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Changing of the Guard for the Total Solar Irradiance Record

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The uninterrupted, 41-year-long, spaceborne total solar irradiance (TSI) record has recently undergone several changes in the instruments contributing to these measurements of the net incoming radiant energy providing nearly all the power driving the Earth's climate system. Two long-term instruments, NASA's SORCE/TIM and TCTE/TIM, have recently been powered off. This ends the 17-year record from the SORCE/TIM, which established the currently-accepted TSI value of 1361 W m^{-2} after its launch in 2003. ESA's SoHO/VIRGO continues to acquire measurements that extend its 24-year record, but data availability has been on hold as a new processing methodology is implemented. NASA's recently-launched TSIS-1/TIM is presently continuing the measurements of these stalwart legacy instruments. This new TSI instrument is demonstrating higher on-orbit accuracy than any prior such instrument has achieved, with daily measurement updates that are available to the community for climate- and solar-research purposes. I will discuss the many recent changes to the spaceborne TSI measurement record, the current measurement-accuracy improvements and stabilities achieved and their implications for Earth energy-balance studies, and the future plans to maintain measurement continuity.