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Atmospheric Motion Vectors from EUMETSAT for the use in global reanalysis

Roger Huckle, Marie Doutriaux-Boucher, Alessio Lattanzio, and Joerg Schulz
EUMETSAT, Darmstadt, Germany (Joerg.Schulz@eumetsat.int)

To contribute to the new global atmospheric reanalysis for the satellite era at ECMWF, the EUropean organisation for the exploitation of METeorological SATellites (EUMETSAT) has reprocessed the Atmospheric Motion Vectors (AMVs) generated from imagers onboard the polar orbiting (Metop-A) and the geostationary (Meteosat Second Generation) satellites operated by EUMETSAT. In the framework of the European Re-Analysis of global CLIMate observations (ERA-CLIM) project two independent algorithms were used to generate data records for the period 2007-2013. The first algorithm is the EUMETSAT operational algorithm and the second one is the algorithm developed at the Cooperative Institute for Meteorological Satellite Studies (CIMSS). Both algorithms use the AVHRR infrared window channel (11 μm) but differ in many aspects (e.g. target tracking, number of satellite orbit used, height assignment method). The geostationary AMVs were reprocessed using SEVIRI images respectively onboard METEOSAT second generation satellites. The current operational EUMETSAT algorithm was used for this reprocessing.
To validate the reprocessed products, a comparison against radiosonde and NWP model analysis data and comparison of the three reprocessed records was performed. The presentation will cover a description of the reprocessed AMVs, show the main similarities and differences between the various wind products, and conclude with the current standings of a unified global AMV processing code as carried out within SCOPE-CM.
Future plans at EUMETSAT foresee the generation of Climate Data Records (CDRs) for AMVs going back to 1982 for the geostationary METEOSAT satellites and utilising the available AVHRR instruments onboard polar orbiting NOAA satellites as well.