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Development of Radiation Monitor for Space weather measuring Electrons (RMS-e) for Himawari-10

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Radiation Monitor for Space weather measuring Electrons (RMS-e) is an electron detector that will be installed on the next geostationary meteorological satellite Himawari-10 to provide continuous observations of high-energy electrons in the geostationary satellite orbit over Japan. Current space weather forecasting in Japan is based on observations from the GOES satellites, which have different conditions from the space environment around the geostationary satellite orbits over Japan. RMS-e will provide continuous observations of energetic electrons in geostationary satellite orbits over Japan, which are critical for improving the accuracy of space weather forecasts in Japan.

RMS-e consists of two sets of layered solid-state detectors (SSDs) made of silicon semiconductors called RMS-e lo and RMS-e hi. RMS-e lo and RMS-e hi are designed to measure electrons with energies in the range of 50 keV to 1300 keV and 0.8 to 5 MeV, respectively. The energy resolution of RMS-e lo is 26 % for 50 keV electrons and that of RMS-e hi is than 15.8 % for 1 MeV electrons based on evaluation tests.

Currently, we are completing the development of the engineering model (EM) of RMS-e and preparing for the development of the proto flight model (PFM) of RMS-e.

In this presentation, we report the current status of the instrument development and test results of RMS-e.