

# REPORT FROM THE WORKING GROUP ON HEIGHT ASSIGNMENT (WG-III)

Chairperson: Arthur de Smet

Working Group 3 discussed several topics related to height assignment. The first part of the working group session focused on the following CGMS action:

**Action 30.32) IWW7 is invited to establish an inventory of all height assignment methods used for low-, medium- and high-level AMVs.**

The working group agreed that such an inventory is highly useful and will be beneficial to all of those working with Atmospheric Motion Vectors (AMVs).

**Recommendation (IWW7\_WG3\_1):** All AMV production centres are encouraged to make an inventory of all height assignment methods used by them. The inventory should include the following information for each height assignment method:

- a) A complete description of the method,
- b) A description of the spectral channels involved,
- c) The constraints applied to the method (when to use it, when not),
- d) A description of the quality control applied to the method,
- e) A description of the error analysis, if available,
- f) A summary of the (operational) experience with the method.

The aim is to generate a tabular overview of height assignment methods, e.g. on the EUMETSAT website, that can be accessed by anybody who is interested.

EUMETSAT has initiated a study to validate the height assignment of its Meteosat-8 AMV data. The full title of the study is "Validation of cloud top pressure derived from MSG-SEVIRI observations through a comparison with independent observations" and the members of the consortium performing it are the Free University of Berlin (Germany), the Institute of Geodesy and Photogrammetry in Zürich (Switzerland), and the Appleton Rutherford Laboratory (United Kingdom). The aim of the study is to compare the Meteosat 8 AMV heights with independent observations and methodologies, including MODIS and MERIS data (CO<sub>2</sub> slicing, oxygen A-band), MISR and AATSR data (stereo heights), as well as data from Lidar, Radar and radiosonde instruments. There will be two analysis periods of approximately one week.

EUMETSAT will look into the possibility of providing the data used in this study to other parties that are interested. If this is feasible, others are encouraged to use the data sets for comparison studies.

**Recommendation (IWW7\_WG3\_2):** EUMETSAT to investigate the possibility of providing the data used in the cloud top pressure validation study to third parties.

In the near future EUMETSAT will start trials with the so-called "infrared-two-water-vapour" (IR-two-WV) height assignment method, which applies one infrared channel and two water-vapour channels. This method is much less dependent on forecast profiles than other methods. Since the assimilation of AMV data into NWP models suffers from the dependency of height assignment on forecast profiles, this method may become very important in future.

**Recommendation (IWW7\_WG3\_3):** Explore different ways of height assignment in order to reduce the dependency on forecast profiles.

The working group then discussed various topics, mainly based on the individual presentations. This prompted a number of further recommendations.

**Recommendation (IWW7\_WG3\_4):** In the validation and verification of height assignment data it is very useful to investigate the level of best fit, using both radiosonde and analysis data.

**Recommendation (IWW7\_WG3\_5):** When comparing radiosonde data with AMV height assignment data it is important to take into account the balloon drift to get the radiosonde location right.

**Recommendation (IWW7\_WG3\_6):** There should be more emphasis on absolute geometry to explore stereo height assignment.