



Verification of extratropical cyclone tracks in global NWP forecasts

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Verification of extratropical cyclone track predictions could serve as an alternative technique to estimate the quality of numerical weather prediction. In contrast to conventional approaches, where the overall geographically averaged quality of meteorological fields is verified, such an event-based method can directly assess the accuracy of the predicted origin, path and intensification of cyclonic weather systems. This study tries to make a first step into this direction. To this end, cyclones are identified as local minima of the sea-level pressure (SLP) field and a tracking program is used to obtain the northern hemisphere cyclone tracks from both ECMWF analyses and forecasts. The analysis tracks are regarded as "truth", and a forecast track is attributed to an analysis track if the spatial distance between the two is smaller than a certain threshold at the beginning of the analysis track. Then, for every forecast track that could be attributed to one of the analysis tracks, several error measures are derived (e.g. difference in minimum SLP along the track, mean spatial distance between forecast and analysis track, difference in SLP tendencies along the track). First results, for a selection of winter seasons during the last 20 years, show that the quality of northern hemispheric cyclone tracks in the ECMWF forecasts has improved in time, in agreement with conventional SLP verification scores. It is further investigated, whether the accuracy of cyclone track predictions differs in the Atlantic and Pacific storm track regions.