



Multi-GCM Climate Projection for the Mediterranean and Related Impact on the Forest Fire Risk (with a stress on Sardinia)

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PRASCE project (2008-2011) aimed at a development of the probabilistic projection of climate accounting for the uncertainties coming from various sources. The methodology was based on linking the stochastic weather generator (which may represent uncertainty due to natural climate variability) with the GCM-based climate change scenarios, which are determined by the pattern scaling method and account for uncertainties in emission scenario, climate sensitivity and between-GCM variability. The methodology is being used to create synthetic weather series representing present and future climates for various climate change impact experiments. One of the regions under focus in this project was the Mediterranean, especially Sardinia. The presentation will consist of two parts:

(1) Multi-GCM climate change scenarios for the Mediterranean. (i) The maps will show the probabilistic (based on all GCMs included in IPCC-AR4 dataset) projection of temperature, precipitation and Palmer Drought Severity Index (PDSI). In addition, the scenarios will include changes of climatic characteristics (also being the parameters of the weather generator), which affect high frequency variability, e.g. changes in probability of wet day occurrence and variability of daily values. (ii) Options for choosing a representative subset of GCMs from all available GCMs will be discussed. This part is motivated by the fact, that some climate change impact studies do not allow to employ all available GCMs, so the task arise to choose the subset of GCMs based on the quality of GCMs and ability of the subset to represent the between GCM uncertainty. To demonstrate the methodology, the procedure will be applied to Sardinia.

(2) Assessment of possible impacts of climate change on wildland fire risk. The M&Rfi weather generator linked to climate change scenarios derived from a subset of available GCMs will be used to create synthetic weather series (air temperature and relative humidity, wind speed, precipitations) to assess impacts of the projected climate change in terms of changes in Fire Weather Index (FWI) in Sardinia.

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