

Promotion of Scientific Research on Atmosphere and Climate System Using Aircrafts: Proposal of MSJ to SCJ

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Aircraft observation systems along with artificial satellite and ground-based measurement systems are one of the most important tools for earth observations. Rapidly on-going climate change is already influencing our social and economic activities and water and food resources, which are bases for the civilization. Therefore it is important to understand the current status of the earth system and make reliable predictions of its future to avoid serious risks caused by the climate change.

The Working Group for Earth Observation Promotion, Subdivision on Research Planning and Evaluation, the Council for Science and Technology of the MEXT has summarized critical scientific issues for understanding of the global change in its annual guidelines in 2013. These include circulation and budget of the greenhouse gases, cloud and precipitation processes, changes in tropospheric species, climate change in polar regions, and changes in water circulation. The necessity of establishing aircraft observation system for conducting well organized long-term research of the global change is also mentioned. In-situ measurements by the state-of-the-art instruments on board aircraft provide accurate data of key parameters with high spatial resolutions, which lead to improved understanding of the critical processes.

The needs for research aircrafts have long been discussed among the Japanese research communities of atmospheric science and earth science. The Meteorological Society of Japan recently proposed a research project entitled "Promotion of Scientific Research on Atmosphere and Climate System Using Aircraft" as a candidate for Master Plan of Large Research Project announced by the Japan Council of Science. This presentation gives a brief overview of the proposal. We plan to further polish up the research plans in the proposal and enrich the proposal by including possible subjects from other fields of earth science.

Keywords: Atmospheric Science, Climate System, Research Aircrafts, Meteorological Society of Japan, Science Council of Japan, Master Plan of Large Research Projects