



## **Meteoric Metal Layer in Mars' Atmosphere: Steady-state Flux and Meteor Showers**

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We report on a steady state metal ion layer at Mars produced by meteoric ablation in the upper atmosphere as observed by the Imaging Ultraviolet Spectrograph (IUVS) on MAVEN. The response of the Martian atmosphere to meteoroid influx constrains cometary activity, dust dynamics, ionospheric production at Mars and meteoric smoke may represent a site of nucleation for high altitude clouds. Using observations that span more than an Earth year, we find this layer is global and steady state, contrary to previous observations, but in accordance with predictions. IUVS observations cover a range of observation conditions, which allows us to determine the variability of the Mg<sup>+</sup> layer seasonally and geographically. In December 2015, Mars encountered three predicted meteor showers, and analysis of these events will determine whether Mars' atmosphere responds to such events dramatically, as was the case with comet Siding Spring, or more similarly to Earth. Mg is also detected, but Mg/Mg<sup>+</sup> less than predicted by factor >3, indicative of undetermined chemical processes in the Mars atmosphere.