

GOSAT Data Products Generated in Collaborative Effort with NOAA/GMD

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Since its launch in early 2009, the Greenhouse gases Observing SATellite (GOSAT) has been operating for more than six years. By now, the National Institute for Environmental Studies (NIES) GOSAT Project has released almost all of its standard data products to registered researchers and the general public. By using the GOSAT data products, more than 100 research papers have been authored and published by research groups around the globe. The GOSAT Thermal And Near infrared Sensor for carbon Observation - Fourier Transform Spectrometer (TANSO-FTS) shortwave infrared (SWIR) Level 2 column concentrations (XCO_2 and XCH_4) have been validated with Total Carbon Column Observing Network (TCCON) FTS data, NOAA and Department of Energy (DOE) airborne data, Comprehensive Observation Network for Trace gases by Airliner (CONTRAIL) data, and other reference data. The Level 4A carbon dioxide (CO_2) data product (carbon dioxide monthly regional source-sink estimates) has been generated with selected GlobalView data and GOSAT Level 2 XCO_2 data. Also, The Level 4A methane (CH_4) data product (methane monthly regional source-sink estimates) has been produced by using selected NOAA/GMD observational data provided via the World Data Centre for Greenhouse Gases (WDCGG) website and GOSAT Level 2 XCH_4 data.

In this presentation, we will summarize the six-year-long GHG observation by GOSAT and the collaborative effort with the NOAA/GMD groups in data validation and surface flux estimation. We will present the global distributions and variations of the GHG concentrations and the surface flux estimates obtained.

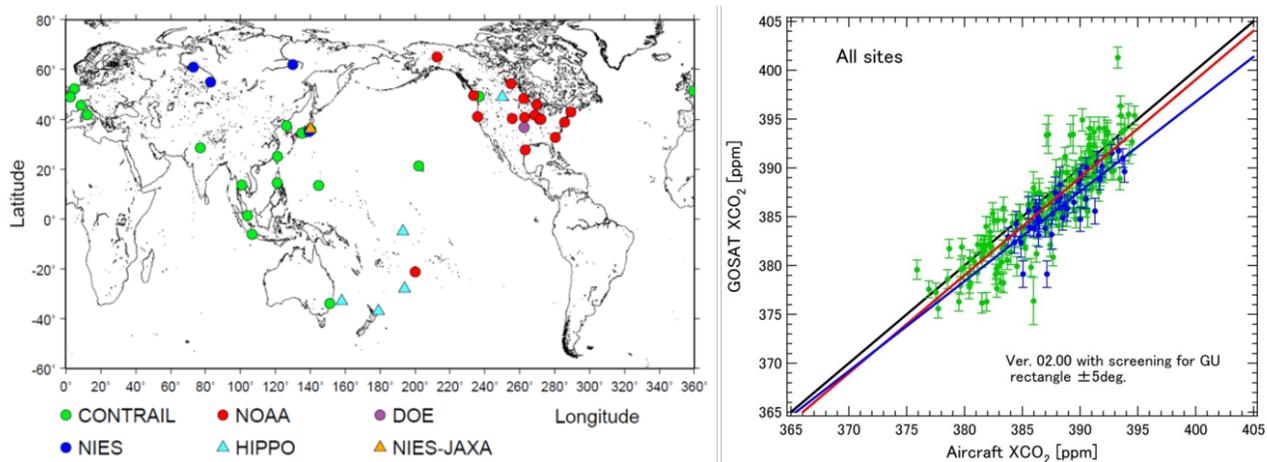


Figure 1. Result of validating GOSAT TANSO-FTS SWIR XCO_2 with various airborne data. The locations of the aircraft measurements are shown in the left panel. The validation results are shown in the right panel (Green: GOSAT data over land, Blue: over the ocean). [Inoue M., et al., *ACP*, 13, 9771–9788, 2013].