



Solar Irradiance Working Group Newsletter, Vol. 1, Nov. 2016

WELCOME!

Welcome to our first Solar Irradiance Working Group newsletter. With your help, we intend to make these more regular now that we've completed this initial one. The intent of this newsletter is to keep our WG members updated on news items, group member's research updates and areas of overlap, planned meetings, and progress on our group's goals.

The format of most newsletters will include a ~1-page feature article highlighting one of the group member's research areas followed by short summaries of what the other members are doing. We'll be soliciting inputs from you all; but please don't hesitate to volunteer inputs if you have something interesting to share.

Hopefully the consolidation of working group news in this newsletter format will be preferable to separate e-mail updates for each item. We'll nominally try for ~1-month issues (but please don't anxiously wait by your mailbox!).

Thanks from your WG co-chairs and newsletter editors,
Greg Kopp and Alexander Shapiro

WORKING GROUP GOALS

As a reminder, our WG goals are:

- Task 1.** Develop a Working Group website;
- Task 2.** Assess uncertainties and associated causes in the solar irradiance datasets and resulting reconstructions;
- Task 3.** Create a database in the form of links to original sources containing modelled and observed solar irradiance records;
- Task 4.** Provide recommendations for the climate community and other external researchers on which records to use depending on the timescale and wavelength domain;
- Task 5.** Incorporate knowledge of stellar analogs into solar irradiance variability estimates and uncertainties on centennial timescales;
- Task 6.** Estimate the effect from the recent reanalysis of sunspot number on solar irradiance reconstructions;
- Task 7.** Organize a Focus Meeting on solar irradiance at the XXXth IAU GA in Vienna.

PREVIOUS MEETINGS ADDRESSING SIMILAR TOPICS

The IAU General Assembly in Aug. 2015 included [Focus Meeting 13](#) "Brightness variations of the Sun and Sun-like stars" having an emphasis on solar and stellar variability mechanisms and models over rotational and activity timescales. These extended to resulting effects on surrounding planets and the detections of exoplanets.

The [SORCE Science Meeting](#) in Nov. 2015, titled "Multi-Decadal Variability in Sun and Earth in the Space Era," included sessions on solar irradiance measurements and models, solar and stellar variability, and solar influences on Earth climate and society. Plans are beginning for the next such meeting, which will be in early 2018.

JSWSC TOPICAL ISSUE AVAILABLE

A special issue of the *Journal of Space Weather and Space Climate* titled "[Brightness variations of the Sun and Sun-like stars and resulting influences on their environments](#)" is now nearly complete with a few remaining submissions in the final stages of review. This topical issue contains many articles from both the IAU GA FM13 and the SORCE Science Meeting with more detail than was possible at the meetings.

ISSI SOLAR-IRRADIANCE-RECORD GROUPS

Two International Space Science Institute groups are addressing unifying solar irradiance records into composites. "[An Assessment of the Accuracies and Uncertainties in the Total Solar Irradiance Climate Data Record](#)," with a team including the PIs of all current and many past TSI-monitoring instruments, has reviewed and consolidated the total solar irradiance records and is in the process of creating a TSI composite, with an initial paper on that methodology submitted to *GRL*. A newly-selected team, "[Towards a unified solar irradiance record for climate studies](#)," will expand the evaluations of solar irradiances to spectral-irradiance records as well. They will be holding their first team meeting in Feb. 2017.

LOI SUBMITTED FOR IAU GA XXX 2018

We have submitted a Letter of Intent to propose a Focus Meeting for the IAU General Assembly XXX in Vienna in 2018. That "Solar Irradiance: Physics-Based Advances" proposal, due 15 Dec., will link recent modeling advances from radiative transfer, surface-flux transport, and 3-D magnetohydrodynamics to studies of solar-irradiance variability, drawing also on new understandings provided by long-term stellar-variability observations and modeling. We will be eager for inputs from all of you for that effort.

WEBSITE AND E-MAIL LIST

We have set up a [website](#) for our WG. Please send either of us any changes you suggest or new, relevant publications that should be added. Additionally, an [e-mail list](#), of which you are already a member, will allow us all to share issues relevant to our working group. Thank you for being a part of it!