



## **A new long-term total column water vapour product from ESA's GOME Evolution project: results from comparisons to ground-based and in-situ observations**

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The objective of ESA's GOME Evolution project is to provide the EO user community with improved GOME Level 1 data products, based on updated GOME calibration algorithms and improved in-flight calibration characterization for the complete mission. In addition an improved Level 2 water vapour algorithm was developed and corresponding Level 2 and Level 3 H<sub>2</sub>O data products of the full mission were reprocessed and – together with the Level 1 data - distributed to the EO user community.

The GOME Evolution total column water vapour (TCWV) data products were compared to radiosonde observations from Analysed RadioSoundings Archive (ARSA) and to ground-based data from the Global Navigation Satellite System (GNSS) data provided by NCAR. The quality of the GOME Evolution TCWV data record is assessed in terms of bias, RMSD and stability.

Here we focus on results from the comparisons to ARSA and GNSS and discuss associated results in terms of GCOS requirements and results from the GEWEX water vapor assessment (G-VAP, <http://www.gewex-vap.org>).