
 [JJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CG Complex & General

[A-CG44]Promotion of Application and Utilization of Aircrafts for Earth sciences

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Under the current situation of rapid global environmental change, such as global warming, that affects the human societal activities and societal basis such as water and food, both the observational study of the Earth become more important as well as the studies on the numerical models. In particular, aircraft observation is expected to be better than the satellite and/or ground based observation when the immediate or direct observation is needed. For example, in situ measurements of the microscopic values such as concentration of greenhouse effect gaseous and size distribution and chemical components of aerosols and clouds are only available by aircraft observation. Aircraft observation is also useful for detailed remote sensing of typhoons, ecosystem, atmosphere, ocean, geodesy, volcanology, seismology. Activities of the aircraft observation has not been weighted in Japan comparing with other countries. From the viewpoint of using aircraft for research purposes, the same situation also faces the aerospace field. Also, in the field of atmospheric sciences, big research projects using aircraft are in progress and a new field of aircraft observation is opening up. Based on these facts, we propose this session as a forum for discussing ideas from various fields on further progress of aircraft observation.

[ACG44-P05]Demonstration of greenhouse-gases flux estimation from space using an air-borne imaging spectrometer

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Keywords:Greenhouse gases, GOSAT, Imaging Spectrometer

The Greenhouse gases Observing SATellite (GOSAT) is the first satellite program designed to monitor column averaged density of carbon dioxide (CO₂) and methane (CH₄) 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 O₂A band, CH₄ and CO₂ band at 1.6 μm and UV-visible spectrometers.