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# Evaluation of fire potential in the climatic scenario: an Alpine area perspective

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In Europe, wildfires are no longer an issue only for the Mediterranean area, but they are also affecting the Alpine regions with increasing number of events and fire severity. In this study we evaluate the impact of climate change on the fire potential in the Alps, in the past and in future scenarios.
The Canadian Fire Weather Index (FWI) is applied on projections of Regional Climate Models (RCMs) calculated on the SRES scenario A1B. We compare two different techniques: 1) a single dedicate run of the COSMO-CLM model at 20 km resolution, and 2) the use of a combination of 25-km resolution RCMs from the ENSEMBLES project, combined with the Multimodel SuperEnsemble technique and a new probabilistic Multimodel SuperEnsemble Dressing.
The single-model RCM allows for greater coherence among the FWI input parameters, while the multi-model techniques permit to reduce the model biases and to downscale to a higher resolution where long term records of observations are available.
The comparison of the climatic trends of the FWI index and sub-indices with the total number of recorded fires shows a surprisingly good agreement, taking into account that more than 90% of wildfires in the area have anthropogenic causes and that the land use in the region changed with time, together with forestry regulations and fire suppression organisation. This agreement confirms our methodology and allows the use of the index for projecting the fire potential evaluation in the scenario.
The projected changes in the scenario give an estimation of increasing wildfire potential in the mid XXI century, particularly strong at higher elevations and in the South-Western part of the Alps. In particular the frequency of severe wildfire potential days is shown to increase dramatically.
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