Plinius Conference Abstracts,
Vol. 11, Plinius11-105, 2009
11th Plinius Conference on Mediterranean Storms

Validation of a short-range ensemble precipitation prediction system over the Iberian Peninsula and Balearics

D. Santos-Muñoz (1), M.L. Martin (), F. Valero (), M.Y. Luna (), A. Morata (), and L.I. Sebastian ()

(1) Agencia Estatal de Meteorología. Leonardo Prieto Castro, 8. 28040 Madrid. Spain. , (2) Escuela Universitaria de Informática de Segovia. Universidad de Valladolid, Pza. Sta. Eulalia, 9-11, 40005 Segovia. Spain. , (3) Dpto. Astrofísica y CC. de la Atmósfera. Facultad de CC. Físicas. Universidad Complutense de Madrid. Spain

A short-range ensemble precipitation forecast system has been constructed over the Iberian Peninsula and Balearics by means of the fifth-generation Pennsylvania State University-National Centre for Atmospheric Research Model (MM5). The ensemble system consists of ten members, each run with a different combination of two different initial conditions from global models, IFS-ECMWF and GFS-NCEP, and five different subgrid-scale physics configurations for three months period of 2006. The mesoscale verification is made by using observational precipitation data of the Spanish Climatic Network. To ensure the quality individual members the forecast distribution of each member has been studied, showing good agreement with the observed precipitation distribution. The created short-range ensemble shows high spread-skill correlation values for daily precipitation. However, the asymmetric shape of the rank histogram indicates some underdispersion, suggesting an under-forecasting behaviour. Talagrand diagrams have been created for different precipitation thresholds to analyze more deeply the system calibration, showing a nearly flat shape on the lower bins and a clear accumulation on the higher interval, indicating that the system is well bias affected. The Relative Operating Characteristic curves show a very outstanding area indicating the good discrimination capacity for each of the thresholds. The reliability diagrams are also indicative of the good reliability of the forecasting system, depicting in general good agreement between forecast probability and the mean observed frequency. Because of that, the verification proves the usefulness of the forecasting system over the study area.