



Temporal evolution and spatial variation of the solar wind in the inner heliosphere from multi-spacecraft observations

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We study the temporal evolution and spatial variation of the solar wind properties on different scales between Venus and Mars orbits in the ecliptic. The twin STEREO spacecraft have reached the 180-degree longitudinal spacecraft separation, which allows a complete time scan of the solar wind evolution. We show how the different solar wind parameters (proton bulk velocity, electron core density, etc) evolve on different time scales from 0.1 day up to several Carrington rotations using observations from STEREO, Venus Express, Mars Express and other spacecraft. These results support predictions of the solar wind parameters for different heliospheric positions and help to derive the validity range of these predictions. Occasionally, we find deviations from the nominal solar wind evolution, so we use imaging data and modeling results to explain these fast evolution events.