EMS Annual Meeting Abstracts,
Vol. 6, EMS2009-346, 2009
9th EMS / 9th ECAM

9th EMS Annual Meeting
9th European Conference on Applications of Meteorology
High resolution meteorology
- applications and services

Tropical cyclone genesis products at ECMWF

F. Prates and Frederic Vitart

ECMWF, Meteorological Operations Department, Reading, United Kingdom (fernando.prates@ecmwf.int, +44-118-9869 450)

The operational ECMWF forecast system is nowadays able not only to analyse the current location of a tropical cyclone (TC) and predict its subsequent evolution, but also to predict the genesis of tropical cyclones, often several days before they occur.

The advent of 4D-Var and assimilation of massive amounts of satellite data, combined with better model physics and an increase of horizontal/vertical resolution are among the numerous important changes made in the past with positive impact in TC forecast skill. Recent changes to the forecast system that have substantially improved the TC predictions are the increase in horizontal resolution in 2006, from T511 (40 km) to T799 (25 km) (T255 to T399 in the EPS), and improved model physics introduced in 2007.

ECMWF generates a number of specific products for tropical cyclone forecasts. For each TC observed at initial time, a tracking algorithm is used to identify the successive positions of the TC throughout the forecast range. The tracker is applied to the deterministic T799 model and to each member of the EPS. The EPS tracks are used to generate strike probability maps. The tracking algorithm has recently been extended to identify and track new TCs that are predicted to appear during the forecast. Strike probability products for TC genesis have been developed and some cases will be selected to illustrate this product. Results from the objective verification package, upgraded to include the verification of TC genesis, will be presented and discussed, emphasising the impact on TC performance from recent changes in the forecast system.