



1 Validation of area rainfall estimates over northern Africa

G. Tefera-Diro, D.I.F. Grimes, E. Black, A. O. Neill

Dept. of Meteorology, University of Reading, U.K. (d.i.f.grimes@reading.ac.uk / Fax +118 378 8905 / Phone +118 378 6693)

Global rainfall estimates are routinely made by NWP models or from satellite imagery. Validation of these products in many parts of the world is problematic because of lack of independent rainfall data. A particular area of concern is Africa where knowledge of rainfall is important for disaster mitigation and for prediction/verification of climate change but where radar is essentially non-existent and gauges are sparse and poorly distributed. In this paper we present a simple, appropriate methodology for validation of area rainfall estimates using block kriging of available raingauge data. Important elements are (1) the generation of an areal validation data set with the same spatial support as the target data and (2) assessment of the uncertainties of the validation data. As a case study, we apply the methodology to ERA40 and NCEP reanalysis precipitation fields for Ethiopia. The raw validation data comprised 33 gauges covering the period 1970 to 2001. The investigation covered climatology, interseasonal and interannual time series and intra-annual variability. Results show large differences between model performances and large model biases which vary geographically and temporally. Possible reasons for these differences will be discussed. The methodology is also applicable to validation of satellite imagery.