

Error Assessment and Validation of the IASI Temperature and Water Vapor Profile Retrievals

**Nikita Pougatchev, T. August, X. Calbet, T. Hultberg, P. Schlüssel,
and B. Stiller**

The Infrared Atmospheric Sounding Interferometer (IASI) Level 2 products generated by Product Processing Facility (PPF) at EUMETSAT comprise retrievals of vertical profiles of temperature and water vapor. The L2 data were validated through assessment of their error covariances and biases using radiosonde data for the reference. The reference radiosonde data set includes dedicated launches as well as the ones performed at regular synoptic times. For optimal error estimate the linear statistical Validation Assessment Model (VAM) was used. The model establishes relation between the compared satellite and reference measurements based on their relations to the true atmospheric state. The VAM utilizes IASI averaging kernels and statistical characteristics of the ensembles of the reference data to allow for finite vertical resolution of the retrievals and temporal non-coincidence. The paper presents the validation results for different geographical locations and discusses potential use of the VAM estimated error covariances and biases for applications such as NWP, satellite intercalibration, and Earth System studies.