Current Status of GOSAT and GOSAT-2 Products and Their Contribution to Climate Change Mitigation Policies

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GOSAT launched in 2009 and GOSAT-2 launched in 2018 have been providing satellite-based carbon dioxide and methane data globally for more than 15 years. During this period, Level 1, Level 2, and Level 4 products generated from GOSAT and GOSAT-2 observations have been frequently evaluated and updated. Level 1 spectral radiance products are evaluated using data from onboard calibration sources, vicarious calibration experiments at dry lakes, and other satellite instruments. Level 2 column concentration products are validated mostly using data from the networks of ground-based Fourier transform spectrometers, and partially data from ship and airborne measurements. Level 4A flux products are evaluated by comparisons between L4B concentration products and ground-based or airborne in-situ measurement data. The latest status of GOSAT and GOSAT-2 products and their version-up histories/schedules will be summarized in this presentation.

GOSAT and GOSAT-2 products are now being used in the direct comparisons between fluxes from GOSAT-based inversions and bottom-up fluxes from inventories and models, as well as the comparisons between GOSAT concentrations and predicted concentrations using gridded inventories and atmospheric transport models. These applications are the important contribution of GOSAT Series to climate change mitigation policies, or more specifically, to open and transparent verifications of national GHG emission inventories under the Paris Agreement. Several examples of such applications will be shown in this presentation.

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