SESSION IV

SPACE-BORNE WIND RETRIEVAL SYSTEMS

Chairperson: R. C. Bhatia

The main focus was on the space-based wind retrieval system, other than the conventional cloud motion vectors derived from the geostationary meteorological satellite systems. There were three presentations during this session. The presentation by Dr. Marie Colton brought out the currently Navy-supported research into the microwave remote sensing of ocean surface wind and the operational applications of wind data from the existing microwave based satellite sensors. There are firm plans for the development of a space-based polarimetric radiometer WINDSAT which is expected to provide improved observations in the early years of the next century.

The presentation by Dr. P. Ingmann of ESA formulated the need for the availability of global wind profile data for further improvements of NWP. A brief review of the overall needs and different levels of requirements was presented along with the performances achievable by different space-based systems. In particular, it focused on the need for wind profilers in order to improve the meteorological global observing system. ESA is studying a mission aiming at the observation of wind field profiles with a Doppler wind lidar called ALADIN which will meet the WMO-defined requirements of wind global measurements.

The last presentation by Dr. Stoffelen brought out the positive impact of scatterometer derived winds on the model-derived forecasts. In particular, it showed that the ERS-2 scatterometer data improve the prediction of tropical cyclones in the ECMWF 4-D variational analysis scheme. It was also pointed out that scatterometer winds contain much sub-synoptic scale information, however the smallest scales resolved are currently difficult to assimilate into an NWP model.

All presentations were followed by a number of questions/comments from the distinguished audience. The main conclusion of the discussions during the session is to encourage the development of space-based wind retrieval systems in view of their vital importance for weather forecasting and other users.

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