Geophysical Research Abstracts
Vol. 14, EGU2012-10177, 2012
EGU General Assembly 2012

Local variability of winds in the complex terrain of the Bergen area during the great windstorms of November and December 2011

A. Valved, J. Reuder, M.O. Jonassen, and H. Olafsson
Geophysical Institute, University of Bergen, Norway

Major windstorms hit W-Norway in November and December 2011 causing property damage, flooding and even casualties along the Western coast of Norway.

Bergen is a city that lies protected in a valley surrounded by steep mountain slopes that range up to 300 to 600 meters on both sides, and open areas in the southeast and in the northwest. The complex topography and variability in surface roughness affects the winds in a multitude of ways, causing different local effects.

The spatial and temporal variability of the winds in these windstorms is explored with a network of automatic weather stations in the Bergen area. The observations reveal periods of sustained winds of more than 30 m/s while at nearby locations the winds are typically less than 5 m/s. The variability is mapped and is, as expected, very dependent upon wind direction. The locally calm winds during the windstorms can be attributed to both wake and blocking effects of the surrounding mountains.

Results from the observations are compared to high-resolution WRF simulations that look at the connection between a synoptic scale flow and the local effects of the terrain. A study of these windstorms will be presented at the conference.