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A new observational solar spectral irradiance composite

Margit Haberreiter (1), Micha Schöll (1), Thierry Dudok de Wit (2), Matthieu Kretzschmar (2), Stergios Misios (3), Klairie Tourpali (4), and Werner Schmutz (1)

(1) PMOD/WRC, Solar Physics, Davos Dorf, Switzerland (margit.haberreiter@pmodwrc.ch), (2) LPC2E/CNRS and University of Orléans, Orléans, France, (3) Oxford University, Oxford, UK, (4) Aristotle University of Thessaloniki, Thessaloniki, Greece

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 reliable SSI data set is needed. We present the recently published observational SSI composite data set that is based on 20 instruments and has been built by using probabilistic approach that takes into account the scale-dependent uncertainty of each available SSI observation. We compare the variability of this new composite with available SSI reconstructions and discuss the respective modeled responses in the Earth's atmosphere. Also, future work to further improve the dataset are discussed.