

Space Telescope Users Committee (STUC) Report:

Spring 2021 Meeting, submitted May 14, 2021

STUC Members: Jennifer Andrews, Beth Biller, Stephane Charlot, Denija Crnojevic, Francesco Ferraro, Steven Finkelstein, Kevin France (chair), Jamie Kennea, Caroline Morley, Preethi Nair, Kate Rubin, Anne Verbiscer, Eva Villaver

Meeting Summary:

Due to COVID-19, this was the third remote STUC meeting. Presentations were made available ahead of time in order to focus meeting time on questions and discussion. The meeting consisted of approximately 4 hours of presentations plus 1 hour of executive session discussion on Tuesday, April 27, 2021 and 2 hours of executive committee discussion plus a 1 hour debrief to STScI and NASA on Wednesday, April 28, 2021. Presentations on the following topics were made available to the STUC: reports from the HST project and mission status, statistics and results from the Cycle 28 mid-cycle review and initial statistics from Cycle 29, updates on the ULLYSES Director's Discretionary Time program, a recap of recent ESA activities related to Hubble, an overview of the new HST data archive interface page, and a summary of joint HST/JWST programs in JWST Cycle 1. This report summarizes the key issues that were discussed and the resulting recommendations. For a full account, the community is encouraged to review the STUC meeting presentations, accessible through <https://www.stsci.edu/hst/about/space-telescope-users-committee>.

Mission Overview, GSFC Update, and Instrument Status:

The STUC heard briefings on the status of the HST observatory, STScI's readiness to continue to integrate JWST into their portfolio of operational missions, HST observation and instrument status, and recent science mission highlights. Taken together, the reports confirm Hubble's place as the astronomical community's highest profile and most scientifically productive asset, as well as NASA's commitment to continued scientific operations with HST through the end of the current decade (and hopefully beyond). The STUC commends the support from the HST teams at STScI and GSFC for recovering from the March 2021 sunpoint fault while simultaneously conducting JWST launch simulations, as well as quick recovery from subsequent WFC3 and STIS suspension events.

The STUC was briefed on the status of the HST program budget, and expressed concerns about the ability of HST to support the same level of science productivity (supported by a healthy program of GO and AR grants) without an increase to the project's total budget. [The STUC encourages NASA to recommend a budget augmentation for the HST program as an outcome of the upcoming senior review.](#) The STUC also received an update on HST operations under the

hybrid 3 gyro + 1 gyro mode, and supports the current efforts to maintain the high observing efficiency currently possible in this mode.

ESA Update and new ESA Outreach office:

The ESA/HST program office briefed the STUC on community engagement with HST, noting that 22% of the HST cycle 29 submissions were led by Europe-based PIs. Dr. Nota updated the STUC on the plans for the HST/JWST science celebration in 2022 to be held in-person. Public engagement was also presented, with a new face now that ESA's Hubble outreach is no longer coordinated through ESO. A new European outreach office (and website, handling an expected 9 million users per year) at STScI came on line in January 2021, with new podcasts and social media posts. Dr. Nota concluded by describing the new GIPHY store and virtual backgrounds for remote meetings.

ULLYSES:

The STUC was excited to learn about the progress in the observing program and data releases from ULLYSES. Drs. Roman-Duval, Proffitt, and Taylor presented a programmatic overview, observing program status, and the state of the community data releases through MAST. The program is making good progress on completing the observing goals in both the high-mass (LMC/SMC, low-metallicity galaxies) and low-mass (Orion, TW Hya monitoring visit) stars. In particular, the STUC commends the efforts of the ULLYSES implementation team for supporting the coordinated observations of the low-mass sample; both as part of the TESS coordination and LCOGT supporting programs led at STScI, and the community interaction on the external-to-STScI coordinated data programs such as those at ESO and XMM.

The ULLYSES implementation team described some challenges with low-mass star binarity, extinctions and the impact on far-UV S/N; their rapid response to the issue incorporating community feedback, and the plans to reallocate orbits and targets to ensure sufficient S/N on the majority of the T Tauri star survey targets. This has reduced the total T Tauri star yield from ~70 to ~60, but the STUC supported the rationale behind these trades. Two data releases from ULLYSES have already occurred (November 2020 and March 2021), focusing mainly on the massive star spectra. The STUC was impressed with the number and variety of high-level data products already available to the community and looks forward to the time-series data products and complete FUV through optical spectral energy distribution data products coming in Data Release 3 (August 2021). In the interest of generating a homogeneous set of data products in the archive, [the STUC encourages the ULLYSES implementation team to coordinate with the Science Advisory Committee and community members to generate ULLYSES-like data products for similar archival UV data sets of both high- and low-mass stars.](#)

Cycle 28 mid-cycle results, Cycle 29 statistics:

For each of the past two Mid-Cycles, about 50 proposals were received, the majority in the categories of Exoplanets and Galaxies, and with WFC3 as the most requested instrument. Mid-cycle reviewers were selected from Cycle 28 External panelists. The STUC expressed concern about a significant PI gender disparity among both submitted and accepted proposals (80% male vs 20% female), which was speculated to be a consequence of the pandemic working conditions. In Cycle 29, 1129 proposals were received (80 more than in Cycle 28), for a total of 2700 available orbits. The hybrid (external reviewers + virtual panels) approach for proposal ranking continues for Cycle 29; the structure of the review process was described again, including the disclosure of the TAC chair, with the news that vice-chairs will not be assigned reviews anymore to decrease their workload.

The STUC raised a few questions on proposal statistics, specifically on gender self-identification and the proposal statistics based on seniority of the proposers. While the suggested trends in the dual-anonymous proposal process that STScI spearheaded are encouraging, more reliable and systematically collected proposer information would be valuable in quantifying, e.g., the submitted vs accepted proposal fraction as a function of gender, career level, and others. Acknowledging the legal and logistic challenges associated with collecting demographic information from proposers, [the STUC encourages STScI to work to find a more complete and systematic way to collect these data from proposers, e.g., as optional user profile information in MyST profiles](#). Conversely, the STUC was surprised to learn that “team expertise” is not considered at any point in the review of small (1 - 15 orbits) GO, regular AR, and SNAP proposals evaluated by external panelists. [The STUC recommends a panel chair, vice chair, or some knowledgeable member of the STScI staff review the team expertise section of all proposals recommended for acceptance.](#)

New HST data archive interface:

Dr Scott Fleming demonstrated to the STUC the in-development new webpage for accessing the Hubble data archive, which will eventually become the new interface for all MAST-supported missions. The demonstration showed many improvements over the current search, including many modern features of the web including real time feedback in the interface, a revamped look more in line with modern browsers, and inline searches for parameters and parameter descriptions. The interface appeared to show many quality-of-life improvements, including realtime name resolution and the ability to generate API queries, so searches can be performed outside of the web interface. Although the interface is not complete, the website showed that great progress had been made on a relatively short timescale (work began Fall of 2020). [The STUC is very impressed by the new interface and a number of STUC members have volunteered their time or their group's time to support bringing the new interface on line.](#)

JWST Cycle 1 results and HST Impacts:

The joint HST/JWST time was under-subscribed in JWST Cycle 1 (only ~100 HST orbits proposed in joint JWST/HST programs and only 1/13 proposals accepted) and it was unclear whether it was due to lack of interest or from lack of knowledge of its existence among proposers. The question posed to the STUC was how can STScI stimulate more interest in submitting joint proposals, and going forward should the number of joint orbits be altered based on low community interest? Promoting synergies between the two missions should be a high priority.

The STUC considered this question and foresees two possible avenues to promoting joint observing programs: 1) a topical science focus (e.g., panchromatic galaxy surveys, star-exoplanet studies, etc) and 2) a special HST/JWST proposal category that prioritizes HST observations of *approved* JWST proposals. This would be something above or possibly combined with the current “JWST Preparatory Science” category. Expanding the cap of available HST orbits may remove some “stigma” associated with asking for a significant fraction of the available time through the supporting mission. At the present time, the STUC does not see a clear indication of a targeted science area to prioritize, but [recommends that STScI consider the second option for targeted HST programs that support accepted JWST projects. The STUC would also like to return to this topic in the Fall 2021 meeting](#) once the HST Cycle 29 results are known and a projection of how many orbits are expected to be available for GO (and specifically Large GO) programs in Cycles 30 - 32. The STUC will make a recommendation for a nominal number of orbits to reserve for joint proposals at that time.

The impact of JWST observing programs on HST proposal review, future HST proposal review modalities, and future changes to the HST proposal grading process:

The HST Cycle 29 Call for Proposals was not clear about how proposals would be reviewed in light of JWST Cycle 1 outcomes (e.g., whether reviewers would be instructed to assume that JWST GTO/ERS and Cycle 1 programs will be successfully executed). This made it difficult to know how best to propose for HST programs that interface with approved JWST programs, or that have potential overlap with approved JWST programs. The STUC asked -- should the TAC consider JWST data “in the bag” and should that influence the proposal selection process? During the discussion between the STUC and the HST leadership at STScI, it was clarified that accepted JWST proposals are to be treated as “will happen”. [The STUC recommends that STScI encourage Cycle 30 proposers to clearly describe how the scientific success of any HST/JWST program depends upon the related JWST program to be executed. Furthermore, the STUC recommends additional and explicit instructions to the HST panelists on how to weigh a requirement for JWST observations in their evaluation of Cycle 29 HST proposals.](#)

A return to in-person vs remote vs hybrid panels:

The STUC considered the question of how best to conduct HST proposal reviews in the post-COVID world. There are clear benefits to both on-line and remote modalities, however a consensus was not achieved. [The STUC recommends that STScI conduct a community survey \(or more specifically, a survey of the last few cycles of in-person and remote HST and JWST panelists\) to look for the best path forward, including both a request for “preference for modality” and “willingness to serve on remote/in-person panels”.](#) The STUC also would like to understand the potential cost benefits of remote panels and how this might impact the budget future of the HST program.

Revised grading rubrics for Cycle 30 and beyond:

The STUC is interested in learning more about plans to revise grading schemes and adjectival rankings considered for implementation in Cycles 30 and beyond.

M dwarf Bright Object Protection guidelines and science impacts for ULLYSES:

The STUC received a written request from the young, low-mass star community actively working with the recently acquired ULLYSES data of T Tauri stars. The community has expressed concerns with how the existing M dwarf bright object protection guidelines impact the ability of ULLYSES to observe all of the recommended targets. The STUC brought this to the attention of the HST Mission Office and will be presenting a follow-up discussion of this topic following the Spring 2021 meeting.