



1 Stochastic Simulation approach for Mapping the extreme values of the meteorological risk of fire over Portugal.

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Daily Severity Rating (*DSR*), a meteorological risk of forest fire index, was interpolated for Portugal using a geostatistical technique of kriging (Duro RM et al., submitted)

This approach was the most suitable for the initial analysis of the global and local means of index behaviour. But, as any linear predictor or interpolator, it generates smoothed maps, where, consequently, *DSR* extreme values are systematically under or over evaluated.

The biased evaluation of the extreme classes increases with the smoothing of the interpolator.

Assessing and managing the risk, associated with *DSR*, by using linear estimators like kriging, usually generates serious bias in the evaluation of extreme behaviours which may lead to great economical, social and environmental costs.

The objective of the present work is to assess the local probability distribution func-

tions of the **DSR** and calculate also its spatial uncertainty through geostatistical simulation models. Local pdfs and spatial uncertainty is evaluated by a set of equi-probable simulated images of the event, showing the same variability and spatial pattern as revealed by the experimental measurements.

The simulation model has shown to be an efficient tool for planning wildfire mitigation and adaptation measures for Portuguese forests and shrublands.

Results are presented and discussed for the 1961-1990 reference climatic period and future scenario conditions, A2a_SRES, relative to 2071-2100.

REFERENCES

Durao RM, Pereira JMC, Corte-Real JA, Menezes IC (submitted). Extreme values of the Fire Weather Index Daily Severity Rating and climate change in central Portugal. Climate Research