

Space Telescope User's Committee Report: April 2013

STUC Attendees: Adam Burgasser (video); Marc Buie; Jane Charlton (video); Yo-Hua Chu; Drake Deming; Annette Ferguson (Co-Chair); Chris Howk; Giampaolo Piotto; Brian Siana; Nial Tanvir (Co-Chair); Ann Zabludoff (video)

Meeting Dates: April 25/26 2013

Preamble: The STUC was extremely pleased to hear of the ongoing, and indeed improving, scientific productivity of the observatory, along with its continuing health and efficiency. The high number of proposals received in Cycle 21 further testifies to the outstanding demand for observing time, even 23 years into the telescope's lifetime. Planning a role for HST into the JWST era is likely to be widely supported in the community. At the same time, we were very concerned to hear of plans to remove the education and public outreach work from the Institute and move it elsewhere. The threat of potential cuts to the GO budget was also flagged as a major risk.

We welcome the further investigation and extension of post-flashing to mitigate CTE issues, and urge that where possible the option of post-flashing is incorporated in exposure time calculators with some urgency.

E/PO Activities and Outlook:

We were unanimously distressed and disappointed to learn of the proposed cutbacks on E/PO funding to NASA, which would completely eliminate these efforts at the Institute. The quality of the E/PO products produced by STScI is universally acknowledged as unparalleled and invaluable. The work being done by STScI E/PO, in close collaboration with many astronomers, is influential and far-reaching at a level unmatched by any similarly sized effort to promote science. This success is a consequence of the Institute's uniquely close collaboration of astronomers, educators, programmers, and artists. The Office of Public Outreach has had a tremendously positive impact on the public view of government spending on science, and provides the inspiration for many young scientists to become astronomers or pursue other productive and revolutionary STEM disciplines. Through citizen science programs, the institute actively involves the public in published scientific research. We see no financial or societal benefit in consolidating science education and outreach in a way that divorces them from the excitement of scientific research and discovery so fundamental to STScI. There is simply no better place to facilitate public outreach, to encourage enthusiasm and support for the pioneering exploration of the cosmos, and to advance research through citizen science initiatives, than the very place where our exploration and our discoveries happen.

Cycle 21 medium proposals and UV initiative:

The Institute's efforts to increase the number of UV science and medium size proposals in Cycle 21, compared to recent cycles, have proven very successful. It

will obviously be important to monitor how these increases in submission numbers translate into changes in the distribution of time awarded. The STUC notes the potential extra burden of reviewing medium size proposals on the Cycle 21 TAC and expresses some concern over whether this could be detrimental to the quality of the selection process. We encourage the Institute to monitor this carefully and solicit feedback from the panel chairs with this in mind. The STUC would appreciate a report on this at their next meeting,

The committee notes that panel chairs are asked not to lead large programs due to conflict of interest issues within the TAC; however, that exclusion does not apply to medium programs, which will also ultimately be vetted by the TAC. The potential for a small number of panel chairs to have disproportionate power over selection of medium proposals coming out of mirror panels was acknowledged, but not considered a serious risk at this stage. The committee also discussed the ability of the TAC to reallocate orbits from Large to Medium categories, if the demand for and quality of the latter mandates such.

In the Cycle 21 call, the number of disruptive ToOs allowed has been restricted to just 8, which, considering the extension of the definition of "disruptive" to 3 weeks, seems a rather stringent limit. The STUC had some concerns that this decrease could lead to a reduction in the number of proposals in this category. We encourage the Institute to consider whether this restriction could be relaxed in the future.

MCT proposals, past and future:

Although detailed science reports were not provided at this meeting, we were happy to hear of the overall progress of the three MCT programs and the impact they are having. The important role that such flagship projects have had in the history of HST science is clearly recognized. However, it was felt that it was too premature to consider another call for MCTs, or even a new category of "Very Large Projects" (i.e. 300-500 orbits, not necessarily multi-cycle), at least until there has been chance to better evaluate the success of the current initiatives to increase medium size proposals and UV science (which give the sense of pent-up demand for these classes of proposal). It was appreciated that HST lifetime issues require the possibility of additional very large programs to be revisited in the near-term.

In the longer term, the committee recognized that there may be some value in creating a category of proposal that explicitly aimed to perform JWST preparation.

ESA Update:

The STUC heard that the ESA SPC had approved ESA support to HST through 2014. In June 2013, the SPC will decide on an extension to the end of 2016. Because the ESA Ministerial committee approved a flat budget for ESA (no inflation accounted for), it is clear that some cost savings will likely be necessary. The STUC recognizes the great importance of ESA staff at STScI to the HST

mission overall and considers a reduction in personnel to be potentially very damaging. Indeed, ESA staff currently number one third of the total research staff at STScI and their expertise is ever more valuable in an era when increasing numbers of AURA staff are moving to the JWST mission.

We were also convinced that the HST outreach activities (including press releases) coordinated by ESA are an important resource for the European community, and likely to become even more so if the proposed cuts to NASA E/PO funding go ahead. It was felt that these efforts should be very much sustained.

Solar System Observations:

The issue of the amount of time HST spends observing solar system object is a long-standing concern in the planetary community. The STUC was shown a recent analysis of relevant statistics compiled by STScI regarding this matter. At face value, the solar system community has been at least as successful as other communities in getting time awarded (measured simply as orbits awarded to orbits requested) however this must be set against a trend to reduced demand for solar system observations over time. Some members of the STUC felt this could be the result of STScI-guided policies for managing the TAC process. The consistent premise guiding the TAC is that allocated time should be in direct proportion to proposal pressure. While this is easy to justify, it carries with it some implicit assumptions that may be linked to some of the unrest in the community. For instance, a default assumption is that all disciplines approach the proposal writing process in the same way but arguments were made that some communities have more of a history of collaborative proposal writing than others. In some fields, everyone interested in a single problem would build a single team to write the best possible proposal. A different community might avoid such team building and would prefer to compete during the TAC process, leading to a larger number of proposals for nearly the same project. Such a difference could skew the results of the time allocation in favor of certain fields that is not driven by scientific impact. This situation, if it persists, could lead to a negative feedback loop that will systematically marginalize some disciplines.

Concerns were also expressed about whether the understandable move towards mirror panels could dilute expertise to the point where it was difficult to provide a high quality assessment of all proposals.

There is a need to determine whether there are systematic biases in the TAC process which affect the solar system community more than others. The STScI proposal to convene a panel from the solar system community to investigate this issue is strongly supported by the STUC. The makeup of this panel will be critical and care should be taken to achieve a proper balance in its membership. Lessons learned may apply on a wide scale and should ultimately aid the overall goal of getting the best science out of the Hubble Space Telescope.

SNAP Policies:

SNAP observations currently operate under a set of restrictions designed to minimize the amount of work needed for STScI to get them ready for execution. The STUC agrees that many of these restrictions are very well justified, but feels that others may not be as compelling. The restrictions that may be worth another look are:

- The complete ban on UV observations requiring a bright object search
- The ban on moving targets interior to Jupiter
- That the SNAP scheduling window must be > 1 month

In all of these cases, it seems that these restrictions may be unnecessarily limiting, and some relaxation could be accommodated via new software or procedures. For instance, the scheduling window limit could be overcome by creating a longer list of candidates to compensate for the lower likelihood of execution, while intentionally striving for a lower completion rate.

HST PI Demographics:

There are small but clear differences between the acceptance rates of male and female PI proposals, although less so among proposals from early-career PIs, and the trend over the lifetime of HST suggests an improving situation. We applaud STScI for compiling these statistics, and agree that these statistics (or some summary thereof) should be made available to the community and to the review panels before the proposal review. We do not think it is necessary to attempt further interpretation, but we recommend that panel and TAC chairs, in particular, be tasked with reminding their committees of these statistics and others like them in the literature (such as studies that show biases based on the gender of the name on identical CVs). We also suggest that chairs make sure that any discussions that arise about the background of proposers (how creative, productive, etc) are then addressed for *all* proposals, not just a potentially biased few.

Length of data proprietary period:

The STUC recognizes that the 12-month default proprietary period for HST proposals is generally well justified as a motivator for producing efficient, careful analyses of data, as well as providing some protection for the work of early-career personnel. This period is also a realistic timescale to allow hiring and relocation of personnel who will conduct the research, particularly needed for Small GO programs and for PI's at small organizations. However, given the finite HST lifetime, the STUC acknowledges that consideration of eventually reducing or removing that proprietary period will be necessary so that proposers in the last HST cycles will have immediate access to the archive in strategizing their final HST initiatives. It was felt that any shortening of the default proprietary period in the near-term would likely elicit a negative response from a significant fraction of the user community.

Frontier Fields:

The STUC was presented with an update on the preparations for the Frontier Fields observations. The amount of activity is impressive, as is the level of interest and support from the community (for e.g. the well-attended cluster lensing conference held recently). There has been careful thought towards observing strategy (fields, filters, depths). The effort to support groups to provide magnification maps and mass models to the community is strongly endorsed. The STUC liked the strategy of evaluating the performance of the observations of the first four clusters before pursuing observations of the final two clusters.

GO budget:

The STUC heard that it is uncertain whether the current level of NASA support for the GO budget can be sustained in subsequent years. Although no decisions have yet been made regarding this issue, we feel that any significant cuts would be extremely detrimental to HST science. HST is a mature telescope, with a fully-functioning complement of instruments, that is producing outstanding science. The demand for observations (as measured by proposal submissions) remains very high. Furthermore, Cycle 21 has seen a marked increase in the number of archival proposals submitted. The STUC feels that the GO budget should be preserved as much as possible.

Status of COS:

The committee noted the slowed rate of decline in the COS FUV sensitivity, which, while our lack of full understanding of the causes of the decline remain a concern, bodes well for the use of COS in coming cycles.

Joint XMM-HST proposals:

We are pleased to see that the option of joint XMM and HST programs has continued to attract proposals in cycle 21, and support its continuation at the current modest level.

Developments at GSFC:

The STUC noted and approved of the ongoing efforts of HQ project staff to prepare in advance for future contingencies in HST's final years, which could save time lost due to future hardware failures, for example.

Procedural Notes:

The STUC requests that STScI provide a brief update detailing actions taken on the basis of our reports in advance of each meeting. We also encourage phasing of membership in such a way that some long-term memory is always present on the committee.