US-Japan collaboration toward accurate flux estimation of greenhouse gases from space: Intercomparison between US OCO and Japanese GOSAT

*Akihiko Kuze[1], David Crisp[2], Carol Bruegge[2], Laura Iraci[3], Florian Schwandner[3], Fumie Kataoka[4], Kei Shiomi[1], Nobuhiro Kikuchi[1], Hiroshi Suto[1]

1. Japan Aerospace Exploration Agency, 2. JPL CALTECH, 3. NASA AMES, 4. RESTEC

Since the beginning of OCO and GOSAT programs, US and Japan has been collaborating to demonstrate the effectiveness of greenhouse gases monitoring from space. Before OCO and GOSAT launch, we exchanged our radiometric standards to calibrate to calibrate OCO and GOSAT integrating spheres at the JPL and JAXA calibration laboratories in 2008. Since GOSAT launch in 2009, every summer near summer solstice, both teams have worked together in vicarious calibration campaigns at the Railroad Valley (RRV) playa. This field campaign has been improved by adding validation such as coincident spiral flight by NASA Alpha Jet and portable ground-based FTS. After OCO-2 launch, radiance spectra measured and CO_2 column amount retrieved from two independent measurements can now be compared. These data agree well within measurement uncertainties for both land and ocean. Our mission is to estimate anthropogenic emissions from different source sectors using satellite data. We will present our challenges how to validation global and local flux.

Keywords: GOSAT, OCO, intercomparison