



## **Observational challenges imposed on PSP/WISPR, the white-light heliospheric imager onboard the fastest man-made moving platform**

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On August 12, 2018 the NASA Parker Solar Probe (PSP) Mission was launched into orbit about the Sun. For the first time ever, a man-made object will explore, in situ, the hot solar corona at heliocentric distances well below Mercury's orbit. The PSP S/C carries several in-situ instruments and one remote sensing instrument suite: the Wide-field Imager for Solar Probe (WISPR). WISPR is a heliospheric imager placed on the ram side of the S/C, which consists of two telescopes akin to the SECCHI heliospheric imagers onboard the STEREO mission. Their field of view ranges from 13.5 to 53.5 deg elongation for the inner telescope, and from 50 to 108 deg for the outer one. The science data acquisition is carried out while the S/C is below 0.25 AU (i.e. during the solar encounters around perihelion). The orbital path of PSP throughout this never-visited region introduces a myriad of observational challenges. For instance, the high eccentricity and small perihelion of the orbit (which translates into a very high speed of the S/C during the data science acquisition), makes the FOV of the WISPR telescopes to comprise different solar distances in short time periods and hence a continuous change of the background scenery. This precludes the use of conventional image processing techniques employed on imagers at about 1 AU aimed at revealing the coronal signal of interest for Space Weather purposes (e.g., the use of a straight running- or base-difference approach to remove the background brightness and hence reveal the K-coronal dynamic events). Moreover, WISPR observes both the K-coronal pseudo-static features and transients while moving across them, its interpretation becoming tricky without proper modeling. In this presentation, we present these and other challenges as we learned from them during the first solar encounter lived so far by the PSP mission. We gratefully acknowledge support from the NASA Parker Solar Probe project office.