

Comparison of Long-Term Solar UV Irradiance Data Set and Proxy Model Data

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The creation of sophisticated atmospheric models that can accurately represent variations in the Earth's climate on decadal and longer time scales requires a proper characterization of temporal and spectral variations in solar ultraviolet irradiance. Existing solar UV data sets from individual satellite instruments do not cover more than one 11-year solar cycle. Various proxy models have been developed based on single irradiance data sets to provide long-term solar irradiance values, but these models have not typically been evaluated against other irradiance measurements from different time periods. We have recently created a composite solar UV irradiance data set using overlapping data sets from multiple instruments (SME, SBUV/2 on NOAA-9 and NOAA-11, SUSIM and SOLSTICE on UARS), covering the period November 1978 – July 2005 and the wavelength interval 120-400 nm. We will present comparisons between this data set and calculated UV irradiance values based on the model of Lean *et al.* [1997]. We will examine the relationship between these data sets in terms of absolute agreement, spectral dependence, and time dependence on different scales.