

## Space Telescope User's Committee Report: Oct 2013

**STUC Attendees:** Marc Buie; Yo-Hua Chu; Annette Ferguson (Chair); Chris Howk; Giampaolo Piotto; Andrea Prestwich; Brian Siana (remote); David Sing; Ann Zabludoff (remote)

**Meeting Dates:** Oct 17/18 2013

**Preamble:** The STUC noted that this is a very good and stable period for the observatory, with instruments and operations running smoothly and efficiently. There is high scientific productivity (in part due to the Multi-Cycle Treasury and Frontier Fields programs), almost record demand for telescope time and exciting prospects for a continued role of HST in the JWST era (the "Hubble 2020 Vision"). The STUC heard of the potential for overlap in WFIRST AFTA and JWST operations; this was considered to be very desirable given the strong synergy of the two missions.

Due to the recent government shutdown (which ended Oct 16), there were no presentations from staff at GSFC. The effort made by several GSFC scientists to attend the meeting at short notice was much appreciated.

### **The Frontier Fields Program:**

The first observations for the Frontier Fields program were taken during the meeting of the STUC. The committee was impressed with the speed and organization of the Frontier Field implementation, especially the timely release of magnification maps, as well as tools and information for their use. The Institute should make a concerted effort to communicate relevant developments to the interested community, as there will surely be a lot of interest. There is some concern that no organized effort is planned to assess the merit of the various magnification maps, which would aid the community in using them in a consistent and/or correct manner. Nor is it yet clear whether the errors within and among the magnification maps are consistent with the predictions in the initial Frontier Fields proposal and how those errors are expected to play into the final science constraints.

The STUC would like to understand what metrics will be used to determine the extension of the program to the final two clusters. There will only be 3-4 months between completion of the first cluster observations and the decision to execute observations for the final two clusters. It is recommended that the external scientific advisory committee also include individuals who were not direct participants in the original Frontier Fields initiative and that this committee play a more active role in monitoring progress and data products.

### **Reports on MCT programs:**

The STUC heard final reports from the MCT teams. Data acquisition for all programs has completed in the last few months and the teams are busy working

on data products and continued science exploitation. The overall impression is very positive – there is already a significant science return with papers from all the teams as well as the larger scientific community, and the science being pursued involves that set out in the original proposals as well as additional topics. Many of the teams have used the MCT observations to argue successfully for large campaigns with other facilities. The STUC was impressed with the organization and productivity of the teams, and the breadth of the training and outreach efforts underway. There has also been a return to the HST mission as new technological hurdles associated with calibration and data reduction have been solved by MCT teams. Teams working closely with STScI staff from the beginning appear to have benefitted from the in-house expertise and/or computing facilities, which effectively increase their program's funding level. It may be useful for any future call for MCT proposals to suggest that proposers detail how they might incorporate local resources in solving their technical challenges. All MCT teams expressed the concern that they are only now able to tackle the complete set of science goals envisioned, yet funding is ramping down. The STUC urges reconsideration of the current funding model in any new MCT solicitation.

### **HST Mission:**

While all science instruments are performing well, there is some concern regarding the reported problems with the Channel Select Mechanism of WFC3. STScI are monitoring this closely in order to understand the origin of the problem and what actions could decrease the possibility of failure.

The STUC were pleased to see that ETCs now have pre/post-flash options, where appropriate. It was also noted that the COS sensitivity continues to be stable, following the decrease which occurred pre-2012. This is an important argument for continuing the UV initiative.

In response to issues raised previously by the STUC, aspects of SNAP observations were discussed. The suggestion of allowing SNAP observations of moving targets inside the Jupiter orbit using gyro control is a good step forward and should be pursued in Cycle 22; it will enable new science to be done (or at least proposed). The STUC wondered if there were more efficient ways to select guide stars and do bright object checks that would allow additional flexibility for SNAPs, without requiring additional people resources.

The STUC discussed possible programs of relevance for years 2015 and 2016 as inputs for the next Senior Review. Completion of the Frontier Fields program and continuation of the UV initiative are obvious strengths. In addition, multi-epoch astrometry and time domain astronomy were considered to be potential niche areas for the observatory in the coming years. Regarding the former, HST's unique capability would be faint stars in crowded fields, providing a nice complement to ESA's Gaia. Such observations would enable proper motion measurements within the Local Group over moderate time baselines. Indeed, HST has already had some impact on this topic and it was noted that a future large orbit allocation to this type of science could have merit and would make

excellent use of the archive. Time domain astronomy is a broader category of science that includes multi-epoch astrometry as well as temporal variability studies.

### **Science Policies: Cycles 21 and 22 Initiatives**

The presentation on the TAC process was well received by the STUC; clearly the initiatives taken in Cycle 21 to increase the number of proposed/accepted medium and UV proposals have paid off and these initiatives should be continued in Cycle 22.

As also raised in the Ombudsman's report (see below), there was a significant burden on panel chairs in Cycle 21 who needed to grade all normal, medium and large proposals, some of which only at short notice. There are also some concerns about the balance in seniority level within the panels and the need to ensure that all medium and large proposals get the expert review they deserve. A number of changes will be implemented to address these issues in Cycle 22, and these are generally supported by the STUC. The suggestion that panel chairs not read or grade the normal proposals is interesting. Whether the chairs will feel in a position to moderate the discussion of these without having the context of the entire proposal pool is unclear but, given the need to decrease the burden on chairs, this was considered an idea worth exploring.

Soliciting reviews from experts in the community for the Large proposals was viewed positively, but these will need to be made available to the TAC by the time grades are due (and ideally before the meeting) to fully realize their worth. In addition, the TAC need to be mindful of the fact that external reviewers will see only one or two proposals, and thus it will not be possible to make absolute rankings based on external reviews alone. Moving the review process to June should hopefully help improve the availability of potential reviewers, and lead to more balanced panels in terms of seniority.

There are no plans to increase the number of panels in Cycle 22. The STUC had some concern about the uneven distribution of proposals amongst panels in the most recent proposal review. In particular, the proposal load for the AGN/IGM panel in Cycle 21 was substantially higher than other panels, possibly reflecting the relevance of the UV initiative for this category. It may be possible to redistribute some of these proposals to other, related panels. This may mitigate the issue for the next review, and we encourage the Institute to monitor the situation. It may be that adding a third AGN/IGM panel represents a more robust approach, although we appreciate the significant costs and difficulties in recruiting panelists associated with that option.

The continued monitoring and raising of awareness of gender bias in the proposal review process is viewed very positively by the STUC.

## **Science Policies: The Role of the Ombudsman**

The appointment of an ombudsman in the Cycle 21 review was considered a notable success, and Fred Lo's report raises a number of important points and useful suggestions. The STUC felt that this outside perspective on the review process was very valuable, and strongly advocate for the appointment of an ombudsman in every cycle where there are significant changes to the TAC process. Indeed, given the changes to be implemented, such a role should again exist in Cycle 22.

### **E/PO Status:**

The STUC continues to be impressed with the breadth and impact of the work done by the E/PO group that supports the Hubble project, and commend the staff for their perseverance in the face of the stress caused by the uncertain budgetary environment. It is encouraging that funds are available to support the E/PO group within STScI for FY14. We reiterate our support of the continued presence of E/PO activities at STScI, where education and outreach professionals can work in close collaboration with astronomers, engineers, and programmers.

### **ESA Update:**

The STUC was pleased to hear things were going smoothly on the European front. A large upcoming HST conference is planned in Rome, where the objectives are to share the latest HST results as well as develop ideas for future space telescope science possibilities. The introduction of an electronic newsletter (sent by email exploder) to keep the European HST community informed about issues of relevance was welcomed. The ESO/EPO department has been renewed through Dec 2014 and continues to have a high profile. Despite HST's strong science and ranking, the ESA staff at STScI will be cut from the current number of 15 to 13, but it is anticipated that this number will remain unchanged for the next few years.

### **New Horizons:**

The STUC heard a presentation by Hal Weaver concerning the New Horizons mission to Pluto and how this represents an exiting opportunity for complementary observations with HST. The New Horizons team is actively encouraging wide participation from the community, and the use of other facilities, in order to exploit the opportunity provided by the encounter. The STUC recognized that there could be significant potential here but without specific ideas or requests it was difficult to assess the unique role of HST in this endeavor. The panel requested further information be provided such that a more informed opinion could be made about the level of support HST should engage in.