

## Recent progress of GOSAT project and preparation for GOSAT-2 at National Institute for Environmental Studies (NIES)

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GOSAT (Greenhouse Gases Observing Satellite) and GOSAT-2 are Japanese Earth observation satellites for greenhouse gas observation from space and jointly promoted by Ministry of the Environment, JAXA (Japan Aerospace Exploration Agency), and NIES (National Institute for Environmental Studies). GOSAT was launched in January 2009 and has been operating for more than nine years. GOSAT-2 will be launched in FY2018. NIES is responsible for generation, archiving, validation, and distribution of higher level standard and research products of GOSAT and GOSAT-2.

GOSAT's standard products such as FTS SWIR level 2 CO<sub>2</sub> / CH<sub>4</sub> / H<sub>2</sub>O column amount products (V02.72, April 2009 - present), FTS TIR level 2 CO<sub>2</sub> / CH<sub>4</sub> profile products (V01.20, April 2009 - May 2014), and level 4A CO<sub>2</sub> / CH<sub>4</sub> flux products (CO<sub>2</sub>: V02.05, June 2009 - October 2015, CH<sub>4</sub>: V01.03, June 2009 - September 2013) are freely available from GDAS (GOSAT Data Archive Service). FTS SWIR level 2 standard products are validated using data from TCCON (Total Carbon Column Observing Network).

GOSAT-2's standard and research products similar to those of GOSAT will be generated by G2DPS (GOSAT-2 Data Processing System) which is currently being developed and available from a dedicate website, GOSAT-2 Product Archive. For validation of GOSAT-2 products, several new ground-based measurement stations, such as a TCCON (Total Carbon Column Observing Network) station in Philippines, a SIF (Solar Induced Fluorescence) station in Shiga, and urban air in-situ measurement and sampling stations in Tokyo, are established.

GOSAT RAs (Research Announcements) were issued eleven times in 2008 - 2017 to promote scientific researches using GOSAT data. GOSAT RA PIs (Principal Investigators) have several privileges such as access to GOSAT standard products earlier than general users, access to research products and other technical information, and a right to submit FTS observation requests. In total, more than 120 joint research contracts with scientists from more than twenty countries were concluded under GOSAT RA framework. GOSAT-2 RA is now being prepared and will be issued before GOSAT-2 launch.

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