

Space Physics Seminar

Thursday, October 26, 2017

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Boston University CSP

Water Escape from Mars: An Upper Atmosphere Perspective with HST and MAVEN



A lot of geological evidence suggests that Mars had harbored a large amount of liquid water on its surface, once upon a time in its history. But how much? When did it lose this reservoir of water? Was it after the loss of its magnetic field? These are some of the questions I am trying to answer through my research. Our group at Boston University has studied water escape from the Martian atmosphere by looking into the problem of hydrogen escape, which is one of the constituents of the water molecule. We have also looked at studying the Deuterium to Hydrogen ratio in the Martian upper atmosphere in order to determine the total atmospheric losses incurred by Mars over its 4.5 billion year history. Our primary source of data is the Hubble Space Telescope and the MAVEN Mars mission. In my talk I will outline the theory that motivated the study of water escape from Mars and the progress we have made till date. I will also highlight the challenges we have faced while determining the present day water escape rate as well as outline our ideas for potential solutions towards overcoming some of those limitations.

4:00pm in CAS 502. Refreshments served at 3:45pm in CAS 500.

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Next Week

Sandra Chapman
CFSA, Fulbright-Lloyd's
Scholar at BU