Geophysical Research Abstracts,
Vol. 11, EGU2009-7380-1, 2009
EGU General Assembly 2009


# Predictability of precipitation in complex terrain - A comparison of high-resolution rain gauge measurements and fine-scale numerical simulations

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The western part of southern Norway is strongly affected by low pressure systems with fronts and moist air, resulting in high precipitation amounts up to 3000 mm per year. Rather undisturbed flow over the ocean meeting complex mountainous terrain makes this region an ideal laboratory for the validation of spatial and temporal predictability of fine-scale precipitation patterns.

In a field campaign 10 Hobo rain gauges have been installed South of Bergen in a 30 km long West-East transect, covering altitudes from 24 m above sea level on the island of Sotra to the West up to 840 m on the mountain of Gulfjellet around 20 km inland in the East. The network has been in operation in the period June – October 2008 and provides precipitation time series with a temporal resolution of 10 minutes.

This data set is an ideal basis for the validation of fine-scale numerical precipitation forecasts in complex terrain. On one hand it allows to investigate the effects of orography and altitude on the spatial distribution of precipitation, e.g. showing a strong altitude dependent East-West gradient. During the whole deployment period of the rain gauges, the costal station on Sotra (furthest west) measured an accumulated precipitation of 709 mm, while the mountain station of Gulfjellet recorded 1637 mm during the period. On the other hand the high time resolution allows a detailed study and validation of the temporal behavior of precipitation forecasts with respect to reality. A detailed comparison of precipitation measurements and precipitation forecasts of models of different resolution will be presented.