



Demonstration of a Multi-Mission Large Scale Inter-Comparison of Ozone Products using the GECA Validation Tool

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The validation of satellite data is fundamental to guarantee quality-controlled, reliable and accurate products for use in research and operational services. In addition validation is necessary to detect and correct processing shortcomings and for the evolution of algorithms in response to the needs of the scientific community and industry.

Atmospheric Chemistry products from satellites are widely exploited in atmospheric sciences in particular related to climate, stratospheric ozone, numerical weather forecasting and air quality assessment. In order to assess biases, accuracies and precision, as well as their trends over the missions' lifetime we are interested in the instruments' long term performance as established through validation and inter-comparison.

ESA is currently developing a new set of tools assisting in the validation of satellite data called GECA (Generic Environment for Cal/Val Analysis). GECA allows user-friendly comparisons of satellite observations and in-situ measurements despite their different data formats. The tool will be made available to the user community by mid 2011 as part of the CEOS Cal/Val Portal at <http://calvalportal.ceos.org>. GECA is able to perform cross-comparisons of trace gases and parameters in the ocean and land domains.

The tools' capabilities will be demonstrated by long-term inter-comparison of established ESA satellites and Third Party Missions as well as non-ESA missions for (a) total ozone columns using GOME (ERS-2/ESA), SCIAMACHY (Envisat/ESA), GOME-II (MetOp-A/EUMETSAT) and OMI (Aura/NASA) nadir measurements, as well as (b) ozone profiles from SCIAMACHY, MIPAS (Envisat/ESA), MLS (Aura/NASA) and ACE-FTS (SciSat-1/CSA) limb measurements. The comparison of profiles employs the corresponding averaging kernels.

The analysis will provide complementary information to the ozone algorithm teams and user community aiming to exploit multiple sensors, e.g., in climate studies or operational services.