**AN OVERVIEW OF 10 YEARS OF RESEARCH ACTIVITIES ON AMVs AT EUMETSAT.**

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Abstract

In the last 10 years EUMETSAT conducted several research activities on AMVs through internal development, collaboration and external studies. These activities have led to some changes in the operational algorithm, like the introduction of CCC method in MSG AMV extraction algorithm in 2012, and have participated to a general better understanding of the AMVs. The height assignment step has been given special attention through a study of the classical semi transparency correction method’s sensitivity to various atmospheric conditions, the comparison of AMV altitudes against A-Train instruments, the use of the new OCA product to set AMV altitude, the post-processing at low levels in inversion areas...etc. The respective impacts on the AMV product quality of the target box size, the temporal gap and the use of wind guess in the tracking step have also been investigated. The results may help to define appropriate future development in the AMV algorithms in getting smaller scale information to feed regional NWP models. EUMETSAT also investigated polar winds from AVHRR instrument using only a pair of images, which allowed for a reduction of the temporal gap between consecutive images and increased the coverage area of AMV extraction. The same strategy has been applied recently to develop a new dual Metop global coverage wind product, which should help to fill the 50-70° latitude gaps between geostationary and polar winds observations.

This paper will give an overview of these investigations, highlighting the most important results and the lessons learned which can help to identify potential opportunity for improvements to the AMV products and to define appropriate strategy for future development.