

The relationship between high-speed solar wind streams and ozone loss in the mesosphere

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The solar wind is a stream of plasma released from the upper atmosphere of the Sun. The high-speed solar wind streams are thought to originate from coronal holes, which are funnel-like regions of open field lines in the Sun's magnetic field. The physical characteristics of high-speed solar wind streams are closely related to variations in space environments including the Earth's magnetosphere and the upper and lower atmospheres (e.g., Lei et al., 2008; Lee et al., 2013). Although its effects are not as strong as solar energetic particle events caused by flare and CME, the high-speed solar wind stream more frequently occurs and may affect the atmospheric chemistry. In this study, we analyzed the atmospheric density data for HO₂ and O₃ obtained by MLS onboard the AURA satellite according to solar wind speed measured by ACE satellite from 2005 to 2011 in order to study on the atmospheric effects of the high-speed solar wind streams. We report a preliminary result of this analysis.