

What Can We Learn from *SORCE* about the Contribution of Different Magnetic Structures to the Solar Spectral Irradiance (SSI)?

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There is a strong need for modeling of the SSI due to lack of observational data. The common approach is semi-empirical modeling which predefines a set of magnetic features (classes) with characteristic spectra and describes the SSI evolution as superposition of contributions from these classes (e.g. SATIRE). Despite of its efficiency and natural physical interpretation, such a model is sensitive to absolute data calibration which may introduce a bias due to the subjective choice of input data.

To overcome these issues we follow a more empirical approach. Similarly our model describes the SSI variability as a linear combination of spectral profiles weighted by filling factors of characteristic magnetic features. These profiles are not predefined but inferred from the observations.

The model is trained using SSI data from *SORCE/SOLSTICE*, *TIMED/SEE* and magnetograms from *SDO/HMI*. It derives a set of principal magnetic structures and shows the contribution of these structures to the SSI variability.