

Current Status of GOSAT and GOSAT-2 Projects

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GOSAT (Greenhouse gases Observing Satellite) is the world's first satellite dedicated to greenhouse gas monitoring from space, and it was successfully launched on January 23, 2009. Although it has finished its nominal operation period (5 years) in January 2014 and is currently in the extended operation period, it has still been monitoring the Earth's atmosphere continuously. The data have been widely used not only for source/sink inversion of carbon dioxide and methane in global scale but also for assessing regional emission sources of the gases. The successor, GOSAT-2, will be launched in FY2017. Most of the design reviews for spacecraft, instruments, and ground data processing systems have been finished. The main sensor of GOSAT-2, Thermal And Near- infrared Sensor for carbon Observation – Fourier Transform Spectrometer (TANSO-FTS)-2 is designed based on CrIS (Cross-track Infrared Sounder) onboard NASA's Suomi NPP for gas sounding. It has a widened band in a short wavelength infrared region to detect carbon monoxide (CO). Intelligent pointing system, which is a dynamical system for targeting at selected clear sky scenes has been newly developed. It is expected that the detectability of clear sky scenes become larger twice or more compared with the current system. "GOSAT Air Pollution Watch" is being designed for rapid processing / distribution of GOSAT TANSO-Cloud and Aerosol Imager (TANSO-CAI) data for monitoring of air pollution caused mainly by particulate matters such as PM2.5 and Black Carbon (BC). Its testbed is already developed and basic performances have been demonstrated using TANSO-CAI data. Data processing algorithms in GOSAT Air Pollution Watch are based on but modified from GOSAT/GOSAT-2 algorithms for aerosol product generation to realize faster and timely data processing. Data from GOSAT Air Pollution Watch will be used to inform the current distribution of the polluted air. In addition, they will contribute to short term prediction of air pollution using atmospheric transport models. NIES would like to issue "Call for new GOSAT Air Pollution Watch partners" to extend the coverage of the testbed to Southeastern and South Asian countries. These activities may have close relationships to JCM (Joint Crediting Mechanism) activities between Japan and Asian countries.