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[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.

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## [ACG44-P06]On the impact of aircraft data on global numerical weather prediction

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The numerical weather prediction (NWP) targeting the global atmosphere provides basic information on day-to-day weather forecasts and disaster prevention information, and it is also the basic technology for climate analysis and prediction. Since the prediction precision largely depends on the accuracy of the initial state, the data assimilation method such as the 4-dimensional variational method is used to generate it, and several million observation data are assimilated per day. Among such enormous data, aircraft observation data (temperature, wind, (relative humidity)) is one of the main observations. In order to improve the accuracy of the initial state, it is important to evaluate the influence of individual observation data on forecast accuracy. In this presentation, we evaluate the contribution of each observation dataset to forecast precision using the adjoint-based observation impact estimation method, which uses adjoint codes of the NWP model and the data assimilation system. We would like to think about future tasks such as bias correction method with aircraft observation data.