

## Temperature Test Results of Fluxgate Magnetometer Sensor for Bepi-MMO

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The Mercury spacecraft mission, Bepi-Colombo Mercury Magnetospheric Orbiter (MMO), is one of the cooperative projects between Japan and Europe. A ring-core-type fluxgate magnetometer made in Japan will be installed on the MMO for observing the magnetic field of Mercury and Mercury's magnetosphere. Interplanetary magnetic-field observation is very important for clarifying the interaction between solar wind and planetary magnetosphere structures. Although the fluxgate magnetometer has been used for many magnetic-field observations, there is a problem of temperature dependence. The temperature change of the sensor is assumed to range from -100 to +175 deg.C during the research mission. However, no existing nonmagnetic temperature test apparatus can cover this wide temperature range. Thus, we have developed a wide-temperature-range testing system and tested two kinds of sensor, one with a bobbin made of Inconel625 and the other with a bobbin made of ceramic. We obtained data on sensor sensitivity, offset drift, and noise level in the range from -160 to +200 deg.C using this testing system. In this paper, we will report the temperature testing system and results of sensor characteristics for the Bepi-Colombo MMO fluxgate magnetometer.