Reconstructing the Solar VUV Irradiance over the past 60 years

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Actual observations of the solar spectral irradiance are extremely limited on climate time scales; therefore, various empirical models use solar proxies to reconstruct the actual output of the Sun over long time scales. 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 provide accurate solar spectral irradiances over the vacuum ultraviolet (VUV: 0-200 nm) range as input for ionospheric and thermospheric. A brief overview of the proxies used in the FISM model will be given, and also discussed is how the Solar Dynamics Observatory (SDO) EUV Variability Experiment (EVE) will contribute to improving FISM estimates and its accuracies. Also presented will be a discussion of other solar irradiance proxies and measurements, and their associated uncertainties, used for solar spectral reconstructions.