

Session 2

SO/PHI-HRT SDO/HMI Cross-Calibration and the True Solar Magnetic Flux

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Onboard the Solar Orbiter spacecraft is the Polarimetric and Helioseismic Imager (SO/PHI), which has two telescopes, a high resolution telescope (HRT) and the full disk telescope (FDT). The instrument is designed to infer the photospheric magnetic field through differential imaging of the polarised light emitted from the Sun. It is the first magnetograph to move out of the Sun-Earth Line, providing excellent stereoscopic opportunities with other ground and space based instruments. Of particular interest is the correlation between SO/PHI and SDO/HMI, since they probe the same magnetically sensitive line of Fe I: 6173Å. Here a cross correlation between HMI and HRT is presented using conjunction data from the Cruise and Nominal Mission Phase(s).

Secondly, a possible contributor to the Open Flux problem is the underestimation of polar magnetic flux. As a pre-study to investigating this with stereoscopic data from PHI, simulations were carried out to understand the underlying physics when viewing the magnetic field at highly inclined viewing angles ($\mu = \cos(\Theta)$). MuRAM simulations together with SPINOR inversions were used to generate Stokes Profiles over a range of μ . Results from these simulations into the μ dependence of the magnetic flux will be shown.