



New Observations of the Martian Ionosphere and its Variability – An Overview

Andrew J. Kopf

Dept. of Physics & Astronomy, The University of Iowa, Iowa City, Iowa, United States (andrew-kopf@uiowa.edu)

The Martian ionosphere is a highly variable system, owed to the strong influence of the Sun on its properties and behavior, particularly at higher altitudes. Recent measurements from the MAVEN and Mars Express spacecraft have allowed for a more complete understanding of the ionosphere and its variability from two different perspectives. Due to the low-altitude periapsis of its orbit, MAVEN has allowed for the first in-situ ionospheric studies since Viking, yielding detailed direct measurements of the ionosphere's structure, composition, and dynamics, as well as its rate of loss to space. Mars Express has over a decade of continuous ionospheric observation of the red planet, with the unique ability to remotely sound the ionosphere. These features enable Mars Express to make long-period ionospheric measurements on each orbit, at all local times and solar zenith angles. Utilized together, these two spacecraft form a powerful observational suite that has provided new insights into this dynamic environment. This talk will highlight several important recent results in the study of the Martian ionosphere and its variability.