



Verification of precipitation forecasts from the limited area model of MeteoSwiss (aLMo)

J. Jenkner and C. Schwierz

Institute for Atmospheric and Climate Science, ETH Zürich, Switzerland

Switzerland with its heterogeneous types of landscape and in particular the Alpine region with its steep orography pose a special challenge to the forecast of precipitation events. In order to tackle this issue, the limited area model of MeteoSwiss (aLMo) is taken as a test object to quantify the forecast capability over a total forecast range of 48h. To this end precipitation forecasts of the aLMo for the period 2000–2004 at 7km resolution are compared to a gridded observational analysis over Switzerland based on daily rain gauge measurements disaggregated with hourly radar data.

Several verification results are shown. First, conventional point-by-point measures are taken over orographically distinct areas to determine characteristics of the diurnal and seasonal cycle. Second, some more advanced methods are presented here to interpret the quality of modeled precipitation patterns and to assess the temporal and spatial error variability over Switzerland. Third, forecasted precipitation fields are explicitly compared to those of the assimilation cycle (2002-2004) to evaluate the impact of additional observations. Generally, particular emphasis is laid upon a synoptics-based conditional verification focussing on specific error characteristics for particular flow patterns and precipitation forcings. For this purpose, the whole record is subdivided into consistent weather classes which are evaluated separately. Altogether, the results shed some light on the relative importance of large-scale dynamics and local observations for the quality of QPF in regions with high orography.