REPORT OF THE CHAIRPERSON OF SESSION III: AMV EVALUATION AND VERIFICATION

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In Session III on AMV Evaluation and Verification six papers covering various critical aspects of the Atmospheric Motion Vector (AMV) extraction schemes were presented. Four papers dealt with different aspects of height assignment whereas tracking and quality control aspects were covered by one paper each.

The first paper by Borde (EUMETSAT) presented studies performed at EUMETSAT with a non-operational height assignment scheme. He showed that though in general the various correction schemes for semi-transparent clouds agree well, there are also differences that need further investigations. Particularly it was noted that the traditional semi-transparency correction using the 10.8 and 6.2 µm channels provide heights higher in the atmosphere than the other methods. It was also shown that the most consistent results were achieved with various CO_2-methods. The second paper of the session by de Smet (EUMETSAT) continued with an assessment of the operational implementation of the above methods. Most notably there were several areas of large discrepancies between the operational and the non-operational implementation. Particularly the successrates of the operational schemes were significantly lower raising concerns about the tuning of the operational software. The discussion on the accuracy of the Meteosat-8 height assignment methods was further continued in the presentation by Seiz (Institute for Geodesy and Photogrammetry) introducing also alternative height assignment methods by other satellites as well as using stereo heights. It was shown that these alternative methods can give a further insight into the accuracy of the existing methods. In the final paper discussing height assignment by Menzel (CIMSS/NOAA-NESDIS) the CO2-height assignment and the semi-transparency correction schemes were further scrutinised. The results, that were also supported by other data (e.g. MODIS and ground based lidar) showed that in general the two methods provide similar results, but with large deviations in certain cases. Also, it was shown that the CO2-based approach had in general a higher successrate than the semi-transparency method.

In the next paper by Dew (EUMETSAT) various tracking methods were evaluated. These methods included various implementations of the cross-correlation method and the so-called Euclidean matching method. It was shown that for clouds equivalent results are derived, but for clear sky targets the Euclidean matching performs better. It was also noted that for areas with rapidly changing illumination, e.g. for visible channels in dusk/dawn conditions, the cross-correlation methods might be preferable.

In the final paper by Gustafsson (EUMETSAT) the Automatic Quality Control (AQC) scheme for Meteosat-8 was discussed. The applied AQC scheme is similar to the scheme used for the first generation satellites. However, due to the different characteristics of the derived wind fields particular attention has to be given to the tuning the AQC, which can be quite cumbersome.

The papers in Session III led to a lively discussion on various pros and cons of the current operational height assignment methods. Particularly a concern was raised with the mixed approach presented by EUMETSAT, where different methods may contribute to a final height. This has now led to simplified implementation at EUMETSAT with hopefully more reliable height assignment as a result. Furthermore it was noted that in general there is still many areas of uncertainty in the height assignment and a better understanding of the potential sources of errors is required together with appropriate quality flagging.

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