Solar Wind Measurements from the Planetary Magnetometer Onboard the BepiColombo Spacecraft

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BepiColombo is en-route to Mercury. The boom carrying the planetary magnetometers (MPO-MAG instrument) was deployed in space on 25th of October in 2018. After the deployment, the magnetic disturbances arising from the spacecraft have been greatly decreased. Since the deployment, the fluxgate sensors have been monitoring the magnetic field continuously except for the solar electric propulsion phase. Extensive calibration and data processing activities have since enabled us to greatly decrease spacecraft-generated disturbances in the magnetic field observations; these activities constitute a key step towards making the data suitable for scientific analysis. We present a few cases of identified magnetic disturbances, discuss the challenges they pose, and compare methods to clean the data. We also compare MPO-MAG measurements to observations by the Advanced Composition Explorer (ACE) solar wind monitor, thereby highlighting the small-scale nature and rapid evolution of interplanetary magnetic field (IMF) variations. We conclude with an overview of the scientific goals of the instrument team for the in-orbit mission phase.