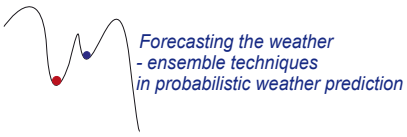
EMS Annual Meeting Abstracts
Vol. 8, EMS2011-151, 2011
11th EMS / 10th ECAM



Probabilistic ensemble products for extra-tropical cyclone tracks

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The beauty of the cyclone 'concept' is its simplicity: identify a point on a synoptic chart, normally the cyclone centre, and immediately anticipate adverse weather in the vicinity. We can extend this concept by assigning to every cyclone a set of attributes which define that nearby weather. Example attributes might be 'maximum wind' or 'areally averaged 12-hour rainfall' (both within a set radius). At both the Met Office and ECMWF this framework has been coupled with sophisticated algorithms for identifying (and tracking) cyclonic features. This is now applied in real time to ensemble output to provide new and innovative forecast products that focus on cyclones and are severe-weather-oriented. A particular attraction of this approach is the compression of the voluminous EPS information into a very compact, user-oriented format. In addition many products highlight cyclone behaviour in the deterministic forecasts alongside the ensemble, making interpretation quick and easy for the forecaster.

Product dissemination is via the web, which facilitates also interactive ensemble processing for the user. One option allows the forecaster to click on a cyclonic feature at time zero to view in plume format its track and attribute evolution. Another allows them to animate 'dalmatian charts', on which spots denote all feature points in all members, with spot colour signifying magnitude of a chosen attribute. Selecting with a mouse click one such spot – typically a 'representative' or an 'extreme' member – can then bring up in synoptic chart format the broadscale evolution in that member for closer examination, or alternatively more information regarding the feature's other attributes.

Whilst these products are aimed mainly at the forecasters - nominally the first 'customer' – they can also find application, downstream, with end users. Strike probability charts, relating to the tracks of cyclonic features that have certain 'extreme' attributes (in terms of integrated rainfall or maximum wind), look to be especially amenable to onward distribution.

This presentation will illustrate the new (now operational) web-based products, will highlight upcoming enhancements, and will describe how these are derived and can be used, with reference to specific severe weather events, such as the windstorm Xynthia that hit France in February 2010.