Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)

PCG14-P08 Room:Convention Hall Time:May 23 17:15-18:30

Numerical model and calibration experiment on the sensor characteristics of MIA/MMO

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The Mercury Ion Analyzer (MIA) is one of the plasma instruments on board the Mercury Magnetospheric Orbitor (MMO). and measures the three dimensional velocity distribution of low-energy ions (5 eV to 30 keV) by using a top-hat electrostatic analyzer for half a spin period (2 sec). By combining both the mechanical and electrostatic sensitivity controls, MIA has a wide dynamic range of count rates for proton flux expected around Mercury, in the the solar wind between 0.3 and 0.5 AU from the sun and in the plasma sheet of Mercury's magnetopshere. In this presentation, we discuss the sensor characteristics from both model calculations and calibration experiment of the flight model.

Keywords: MMO, Mercury, solar wind