SESSION III

UTILISATION OF ATMOSPHERIC MOTION VECTORS

Chairperson: John Le Marshall

The Third Session of the Workshop provided analytical work related to optimal use of Atmospheric Motion Vectors (AMVs) for research, forecasting and Numerical Weather Prediction (NWP). It gave considerable insight into the large range of activities associated with use of AMVs and solid evidence of their utility.

Michael Rohn discussed the Assimilation of high resolution experimental winds. New high resolution data from GOES are under test and he described work toward their optimal use of the data in assimilation. Early results show the need to optimise data selection techniques to avoid a deleterious effect on model performance in some areas. Details of recent impact studies from the NORPEX Experiment were also shown, including results indicating the importance of NW Pacific satellite data to European forecasts

Xu Jianmin described the use of GMS-5 high resolution AMVs to examine cloud clusters in the Northwest Pacific. He discussed the utility of the winds in diagnosis of tropical cyclone (TC) development. He also described the analysis of cloud clusters over China using high resolution winds to aid rainfall forecasts.

In related work Henri Laurent discussed use of half-hourly infrared, visible and water vapour wind sequences from Meteosat to provide estimates of divergence above tropical cloud clusters and related them to system characteristics.

Gerhard Büche gave a detailed description of analytical work with water vapour imagery related to motion vector height assignment. In this detailed study he showed that structure displacement may be interpreted as both velocity vectors and collective motions.

R.C. Bhatia described a study which showed the feasibility of using ship, buoy, scatterometer and AMVs over oceanic areas around India. To provide consistent wind fields particularly during the important monsoon season.

Andre Szantai studied the estimation of trajectories using high spatial and temporal resolution winds. He showed METEOSAT winds allowed estimation of continuous trajectories over the Indian Ocean providing a basis for determining advection over that area and indicating the quality of the winds and coverage in that region.

The utilisation of AMVs in Developing Countries was addressed by Grace Gitonga who discussed the importance of wind observations in weather forecasting. It was also noted the satellite wind products available to developing African nations were provided through the MDD.

In summary, the session dealt with work describing the optimisation of the assimilation of high resolution AMVs in operational NWP and the results of studies examining the utility of these winds in the analysis and diagnosis of significant weather events. The studies pointed to both improved NWP capability and improved representation of severe weather events such as convective and TC development. Based on these studies, it would appear that operational improvements in these areas are imminent.

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