BAMS article outline

Title: A new, operational, climate data record of solar irradiance

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* Abstract (done; same as submitted for author proposal)
* Introduction (first draft done)
* The need for a solar irradiance climate data record
* Climate Data Record NOAA Vision (robust and reliable, consistent, algorithms, data stewardship, for broad community use)
* Essential Climate Variable (ECV): Earth Radiation Budget (GCOS), Earth’s vital sign
* Solar Irradiance Datasets
* SORCE TIM and SORCE SIM, TCTE
* connection to future TSIS TIM/SIM & connection to extant record
* limitations of extant datasets for constructing a CDR for use in climate change simulations (hence need for model algorithm)
* TRF/SRF calibration facilities
* Brief Description of corrections/calibrations applied to instrument(s)
* Provide web addresses for sources of irradiance data
* Irradiance Variability Model (will base on Algorithm Description in C-ATBD)
* Algorithm Overview – version 2 description
* Processing Outline
* Mg II and USAF sunspot area sources
* Model parameter characteristics –spot and facular contrasts
* Ancillary Data characteristics – Quiet sun, bolometric and spectrally dependent coefficients, beta angle
* Outline Differences from Version 1 model
* Outline Differences from version 1
* Reference more detailed comparison validation in second paper
* Provide web addresses for sources on input data
* Uncertainty Analysis
* Uncertainty in model assumptions, regression coefficients, model inputs
* Tabulate first values
* Results and Validation
* Plot of (rotational and solar cycle) time series of TSI, with error bars, compared to measurement record and (?) other models of TSI
* Plot of (rotational and solar cycle(?)) time series of bin-integrated SSI with error bars, compared to measurement record and (?) other models of SSI
* Deliverables/Products
* Description, time range, spectral resolution, daily and time averaged: TSI composites, historical reconstruction, contemporary TSI/SSI (daily, monthly-averaged, yearly-averaged)
* Inclusion of Uncertainties
* NetCDF4 format.
* Data sets created at LASP and Archived at NCDC. Can also download data from LASP LISIRD over a user-specified time and spectral range.
* Stewardship (TSIS ATBD, CDR development, irradiance composites, enable rapid generation of solar irradiance CDR following TSIS launch). Documentation archived at NOAA NCDC
* Time Series Data Updates
* Operational Implementation
* Latency (sunspot area files have latency b/c they are monitored by sunspot group number not calendar date, Mg II index updates)
* QA analysis: for inputs operational monitoring of upper/lower bounds, standard deviation, monitoring magnitudes and trends in other sources of Mg II and sunspot (Ca K, F10.7), and in measurements (TIM/TCTE TSI)
* Applications/Users (put here in or intro?)
* Future plans, expected utility, upgrades etc
* Conclusion
* Acknowledgements