Geophysical Research Abstracts,
Vol. 11, EGU2009-11514, 2009
EGU General Assembly 2009

The sensitivity of the atmospheric flow to Greenland in a case of extreme winds

B. Tveita (1), H. Ólafsson (2,3), A.D. Sandvik (4), and B. Hagen (5)

(1) Storm Weather Centre, Bergen, Norway, (2) University of Iceland and the Icelandic Meteorological Office, (3) Bergen School of Meteorology, Geophysical Institute, University of Bergen, Norway, (4) Institute for Marine Research, Bergen, Norway, (5) Meteorological Institute (VpV), Bergen, Norway

A case of extreme northerly winds north of Iceland is detected by QuikSCAT and studied by numerical simulations. The study reveals:

• Extreme winds in northerly flow north of Iceland are linked to orographic damming of cold air east of Greenland. The damming extends almost all the way to N-Norway.
• Low level temperature gradients may also be enhanced by advection of warm air from the Greenland wake, SW of Iceland towards the cold blocked air east of Greenland.
• Greenland increases:
– the ageostrophic wind close to the barrier
– the geostrophic wind in agreement with the increased low level temperature gradient.
• Investigation of different forecasts of different lead-times indicates that it may be of great importance for the downstream development to simulate the cold air outflow at Cape Tobin accurately