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Oral
The recent deep minimum of solar activity, between solar cycles 24 and 25, renews the opportunity to study the Sun under the simplest conditions. The international Whole Heliosphere and Planetary Interactions (WHPI) initiative aims at this purpose. In this work, we use the differential emission measure tomography (DEMT) technique, as well as visible light (VL) tomography, to characterize the three-dimensional (3D) structure of two WHPI campaign periods. Specifically, we select for study the July 2019 total solar eclipse Carrington rotation (CR)-2019, and the Parker Solar Probe and STEREO-A closest approach CR-2223. For DEMT, we use EUV images provided by the SDO/AIA instrument to carry out 3D tomographic reconstruction of the coronal electron density and temperature in heliocentric heights r<1.25 Rsun. For VL tomography, we use polarized brightness (pB) images provided by the SoHO/LASCO-C2 instrument to carry out 3D tomographic reconstruction of the electron density in the range of heliocentric heights 2.5-6.0 Rsun. Using the magnetic field provided by the 3D MHD Alfven Wave Solar Model (AWSoM), we study the tomographic results traced along the magnetic field lines of the model. We select different coronal magnetic structures to thermodynamically characterize CR-2219 and CR-2223, and compare the tomographic results with the AWSoM simulations.
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