



Improvement of a windgust parametrization and application with the Canadian Regional Climate Model in Switzerland

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An approach for mapping extreme winds behaviour in Switzerland with the Canadian Regional Climate Model (CRCM) is developed with regard to a number of windstorms that affected Switzerland from 1990 to 2011. Flow fields are downscaled from NCEP-NCAR reanalyses down to a 2 km horizontal resolution through self-nesting technique within the CRCM, in order to reproduce windgusts at high resolution. Different wind gusts schemes are tested and their performances are compared to each other and to MétéoSuisse surface observations. In order to improve one of the schemes, an empirically and fixed “gust” parameter is now allowed to vary in the horizontal. This parameter is derived through an observation-based second order optimization and projected onto the model surface grid. This approach allows to analyse the behaviour of extreme winds over the complex terrain of Switzerland and to compare and improve the performance of wind gust schemes in the CRCM.