



## Assessment of the Solar Irradiance Record for Climate Studies

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The total solar irradiance has been measured from space for an uninterrupted 34 years, providing a record of the total radiative energy driving the Earth's climate system. This climate driver, which is 2500 times greater than all other energy sources combined, is observed to vary on scales of minutes and years and likely varies over much longer time periods; although definitive knowledge of such long-term variations, while critical for climate studies, is currently limited by instrument accuracy and stability. I assess the current knowledge of the spaceborne measurement record's accuracy, stability, and requirements, and present recent and upcoming improvements to the existing record resulting from current international calibration and collaboration efforts. I also discuss the status of the instruments currently providing irradiance measurements and future plans to maintain this solar climate data record.