Space Telescope User's Committee Resolutions

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STScI, Baltimore, MD

STUC attendees: Mario Mateo (Chair), Will Grundy, Lori Lubin, Goran Ostlin, Todd Tripp, Sarah Gallagher, Eline Tolstoy, Lou Strolger.

Overview of STUC Comments on HST Mission Status

The STUC was very pleased to hear that HST is operating exceptionally well with its new suite of instruments. The STUC commends STScI and the HST project on their continued excellent management of HST operations during the post-SM4 era, as the many recent scientific results and press releases from HST attest. The high scheduling and data-taking efficiencies in Cycle 17 are very encouraging to continued high productivity of HST in Cycle 18 and beyond. Overall, the initial reports on the status of individual instrument were encouraging. SMOV operations generally have gone very well. The possibility of on-orbit CTE mitigation for ACS sounds particularly promising. The unanticipated degradation of COS sensitivity is a significant concern, and the STUC certainly agrees that this effect merits the close attention that it is receiving from the Project. Discussions regarding continued investigations into issues related to restarting the NCS and NICMOS have been valuable and informative. Given the superlative operational status of all the other instruments on HST and of the telescope itself, the STUC reaffirms its recommendation that any decision to act on restarting NCS await the some idea of the scientific demand and urgency to use NICMOS gleaned from the Cycle 18 TAC process.

Commendations to Preston Burch and the HST Project

The STUC offers its heartfelt commendation to Preston Burch and the HST Project for their dedicated service that has helped HST reach its milestone 20th anniversary on orbit.
To Preston in particular, the STUC recognizes his skill in successfully maneuvering the HST project through some of its most technically challenging times, and his leadership and vision in helping HST attain its most effective operational status as the telescope ushers what is sure to be a scientific golden era. The STUC offers its sincere congratulations to Preston for his accomplishments as HST Program Manager and, although saddened to hear that he has stepped down from that position, the STUC is confindent that he will find continued success in his future endeavors at NASA/Goddard. The STUC is pleased to welcome Preston's successor as HST Project Manager, Mansoor Ahmed, and wish him the best of luck in his new job.

NICMOS Recovery: Risks vs Scientific Demand

The STUC thanks all groups involved in assessing the technical implications involved in restarting NICMOS/NCS to HST. It is evident that the specific risks of this procedure to the overall health and safety of the observatory have been adequately considered, and the STUC is convinced that the likelihood of serious consequences to HST from a NICMOS/NCS restart are small, though not zero. However, independent of risks, the STUC notes that significant expenses associated with any NICMOS recovery remain, primarily due to the ensuing SMOV operations that the restart would entail, calibration observations that would be required, and of course the significant engineering effort needed to carry the procedure off. The STUC concludes that a clear and compelling science motivation must be present to fully justify a decision to proceed with this procedure. At the present time, the STUC concludes that the science case for NICMOS recovery is not sufficiently strong--in light of the broader, highly compelling cases for the other, operational instrumentation on HST--while acknowledging that NICMOS does provide some unique capabilities not available elsewhere to the astronomical community. In the spirit of better defining and bolstering the science case for NICMOS recovery, the STUC recommends that the Project await the results of the Cycle 18 proposal review. When the Cycle 18 results regarding the demand and science case for NICMOS become available, STScI should promptly convene a STUC telecon to re-evaluate the situation in light of this information.

COS Sensitivity Degradation and the Possibility of a COS Science Campaign

The STUC is seriously concerned about the degradation of the sensitivities of various short-wavelength COS channels. These sensitivity losses could soon seriously impact the competitiveness of this exciting instrument. If the degradation trends continue at their current rates and no solution to the problem is identify, it may become necessary to consider initiating a COS observing campaign to frontload programs for this instrument while its sensitivity remains near its design level. The STUC strongly encourages continued active monitoring of the degradation and investigations into its cause and possible mitigation. The STUC requests to be kept abreast of the results of these studies on a roughly quarterly schedule so that the committee can promptly weigh in on the possibility of a COS campaign and how that campaign might be administered.

HST Archive Issues

The STUC appreciates receiving the detailed report on archive developments and commends all groups associated with archive development and maintenance for the evident progress being made. The STUC particularly notes positive developments on two broad issues: (a) creating an overarching archive team to unify efforts across various missions, projects and ground-based archives (the ultimate goal of MAST), and (b) increased emphasis on improved interfaces such as standard scriptable VO services and the operation of the parser interface for archive users.

The STUC was also very pleased to hear about more specific developments, including near-term plans to significantly expand bandwidth to STScI, the decision to move away from on-the-fly reprocessing of archive data (and hence make access faster and the resulting data products more homogeneous), increased efforts to provide better tools for browsing spectroscopic data (which the STUC feels has been somewhat neglected relative to other HLA capabilities), and improved capabilities to enable archive queries for moving objects. The STUC looks forward to seeing these enhanced capabilities brought to fruition this year and requests periodic status reports as these capabilities are developed, tested and made operational. The STUC also note that many archive efforts would benefit from increased user feedback, and we would encourage efforts to facilitate this.

Large Programs

The STUC commends STScI for organizing and implementing the Multi-Cycle Treasury Program over the past few months and on an accelerated timeframe. The process seems to have progressed well, and, to date, preparations for the program appear to be proceeding smoothly. The impact of the MCT program on other projects is now being felt directly as plans proceed on allocations and scheduling of future cycles. Despite some of the implications that this planning reveals—in particular regarding the smaller pool of orbits available for small, medium and more traditional large programs--the STUC still believes that the science benefits of the MCT program will be sufficiently broad and long-lasting to justify the very large investment in observing time and Institute effort to carry out these programs. To help guarantee a successful outcome for the MCT program, the STUC identifies the need for a process to periodically monitor MCT (and other large) projects as they are being executed. Although the standard reporting system already in place provides some of these oversight needs, the STUC notes that the large time and effort invested in the MCT projects justifies an enhanced oversight procedure. To this end, the STUC recommends that a suitable body be formed to which the MCT projects could report to on a regular basis. This body could also serve as an intermediary between STScI and the MCT projects should any issues arise during the course of these ambitious and expensive programs. Since the management and success of the MCT program are of direct interest to the HST user community as a whole, the STUC itself may be a reasonable body to carry out this oversight role, and it is willing to accept that duty.

Based on our recommendation above regarding the oversight of the MCT program, the STUC concludes that it would also be beneficial for STScI to review the method in which it supervises past and on-going Large, Treasury, and Archival Treasury programs, each of which utilize significant telescope time and STScI resources. Some questions that arise regarding these programs include:
(a) How carefully has the Institute been able to monitor and ensure that these programs have kept (reasonably) to their timelines and have actually delivered on their promised data products?
(b) How effectively have these programs publicized and made available their high level data products to the broader community. Beyond the standard HST archives, this publicity can be carried out in a number of ways using modern tools, including (but not limited to) periodic

emails to interested user groups, maintenance of easily-accessible and up-to-date websites, facebook postings, etc. The STUC would like to get a short report on these program evaluation issues--perhaps as part of the MAST report--during the next STUC meeting.

ST-ECF; Venice; ESA MOU

The STUC received an excellent overview of on-going and planned ECF activities leading up to the ESA-mandated dissolution of the ECF at the end of the year. This sad event follows a 26-yr history of the ECF as the European contact point for a broad range of HST related activities. The recent activities have mainly been focused on wrapping up on going activities and facilitating the smooth handover of tasks and products developed and maintained over the last years of operation. A major example of this effort is the slit-less spectroscopy support, providing simulations, calibrations, extraction software, user support for Nicmos, ACS and most recently WFC3. These software tools developed and maintained over the years and be prepared to be handed over to others at the end of the year. The STUC was pleased to learn that significant outreach efforts developed at the ECF in recent years as well as basic support for the HST data archive will be continued at ESO with some funding from ESA.

The STUC strongly commends Bob Fosbury and his team for their outstanding contributions to the HST project over the last years and especially for their plans to finish up their contributions this year in a very positive and constructive manner under what must be very difficult circumstances. The STUC is certain that their efforts will continue to be useful to the community for many years to come.

Antonella Nota presented an overview of a 4-day conference being planned in Venice in October 2010 to say a farewell to ECF and also to celebrate 20 successful years of Hubble Science. It includes a related month-long public exhibit that should generate considerable positive HST and astronomical publicity.

The budget cycle for ESA requires support for continuation of the ESA contribution to HST to be accessed this year (for an extension to 2014). The STUC will provide a strong letter of support in recognition of the significant contribution of ESA staff to the HST effort at STScI.

Director's Discretionary (DD) Time and Target of Opportunity (ToO) Issues

The STUC concludes that classic DD allocations--particularly those that do not require rapid implementation--are being evaluated and are working as intended, consistent with the description of how these programs should operated in STScI handbooks and websites. In particular, the selection and implementation of specific programs seems to be appropriately vetted with expert/peer assessments, and suitable checks are being made with existing or rejected programs from recent cycles to avoid conflicts of interests or spurious requests. These standard practices should continue, even in extraordinary circumstances or exceptional observational opportunities should arise.

The normal, rapid-response ToO programs are working as well, as the community continues to define pertinent science programs. The STUC, however, does note the potential for TAC panels to undervalue ToO-related proposals as the orbit taxes may generally seem prohibitive to an individual panel. The STUC encourages a change in TAC policy to include a "tax" that is weighted by the proposer-defined probability of execution (an example would be ToO programs for tidal-disruption flares or pair-instability SNe). The STUC notes that many ToO programs may have higher than usual prospects for exceptional scientific return, and so the committee wishes that STScI can continue to encourage competitive transient science proposals, despite the expected downturn in the number of general ToO allocations due the MCT program, and diminishing support resources for these labor-intensive observations. In part because of this last point, the STUC does *not* recommend that the total number of ToO observations allowed in a given cycle be increased from its current value unless and until major efficiency gains in carrying out these programs are implemented.

The STUC sees no real urgency in defining a class of standing "essential" ToOs for the community as that opportunity already exists within the TAC process. But the community should be reminded of this fact, and encouraged to make sure that unique opportunities are not missed because of lack of planning for the related ToO observations.

The STUC also recommends that programs that are have both DD and ToO characteristics be executed sparingly, as there may be strong incentive in such cases to circumvent even an accelerated peer review process to weigh the importance of these programs against other science.

HST Metrics

The STUC was impressed by the efforts put into collecting the HST publication metrics and the committee encourages that these data continue to be compiled into the future. It would also be useful to consider other types of metrics, for instance related to personal training aspects, e.g. the number of PhD theses based on HST data. It may be impractical to dig out the historical record for the past, but may be something to think of for the future and in particular for JWST.

Cycle 18 TAC Issues

The STUC would like to commend the staff at STScI for their hard work on the preparation for the cycle 18 proposal review process scheduled for May 2010. It is clear that the staff has given the TAC process a great deal of consideration to this process in light of the inevitablyhigh oversubscription level for the post-SM4 HST.

The STUC was informed that the large-program orbit allotment will be significantly reduced in the next several cycles due to committments associated with multi-cycle and treasury projects. The committee also learned that in Cycle 18, orbits used in the past for subsidizing medium proposals will be eliminated entirely and replaced with a new policy (see below). The STUC had mixed opinions about whether these changes represented the best way to pay for MCT and

other treasury programs. Some STUC members argued that the large programs should not bear the bulk of the cost, but others defended the importance of small/medium projects. This is a classic division of opinion on this subject, but the STUC still believes that this issue should continue to be carefully considered perhaps using statistics from the TAC process or other metrics to help frame the discussion.

The STUC was concerned about the new policy (for Cycle 18) regarding medium programs. In brief, each panel will be asked to select one medium-sized program that will face multiple jeopardies. First, this medium program will have to be selected by the chairs and co-chairs of the "mirror" panels (i.e., other panels considering the same science topics). This will produce a single medium proposal that will go on to a final competition between all of the panels that will select 4-6 medium projects for approval. STScI has set aside 300 orbits for the medium-class projects. The STUC has several concerns about this new policy, mainly having to do with whether the medium-sized proposals would be evaluated appropriately relative to their orbit requests.

The STUC does not recommend any change to this policy for Cycle 18 (it is too late for such a change), but wishes to discuss this policy at length at the next meeting. As part of this discussion, the STUC would appreciate a report regarding how well the policy worked in practice in the Cycle 18 TAC from various perspectives. We recommend that the panel chairs be polled on how the procedures for medium proposals affected their evaluation within a panel and in the subsequent TAC meeting. The STUC should be informed before cycle 19 on the best way to evaluate the medium proposals and would like to weigh in on what this best approach might be.

NASA HQ Update

Eric Smith informed the STUC that the major change in the coming years is a mandate from Congress to change to year-to-year costing for grants. This seems to imply that grant recipients (institutes and universities) will have to spend money within one year of receiving the grant. The STUC notes that this policy is highly problematic, especially given the fixed season for hiring postdocs (typically in early spring) to start work the following fall. Furthermore, for large programs or surveys, it can take a full cycle (approximately a year) before all of the data is received. The STUC strongly encourages that all reasonable efforts be made to avoid a rigid year-to-year funding policy or to at least incorporate enough flexibility to address the types of concerns noted here.

APT Support

Concerning the APT, the STUC understands that STScI needs to discontinue its support for Mac PowerPC and 32-bit Intel machines running OSX 10.4 and earlier due to the industry move to Java 6. We support notifying the community as soon as possible (after the Phase II deadline) and explicitly stating the options available for users (beyond simply having to purchase a new machine). In addition, we encourage STScI to explore options for supporting

older systems and operating systems as it is often difficult for users to stay as current as Mac and Java require.