（解説）

次世代型無人宇宙実験システム（USERS）
―新しい微小重力実験インフラ―

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Unmanned Space Experiment Recovery System (USERS)
—Innovative Infrastructure for the Microgravity Experiments—

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Abstract

The recovery capsule of the USERS Spacecraft called Recovery Vehicle (REV) was splashed down at the open sea east of the Ogasawara Islands and successfully recovered on May 30, 2003 after approximately 8.5 months of on-orbit operation under good microgravity condition. This success established the innovative space experiment infrastructure, and opened the door for the communities which require better micro-gravity environment with less constraints and cost. The USERS spacecraft consist of the Service Module (SEM) and the Re-entry Module (REM) in which includes the REV. It was launched from the Tanegashima Space Center on September 10, 2002, and performed the Super-conductive Bulk Material Processing Experiment (SMAP). This paper will first describe the project outline and clarifies the requirements for the ideal unmanned space experiment infrastructure with consideration of the advantages of the unmanned space system. The on-orbit experiment operation of the SMAP will be introduced for the clarification of the image of this infrastructure utilization. The conditions and interfaces for the potential users such as onboard environments, interfaces with bus system, normal experiment operation sequence, etc. will be also explained using the SMAP as an example. USERS Project has been promoted by the Ministry of Economy, Trade and Industry (METI) and the New Energy and Industrial Technology Development Organization (NEDO), and developed by the Institute for Unmanned Space Experiment Free Flyer (USEF), to establish an unmanned on-orbit experiment infrastructure.