



Self-consistency analysis of MIPAS data using the trajectory hunting technique (THT)

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We present an approach to the validation of MIPAS (Michelson Interferometer for Passive Atmospheric Sounding) L2 products for Ozone and other target species, based on the use of the Trajectory Hunting Technique, aimed at testing the self-consistency of the instrumental dataset. THT launches backward and forward trajectories from the locations of measurements and finds air parcels sampled at least twice within a prescribed match criterion during the course of several days. Isentropic trajectories are calculated using the University of L'Aquila Global Trajectory Model; by using ECMWF meteorological fields, it solves the lagrangian equation of the transport for air parcels allowing to rebuild or foresee their movement and their thermodynamical history. The use of this lagrangian approach may extend significantly the number of data points useful to perform comparison beyond those that are simply co-located in space and time. As a preliminary test we consider a period during March 2003 in the Northern Hemisphere, corresponding also to ESA-ESABC validation activities, and compare the MIPAS data (version 4.61/4.62) against themselves. This procedure, called "self-hunting", provides a test for the precision of the instrument products and can be also used to estimate the quality of the trajectory calculated, thus assessing the noise in the technique and providing estimates to its possible extension to multi-platform comparison for the selected time period.