2021 National Solar Observatory Users Committee Report

To: Dr. Valentin Martinez Pillet, Director National Solar Observatory

The National Solar Observatory (NSO) Users Committee (UC) met remotely on 11th May 2021 via Zoom.

All current committee members were present:

Bain, Casini, Choudhary, Henney, Howe, Jess, Lin, McAteer (chair), Muglach

The terms for each of these committee members are

Jess, Muglach, Bain end in 2021 Howe, Henney end in 2022 Casini, Choudhary, Lin, McAteer end in 2024

Pending further actions, this will be the last year of service for Jess, Muglach, Bain. However, any of the current members are eligible to serve another 3-year term at the discretion and request of the NSO Director.

NSO participants: Martinez Pillet, Pevtsov, Rimmele, Uitenbroek

NSF participants: Black, Boboltz

We are grateful to Jennifer Ditsler for her coordination of the remote meeting logistics and providing the presentations for review, and to all NSO and NSF personnel for their presence.

The charter of the UC is to provide feedback and advice on status, desired enhancements, and future new developments of NSO facilities and operations. The UC will provide such feedback and advice in this report as a bulleted list of recommendations and remarks, within 1 month of the meeting. The recommendations should not be considered ranked in any particular order.

We look forward to hearing back from the director in response to each recommendation provided. The chair remains, as always, available to the Director to discuss any items at any time during the year.

Submitted on behalf of the NSO Users Committee this 7th day of June, 2021 on behalf of the NSO UC

Dr R.T.James McAteer (chair)

UC recommendations arising from the May 2021 Users Committee meeting.

The UC provides the following recommendations for the NSO Director to consider at his discretion. We look forward to hearing back from the NSO Director in regards to which recommendations have been accepted and which actions have been planned.

Special note on adapting to needs arising from COVID

The National Solar Observatory is making extraordinary efforts under difficult circumstances. The effects of COVID have impacted many aspects of the NSO community, construction, and travel. We fully support and appreciate all the careful planning and adaptation to circumstances as needed, while still performing their mission. We would like for this message of exceptional work in difficult circumstances to be conveyed to all the members of NSO, and to NSF and AURA leadership.

Recommendation on DKIST OCP facility access

It was very striking to see DKIST OCP 1 stage heavily oversubscribed. This is a good sign of community engagement. We recognize the ground based solar community is not used to high oversubscription rates for ground based observing (i.e., with the possible exception of those who submit for time on, e.g., ALMA), but the community does experience similar oversubscription in proposal submission. In order to maintain this enthusiasm, as new instruments are likely to feature for upcoming OCP 2 stages, we recommend NSO to hold a session related to expectations (on instrument usage, restrictions, etc.) before the opening of the call for new observing proposals. The session should allow for direct communication with the proposing community (e.g., via a dedicated Zoom session). We recommend waiting for some further clarity on issues of instruments and restrictions, before moving along with the second call. This is needed to provide sufficient notice as to the possible availability of DL-NIRSP, Cryo-NIRSP, and eventually VTF. If this wait results in the next OCP call being pushed back more than 6 months beyond the timeline expected by the community, a notice should be sent to the SolarNews newsletter making everyone aware of the reasons for this.

Recommendation on DKIST level 2 workshops

NSO have been running critical workshops that are designed to help the community understand the nuances associated with spectropolarimetric inversions and how they can be easily prepared for scientific analysis. As these have been recorded (all delivered online), we recommend that these recordings, and the resources associated

with them be made easily available and are widely advertised, especially for those who may have been unavailable to attend the original workshop.

Recommendation on blind reviews

We strongly commend DKIST on adopting blind reviews for observing proposals. It is encouraging to hear that at least on gender, the ratios were fairly consistent between submitted proposals and those selected. We recommend not assigning gender unless it is provided by the individuals. Furthermore the demographics should move beyond just looking at gender ratios to issues of racial representation. The blind review is doing what it sets out to do, which is creating equitable opportunities for observing time, and we commend NSO to use all available DEI resources within AURA to handle these demographics with sensitivity.

• Recommendation on continuing the excellent work in the US Community

We strongly commend the DKIST team as it continues to work with the community to cultivate good science proposals and encourage more people to engage with DKIST science, particularly those who have not historically worked with ground based data. We recommend continuing to record training seminars and workshops is essential for researchers, particularly new grad students, who want to start working with DKIST in future years. Virtual/hybrid workshops will also open up DKIST science to those who might not be able to attend workshops in person.

Recommendations on NISP

We recommend that NISP continue to request for more staff scientists. The shortage of scientist FTEs for GONG/NISP is of great concern. To date, numerous attempts to find external funding support has resulted in limited success. The proposal cycle to find basic operational funds diverts critical resources and attention away from core mission priorities. We encourage NSO to continue to seek core-funding for the science effort to increase scientific return on NISP data, along with real-time data products critical for the space weather community. A key priority for NISP is the return of daily SOLIS VSM full-disk magnetograph observations. The VSM has been down for much longer than estimated, and this is greatly impacting its scientific potential, especially as a new activity cycle begins.

We recommend that GONG maintenance be prioritized before the data quality is impacted too much by equipment degradation. NISP is clearly already striving to do this

and we encourage the team to continue to address this, and we recognize many of these issues were unavoidable and due to COVID. The resumption of PM trips to GONG sites where possible is vital, and particularly important for helioseismology, where more or less continuous observations are needed.

We recommend that the impact of new cameras on the helioseismic data continue to be fully considered. Experience from the previous deployments suggests that there may be subtle effects that don't show up clearly for a few years, and so the community should be clearly informed of when the changes take place so that users can be alert for any anomalies.

Recommendation on DKIST upgrades

We recommend a more detailed description of policies regarding DKIST upgrades be provided to the UC. It would be useful to know how these are being decided, what the science drivers are, and the funding source. We do not consider the VTF as a DKIST upgrade, but other things like upgrading the IR detectors, and the DL-NIRSP image slicer are true (and costly) instrument upgrades. We would like to hear about whether the DKIST has a streamlined process to identify priorities and how to go about them, and whether there is funding set aside out of the operation budget for these kind of things.

Recommendation on meeting format

While we recognize this was (another) unusual year, we hope to reinstate some of the regular components back into the meeting once we get back to in-person. In particular we missed opportunities provided by the larger discussion with the UC members only, and then some time with the Director.

We recommend we hold two focused meetings before the next full UC meeting, one focused on NISP (before the end of the year) and one on the level 2 project. We ask the Director to set dates for these ASAP. We note from previous reports that "in order to make all meetings with the UC as efficient as possible, we recommend that presenters have a prior telecon discussion with the chair of the UC regarding the planned focus of their presentation"

Recommendation on making reports publicly available

We recommend making all UC reports publicly available as a matter of policy. The website for reports and membership currently does not yet include anything after 2017.

Recommendation on committee membership

Membership should be clearly defined as beginning May of the first year and formally ending in April of the third year. At the May meeting of their second year, members should be asked as to their availability and interest in serving an additional term, and that should then be confirmed in advance of their third meeting. At their third meeting we should either confirm a renewal or confirm a replacement.

Over the next few years, new membership is vital as this committee evolves. In particular, representation from the modeling community and / or space plasma community would be very welcome.

We note from the 2020 report that "the current size of 9 members seems to work quite well, and we propose growing this by no more than 1-2 in the next year. Retaining some DKIST instrument PI membership and/or adding some SWG members on the UC may be useful. We recommended that membership be clarified by the end of calendar year 2020.

We recommend keeping one united UC and having the usual annual meeting, but allowing for breakout meetings throughout the year as requested for NISP, DKIST, or any other topic. These requests could be initiated by any NSO member of staff through the Director, or from any member of the UC through the chair. We suggest two of these breakout meetings above."

Other UC Remarks arising from the May 2021 UC meeting

None.