Review Of Improvements To Met Office Global NWP Skill From Data Assimilation

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Improvements in global NWP skill come from a variety of sources, including increased model resolution and improved physics, advanced data assimilation techniques, and the availability of ever-increasing number and type of observations for assimilation. This talk will begin with a brief review of the major upgrades to global NWP over the past decade, together with an assessment of the relative contributions of model, data assimilation and observation changes.

Ongoing assessment of the value of individual components of the observation network is essential to justify their significant cost. Results from a variety of recent data denial experiments will be shown, and the link made to more recent objective techniques for evaluating observation impact (e.g. Forecast Sensitivity to Observations - FSO covered by Marriott presentation).

Many practical implementation details (e.g. data cut-off times, observation bias correction) have a significant effect on the quality of operational data assimilation. They also provide strong constraints on the feasibility of advanced data assimilation R&D for practical application. Selected results will be presented to emphasize the importance of these 'back-room' efforts and provide guidance for research community's operational ambitions.

Finally, Met Office plans for further improvements to global data assimilation capabilities will be reviewed, together with their implicit challenges.