Assessment of the structural uncertainty of MetOp-A/GRAS products

Stig Syndergaard

Danish Meteorological Institute

ssy@dmi.dk

The structural uncertainty of bending angle, refractivity, and dry temperature, as retrieved from MetOp-A/GRAS observations, are assessed by comparing the results from two different data providers (DMI and UCAR). The processing at the Danish Meteorological Institute (DMI) is carried out using the Radio Occultation Processing Package (ROPP), starting from excess phase and amplitude measurements. The excess phase and amplitude (one month of data) have been derived by the University Corporation for Atmospheric Research (UCAR) in a previous project and are provided by EUMETSAT. Both zero-differencing and single-differencing data are processed and analyzed.

The profiles obtained at DMI will be compared against the corresponding profiles processed at UCAR. Statistical analyses will be performed, investigating failures in the processing by data set, geo-location, GPS satellite PRN, or other potential reasons for failure in order to identify possible processing/instrument problems. The results will be discussed and differences are sought understood based on the knowledge of specific choices made in the two processing chains. The level of agreement between the derived profiles allows an assessment of the structural uncertainty in the radio occultation products. In particular, the analyses will assess structural uncertainty and potential benefits of zero- versus single-differencing.