

REPORT OF THE CHAIRPERSON OF SESSION VII: POLAR WINDS

Chairperson: Niels Bormann

Session VII consisted of three talks providing updates on the derivation of polar winds and further characterisations of the forecast impact.

Lars Peter Riishøjgaard (GMAO) reported on separate forecast impact trials with infrared (IR) and water vapour (WV) AMVs from MODIS with the next-generation data assimilation system currently developed at the Global Modeling and Assimilation Office (GMAO). The largest forecast impact was found over the Northern Hemisphere summer, with a fairly similar positive impact when either only WV or only IR winds were assimilated, and slightly better impact when both were assimilated together. The issue of using MODIS winds in a so-called update run was also investigated. A significant positive forecast impact was still observed when MODIS winds are not used in the last 6-hours, but in all analyses prior to that. Lars Peter Riishøjgaard stressed that all results were obtained with an experimental system which still requires tuning, for instance of the background error covariances.

Jeff Key (NOAA/NESDIS) reported on two aspects, the derivation of AMVs at direct broadcast sites and the derivation of AMVs from historical AVHRR data. AMVs from the direct broadcast sites at McMurdo, Antarctica, and Tromsø, Norway, are now available. All processing is done locally, resulting in AMV availability about 2 hours faster than with the previously used "bent pipe" method. This addresses an issue previously raised by NWP centres for which short cut-off times mean that many MODIS winds are currently not available in time to be included in the main analysis. Other broadcast sites are being investigated and should be added in the future. Ken Holmlund added that EUMETSAT will investigate to include these AMVs in the EUMETCAST system. Jeff Key also summarised efforts to generate a 25 year dataset of AMVs derived from AVHRR IR data, providing an interesting dataset for reanalysis projects.

Jeff Key also presented a talk by David Santek (CIMSS) in which he visualised the impact of MODIS polar winds on numerical forecasts, especially outside the polar regions. Experiments with and without MODIS winds from several global assimilation systems were compared. Movies of the analysis differences showed the propagation of the differences from the polar regions to lower latitudes at different times into the experiment, including the impact on the jet stream. Differences over the tropics occurred just 6-hours into the experiment in the case of the NCEP GFS 3DVAR system, highlighting the role of structure functions to spread the information.