

Evolution of the HST Proposal Selection Process: Changes for Cycle 9

From an article by Meg Urry in the April 1999 STSci Newsletter
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ABSTRACT

For Cycle 9 the Science Program Selection Office (SPSO) has changed the selection process to ensure that HST will continue to perform the best possible science with the best return for the astronomical community. This report summarizes the changes to the selection process and offers suggestions on writing an effective proposal that accounts for these changes.

1. Introduction

Since Cycle 1 the number of submitted proposals has more than doubled (to over 1000 proposals in Cycle 8), and the fundamental structure of panels and the TAC has been scaled up commensurately, with little structural change.

The TAC's primary responsibility has always been to establish priorities among scientific disciplines, but now that it has doubled in size -- to more than 20 people in the last cycle -- the kind of in-depth, focused discussion needed to set these priorities has become increasingly difficult. Also, in past cycles the proposal selection process has worked against larger programs, which are increasingly seen as a vital part of the HST program.

2. Changes in the Selection Process for Cycle 9

To address these concerns and ensure that HST will continue to produce the best possible science for the astronomical community, the Science Program Selection Office has changed the selection process. The major changes for Cycle 9 are:

- **Fewer panels:** With more orbits to allocate, each panel will have more flexibility, especially to approve the somewhat larger proposals.
- **Fewer scientific categories:** Panels will be dedicated to very broad science topics, perhaps as few as five -- one for solar system, two for Galactic science, two for extragalactic science. Hence it will be essential for proposers to describe the impact of the proposed science on astronomy in general (i.e. the big picture). Science balance among subtopics, previously determined by the TAC, will be achieved within the selection panels. This approach, long practiced in the high-energy astrophysics community, also simplifies the avoidance of conflicts of interest.

- **TAC focus on large programs:** The main role of the TAC will be to approve the best large programs (100 or more orbits), for which they will have up to 1,000 orbits to allocate. This means the TAC could approve 2 to 3 programs averaging 300 orbits each. With scientific balance achieved within the broad selection panels, the TAC is not expected to address the small proposals at all. *Large proposals will therefore have an excellent chance of success, and are strongly encouraged.*
- **Incentives for medium proposals:** Starting in Cycle 7, there have been "orbit subsidies" to encourage panels to approve medium proposals (more than 30 orbits). This meant that a fraction of the orbit request was not charged against the panel quota. This system worked reasonably well, leading in Cycle 8 to an average acceptance rate that was independent of proposal size. For cycle 9 the subsidized fraction will increase with size. We will adjust the algorithm from one Cycle to the next to try to keep the oversubscription rate approximately the same independent of the size of the proposal (under the assumption that quality is independent of size). *We strongly encourage proposers to ask for the observing time they need to achieve their scientific goals, without strategizing in response to perceived notions of advantages or disadvantages with respect to size.*
- **Allocation of coordinated Chandra/AXAF time:** Proposals of a fundamentally multi-wavelength nature, requiring both HST and the Chandra X-ray Observatory (AXAF), can be submitted to either the present HST Cycle 9 or the next AXAF review. By agreement with the AXAF Science Center (ASC), STScI will be able to award up to 400 kiloseconds of AXAF observing time, and similarly the ASC will be able to award up to 100 orbits of HST time, to highly-rated proposals meeting the multi-wavelength criterion.

3. Suggestions for Proposers

These revised procedures should lead to a stronger, better HST program. Here are some suggestions to keep in mind when writing a proposal.

- Proposers must stress why their science is critically important and why it requires HST. The panelists reading the proposals will have a broader expertise -- and there will be fewer specialists in the particular topic -- so more introductory material may be necessary.
- Larger proposals are strongly encouraged and are expected to be at least as successful as small proposals. The oversubscription rate for HST hovers around 5:1, so it is never easy to get time but *the odds of success are the same for proposals over 100 orbits and those under 10 orbits*. So if you have a project that requires a large investment of HST observing time, do not hesitate to propose it.
- Science requiring both HST and Chandra/AXAF can be proposed to only one Observatory, eliminating the "double jeopardy" that unfairly disadvantages multi-wavelength science. Proposals should be submitted to the observatory that represents the prime science, i.e., where the predominant panel expertise (IR/opt/UV vs. X-ray) is most relevant.
- Proposers should write clearly. Reviewers have always had a difficult job reading ~100 or so proposals carefully. In Cycle 9, that number may be doubled. So take the time to write clearly and coherently, explaining what you want to do and why. This is good proposal strategy whatever the review process may be.

As experience with these new procedures accumulates, we will continue to fine-tune and improve the process. Our primary goal remains to select the best possible science program for HST, with an appropriate scientific balance.