

## Initial result of Space Environment Data Acquisition Equipment (SEDA-AP) on the "Kibo" Exposed Facility

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To support future space activities, it is very important to acquire space environmental data related to space radiation degradation of space parts and materials and spacecraft anomalies. Such data are useful for spacecraft design and manned space activity.

On several satellite of the Japan Aerospace Exploration Agency (JAXA) since the Engineering Test Satellite-V (ETS-V), Technical Data Acquisition Equipment (TEDA) and Space Environment Data Acquisition Equipment (SEDA) have been installed for obtaining the data described above.

SEDA-Attached Payload (AP) was mounted on Japanese experimental module, "Kibo", at International Space Station (ISS) to take continuous measurements of the 400 km altitude space station's trajectory for a period of around 3 years. SEDA-AP comprises common bus equipment supporting launch, RMS handling, the power/communication interface with JEM-EF, an extendible mast that extends the neutron monitor sensor 1 m separate from the bus structure, and equipment that measures space environment data. SEDA-AP has been fitted with 8 kinds of instruments. It will measure neutrons, heavy ions, plasma, high-energy electrons and protons, atomic oxygen, space debris and dusts, etc. Furthermore, by exposing electronic devices and materials directory to the space environment, it will examine how they are affected by the environment. Figure shows the "Kibo" Exposed Facility (EF) and SEDA-AP.

SEDA-AP was lanced on July 16 in 2009, and attached to EF of "Kibo" on July 25 using the robot arm of "Kibo". Initial checkout was started on August 4 and successfully ended on September 17.

This paper will report the mission objectives, instrumentation, and current status of SEDA-AP.

