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Using SDO-EVE Satellite Data to Model for the First Time how Large Solar Flares Influence the Earths Ionosphere JOSEPH JENSEN, JAN SOJKA, ROBERT SCHUNK, MICHAEL DAVID, Center for Atmospheric and Space Science, Utah State University, TOM WOODS, FRANK EPARVIER, LASP, University of Colorado Boulder — The earth's ionosphere is very important in our everyday life. During large solar flares the ionosphere expands to the point of disrupting communications from GPS, military, and commercial communications satellites, and even radio blackouts can occur. The EVE instrument on the SDO satellite has given unprecedented spectral resolution for the Extreme Ultraviolet(EUV) spectrum with a time cadence of 10 seconds. This has made it possible to analyze flare spectra as never before. Using the Time Dependent Ionospheric Model (TDIM) we have input this new spectral data for large solar flares and analyzed the effect on the ionosphere. We take as a test case the X1.6 flare on March 9, 2011. Even this minor X-class provides insight into how the ionospheric layers respond differently to solar flares.

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