VALIDATION OF CLOUD TOP PRESSURE DERIVED FROM MSG-SEVIRI OBSERVATIONS THROUGH A COMPARISON WITH INDEPENDENT OBSERVATIONS

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ABSTRACT

For the validation of the cloud top pressure products implemented in the MSG-MPEF, a number of scenes during an intensive observation period have been analysed. The validation is based on a comparison with cloud top pressures from: i) profiles of temperature and relative humidity from radiosonde measurements, ii) independent satellite measurements, iii) ground based radar measurements, and iv) pilot reports. The following satellite instruments are used: i) the Moderate-resolution Imaging Spectroradiometer MODIS onboard the polar orbiters TERRA and AQUA, as well as the Multi-angle Imaging Scanning Radiometer MISR onboard TERRA ii) the Medium Resolution Imaging Spectrometer MERIS and the Advanced Along Track Scanning Radiometer AATSR onboard ENVISAT, and iii) the METEOSAT M5- and M7-instruments and SEVIRI onboard MSG. All different measurements and related algorithms have their advantages and shortcomings. The individual characteristics of the retrieval algorithms allow a breakdown of the cloud top pressure comparisons with respect to cloud types (low, middle and high level clouds, thin and thick clouds, multilayer clouds, water and ice clouds), to day and night, to surface types, to the viewing geometry and to other boundary conditions and therewith a profound validation of the MSG-SEVIRI cloud top pressure products. First results of this comprehensive study will be presented.