High-Spectral Resolution SORCE SOLSTICE Degradation Model and Improved Irradiance Data Products

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The SOlar Stellar Irradiance Comparison Experiment (SOLSTICE) aboard the SORCE spacecraft performs solar irradiance measurements in the FUV and MUV spectral ranges. In order to properly calibrate the data, it is important to understand the evolution of the degradation of the instrument throughout the life of the mission. To first order, the degradation of the instrument is defined as a simple exponential decay model that is wavelength dependent. However, changes in spacecraft operation changed the way in which we measure the degradation of the instrument. Degradation measurements earlier in the mission were only collected at eight different wavelengths in the MUV. Later, higher spectral resolution measurements were collected. We present an algorithm that takes advantage of these new measurements. The new degradation spectrum, in combination with the lower spectral resolution degradation spectrum collected earlier in the mission, is then used to retroactively calibrate the entire mission MUV dataset. The resultant data products benefiting from this update will also be presented.