

GOSAT collaboration activities with OCO-2 for calibration and validation

*Kei Shiomi¹, Akihiko Kuze¹, Hiroshi Suto¹, Nobuhiro Kikuchi¹, Mariko HASHIMOTO¹, Fumie KATAOKA²

1. Japan Aerospace Exploration Agency, 2. RESTEC

JAXA's GOSAT has been operating since 2009 to monitor the greenhouse gases carbon dioxide (CO₂) and methane (CH₄) by a Fourier Transform Spectrometer (TANSO-FTS). The column-average dry air mole fractions of CO₂ (XCO₂), and CH₄ (XCH₄) are measured from space using surface-reflected sunlight at near-IR wavelengths. NASA's OCO-2 has been operating since 2014, carries a grating spectrometer to make precise XCO₂ observations with a few-kilometer resolution. The other opportunities are target observations at particular calibration and validation sites with deploying ground-based measurements. JAXA has been operating a ground-based FTS with high spectral resolution at Saga University as a member of the Total Carbon Column Observing Network (TCCON) since July 2011. XCO₂ and XCH₄ are estimated from direct sunlight spectra with high accuracy. TCCON dataset is utilized to make validation for the satellite observations such as GOSAT and OCO-2 with simultaneous measurements. GOSAT team also conducts the calibration and validation campaign at Railroad Valley, Nevada US desert every summer season collaborated with OCO-2 team. We also measure XCO₂ and XCH₄ by a portable FTS on the field. We will present our activities.

Keywords: CO₂, GOSAT, Calibration, Validation, OCO-2