Demonstration of greenhouse-gases flux estimation from space using an air-borne imaging spectrometer

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The Greenhouse gases Observing SATellite (GOSAT) is the first satellite program designed to monitor column averaged density of carbon dioxide (CO_2) and methane (CH_4) from space accurately and precisely. Regional flux estimation from various emission sources using GOSAT data has large uncertainty because the GOSAT footprint of 10.5km is large and number of sampling points per region is limited. The imaging spectrometer with spectral resolution of 2 angstrom and spatial resolution of 1km can enhance the column averaged density and detect plume orientation. We demonstrated greenhouse-gases flux estimation from space using air-borne imaging spectrometer suites, which consist of O_2A band, CH_4 and CO_2 band at 1.6 μm and UV-visible spectrometers.

Keywords: Greenhouse gases, GOSAT, Imaging Spectrometer