



Using the Flare Irradiance Spectral Model (FISM) to study the response of the Earth, Mars and Moon to Solar Flares

P. C. Chamberlin (1), G. Lu (2), Z. Sternovsky (1), P. Withers (3), and T. Woods (1)

(1) University of Colorado, LASP, Boulder, CO, United States (phil.chamberlin@lasp.colorado.edu, 303-492-9318), (2) High Altitude Observatory, NCAR, Boulder, CO, United States, (3) Center for Space Physics, Boston University, Boston, MA, United States

The Flare Irradiance Spectral Model (FISM) is an empirical model of the solar irradiance spectrum from 0.1 to 190 nm at 1 nm spectral resolution and on a 1-minute time cadence. The goal of FISM is to accurately estimate solar spectral irradiances over the vacuum ultraviolet (VUV: 0-200 nm) range in order to provide the solar input to various aeronomy and space weather studies. The presentation will begin with a brief overview of the FISM model. Following this will be a presentation of results from current studies, all driven by FISM estimates, quantifying changes in the densities and temperatures of the atmospheres and ionospheres of Earth and Mars as well as the charging of the dust on the surface of the Moon. Included throughout will be examples of how FISM can be used to contribute to furthering these studies using future solar VUV irradiance instruments, including the NOAA GOES-O and GOES-R series EXIS instruments, the SDO EVE Instrument, and the MAVEN mission.