

THE OPERATIONAL USE OF ECMWF FORECAST PRODUCTS IN THE UK MET OFFICE

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1. DATA RECEIVED FROM ECMWF

The following ECMWF products (indicated by asterisks) are received at Bracknell for the whole 10-day period:-

AREA TIME	N.NEMISPHERE EVERY 12 HRS	GLOBAL EVERY 12 HRS	GLOBAL EVERY 24 HRS
PMSL	*		
H1000	*		*
H500	*		*
W250			*
T850	*		
Q850	*		
T at 2m		*	
Total Ppn		*	

Where H = Geopotential height; T = Temperature; W = Wind; Q = Relative humidity; PMSL = Pressure at mean sea-level; Ppn = Precipitation. Two other fields are generated internally, namely 1000-500hpa thickness and 850hpa wet-bulb potential temperature.

2. FORECASTS FOR 5 TO 10 DAYS

Although individual ECMWF forecasts for the 5 to 10 day period can on occasions show considerable skill in forecasting synoptic detail over the UK, there is still no reliable means of identifying skilful forecast runs, and the variability from run to run is usually such that detail must be smoothed out by averaging both in time and space.

Verification of forecast temperature maxima averaged over 8 regions of the UK and over the period T+168 to T+240 shows a useful 7% improvement in correct forecasts over Climatology (and 21% over persistence), where a correct forecast is one that is within 2C of the actual mean value. In addition well over 50% of the "wrong" forecasts gave some useful advice in that they indicated the sign of the departure from seasonal normal.

Recently the Central Forecasting Office in Bracknell has started providing advice to the Commercial Services Division on likely trends over the 5-10 day period for inclusion in a new forecast service. The main source of information for this is ECMWF with input once a fortnight from the Extended Range Forecast Division using ensemble techniques on the Climat model. It is planned to access ECMWF meaned fields in the near future to help with the task.

3. FORECASTS FOR 2 TO 5 DAYS

Although detail such as phase of short wave features becomes less reliable with time in a forecast run, model forecasts on this time scale are often very skilful at predicting the general synoptic evolution and it is difficult for a forecaster to identify so-called "rogue" runs. It is possible to gather statistics and identify any biases a model may have but these only apply on average and may not be applicable to a specific case. If successive model runs suggest similar evolutions this does not necessarily imply greatly increasing confidence since the runs are not totally independent estimates. However, Medium Range Forecasters in CFO have access to forecast products from not only UKMO and ECMWF but also from Washington and Germany. Using this "ensemble" together with perceived errors in the models it is still possible for the forecaster to add value to the forecast. An example was presented showing a substantial and successful modification to the forecast of a deepening Atlantic depression.

Forecast accuracy, days 7-10
January 1990 to May 1991

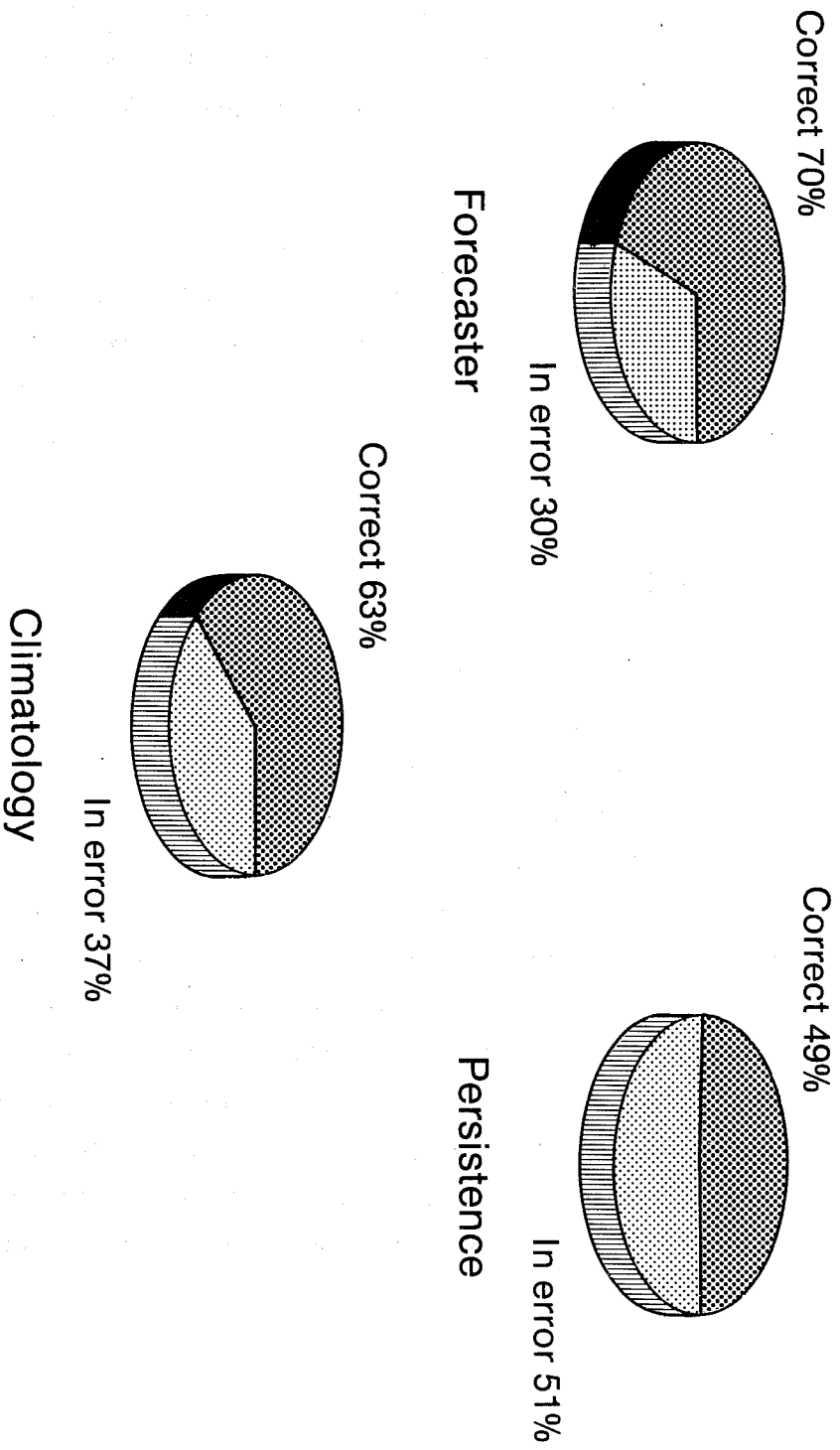


Figure 1. Verification of forecast temperatures