



## **The Statuses of GOSAT and GOSAT-2 Projects at National Institute for Environmental Studies (NIES)**

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Greenhouse Gases Observing Satellite (GOSAT) and its successor, GOSAT-2, are Japanese earth observing satellites for greenhouse gases measurements from space. Both satellite projects are joint efforts among Ministry of the Environment (MOE), Japan Aerospace Exploration Agency (JAXA), and National Institute for Environmental Studies (NIES).

GOSAT was launched in January 2009, already finished its design lifetime (five years), and is currently in its extended operation period. GOSAT-2 will be launched in FY2017. Both satellites have Fourier transform spectrometers for the measurements of columnar abundances of greenhouse and other gases and UV-VIS-NIR-SWIR imagers for cloud and aerosol detection. GOSAT-2 instruments (FTS-2 and CAI-2) will be modified or improved based on the experiences of GOSAT instruments (FTS and CAI). FTS-2 improvements will include the extended spectral coverage for carbon monoxide measurement and the intelligent pointing capability to avoid cloud contamination.

NIES is responsible for generation, validation, and distribution of higher level products of GOSAT and GOSAT-2. The ground data system for GOSAT, GOSAT Data Handling Facility (GOSAT DHF), has been developed and operated for more than six years. GOSAT DHF will be operated until the termination of the operation of GOSAT spacecraft. GOSAT-2 Data Processing System (G2DPS), an independent ground data system for GOSAT-2, is currently being designed.

GOSAT Level 2 products such as column concentration of CO<sub>2</sub> and CH<sub>4</sub> and Level 4 products such as CO<sub>2</sub> and CH<sub>4</sub> monthly fluxes for global 64 regions are freely available from GOSAT DHF as described in GOSAT Data Policy. GOSAT-2 products will be similar to GOSAT products but based on more sophisticated data processing algorithm. MOE, JAXA, and NIES are currently discussing GOSAT-2 Data Policy.

The validation of GOSAT gas column amount products mainly uses ground-based Total Carbon Column Observation Network (TCCON) data. The validation of GOSAT-2 gas column amount products will also use TCCON data. As a part of GOSAT-2 project, a new TCCON site in the southeast Asian region will be installed well before the commencement of GOSAT-2 observation.

The current statuses of NIES GOSAT and GOSAT-2 projects, including GOSAT higher-level product regeneration schedule and GOSAT-2 higher-level product generation plan, will be presented.