



## **A Decade of Global CO<sub>2</sub> Observations from the Satellite Instrument SCIAMACHY**

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CO<sub>2</sub> is the most important anthropogenic greenhouse gas. Its global increasing concentration in the Earth's atmosphere is the main driver for global warming. However, in spite of its importance, there are still large uncertainties on its sources and sinks: What is their global distribution? What is their temporal evolution? How will they behave in a changing climate? Satellite measurements, if accurate and precise enough, have the potential to reduce such surface flux uncertainties.

SCIAMACHY started its operation in 2002 with the launch of ENVISAT. Roughly one decade later ESA declared end of the mission due to the unexpected loss of ENVISAT. SCIAMACHY was the first and during seven years the only satellite instruments which was able to measure the CO<sub>2</sub> mixing ratio (XCO<sub>2</sub>) with large sensitivity also in the boundary layer.

Therefore, SCIAMACHY measurements are essential to create a consistent long term climate data record of XCO<sub>2</sub> measurements. We will present two datasets (WFMD and BESD) each of which covering the full SCIAMACHY time series. Analyses of the datasets in respect to land-atmosphere interactions and long term trends will be part of the presentation.