Comparison of vertically integrated water vapor and ozone for Hungary on the base of different remotely sensed data

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Many techniques have been proposed to estimate atmospheric water vapor content using satellite data, primarily in the form of total column precipitable water, using a variety of electromagnetic spectrum. This data is essential to understand the hydrological cycle, aerosol properties, aerosol-cloud interactions, energy budget, the greenhouse effect and the climate system. The total ozone values are also estimated with several remote sensing methods, and it has also a very important role in the climate system. In this poster, comparisonal analysis of the integrated water vapor and the total ozone values derived for Hungary (located in Central/Eastern Europe) from remotely sensed data using different sensors, and different methods, is presented. Our database includes data measured by the Advanced TIROS Operational Vertical Sounder (ATOVS) onboard the NOAA meteorological satellites and Moderate Resolution Imaging Spectroradiometer (MODIS) onboard the satellites Terra and Aqua. For the evaluation, we used the AVHRR and ATOVS Processing Package (AAPP), and the International ATOVS Processing Package (IAPP) for the ATOVS data. AAPP is developed by EUMETSAT, while IAPP is available from the Cooperative Institute for Meteorological Satellite Studies at the University of Wisconsin-Madison. In case of MODIS data, we used the MODIS Level1 and Level2 softwares developed by the International MODIS/AIRS Processing Package (IMAPP) team. In the comparisonal studies, we also used archive forecast ECMWF data. The integrated water vapor and the total ozone sensitivity of the atmospheric correction algorithm, the so-called SMAC method (Simplified Method for the Atmospheric Correction) is investigated. The research activity is based on the data acquired by the HRPT/MODIS receiving station established in Budapest by the Space Research Group. This kind of satellite receiving station is unique in the region of the Carpathian Basin.