



MESSENGER measurements of Mercury's magnetic field during the first flyby

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On 14 January 2008 the MESSENGER spacecraft will encounter Mercury for the first time. Depending upon the solar wind conditions, this initial flyby will return Magnetometer measurements of Mercury's magnetic field over a time interval lasting between ~ 30 and 60 min. Closest approach for MESSENGER is targeted for an altitude of 200 km as compared with the 707 km and 327 km attained by Mariner 10 on 29 March 1974 and 16 March 1975, respectively. Furthermore, the differences in the MESSENGER and Mariner 10 encounter trajectories, with respect both to magnetospheric and body-fixed coordinates are highly complementary and expected to lead to significant improvements in our knowledge of Mercury's magnetic field. We present an overview of the MESSENGER magnetic field observations, an initial subtraction of the magnetic fields attributable to magnetospheric current systems from the total measured magnetic field, and an improved model of Mercury's intrinsic magnetic field. We also discuss the expected advances afforded by the two additional MESSENGER flybys, which occur in October 2008 and September 2009, as well as the orbital phase that will begin in March 2011.