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Poster
The All-Sky Heliospheric Imager (ASHI) instrument's unique optical system views a hemisphere of sky starting a few degrees from the Sun out to 180 degrees from this. ASHI is a simple, light weight (~6kg), and relatively inexpensive spacecraft instrument. This has the principal objective of providing a minute-by-minute and day-by-day near real time acquisition of precision Thomson-scattering photometric maps of the inner heliosphere. The instrument is designed to 3-D reconstruct the heliospheric solar wind that extends outward from the Sun and passes 1.0 AU. ASHI was tested in summer, 2022 on a NASA-sponsored topside balloon flight; this presentation highlights the images taken and our data reduction from this instrument’s successful overnight flight. This data reduction includes stellar identification and instrument pointing, and subsequently, the removal of atmospheric glows, starlight, and zodiacal light. This process produces hemispheric images to a brightness level a factor of 10 lower than heliospheric electron Thomson-scattering about 45 degrees from the Sun-Earth line and beyond. As has never before been possible, the ASHI balloon analysis provides a characterization of the imaged background heliospheric solar wind structures from a few degrees to over 20 degrees in size as they pass the Earth.

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