**Introduction:** Observations of Sun-like stars have indicated that the early Sun can be characterized by extreme EUV and X-ray fluxes, as well as a more intense solar wind and higher occurrences of powerful solar transient events [1]. The nature of the early Sun is a critical aspect for understanding early atmospheric evolution among the terrestrial planets. In particular, the interaction of the solar wind with Mars has been a topic of recent interest with the arrival of the Mars Atmosphere and Volatile Evolution (MAVEN) mission. The MAVEN spacecraft has observed the upper atmosphere and magnetic topology of Mars during solar transient events such as Interplanetary Coronal Mass Ejections (ICMEs) and Stream Interaction Regions (SIRs) spanning from November 2014 to the present (Figure 1) [2]. Observations include dramatic changes in heavy ion acceleration along open, closed and draped magnetic field lines, and significant enhancements of escaping and precipitating planetary ions [3].

Using these early loss rates, we will extrapolate the amount of water that has been lost to space due to these space weather events. The extreme conditions in the Sun’s early history may have had a significant influence on the evolution of the Martian atmosphere and may also have implications for exoplanets interacting with younger, more active stars.

**References:**

