

**Application of the Canadian regional climate model over Switzerland:
the simulation of extreme windstorms.**

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Switzerland is characterised by highly complex orography that has a determining influence on surface winds. It is well recognised that wind extremes impact more heavily upon the natural environment and human infrastructure than changes in mean wind conditions. We are here interested in evaluating the manner in which the Canadian regional climate model (CRCM) is capable of reproducing extreme climatic events in the Swiss Alps using the multiple self-nesting technique. This is a very useful feature of the model when aiming to run at very high resolution. More specifically, we are here looking at the model's capability to reproduce wind patterns and extreme speeds. High spatial resolution in the horizontal is required for the orography and other surface characteristics to be resolved accurately. In the vertical, high resolution in the lower layers permits a better representation of the boundary layer and a better representation of the surface winds. This paper thus describe the results of the CRCM, applied to the European Alpine area using different resolutions to simulate 1) extreme wind events during the February 1900 *VIVIAN* windstorm, and 2) the 1982 south Foehn episode.