

VARIATIONS OF THE SOLAR WIND HELIUM ABUNDANCE: BMSW OBSERVATIONS

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Helium plays a significant role in the structure and dynamics of the solar corona and solar wind. It is an important parameter that is often used for the determination of an origin of solar wind structures, such as the streamers extending into the heliospheric current sheet. Abrupt changes of the relative He abundance in the solar wind are thus usually attributed to encounters with boundaries dividing solar wind streams from different sources in the solar corona. The paper presents a systematic study of fast variations of the He abundance that supports the idea that a majority of these variations on short timescales (3-30 s) are generated by in-transit turbulence that is probably driven by the speed difference between the ion species. This turbulence contributes to the solar wind heating and leads to a correlation of the He abundance with the proton temperature.