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Poster
In-situ observations of the interplanetary magnetic field (IMF) at Lagrange 1 (L1) are vital for space weather forecasting at the Space Weather Prediction Center (SWPC), solar wind research and driving magnetic field models. The upcoming SWFO-L1 mission, which will rideshare with the Interstellar Mapping And Probe (IMAP), offers an unprecedented opportunity for coordinated efforts in calibrating / validating data products during commissioning and for research collaborations with legacy missions (DSCOVR, ACE and Wind). SWFO-1 has two boom-mounted vector magnetometers (64 Hz resolution) that will help bridge the gap in continuous, good quality measurements of the IMF at L1. These magnetometers will be calibrated for zero-level offsets using a combination of monthly active rotational maneuvers and the passive Davis-Smith method which leverages Alfvenic rotations of the magnetic field. The low nano-Tesla magnetic field at L1 presents challenges in zero-level offset determination, and therefore we plan to additionally assess the accuracy of the magnetometer measurements using inter-satellite comparisons. Due to the complex variability of the structure of the IMF at L1, studies suggest that these comparisons are most valid when spacecraft are within 26 Re radial distance of each other. Since SWFO-L1 and IMAP will be in close proximity during cruise and their initial halo orbits at L1, there will be unprecedented opportunities for close proximity cross-calibrations. We will discuss plans for coordinated data product validation during commissioning, including calibrations, bias trending and thermal stability. We will also discuss the plans for public scientific datasets, including propagated solar wind parameters, and ideas for collaborative research with the L1 constellation.

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