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Oral
(Invited Talk)
The long history of spacecraft solar wind plasma and field observations near Earth have provided and continue to provide valuable information on the long-term trends in the solar wind on a variety of time scales with the largest scales spanning many solar cycles. Once IMAP, SWFO-L1, and PUNCH are launched in 2025, the heliospheric community will have a wealth of information spanning from the inner heliosphere with observations at Parker Solar Probe, Solar Orbiter, and additional 1 au observations from ACE, WIND, and STEREO and outer heliospheric observations at New Horizons. Given all these measurements at so many locations, many unique studies are enabled particularly during spacecraft alignments when assets can be combined to do more detailed studies than ever before. PUNCH will observe the development of the solar wind in the corona and evolution of the solar wind in the inner heliosphere with the tracking and polarization measurements from the coronagraph and heliospheric imagers. Simultaneously, Solar Probe and Solar Orbiter combined provide plasma, field, and composition in situ observations near the Sun. IMAP and other 1 au spacecraft also provide composition information on the solar source regions, and a measure of the solar wind plasma and field properties that reflect the combined impact of the source plasma properties in the corona and the amount of evolution that occurred en route observed at 1 au. In this presentation, we discuss the kinds of studies that are enabled with these upcoming remote and in situ observations.
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