Identification of the Coronal Sources of the Fast Solar Wind

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abstract

The present spectroscopic study of the ultraviolet coronal emission in a polar hole, detected on April 6–9, 1996 with the Ultraviolet Coronagraph Spectrometer aboard the SOHO spacecraft, identifies the interplume lanes and background coronal hole regions as the channels where the fast solar wind is preferentially accelerated. In interplume lanes, at heliocentric distance 1.7, the corona expands at a rate between 105 and 150 km s\(^{-1}\), that is, much faster than in plumes where the outflow velocity is between 0 and 65 km s\(^{-1}\). The wind velocity is inferred from \(\lambda\) lines, within a range of values, whose lower and upper limit correspond to anisotropic and isotropic velocity distribution,