

Observations and simulation of katabatic flows during a heatwave in Iceland

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Katabatic flows during a heatwave in August 2004 in Iceland are studied using observations and a high-resolution simulation with a numerical atmospheric model. In relation with the very high daytime temperatures, weak synoptic winds and clear skies, a radiative surface cooling in excess of 10-15°C was observed during the night throughout Iceland. The simulations and initial conditions are compared to available ground based observations and satellite images showing the surface radiative temperature. The simulations reproduce well most of the observed winds, including patterns where weak synoptic winds or katabatic flow interact with orography. The simulations also give valuable indications of locations of relatively strong katabatic winds where no observations are currently available and where katabatic flows are presumably of importance for the local wind climate.