



GOSAT BESD XCO₂ for MACC-II: Current Status

Jens Heymann, Maximilian Reuter, Michael Hilker, Michael Buchwitz, Oliver Schneising, Heinrich Bovensmann, and John P. Burrows

University of Bremen, Institute of Environmental Physics (IUP), Bremen, Germany (heymann@iup.physik.uni-bremen.de)

Carbon dioxide (CO₂) is the most important anthropogenic greenhouse gas contributing to global warming. Near-surface sensitive measurements from satellite instruments such as SCIAMACHY on-board ENVISAT and TANSO on-board GOSAT can provide important missing global information on the regional sources and sinks of CO₂. However, this requires to meet challenging accuracy requirements.

An algorithm to retrieve the column-averaged dry air mole fraction of CO₂ ("XCO₂") from satellite measurements is the Bremen Optimal Estimation DOAS (BESD) retrieval algorithm. BESD was originally developed to retrieve XCO₂ from SCIAMACHY measurements. In the framework of the MACC-II project, the SCIAMACHY BESD XCO₂ product was delivered for MACC-II for delayed mode production and monitoring by University of Bremen. After the loss of ENVISAT in April 2012, it was decided that University of Bremen shall deliver GOSAT XCO₂ instead of SCIAMACHY XCO₂. To achieve this, the BESD algorithm has been modified. Consistency of long-term XCO₂ products derived from different satellites is important for climate applications and using the same algorithm contributes to minimize inconsistencies. Here, we present results from these activities.