

**The New Observational Solar Spectral Irradiance Composite, Updates and Related Activities**

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Variations in the solar spectral irradiance (SSI) are an important driver of the chemistry, temperature, and dynamics of the Earth's atmosphere and ultimately the Earth's climate. To investigate the detailed response of the Earth's atmosphere to SSI variations, a robust SSI dataset is needed. We present the recently published observational SSI composite that is based on 20 space instruments. It has been built by using a probabilistic approach taking into account the scale-dependent uncertainty of each available SSI observation. We compare the variability of this composite with available SSI reconstructions and discuss the respective modeled responses in the Earth's atmosphere. The next step is to improve and update the composite. A summary of these and related activities will be given.