



ID de Contribution: 46

Type: Oral presentation

Influence of EUV flux variations on the precipitating ion flux from MAVEN observation

vendredi 28 février 2020 17:00 (15 minutes)

At present epoch, the efficiency of Mars' atmosphere sputtering by heavy ion precipitation to induce atmospheric escape is expected to be negligible under actual solar wind conditions. It is presently difficult to directly measure its current influence on Mars atmosphere. However, it is possible to better understand the potential importance of this process along Mars' history by further constraining the precipitating ion flux thanks to MAVEN instruments. We study the influence of the solar Extreme Ultra-Violet (EUV) flux intensity on the precipitating ion fluxes as seen by MAVEN/SWIA, an energy and angular ion spectrometer. We defined three periods with significantly different EUV flux intensity (1.6 and 3.2 times the lowest EUV intensity) and compare the precipitating ion flux measured by MAVEN/SWIA during each period. At low energy [30-650] eV, we find that the median (average) precipitating ion flux during the medium and low EUV periods are respectively 1.7 and 3 times more intense than the flux during the high EUV period. At high energy [650-25000] eV, a similar trend in the intensity of the precipitating ion flux is observed but with an increase by 50% and 70% respectively. A larger EUV flux does therefore not seem to favour heavy ion precipitation into Mars' atmosphere, contrary to modelling prediction and overall expectations.

Field

Planetology (including small bodies and exoplanets)

Auteurs principaux: MARTINEZ, Antoine (LATMOS); LEBLANC, François (LATMOS); MODOLO, Ronan (LATMOS); CHAUFRAY, Jean-Yves (LATMOS)

Orateur: MARTINEZ, Antoine (LATMOS)

Classification de Session: Talk

Classification de thématique: Astrophysics