

## SESSION III

### VALIDATION AND VERIFICATION

*Chairperson: Mikael Rattenborg*

The themes for this session were much broader than in previous workshops. It became apparent, that in the time since the first wind workshop, the focus has shifted away from the task of proving the feasibility of the satellite winds through comparisons with radiosondes, towards increasing the positive impact of the satellite winds on NWP and synoptic forecasting by analysis of the product quality. The availability of wind products with high temporal and spatial coverage, with reliable quality indicators on each wind vector, is a central theme, because it will maximise the positive impact of the satellite winds in data sparse areas.

The keynote speaker of the session, K. Holmlund, reported on the new Automatic Quality Control scheme for the METEOSAT winds. The approach to construct normalised quality indicators using empirical hyperbolic quality functions was shown. The good monotonic relationship between these internal quality indices and the normalised RMS against radiosondes was demonstrated for the high level WV winds. It was however also shown that improvements are needed for the quality functions to reproduce such a relationship for the IR and VIS winds. The main conclusion is that it is feasible to distribute high-density wind products with associated reliable quality indicators in the foreseeable future.

D. Hinsman from WMO set the scene for the verification activities in relationship to the discussions in the CGMS plenary sessions since the second workshop and presented the list of action items passed on to the workshop. Don emphasised very strongly the need to agree globally and to implement straightforward, usable verification criteria for satellite winds, and hoped that the workshop could close this long-standing issue.

D. Gray presented the latest verification results from the operational GOES8/9 wind products, showing how the change to a completely automated product had been achieved without degradation in quality.

R.C. Bhatia presented results from the evaluation of the usage of satellite winds in synoptic forecasting in India. It was shown how the satellite winds were very useful in diagnosing easterly waves and also shown how the satellite winds could improve the analysis of the flow over the Indian Ocean leading up to the onset of the monsoon.

P. Menzel discussed in detail the quality assessment of GOES winds and the relationship between internally derived quality indicators and the external quality as measured against radiosondes. It was shown that the internal quality indicators were capable of providing a quality selection of the generated winds, very much like the results presented by K. Holmlund in the keynote. Paul also presented a proposal for a set of simple tables to be used as the basic format for the verification against radiosondes.

H. Woick analysed the performance of the METEOSAT wind extraction since the start of EUMETSAT operations in November 1995, and showed that the quality of the distributed winds were now as good as or better than before the transition, and that work towards extending the coverage was ongoing.

B. Strauss from ECMWF made a very interesting presentation, looking at the quality and distribution of the disseminated wind products from all wind producers. He showed how each system has its personal footprint, e.g. in the speed and direction distributions, and invited the wind producers to comment on the results. This provided some very valuable food for thought among the wind producers.

Conclusions:

- There is the need for a globally agreed and implemented simple set of statistics to verify the quality of winds against radiosondes for all wind producers.
- The central issue in verification is the degree of positive impact of satellite winds on the NWP systems and the synoptic forecasting.
- Work is progressing rapidly towards providing reliable quality indicators with the produced winds, and using this as a means to make wind products with very high spatial and temporal coverage available to the user community.

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