

Comparison of IASI Level 2 Temperature Profile Retrievals and In-situ Soundings

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The Infrared Atmospheric Sounding Interferometer (IASI) is part of the payload of EUMETSAT polar orbiting meteorological satellite Metop-A, launched in 2006. IASI measures radiances in 8461 channels (spectral range 3.62 to 15.50 micrometers). Such novel instrument has a lot of potential in different meteorological, climatological and air chemistry applications. IASI level 2 products include temperature and humidity profiles, cloud top temperature and pressure, surface temperature, and concentrations of several trace gases. Since IASI operates in infrared region only values from above clouds can be retrieved. In cloudless situations IASI level 2 temperature profile retrievals can contain values from 90 pressure levels maximum.

In this work we compared IASI level 2 temperature profile retrievals and operational in-situ soundings in Jyväskylä, Finland. The study includes quality of IASI retrievals in cases of varying vertical temperature distributions and on different altitudes. It is seen that IASI temperature profile retrievals are of good quality when temperature changes evenly but have problems observing temperature inversions. That amongst other reasons leads to IASI retrievals being of the best quality in middle troposphere and the worst near surface.