

## **REPORT OF THE CHAIRPERSON OF SESSION II: GLOBAL NWP AND ASSIMILATION**

**Chairperson: L.P. Riishojgaard**

In this session, results were shown from analysis/forecast experiments from several major assimilation and Numerical Weather Prediction (NWP) centers, including ECMWF and the National Weather Services from Australia, France, India, Japan, UK and the US. Most of the presentations in this session were focused on the impact of the geostationary AMVs.

Since the results presented in the session included data from four different satellite systems (GOES, Meteosat, GMS, and Kalpana) and from at least seven different model and assimilation systems, there were few if any opportunities for direct comparison. However, some common trends could be clearly identified. The overall impact of the satellite winds on forecast and analysis skill is positive in the majority of cases over all regions. However, the impact of the geostationary winds continues to be relatively modest in most cases, and in particular it is lagging behind the contributions from the satellite sounders, most notably from AMSU, but recently also from AIRS, the first of the hyperspectral infrared sounders. Several of the studies presented in the session addressed this issue. One frequently raised concern about the utilization of satellite winds for NWP is that they represent information with spatially correlated errors, and since most data assimilation systems cannot account for horizontal observation error correlations, these systems can be negatively influenced by drawing excessively to these observations. Results from a carefully designed super-obbing study seemed to indicate that the non-random error component may be more important than previously thought, and that limited success could be expected from a better treatment of the spatially correlated errors. This points to the quality control as being the weak link in the data processing chain. Several other studies presented in the session independently pointed to quality control as a key focus area for satellite wind research and development. The consensus was that most of the information in the retrieved wind vectors is valuable and correctly depicts the atmospheric flow. However, spurious vectors that are not representative of the atmospheric motion are in many cases not caught by the quality control checks imposed by the data providers and the assimilation systems. This is one candidate explanation for the modest size of the impact. There was no consensus opinion on why the impact of the polar winds from MODIS generally seems to be larger than that of the geostationary winds.

There was broad agreement that the monitoring tools put in place by the NWP Satellite Application Facility would be a very valuable tool in the continued research and development.