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Poster
The solar cycle directly influences the solar irradiance that impinges upon planetary atmospheres. These variations can affect the rate at which atmospheric species escape from planets. Observations by the Mars Atmosphere and Volatile Evolution (MAVEN) mission and the Hubble Space Telescope (HST) have been used to constrain the properties of the atomic species D and H at Mars. These observations span solar activity extrema and are used to constrain the abundances and escape rates of these water-spawned atoms to investigate their variability with solar cycle. Results show large inter-annual variability in the properties of these species, and that the escape rates of both D and H atoms decrease markedly at times of lower solar activity, mainly due to a decrease in atmospheric temperature. The findings suggest that while reduced solar irradiance conditions may enhance the abundance of H atoms in the upper atmosphere of Mars, this does not increase their escape rates due to cooler atmospheric temperatures resulting from decreased solar EUV flux.
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