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CO_2+ ion escape from Mars

Lukas Maes (1), Markus Fraenz (1), and James McFadden (2)

(1) Max Planck Institute for Solar System Research, Göttingen, Germany (maes@mps.mpg.de), (2) University of California Berkeley, Berkeley, CA, United States

CO_2 is the main constituent of the Martian atmosphere, and CO_2+ is thus also an important part of its ionosphere. Therefore it is important we can reliably measure the CO_2+ ion population, if we want to understand the dynamics, chemistry, and escape process in the Martian upper ionosphere.
Outflowing CO_2+ ions are difficult to measure, however, because mass spectra from ion instruments using time-of-flight methods have relatively wide peaks at higher masses. This causes the O_2+ peak, which usually dominates over CO_2+, to overlap with and obscure the CO_2+ peak. Using a peak fitting method to separate the CO_2+ and O_2+ ions in ion data from the SupraThermal And Thermal Ion Composition instrument (STATIC) onboard MAVEN, we investigate the ionospheric and outflowing CO_2+ ion populations in the Martian magnetosphere.