Geophysical Research Abstracts, Vol. 7, 10485, 2005
SRef-ID: 1607-7962/gra/EGU05-A-10485

The role of local orographic forcing of the atmosphere in an erosion event

H. Ólafsson

University of Iceland, Icelandic Meteorological Office and Institute for Meteorological Research

On 5 October 2004, an important erosion event took place in S-Iceland. The transport of soil during this event is documented qualitatively by satellite images that also reveal the associated wind pattern. High-resolution simulation of the winds and backtracing of trajectories in the airmass reveal that the maximum transport of soil was associated with winds that were enhanced locally by the orography. The airflow is characterized by a low level inversion, leading to this local speed-up of the winds, either as downslope flow or as corner winds. The inversion, which is a result of large scale descent of airmass from Greenland, contributes to reducing the vertical dispersion of the dust carried by the wind several hundreds of km to the south of Iceland. This study suggests that local effects on the weather may be important for creating conditions for erosion. Such effects are not present in climate simulations.