

Wanted: A TSI Measurement Record

Greg Kopp [Greg.Kopp@lasp.colorado.edu], Laboratory for Atmospheric and Space Physics (LASP), University of Colorado, Boulder, CO, USA

Researchers using solar irradiance data for long-term studies such as needed for understanding climate would like a single time series of the total solar energy incident on the Earth over the spacecraft measurement era. That's exactly what they had in the late 1970's, and life was easy (albeit incorrect). Then that second total solar irradiance (TSI) instrument flew. Currently solar irradiance data users are offered slightly differing results from over a dozen space-borne instruments, at least three data-based composites, and empirical solar models. Fortunately the benefits from multiple instruments have far outweighed the complexities introduced by their disparate measurements and have improved our understanding of the "correct" TSI values. But rather than make the researchers using these data choose between the different records, it is the responsibility of the irradiance community as a whole to provide a more unified "community consensus composite" to data users in other fields.

The teams representing all currently operating and several past TSI instruments as well as solar irradiance modelers have come together to provide such consensus. This effort involves analyzing the existing and past instrument data records, agreeing on an overall absolute value for these measurements, and creating a new composite time series over the space-borne measurement era with time-dependent uncertainties. I will give an overview of the changes in the TSI measurement record over the SORCE era, summarize the current results of this new composite effort, and discuss plans for completing this work.