The Latest SORCE SIM Degradation Model and the Resulting SSI Measurements from 2003 to 2015

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The Spectral Irradiance Monitor (SIM) instrument on board the Solar Radiation and Climate Experiment (SORCE) mission has been taking daily Solar spectral irradiance (SSI) measurements since April 2003. A new mode of operation was introduced in March 2014 to address issues with depleted battery life and daily operations was resumed after 6 months of interrupted observations.

It is critical to accurately track the instrument degradation over time to be able to measure the small SSI variations over the solar cycle for the wavelength range covered by SIM (220-2400nm). The instrument degradation is constantly being updated and the corresponding model has been refined over the years to account for changes and a better understanding of the instrument's behavior over time.

This presentation will describe the latest SIM degradation model, how the various components were measured and how they affect the final degradation values. We'll compare the results from both channels on SIM with the SORCE-SOLSTICE data covering the overlapping wavelengths. We'll also present the integrated SIM SSI compared with the SORCE-TIM measurements.