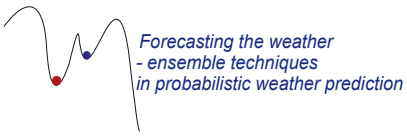
EMS Annual Meeting Abstracts
Vol. 8, EMS2011-704, 2011
11th EMS / 10th ECAM



On the Existence of Real, Modified and Pure Storms in ECMWF's EPS

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This study deals with European winter storms, represented in the Ensemble Prediction System (EPS) of the European Centre of Medium-Range Weather Forecast (ECMWF). The EPS is an operational product at ECMWF since November 1992. Disturbances of initial conditions and perturbances of the model physic stem to an ensemble of actually 50 perturbed and one control forecast, starting twice a day integrated over 15 days.

For the characterization of storms, an algorithm developed by Leckebusch et al. (2008) is used. Based on the relative exceedance of the local 98th percentile of 10m instantaneous wind speed over coherent areas connected by a distance criterion, it calculates an objective storm severity measure.

Properties of European EPS winter storms like size, duration, velocity, position and severity, are object of this study. EPS storm properties are characterized with regard to the reality, represented by ECMWF reanalyses Era-Interim. Storms in the EPS, for which no corresponding part in Era-Interim can be found, are defined as "pure" EPS storms. Using different spatial and temporal criteria for a matching of storms between the datasets, "pure" EPS storms appear in a wide range of severity. The overall storm characteristics in the EPS are reasonable with respect to the Era-Interim Reanalyses. Focus and major interest lays in the spread of EPS winter storm properties, in the resulting modifications of real storm events, and in the characteristics of "pure" EPS storms. Furthermore the conditions leading to "pure" EPS storms are investigated.