GOSAT Observation of Column Abundances of Carbon Dioxide and Methane Over Asia and Oceania from Space

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The Greenhouse gases Observing SATellite "IBUKI" (GOSAT) was launched on January 23, 2009 to monitor CO_2 and CH_4 from space. The GOSAT Project is a joint effort of the Ministry of the Environment (MOE) of Japan, the National Institute for Environmental Studies (NIES), and the Japan Aerospace Exploration Agency (JAXA). The primary purpose of GOSAT is to make time-dependent, global measurements of greenhouse gas (GHG) concentrations. Through improving the accuracy of estimating the GHG emission and absorption (carbon flux) on a subcontinental scale, GOSAT will contribute, during the Protocol's first commitment period (2008-2012), toward the efforts of the environmental administration in making assessments of the forest carbon balance and GHG flux on a regional basis.

A GOSAT sensor Thermal And Near infrared Sensor for carbon Observation -Fourier Transform Spectrometer (TANSO-FTS) detects the signal of reflected solar light on the earth's surface in Short Wavelength Infra-Red (SWIR) spectral regions. TANSO-Cloud and Aerosol Imager (TANSO-CAI) is a CCD radiometer to obtain the information on cloud and aerosols that contaminate the FTS signals.

Carbon dioxide and methane column abundances from SWIR spectra for cloudfree scenes are retrieved in several processing versions. Level 1B products (spectral radiances from TANSO-FTS and four-band images from TANSO-CAI) have been opened to the registered public users from late October 2009. Level 2 products (carbon dioxide and methane column abundances from TANSO-FTS SWIR and cloud flag from TANSO-CAI) have been opened to the registered public users from mid February 2010. Distribution and their features of the Level 2 products over Asia and Oceania regions are presented here. Outline of the retrieval scheme is shown in [1]. GOSAT project details are shown in [2].

Keywords: Satellite; GOSAT; Carbon dioxide; Methane; Processing; Validation

References

- T. Yokota et al., Global concentrations of CO₂ and CH₄ retrieved from GOSAT: First preliminary results. SOLA, 5, 160-163 (2009).
- [2] http://www.gosat.nies.go.jp/