



Processing and application of NOAA/ATOVS data at the Eötvös Loránd University, Hungary

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At the Department of Meteorology the satellite meteorology related research started in 2002, when a satellite receiving station has been installed. In this study we focus on the vertical sounding of the atmosphere based on the data of Advanced TIROS Operational Vertical Sounder (ATOVS) onboard NOAA polar orbiting satellites. ATOVS consists of the following instruments: High Resolution Infrared Sounder-3 (HIRS/3), and Advanced Microwave Sounding Unit-A (AMSU-A) and -B (AMSU-B). In case of satellite NOAA-18, ATOVS Microwave Humidity Sounder (MHS) is used instead of AMSU-A, and HIRS/3 has been upgraded to HIRS/4 for the mission. One advantage of the new sensors over AMSU-A and HIRS/3 is the higher spatial resolution. In addition, the frequency of some channels in MHS has also been changed. On the base of these MW and IR measurements, vertical profiles of water vapor and temperature, as well as total ozone amount can be retrieved among other parameters related to the vertical structure of the atmosphere.

Besides our own software, the AVHRR and ATOVS Processing Package (AAPP), and the International ATOVS Processing Package (IAPP) are used for processing the raw HRPT data. AAPP is developed and maintained by EUMETSAT, while IAPP is available from the Cooperative Institute for Meteorological Satellite Studies at the University of Wisconsin-Madison. Using these software we are able to create several Level 2 products, such as atmospheric temperature, water vapor profiles, cloud and moisture parameters, etc. One of our aims is to apply the application of the SMAC (Simplified Method for Atmospheric Correction) scheme by using the moisture characteristics, obtained from both satellite imagery and ATOVS data. Retrieved ozone and cloud

products (e.g., cloud statistics) will be used to improve other research studies on the climate investigation.