

## ISAS Balloon-Drop Microgravity Experiment System

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### Abstract

Scientific balloon flights can provide excellent opportunities for microgravity experiments. A balloon-drop microgravity experiment system, which is aiming for the experiment duration longer than 30 sec, is currently under development in ISAS/JAXA. The first flight of the microgravity experiment system was successfully performed in spring 2006. In this paper, the system configuration and the operation sequence of this system are reviewed. In addition to that, preliminary feasibility of a tethered balloon system for simplified short-term microgravity experiments is also studied. By using the tethered balloon, in exchange for the relatively short experiment duration, the operation cost for an experiment becomes drastically lower than that of a normal scientific balloon flight. The experiment system by using the scientific balloon is very promising for the microgravity experiments in terms of the reasonable cost and the experiment duration.