

Analysis of interplanetary scintillation observations with the new digital back-end of MEXART

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Abstract:

The interplanetary scintillation phenomenon is based on the scattering that radio waves experience when traveling in a medium with irregularities in its electronic density, such as the solar wind. Radio telescopes operating at metric wavelengths, such as the Mexican Array Radio Telescope (MEXART), are capable of detecting the scintillation as oscillatory changes in the apparent intensity of the emission from a radio source. The new digital back-end of the MEXART has allowed it to obtain observation capabilities of interplanetary scintillation sources unprecedented in the history of this radio telescope. In this contribution we present a survey on the first observations of interplanetary scintillation sources detected by the new digital system. We will show estimates of solar wind speed calculations using a power spectrum model, scintillation index determination, and preliminary results of the evolution of solar wind properties using combined interplanetary scintillation and in-situ observations.

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References:

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