



An extreme precipitation event during STOPEX I

J. Reuder and I. Barstad

Geophysical Institute, University of Bergen, Norway (joachim.reuder@gfi.uib.no / Fax: +47 55589883 / Phone: +47 55588433)

STOPEX (Stord Precipitation Experiment) is a project at the Geophysical Institute in Bergen dedicated to the investigation of orographic effects on fine scale precipitation by numerical modeling and measurements. During the field campaign STOPEX I from September to November 2005, 12 rain gauges and 3 autonomous weather stations have been installed on and around the island of STORD, approximately 50 km south of Bergen, Norway. The island extends about 10 km east-west and 25 km north-south and reaches a maximum altitude of 700 m. The approach of nearly undisturbed marine air by flow from southwest to northwest makes this site a suitable test-bed for orographic precipitation and related micro-physics.

On November 14, the passage of a low pressure system was associated with a total precipitation between between 50 and 240 mm during an 24 hour period at the 12 different stations, showing large horizontal and vertical variation. In addition to the rain gauge measurements weather radar data from Bømlo and two models of different complexity have been used for a detailed case study of the event. The mesoscale model MM5 has been nested down to 1 km horizontal grid distance and run with ECMWF-analysis as boundary conditions. The meoscale model was able to produce a maximum of about 110 mm of accumulated precipitation during the event, about half of the observed. A simpler linear model of orographic precipitation was able to reproduce the precipitation amounts, only for very short time-delay (~ 100 s) of hydrometeor conversion.