



Comparing TIGGE multi-model and ECMWF calibrated ensembles

R. Hagedorn (1), R. Buizza (1), T. M. Hamill (2), M. Leutbecher (1), and T. N. Palmer (1)

(1) ECMWF, Research, Reading, United Kingdom (buizza@ecmwf.int, 00441189869450), (2) NOAA Earth System Research Laboratory, Colorado, US

The value of multi-model forecasts generated using data from the THORPEX Interactive Grand Global Ensemble (TIGGE) project is compared to the value of reforecast-calibrated ensemble predictions from the European Centre for Medium-Range Weather Forecasts (ECMWF). Attention is focused on the 850-hPa and the 2-meter temperatures, verified both against analyses and observations. Considering the errors of global probabilistic forecasts, a multi-model ensemble containing nine ensemble prediction systems (EPS) from the TIGGE archive cannot improve on the performance of the best single-model, the ECMWF EPS. However, a reduced multi-model system, consisting of only the four best ensemble systems, provided by Canada, the US, the UK and ECMWF, showed an improved performance. This multi-model ensemble provides a more challenging benchmark for each single-model EPS contributing to the multi-model. However, reforecast-calibrated ECMWF EPS forecasts are of comparable or superior quality to the multi-model predictions. This improved performance is achieved by using the ECMWF reforecast dataset to correct for systematic errors and spread deficiencies. (The ECMWF reforecast suite has been operational at ECMWF since September 2006, when the EPS was extended to 15 days with a variable resolution.) Results also reveal that the ECMWF EPS is the main contribution for the improved performance of the multi-model ensemble; that is, if the multi-model system does not include the ECMWF contribution, it cannot improve on the performance of the ECMWF EPS alone. In this talk, some very recent results that support these conclusions will be discussed.