

SATIRE-S Reconstruction of TSI and SSI since 1974

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We describe the latest SATIRE-S model reconstruction of TSI and SSI, which spans over the period of 1974 to 2015. The model relates variation in solar irradiance on timescales greater than a day to the occurrence and evolution of magnetic structures on the photosphere, inferred from solar observations. We made use of full-disc magnetograms from the KPVT, SoHO/MDI and SDO/HMI. We cross-calibrated the various magnetogram data sets to yield a single, consistent input time series covering the period of 1974 to 2015. Modelled TSI exhibits a solar cycle minimum-to-minimum decline over the successive minima of 1986, 1996 and 2008, in agreement with the PMOD composite record. The reconstruction is also consistent with available UV SSI records at the wavelengths where they are stable enough to reveal the underlying solar cycle modulation.