



## Overview of the 10 September 2017 Solar Events Observed at Mars

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The deep Solar Cycle (SC) 23 minimum and the modestly active SC 24 maximum have produced generally weaker solar events and heliospheric conditions. Surprisingly, on September 10, 2017 late in the declining phase of SC 24, some of the strongest solar activity erupted from active region (AR) 12673, including an X8.2-class solar flare and a fast coronal mass ejection (CME). Associated with this activity are the solar energetic particles (SEPs), which may be accelerated locally at the flare site or by the moving shock front propagating ahead of the CME. Although AR 12673 was not centrally facing Mars (it was located about 67 degrees east in heliolongitude from the Sun-to-Mars line), the solar events impacted the local space weather environment. To name a few, some of the effects include heating of the upper atmosphere by solar flare emissions, flare-related enhancements of ion and neutral densities, solar energetic particles impacting the atmosphere and surface, bright emissions of a diffuse (global) aurora, deeply penetrating interplanetary magnetic fields over the Martian dayside, and enhanced atmospheric escape rates. In this presentation we will give an overview of the observations at Mars obtained from various Mars missions, including MAVEN, MEX, and MSL. Numerical results from the Wang-Sheeley-Argue (WSA)-Enlil-cone modeling system together with observations at Earth/L1 and STEREO-A will also be presented to provide global heliospheric context of the event period.