

Recommendations of the Space Telescope Users' Committee (STUC) Meeting, May 1997

NICMOS-specific recommendations.

12 June 1997

A.The STUC appreciates the need to maximize the amount of science which can be achieved with NICMOS. We recognize, however, that there is important and timely science to be undertaken with the other working instruments, that there is a large backlog of unfinished cycle 5 and 6 observations, and that other instruments may fail prematurely. We recommend the following, predicated upon the current best estimate of a 1.5 year NICMOS cryogen lifetime:

That NICMOS calibration observations be given high priority.

That the scheduling of cycle 7 NICMOS GO and GTO observations be accelerated. This will enhance the possibility of proposing followup observations with NICMOS.

That the Cycle 7 TAC, or a subset thereof, NOT be reconvened. There are two reasons not to reconvene the TAC.

1. Cycle 7 proposals were written for a different instrument under different circumstances. For example, thermal backgrounds are much lower than expected, which makes some observations more feasible. One also writes more conservative proposals for the first year of a four year mission than one does for the last year.
2. The names of the TAC members are public knowledge, which fosters the possibility of lobbying the committee. It is not fair to the members of the TAC to subject them to such pressure.

That a NICMOS-only delta-Call for Proposals (delta-CP) be announced and undertaken as soon as possible. By the time proposals are due, there will be a body of NICMOS data, permitting detailed characterization of instrumental performance, and affording the possibility to propose follow-on observations.

That a NICMOS-intensive campaign, using proposals from the delta-CP, be undertaken between January 1998 and October 1998, when cryogen depletion is expected.

That a representative percentage of cycle 8 and 9 GTO time be scheduled in cycle 7.

We are confident that HST and STScI will closely monitor the thermal history of NICMOS. In the event that the thermal short breaks, and the projected lifetime of the cryogen extends to at least the fall of 1999, we recommend that the delta-CP be cancelled or, if proposals have already been collected, that they be held for a normal cycle 8 review.

B.The STUC finds the NIC-3 science sufficiently compelling to recommend at least one NIC-3 campaign with a defocussed secondary, subject to the following caveats:

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- we assume that the STIS focus can be maintained after the movement of the HST secondary mirror. This will ensure that two instruments will be operable, will permit parallel observations, and will mitigate some of the concerns about the failure of the HST secondary mirror focussing mechanism.
- The STUC recommends that the HST project reconsider the risks involved with moving the secondary mirror. If the project is willing to accept the risks, the STUC recommends a NIC-3 campaign be scheduled when the HDF can be observed. We recommend that the scheduling of this campaign be planned well in advance, and announced in the delta-CP. In the event that no delta-CP is necessary, this campaign should occur during cycle 8.

C.The STUC recommends that no changes be made in the length of the proprietary period for cycle 7 NICMOS GO data. Policies concerning the length of the proprietary period should apply equally to all GO data, and should be specified in advance in the Call for Proposals.

D.The STUC recommends that the STScI work closely with the NICMOS team to ensure that the proper calibration files are placed in the data processing pipeline, so that the data products derived from the accelerated NICMOS GO observations are scientifically useful. Every effort should be made to populate the pipeline data base with on-orbit darks and flats. Those darks and flats that have not been obtained to date and are anticipated to be heavily used in the early GO and GTO program should be scheduled in the calibration program as soon as possible.

E.Any decision to fly a cryogenic cooler for NICMOS should be made only after due considerations of all potential impacts on the spacecraft and the other instruments, and on the financial resources of the project. Funding for the cryogenic cooler must not be taken from UPN 459, and must not decrease the funding available for the year 2002 instrument(s).

Recommendations about Operations.

F.The STUC recommends that a major effort be undertaken to ensure parallel observing capabilities with the NICMOS and STIS, and commends the STScI for its efforts to date. The reduced lifetime of NICMOS makes parallels all the more urgent. We encourage the STScI to seek input from the community as to the best use of the Cycle 7 parallel time. A small workshop should be held in July or early August and a working group for parallels should be formed.

G.The STUC is deeply concerned about the proposals by the HST Project to decommission operating science instruments.

The STUC was told that the WFPC2 would be unsupported, and available only for backup use, after the ACS is commissioned in 1999. Decommissioning of the WFPC2 will cripple many research topics requiring narrow band imaging such as the investigation of star forming regions, Herbig-Haro objects and stellar jets, HII regions, planetary and proto-planetary nebulae, supernova remnants, and these objects in nearby galaxies. ACS does not support the compliment of narrow-band filters available on WFPC2. Over 30% of WFPC2 usage, and many of the most spectacular images released by HST, such as M16, the Orion Nebula, and the Helix, were obtained through the narrow band filters. Additionally, research requiring long time baselines, such as measurements of the variability or proper motions of emission line objects, will also be precluded.

The STUC is also deeply concerned about the proposal by the HST Project to discontinue scientific use of the Fine Guidance Sensors after cycle 8. The astrometric science undertaken with the FGS, notably determination of stellar masses from the orbits of visual binaries, require long time baselines, and sustained access to the FGS.

We urge that the HST project and the STScI consult with the community, and to take into account the impacts on the science, prior to making any decisions concerning the decommissioning of science instruments.

H.The STUC recommends that STScI provide additional support for new users to counter the increasing complexity of the new HST instrumentation. Phase 2 proposals require a significant investment of time for all users, but are especially daunting to new users who have never faced

RPS2. While new users can (and are encouraged to) visit STScI for assistance in preparing their Phase 2 proposals, they are often unable to do so for financial reasons. Preparatory funding is not available prior to Phase 2 submission, and even if it were, current budget guidelines restrict users to \$3,000 in loaded travel costs. One trip to STScI can consume a substantial portion of these costs.

Improved new-user support could include:

1. A New Users Guide which provides a step-by-step description of Phase 2 preparation, including examples such as a sample exposure time calculation using STScI Web tools.
2. Enhanced one-on-one RPS2 and contact scientist support for Phase 2. Possibilities include user visits to STScI (as done now), remote STScI support outposts, or traveling STScI training sessions. Travel costs for new users should be supported outside the regular budgetary process.
3. Support for RPS2 under LINUX. Not all users have access to SUN hardware, and the use of PCs running LINUX is increasing in the astronomical community. We ask that the STScI look into the costs involved in porting RPS2 to LINUX.

I. The STUC recommends that the STScI exhibit flexibility in the due dates of phase-II proposals in those cases where required RPS2 functions are not yet completely incorporated

Other recommendations.

J. The STUC recommends that the number of GO programs accepted during cycle 8 be limited by the TAC and proposal pressure, and not to any preset number of programs.

K. The STUC recommends that the STScI restore the Sabbatical Visitor Program, cut due to a recent decrease in the UPN 458 budget, as soon as a funding opportunity can be identified.

L. The STUC recognizes the enormous contribution to US astronomy that is made by the Hubble Fellowship program. We realize that the policies regarding the number of fellows per institution is an AURA, not an Insitute, policy. We feel strongly, however, that the present policy of one fellow per institution per year is not in the best interest of the fellows, given the current level of support for the program. If the number of fellowships awarded continues to rise, the distribution problem will only worsen. We urge the STScI to petition to AURA to revert to the original rule of no more than 10% of the total pool of fellows be allowed in residence at any one institution in an academic year.

M. The STUC recommends that the STScI investigate how to tune the HST archival research program better to the natural, yearly funding cycles of Universities. Archival proposals are generally requests for funding in support of students and postdocs, and are awarded by the STScI TAC's based on scientific merit. Since the data already exists there is no fundamental need to tie the evaluation of Archival proposals to the same time-line as the regular GO proposals, which, in addition to scientific merit, are driven by instrument and telescope issues and scheduling opportunities. Future GO proposal cycles may be severely out of synch with normal funding cycles at Universities (for example, cycle 7 might be as long as 20 months). Requiring the Archival program to follow this same schedule causes hardship to students and postdoctoral researchers.

N. The STUC requests that the HST project and the STScI move forward with plans for a 2005 servicing mission, and that the community be solicited to provide a new instrument to be placed in Hubble Space Telescope during that last servicing mission. The HST is uniquely capable of

exceeds the capabilities of ground based telescopes in obtaining spatially resolved spectroscopy of very complex sources, and

offers very low thermal backgrounds in the near-IR.

Given that by 2005 the Space Telescope Imaging Spectrograph will have been eight years on orbit, the Advance Camera for Surveys will have been six years on orbit, and the 2002 instrument three years on orbit, the likelihood is significant that at least one instrument will have degraded or failed by 2005. To ensure that HST is providing cutting-edge scientific results in the 2005 and beyond

timeframe, one last instrument opportunity would yield very significant benefits. Continued operations of HST with a new instrument in 2005 was highly recommended by the HST and Beyond Committee.

○.The STUC found that by having access to the written presentations in advance, the meeting was streamlined. We recommend that this practice continue at future meetings. Members of the STUC, or invitees of the STUC, are urged to reciprocate by preparing material in advance for relevant STScl and HST project staff.

Dr. Fred Walter, chairman

Last updated: 17 June 1996