used to calculate fire's risk, taking into account historical data and recent data. Considering the marginal probability of fire in a given county, one can use DSR to up-date it and calculate the *a posteriori* probability of fire given the class DSR forecast for the same county at a given period. Bayes's rule is applied to get the risk of fire given by the conditional probabilities at the individual county locations.

Mapping of the risk of fire are obtained for entire country by kriging (Durão et al, 06).

In this paper we propose to map this *a posteriori* probability using Direct Sequential Simulation models (DSS models). We pretend to evaluate the spatial distribution of this probability over Portugal, in order to assess the associated spatial uncertainty. Local pdfs and spatial uncertainty is evaluated by a set of equi-probable simulated images of this *a posteriori* probability.

Results are presented and discussed for the Portuguese Fire Seasons of the period 2000-2005. Meteorological data were obtained from 15 meteorological stations rep-

representing the counties where the fire occurrence is being studied.

Keywords: Risk of Fire, Direct Sequential Simulation Models, Spatial Uncertainty