

Space Telescope Users' Committee Report: Oct 2014

STUC Attendees: Marc Buie; Jane Charlton, Hsiao-Wen Chen, Michael Cushing, Annette Ferguson, Jenny Greene, Chris Howk, Giampaolo Piotto, Andrea Prestwich, Brian Siana (Chair) David Sing, Ann Zabludoff

Meeting Dates: Oct 16-17, 2014

HST Mission:

The STUC is pleased with the continued nominal operation of the observatory and its instruments and the efforts to mitigate degradation in performance. This success and the longevity of the new gyros proves the viability of operations through 2020, including overlap with JWST. The STUC strongly supports an extended mission as the observatory is in strong demand and it would greatly add to the scientific productivity of NASA's next flagship observatory, JWST.

The STUC was most interested in seeing additional calibrations regarding CTE effects on faint extended sources (for deep field observations), a WFC3 PSF library (as mentioned in the May 2014 report), and better characterization of the COS wavelength calibration and its stability over time.

Time Allocation Process:

The STUC heard a detailed presentation from Neill Reid on the Cycle 22 TAC process and preparations for Cycle 23.

The outcome of the Cycle 22 process was generally viewed as positive, with similar acceptance fractions as seen in recent years. One issue of concern was the 10% higher acceptance rate for proposals led by Cycle 22 panelists versus the overall average. This continues a slow trend seen since Cycle 18, and the STUC recommends compiling data to determine if the panelists have had similarly high acceptance rates when not serving on the panels.

The UV and medium proposal initiatives introduced in earlier cycles continue to be successful, and should be extended. Several important changes to the TAC process were introduced in Cycle 22 and these were for the most part successful (e.g. the somewhat lower load on panel chairs and panelists, the solicitation of external reviews to aid the TAC). Nonetheless, the STUC notes that the review of the medium proposals is still problematic, as also highlighted in the Ombudsman's report. Changes planned for this proposal type in Cycle 23 include returning the decision-making power to the panels, specifying nominal quotas to the panels during orientation and the promotion of highly-ranked medium proposals to mirror panels for additional grading. These changes are viewed positively although there is some concern that the burden on panelists on Tuesday evenings will now be very significant. STScI is encouraged to monitor and evolve this process until it is satisfactory. We also stress the need for the medium proposal review procedure to be very clearly outlined in the Call for Proposals so that proposers are well informed.

The seniority level of recruited panelists continues to be skewed to fairly recent PhDs, with the majority having graduated between 2001-2010 (and almost half of these between 2006-2010).

The STUC notes the importance of having a balanced panel composition and supports STScl's efforts to try to achieve this. Indeed, it is somewhat disappointing that moving the TAC out of term time did not lead to an increase in uptake of more senior scientists since this group can often bring valuable scientific breadth and perspective to the review process.

The STUC also considered the latest findings on gender disparities in the proposal review process and once again commend Neill Reid for tabulating these statistics. Steps taken in Cycle 22 -- e.g. the removal of the PI name from the front page and using only first initials for all investigators -- should be continued in the future. Cycle 22 saw a 3% difference in male and female PI acceptance rates, in line with the established historic offset. If this reflects unconscious bias, it is paramount to establish at which stage it originates -- e.g. during the preliminary grading or during the panel discussions. We recommend that data on this be compiled, as it will surely inform future strategies to address it.

The STUC was asked to consider whether raising the triage level (from 40% to 50%) would reduce the panel workloads and thereby reduce unconscious bias. The STUC was not convinced that raising the triage level would decrease unconscious bias. There were strong opinions on whether or not this would be a good strategy in general, however. Some members viewed raising the initial triage level to 50% as a positive step, if accompanied by more active encouragement to panelists to resurrect proposals they felt had been unjustly cut. Other members felt that the psychological impact of a proposal only having a one in two chance to even get discussed in a panel would be quite negative and argued to maintain the triage level at the current 40%. It was noted that resurrected proposals would typically be championed by a single person, while a lower triage level would keep proposals 'alive' that had more broad support. It was debated which strategy would be the most effective in aiding panel discussions. Note that the STUC has discussed the pros and cons of changing the triage level extensively in previous meetings, as documented in our reports.

The STUC was asked to consider whether the current list of criteria on which proposals are judged is appropriate. This was generally felt to be the case, although there was support for changing the wording of "the extent to which the expertise of the proposers is sufficient to assure a thorough analysis of the data" to "the extent to which the proposal demonstrates sufficient understanding to assure a thorough analysis of the data" or equivalent. Panel chairs should be encouraged to stress this to their panels as appropriate. We also feel that there is no strong need for proposers to demonstrate how the results will be made available to the community, unless specifically required by the proposal type (e.g. Large, Treasury).

Finally, as of Nov. 11, 2014, notifications of grant awards have still not been sent out to cycle 22 awardees. Observations began for this cycle on Oct. 1, so PIs need funding to work on the data. Furthermore, the window for advertising in the standard job cycle is closing and PIs may need to know funding levels before advertising available positions. It is imperative that in future cycles, the notification of grant awards be sent out before the beginning of observations for that cycle.

Frontier Fields Update:

The STUC heard about the status of the Frontier Fields (FF) program from J. Lotz (STScl) and from J. Bullock (UCI), who chaired its recent review. The STUC is impressed with the implementation of the program -- the level of communication, quality of the data products, and initial science results. The number of FF-related papers is likely to rise as the user community

becomes familiar with the data products and lens models. Initial FF studies include a wide range of science topics and have led to technical improvements such as ACS “self-calibration” of CTE effects in darks and WFC3/IR “blob” masks and sky flats. The STUC commends the STScI staff for the spectacular data, the website and initial magnification map comparisons, and informative communications with the broader community.

More work on intracluster light, magnification maps, comparisons among groups, and simulations to define the uncertainties is necessary and on-going. The STUC encourages STScI to continue to support these efforts, in particular a continued effort to compare and distribute new lensing models as they are updated.

The STUC remains excited about FF science and technical progress. At this time, given the nascent analysis of the first four clusters, the justification for pursuing observations of the last two clusters relies mostly on the original proposal. Adding the two clusters will improve the high-z source statistics and uncertainties (though to an unknown degree at this time), and unexpected discoveries will be made if the history of HDF is any guide. The STUC expressed some reservations about the high complement of FF review committee members who were also involved in the initial recommendation for the FF program.

New Horizons DD and GO Campaign Update:

At the May 2014 meeting, the STUC heard of a request by the New Horizons (NH) mission team for a very large proposal to help in their search for a Kuiper Belt object (KBO) appropriate for a future rendezvous after the mission’s Pluto encounter. The STUC commends STScI and the Director for their efforts to help the NH team through the allocation of director’s discretionary (DD) time while maintaining the integrity of the HST peer review process. The STUC was happy to see that the peer review process was followed, resulting in the approval of a large Cycle 22 program whose implementation was contingent upon the results of a 40 orbit DD program. The DD program was successful, which triggered the implementation of the larger search. The STUC congratulates the NH team on the successful discovery of KBO targets and also commends the NH team and the mission planning teams for the technical achievements of this program. Ultimately this result validates the peer review process and the Director’s approach to this unique situation.

Integrating Science Services:

The effort to provide a common user portal to STScI functions is worthwhile. While the current benefit is largely to STScI, moving forward it may well prove to be very valuable to the users of HST and ultimately JWST. Some concern was expressed over the need for stability from the users point of view. There are no current signs that stability would be a problem but this should be kept in mind for the future. Some things that would truly be valuable to the users would be consistent information and interfaces for all instruments, integrated access to all proposal and grant functions (in particular, scheduling, implementation and support contact information), data status and quick downloads for data (as well as information if access has not yet been enabled), and a record of comments on previously submitted proposals. The STUC strongly encourages consulting other observatories (especially ESO) who have implemented integrated services in the past.

HST 2020 Vision:

In the wake of a very positive 2014 senior review, recommending operations of HST through FY21, the STUC was asked to consider more flexible options for awarding time. There are of order 28,000 orbits remaining and it might make sense to consider them as a whole and decide on an overall strategy. Among the types of ideas that may be considered are long-baseline monitoring programs, institute led programs, risky programs with potential for large rewards, proper motion studies, graduate student led programs, modest allocation for E/PO, and joint JWST/HST programs. The STUC particularly supports a modest allocation to facilitate risky programs and consideration of programs that extend past the usual three cycle limit. The STUC is not in favor of a major change in the process, noting that small programs remain quite productive. Most importantly, the STUC advises a call for white papers so that the broader community can have input into this important question of optimizing HST output for the remainder of its lifetime. This will give STScI a better understanding of the primary areas of interest and help better formulate an appropriate proposal call. The STUC asks to review this call for white papers before it is sent out to the community. Finally, the STUC believes the Director and Institute staff should have some discretion in deciding how to respond to white paper ideas about how to proceed.

ESA update:

The STUC was happy to hear about the update of the ESA mission extension (senior review) of HST. Hubble was ranked highly by the ESA astronomy working group, and recommended to the SSAC to confirm ESA support to Hubble until 2018. The STUC hopes there will be further extension to guarantee overlap with JWST. The final decision from ESA is expected in November. The STUC heard about all the exciting plans from ESA/Hubble related to outreach activities the 25th anniversary, and the STUC commends their efforts.

Hubble Source Catalog:

The STUC is happy to see the progress made on the Hubble Source Catalog (HSC). As discussed in the May 2014 STUC report, this data product will be invaluable in enhancing the scientific impact of the observatory through the construction of multi-visit mosaics. However, given the diversity of instrumentation and observing constraints and conditions (exposure times, background levels, source density), the STUC feels that the reliability of the catalog should be clearly emphasized to the community in order to avoid its misuse.

Education and Public Outreach:

The STUC heard a report on E/PO from H. Jirdeh. The STUC is happy to see that the E/PO grant submission process is now online and working well. The STUC was very excited about and supported the ongoing plans for the 25th Anniversary outreach events. We are all enthusiastic about participating, and there was a request for posters and backgrounds that we can use and disseminate. The STUC was also enthusiastic about translation of outreach content into Spanish. Finally, there was discussion about the changing structure of Education and Communication. The STUC wants to emphasize the excellent track record of the Education team at STScI and hopes that the last twenty-five years of effort and success will carry forward into the new regime.