

Greenhouse gas observation by GOSAT during its five-year nominal operation period

YOKOTA, Tatsuya^{1*} ; KIKUCHI, Nobuhiro¹ ; YOSHIDA, Yukio¹ ; BRIL, Andrey¹ ; OSHCHEPKOV, Sergey¹ ; INOUE, Makoto¹ ; MORINO, Isamu¹ ; UCHINO, Osamu¹ ; KIM, Heon-sook¹ ; TAKAGI, Hiroshi¹ ; SAITO, Makoto¹ ; MAKSYUTOV, Shamil¹ ; YUKI, Akira¹ ; KANEKON, Sayaka¹ ; KAWAZOE, Fumie¹ ; AJIRO, Masataka¹

¹National Institute for Environmental Studies

The Greenhouse gases Observing SATellite (GOSAT) recently completed its planned nominal operation period of five years on 23 January 2014, and it now entered the phase of extended operation. During the past five years, almost all of the GOSAT standard data products were opened to general users. These data products are publicly available and can be obtained through the GOSAT User Interface Gateway (GUIG, <http://www.data.gosat.nies.go.jp/>). From the spectral data that GOSAT collected, the concentrations of major greenhouse gases (GHGs), namely carbon dioxide (CO₂) and methane (CH₄), were retrieved, and their precisions are now at the level of much less than 1%. These concentration data are used to estimate the monthly surface fluxes of CO₂ and CH₄ on sub-continental and ocean-basin scales. The data are also utilized to monitor GHGs' temporal and spatial changes. Various reports on the results of GOSAT data analysis have appeared in peer-reviewed journals so far. The topics reported include the detection of large GHG point sources and anomalies in the inter-annual trend of CO₂ uptake by terrestrial biosphere.

In this presentation, we will summarize the five-year-long GHG observation by GOSAT and present the global distributions of the GHG concentrations and the surface flux estimates. Also, we will touch on the current status of researches conducted within the framework of the GOSAT Research Announcement.

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