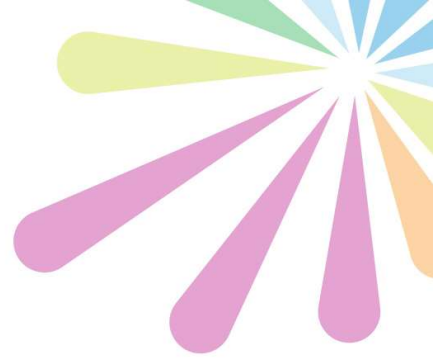
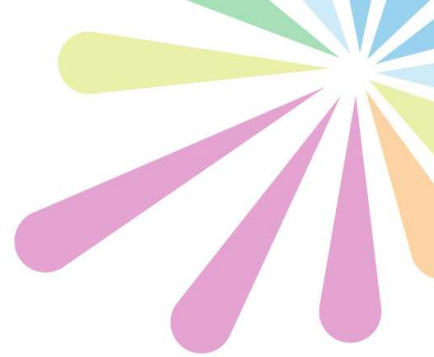




Lancashire County Council

End of Season Report Winter 2018-2019





Performance Indicator Guide

The performance indicators presented here are based on forecasts and measurements at the road weather stations. All the figures are based on nights where the forecast of the observation was +5 degrees or lower and on the final forecast before midnight. Updates after midnight are not counted in this analysis.

Bias

This is a measure of optimism/pessimism in the forecast model. This value will fluctuate based on the location of the weather station. For example, forecast sites in cold locations are more likely to have a neutral/positive bias whereas forecast sites in warm/intermediate locations will have a negative bias. There is no good or bad performance with this indicator but MetDesk overall (all forecast sites, all season) aims for a -0.25 degree bias. This is an indicator MetDesk uses internally to monitor the performance of the model.

RMSE (Root Mean Squared Error)

This is probably the most useful indicator as it provides a raw measure of accuracy irrespective of the zero line. The RMSE is the average difference between the forecast and observation. For example, a forecast of +1 and an observation of -1 is a net difference of 2 degrees. This is the RMSE. This will also fluctuate from site to site. Cold sites are more predictable and you therefore expect the forecast performance to be better. Sites located in frost hollows are more difficult to forecast for and this is where you are most likely to see a worse RMSE performance. MetDesk aims for an average RMSE of <1.5 degrees over the course of the Winter. The RMSE is also analysed daily by MetDesk and allows model intervention by the forecast management should a location consistently exhibit a high RMSE.

%Correct

This is probably the most often quoted indicator and shows the % of forecasts and observations within the critical night range which were the same side of zero. Unlike the RMSE value, this indicator does not provide a measure of forecast accuracy.

GG %Correct

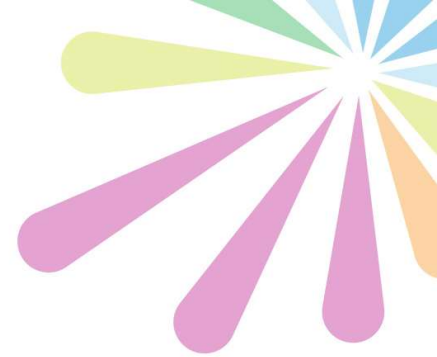
The same measure as above but with all nights in the +1 to -1 range excluded from the calculation on the basis that the forecast under the circumstances would have provided 'Good Guidance'. This indicator was introduced around 10 years ago by the UK MetOffice.

False Alarm Rate

The percentage of forecasts where a frost was forecast but no frost observed

Miss Rate

The percentage of forecasts where no frost was forecast but a frost was observed



Seasonal Statistics

INITIAL FORECAST		FINAL FORECAST	
Bias below 5C	F/F	Bias below 5C	F/F
-0.2	367	-0.2	372
RMSE below 5C	F/NF	RMSE below 5C	F/NF
1.3	81	1.2	80
% correct below 5C	NF/F	% correct below 5C	NF/F
92.2	73	92.5	68
GG % correct below 5C	NF/NF	GG % correct below 5C	NF/NF
96.6	1288	96.8	1272
False alarms	False alarm rate	False alarms	False alarm rate
82	4.5	81	4.5
Misses	Miss rate	Misses	Miss rate
59	3.3	54	3

Comments

The performance figures are within the target set and consistent with performance across other clients in the UK. The weather pattern during January provided for challenging conditions which had an impact on some of the indicators – notably the root mean squared error. However the overall performance was still good despite this.