Plinius Conference Abstracts
Vol. 12, Plinius12-11
12th Plinius Conference on Mediterranean Storms
Corfu Island Greece, September 2010

Towards a mesoscale Ensemble Prediction System based on physical parameterizations sensitivity for the north-western Mediterranean

S. Fresnay, E. Richard, D. Lambert, and J.-P. Chaboureau

University of Toulouse, Laboratoire d Aerologie OMP UMR 5560, Observatoire Midi Pyrénées, Toulouse, France (dominique.lambert@aero.obs-mip.fr)

During the fast 15 years ensemble weather forecasting has made substantial progress and has proved its skill in forecasting probabilities of relevant weather events. More recently, the development and growing use of high-resolution, convection-permitting, models has significantly increased the potential of atmospheric modeling. However, this opens new questions regarding the representation of initial and model uncertainties.

In the framework of the French project MEDUP and in preparation of the forthcoming Hydrological Cycle in the Mediterranean experiment (HyMeX), several preliminary studies have been carried out aiming at a better understanding of the predictability of Mediterranean intense events and a better quantification of their forecast uncertainties. Different methodologies have been investigated including perturbed initial conditions and perturbed physical parameterizations. This presentation focuses on the physical parameterizations and especially the parameterizations associated with the cloud microphysics.

A first ensemble was designed by varying the tunable parameters of the microphysical scheme within their admitted range of variation whereas in the second ensemble the tendencies of the microphysical processes were randomly perturbed. The results are analyzed and assessed for various episodes of heavy precipitation which recently occurred over south-eastern France.