Hubble Space Telescope Cycle 10
Call for Proposals

Policies, Procedures & Phase I Proposal Instructions
Call for Proposals
We invite scientists to participate in Cycle 10 of the General Observer (GO), Snapshot (SNAP), and funded Archival Research (AR) programs of the Hubble Space Telescope (HST). The telescope and its instruments were built under the auspices of the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA), and management of HST’s scientific program is carried out by the Space Telescope Science Institute (STScI).

Who May Submit
Scientists of any nationality or affiliation may submit HST proposals. U.S. Proposers (as defined in Section 11.2) may request funding to support Archival Research.

Proposal Due Dates
• GO/SNAP/AR proposals: Friday September 8, 2000, 8:00 pm EDT.
• E/PO proposals: Friday March 23, 2001, 5:00 pm EST.
• Late proposals will not be considered.

How to Get Started
• Read this Call for Proposals.
• Read the HST Primer.

Where to Get Help
• Visit STScI’s Web Site at http://www.stsci.edu.
• Contact the STScI Help Desk. Either send e-mail to help@stsci.edu or call 1-800-544-8125; from outside the United States, call [1] 410-338-1082.

Who’s Responsible
The STScI Science Program Selection Office (SPSO) is responsible for the HST science program selection process, which includes preparing Calls for Proposals, organizing proposal reviews, and developing associated policies. SPSO staff includes astronomers Meg Urry (Office Head), Letizia Stanghellini and Roeland van der Marel, Technical Manager Brett Blacker, and Administrative Assistant Lisa Spurrier. SPSO is part of the STScI Science Policies Division (Division Head: Duccio Macchetto).

This Call for Proposals was edited by ROELAND VAN DER MAREL AND JIM YOUNGER. Text and assistance were provided by many different individuals at STScI.
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Chapter 1: General Information

In This Chapter ...

• About this Document
• New and Important Features of Cycle 10
• General Guidelines for Proposal Preparation
• Resources, Documentation and Tools
• STScI Help Desk
• Organization of this Document

1.1 About this Document

The material that appeared in the Call for Proposals in previous cycles has now been split into two separate documents: this Call for Proposals and the HST Primer (see Section 1.4). The Call for Proposals discusses policies and procedures, and explains how to submit a Phase I proposal. The HST Primer provides a basic introduction to the technical aspects of HST and its instruments, and explains how to calculate the appropriate number of orbits for your Phase I observing time requests.

The Call for Proposals will not be mailed to libraries, and is only available electronically in PDF and HTML formats. In both formats there are active links to related or more detailed information, both within the document itself and within other STScI documents. You are therefore encouraged to not just print the document, but to use it electronically.

If you wish to print the document, then it is best to use the PDF version. Any links to information on the internet will appear as underlined text in the hardcopy. You can look up the internet address of the corresponding link in Appendix E.

1.2 New and Important Features of Cycle 10

Cycle 10 will start nominally in July 2001 and have a duration of one year.

During the next servicing mission (SM3B; see Section 2.1.3 of the HST Primer for details), currently anticipated to occur sometime in the July - December 2001 time frame, Space Shuttle astronauts will install the Advanced Camera for Surveys (ACS). Also, the Near Infrared Camera and Multi-Object Spectrometer (NICMOS) will resume operations after installation of a new cryo-cooling system. NICMOS and ACS will be available for Cycle 10 observing proposals, in addition to the current instruments: the Fine Guidance Sensor (FGS); the Space Telescope Imaging Spectrograph (STIS); and the Wide Field and Planetary Camera 2 (WFPC2). However, depending on the actual launch date for SM3B, ACS and NICMOS will likely be available to observers for only part of Cycle 10.
General Information

Proposers who wish to use ACS or NICMOS in Cycle 10 should frequently check the Cycle 10 Announcement Web Page (see Section 1.4) for updates on the anticipated details of SM3B.

The servicing mission SM3B may also include the installation of an aft-shroud cooling system (ASCS) for the axial instruments (see 2.1.3 of the HST Primer for details). In anticipation of this we solicit proposals for two planned STIS campaigns of 1 week duration when the NUV-MAMA will operate with significantly reduced dark current (see Section 4.1.4). The execution of programs selected for these campaigns is contingent on the ASCS installation during SM3B. If the ASCS installation is deferred to the next servicing mission then approved programs will have to be resubmitted for a later cycle.

Investigators who wish to propose for the STIS NUV-MAMA low dark current campaigns, or whose projects depend otherwise on the availability of the ASCS in Cycle 10, should frequently check the Cycle 10 Announcement Web Page (see Section 1.4) for updates on the anticipated details of SM3B.

The following features are also new in Cycle 10:

• We solicit proposals for the new categories of ‘Calibration Programs’ and ‘Innovative Programs’ (see Section 3.8 and 3.6). The former aim at providing new or improved instrument calibrations, and the latter explore new and innovative ways of using HST.

• HST proposals can request observing time on NOAO Telescopes, including the public access time on the Hobby-Eberly Telescope and the MMT but excluding the Gemini telescopes, if the ground-based observations are an essential part of the science project (see Section 3.4).

The following features also deserve special mention, but have not changed since the last cycle:

• Proposal submission is entirely electronic. Archival Research proposers do not need to submit a detailed budget in Phase I.

• The Telescope Allocation Committee (TAC) will review Large Programs (requesting 100 orbits or more). Up to 1000 orbits could be allocated to these Large Programs. STScI encourages the submission of proposals for Large Programs (see Section 3.1.1).

• Joint HST-Chandra observing proposals are solicited (see Section 3.3). These should be submitted to the observatory where the predominant review panel expertise (IR/optical/UV vs. X-ray) is most relevant.

• STScI encourages the community to identify exciting HST science that would be enabled by Target of Opportunity (TOO) proposals with a 2-day (or less) turnaround time, and to submit proposals accordingly (see Section 3.1.4).

• Finally, we encourage U.S. Proposers whose Phase I GO/SNAP/AR proposals have been successful to submit an associated Education/Public Outreach (E/PO) proposal (see Chapter 10).

1.3 General Guidelines for Proposal Preparation

Here are some suggestions to keep in mind when writing your proposal.

• Stress why your science is critically important and why it requires HST.

• Write for the appropriate audience.

Review panels span a broad range of scientific expertise. It is therefore crucial that your proposal provides sufficient introductory material for the non-specialist, and explains the importance of the program to astronomy in general.

• Explain clearly and coherently what you want to do and why.
Make sure to get your point across to reviewers who have to judge on order 100 proposals in a finite amount of time.

- **If you have a project that requires a significant investment of HST observing time, do not hesitate to propose it.**

STScI strongly encourages the submission of larger proposals. In recent cycles, the proposal acceptance rate (about 1 in 5) has been approximately independent of proposal size. So, please realize that the odds of getting a sizeable proposal accepted are no worse than that for a small proposal.

- **Make sure that what you propose is feasible.**

It is the responsibility of the proposer to insure that the proposed observations are technically feasible; proposals that are not technically feasible will be rejected. So familiarize yourself with the technical documentation provided by STScI. In particular, make sure that your observations do not exceed Bright Object Safety limits (see Section 5.1 of the HST Primer). Contact the STScI Help Desk (see Section 1.5) if anything is not clear, or if you are unsure about the feasibility of a particular approach or observation.

### 1.4 Resources, Documentation and Tools

- **Cycle 10 Announcement Web Page**

  The Cycle 10 Announcement Web Page (internet address listed in Appendix E) contains links to information and documentation (including this Call for Proposals) that will be useful to you while preparing your proposals. This page will also provide any late-breaking updates on the Phase I process, and answers to frequently asked questions.

- **HST Primer**

  This document is new in Cycle 10. It provides a basic introduction to the technical aspects of HST and its instruments, and explains how to request the appropriate number of orbits in a Phase I proposal. The HST Primer is accessible from the Cycle 10 Announcement Web Page (see Appendix E).

- **Instrument Handbooks**

  The Instrument Handbooks are the primary source of information for the HST instruments. You should use current versions of the Instrument Handbooks when preparing a proposal. They are available for all instruments, including former instruments that may be of interest for Archival Research. The Handbooks are distributed electronically, and can be accessed from the Scientific Instruments Web Page (see Appendix E). This page also provides links to more detailed technical information, such as that provided in Instrument Science Reports.

- **Exposure Time Calculators (ETCs)**

  STScI provides Exposure Time Calculators (ETCs) for each of the HST instruments. Please use these electronic tools to estimate how long you need to integrate to achieve the signal-to-noise ratio required for your project. They also will issue warnings about target count rates that exceed linearity and safety limits. The ETCs can be accessed from the Scientific Instruments Web Page (see Appendix E).

- **The Visual Target Tuner (VTT)**

  STScI will release a prototype software tool in the summer of 2000, called the Visual Target Tuner (VTT). It displays HST apertures and fields of view that are superimposed on sky images. Detailed information about the VTT will be made available on the STScI Web site,
General Information

and will be accessible from the Cycle 10 Announcement Web Page (see Appendix E).

The VTT can be useful in Phase I proposal preparation to help you answer questions such as: How many exposures will I need to mosaic my extended target? Which of my potential targets “fits best” in the aperture? Is there anything interesting I can observe with a coordinated parallel in another aperture? Do any of my potential targets have nearby bright objects that could spoil the observation? Is there an orientation which would avoid the bright object? STScI welcomes all feedback on the VTT prototype.

■ HST Data Archive

The HST Data Archive contains all the data taken by HST. Completed HST observations, including both GO and GTO data, become available to the community for analysis upon expiration of their proprietary periods.

The Data Archive Web Page (see Appendix E) provides an overview of the Hubble Archive, as well as the procedures for accessing archival data (see also Section 7.2 of the HST Primer). A copy of the HST Data Archive is maintained at the Space Telescope - European Coordinating Facility (ST-ECF; see Appendix A.2) in Garching, to which European requests should normally be addressed. The Canadian Astronomy Data Centre (CADC; see Appendix A.3) also maintains a copy of HST science data (only), and is the preferred source for Canadian astronomers.

■ Duplication checking

The HST Data Archive provides access to several tools that allow you to check whether planned observations duplicate any previously executed or accepted HST observations. See Section 5.2.2 for details.

1.5 STScI HELP DESK

If this Call for Proposals and the materials referenced above do not answer your questions, or if you have trouble accessing or printing Web Documents, then contact the Help Desk. You can do this in either of two ways:

• Send e-mail to help@stsci.edu.
• Call 1-800-544-8125, or from outside the United States, [1] 410-338-1082.

1.6 ORGANIZATION OF THIS DOCUMENT

■ Policies, Procedures and General Information

Chapter 2 summarizes the policies regarding proposal submission. Chapter 3 describes the types of proposals that can be submitted. Chapter 4 describes the types of observations that can be done with HST, including various types of special requirements. Chapter 5 addresses policies regarding data rights and duplications. Chapter 6 describes procedures and criteria for proposal evaluation and selection.

■ Preparing and Submitting Your Proposal

Chapter 7 outlines the steps to follow when preparing and submitting your proposal. Chapter 8 provides instructions on filling out the proposal forms.

■ Information Pertaining to Accepted Proposals

Chapter 9 provides information on the implementation and scheduling process for accepted
proposals. Chapter 10 describes Education/Public Outreach (E/PO) proposals. Chapter 11 provides information on budgets, grants and funding policies.

■ Appendices

The appendices provide variety of additional information, including contact information (Appendix A), lists of scientific keywords (Appendix B) and instrument parameters (Appendix C) that can be used in observing proposals, a glossary of acronyms and abbreviations (Appendix D) and a list of internet links used in the document (Appendix E).
Chapter 2: Proposal Submission Policies

In This Chapter ...

- The Proposal Process: Phase I and Phase II
- Deadlines
- Who May Submit
- Funding
- Proposal Confidentiality

2.1 THE PROPOSAL PROCESS: PHASE I AND PHASE II

STScI manages the review of HST proposals and carries it out in two phases.

In Phase I, proposers submit a scientific justification and observation summary for peer review. The Review Panels and Telescope Allocation Committee (TAC) recommend a list of programs to the STScI Director for preliminary approval and implementation (see Chapter 6). This Call for Proposals focuses on Phase I policies and procedures. Separate documentation is available for Phase II.

In Phase II investigators with approved Phase I proposals must provide complete details of the observations in their proposed observing program. This allows STScI to conduct a technical feasibility review, and to schedule and obtain the actual observations. Programs are not fully approved until after submission of an acceptable Phase II program. In addition to this, Phase II investigators should do the following:

• Eligible investigators who request funding must submit detailed budgets (see Chapter 11).
• Interested, eligible investigators can submit an Education/Public Outreach (E/PO) proposal (see Chapter 10).

2.2 DEADLINES

Cycle 10 has the following deadlines:

• Phase I Observing & Archival Research proposals: Friday September 8, 2000, 8:00 pm EDT.
• Education/Public Outreach proposals: Friday March 23, 2001, 5:00 pm EST.

Late proposals will not be considered.

The following deadlines remain to be determined:

• Phase II Observing Programs (around February/March 2001).
2.3 **WHO MAY SUBMIT**

Scientists of any nationality or affiliation may submit an HST proposal. Endorsement signatures are not required for Phase I observing proposals (unless required by the regulations of the proposing institution).

2.3.1 **Principal Investigator and Co-Investigators**

Each proposal must have one and only one Principal Investigator (PI). Any other individuals who are actively involved in the program should be listed as a Co-Investigators (CoI). The PI is responsible for the scientific and administrative conduct of the project, and is the formal contact for all communications with STScI.

Proposals by non-U.S. PIs that have one or more U.S. CoIs must designate one of the U.S. CoIs as the ‘Administrative PI’ (use the adminPI keyword in the Phase I proposal template. See Section 8.1.12). This person will have overall oversight and responsibility for the budget submissions of the U.S. CoIs in Phase II.

All proposals are reviewed without regard to the nationalities or affiliations of the investigators.

2.3.2 **ESA Scientists**

An agreement between NASA and ESA states that a minimum of 15% of HST observing time (on average over the lifetime of the HST project) will be allocated to scientists from ESA member states. It is anticipated that this requirement will continue to be satisfied via the normal selection process, as it has been in previous cycles. In order to monitor the allocation to scientists from ESA member states, affiliations of investigators with ESA member-state institutions should be identified as such in the proposal (using the ESMember keyword).

2.3.3 **Student PIs**

Observing proposals from student PIs will be considered. These proposals should be accompanied by a written statement from the student's faculty advisor certifying that

- the student is qualified to conduct the observing program and data analysis;
- he or she is in good academic standing.

This letter from the advisor should be e-mailed before the deadline to student-pi@stsci.edu.

The proposal should indicate if the proposed research is part of a doctoral thesis.

The faculty advisor’s statement is not required in cases where a student is listed in the proposal only as a CoI.

2.4 **FUNDING**

Subject to availability of funds from NASA, STScI will provide financial support for U.S. PIs and CoIs of approved Cycle 10 programs, including U.S. CoIs on observing projects with non-U.S. PIs. Budgets are not due in Phase I, but are required in Phase II from successful proposers only. Details of the STScI Funding Policies (including the definition of the term ‘U.S. Investigators’) are outlined in Section 11.2.

ESA does not fund HST research programs. Therefore, successful ESA member-state proposers should seek any necessary resources from their respective home institutions or national funding agencies. ESA observers do, however, have access to the data-analysis facilities and
Proposal Submission Policies

technical support of the staff of the ST-ECF (see Appendix A.2), in addition to those of STScI.

2.5 PROPOSAL CONFIDENTIALITY

Proposals submitted to STScI will be kept confidential to the extent allowed by the review process described in Chapter 6. For accepted proposals, the scientific justification section of the proposal remains confidential, but other sections become publicly accessible, including PI and CoI names, project titles, abstracts, description of observations, special scheduling requirements, and details of all targets and exposures. Phase II programs submitted for approved proposals become publicly accessible in their entirety.
Chapter 3: Proposal Categories

In This Chapter …

- General Observer (GO) Proposals
- Snapshot (SNAP) Proposals
- Joint HST-Chandra Observing Proposals
- Joint HST-NOAO Observing Proposals
- Survey Proposals
- Innovative Proposals
- Archival Research (AR) Proposals
- Calibration Proposals
- Director’s Discretionary (DD) Time Proposals
- Guaranteed Time Observer Programs

There are HST proposal categories for General Observer (GO), Snapshot (SNAP), and funded Archival Research (AR) programs. U.S. Investigators with approved proposals are strongly encouraged to submit an associated Education/Public Outreach (E/PO) Proposal (see Chapter 10). At any time scientists can request Director’s Discretionary (DD) time for observations of unanticipated and scientifically compelling astronomical events (see Section 3.9).

3.1 General Observer (GO) Proposals

You may submit a GO proposal for any amount of HST observing time. Observing time for GO proposals is counted in terms of HST orbits. Please consult Chapter 6 of the HST Primer for information on how to calculate the required number of orbits for your observations.

The Space Telescope Advisory Committee (STAC) has advocated that a mix of programs of different sizes makes the best scientific use of HST, and encouraged in particular the acceptance of Large Programs (requiring 100 orbits or more). The proposal review process (see Section 6.1) was designed to ensure that a reasonable distribution of program sizes is selected.

3.1.1 Large Programs (100 orbits or more)

Large programs should lead to a clear advance in our understanding in an important area of astronomy. They must use the unique capabilities of HST to address scientific questions in a comprehensive approach that is not possible in smaller time allocations. These programs will be evaluated by the TAC, which can award up to 1000 orbits to Large programs (approximately 1/3 of the total time anticipated to be available in Cycle 10).
Proposal Categories

Proposers are strongly encouraged to develop competitive Large proposals.

The goal in Cycle 10 is to select several programs in the 100-300 orbit range. For comparison, in Cycle 9 six large programs were accepted for a total of 534 primary orbits and 1200 pure parallel orbits.

A Large Program may extend beyond the current cycle. As for Regular programs, this should be the case only if scientifically justified (see Section 3.1.3).

Selection of a Large Program for implementation does not rule out acceptance of smaller projects to do similar science, although target duplication and overall program balance will be considered.

3.1.2 Regular Programs (99 orbits or less)

Regular Programs are those programs requesting fewer than 100 orbits. They are reviewed by individual panels with expertise in broad areas of astronomy. In order to encourage the acceptance of sizable proposals, a progressive orbit “subsidy” is allocated to the panels, with orbits in the subsidy coming from outside the direct panel allotment. The algorithm for this “subsidy” will have the goal of creating an acceptance rate of submitted programs that is approximately independent of size. Accordingly, you are urged to request the actual number of orbits required to achieve your science goals.

3.1.3 Long-term Programs

You can request HST observing time for more than one cycle. Long-term programs require a long time baseline, but not necessarily a large number of HST orbits, in order to achieve their science goals, such as astrometric observations or long-term monitoring of variable stars or active galactic nuclei.

Long-Term Proposals must be limited to cases where it is clearly required to optimize the scientific return of the project.

You may request time in as many as three observing cycles (i.e., Cycles 10, 11 and 12), but you cannot request instruments other than those presently offered in Cycle 10. Long-term proposals should describe the entire requested program and provide a cycle-by-cycle breakdown of the number of orbits requested. The scientific justification for allocating time beyond Cycle 10 should be presented in detail. For long-term programs, it is the sum of all orbits requested for Cycles 10, 11 and 12 that determines whether the program is Large or Regular.

The Cycle 10 Review Panels and TAC are permitted to award limited amounts of time to Long-Term Programs for Cycles 11 and 12. GOs with approved Long-Term Programs need not submit continuation proposals in the subsequent Cycles (and hence, GOs who had Cycle 10 time approved in Cycles 8 or 9 do not have to submit a continuation proposal.)

3.1.4 Target-of-Opportunity (TOO) Programs

Targets-of-Opportunity (TOO) are astronomical objects undergoing unexpected or unpredictable changes. They include objects that can be identified before the onset of such an event (e.g., dwarf novae, eclipsing variable stars, etc.), and objects that cannot be identified in advance (e.g., novae, supernovae, gamma ray bursts, newly discovered comets, etc.). In the cases where it may not be possible to include a list of particular objects, you should specify “generic targets” in the observation summary. Your proposal should present a detailed plan of observations if the TOO occurs.
Proposal Categories

Target-of-Opportunity observations must be marked in the ‘Observation Summary’ section of the proposal (see Section 8.1.14) using the keyword ‘TOO’ (see Table 8.1). In the ‘Special Requirements’ section of the proposal (see Section 8.1.17) you must provide an estimate of the probability of occurrence of the TOO during the observing cycle, and describe the required turn-around time.

■ Turn-Around Time
The turn-around time for a TOO observation is defined as the time between an observer’s request for TOO activation and the execution of the observations. The HST observing schedule is generally determined several weeks in advance of the actual observations. Therefore, any short-notice interruptions to the schedule place severe demands on the scheduling systems, and lead to a decrease in overall efficiency of the observatory. For this reason, the minimum turn-around time for TOO activation, while depending on the particular circumstances, is normally 2-5 days; this can be achieved only if all details of the proposal (except possibly the precise target position) are available in advance. Because of the significant effect TOO observations have on the short and medium-term HST schedule, the number of rapid TOO activations (i.e., 3 weeks turn-around or shorter) will be limited to approximately 6 in Cycle 10. Requests for rapid turn-around should be strongly justified in the Phase I proposal.

■ Ultra-Rapid Turn-Around Time
STScI is endeavoring to reduce the turnaround time for activated TOO proposals that require fast response and are of the highest scientific importance. We are working with the HST Project at GSFC to identify ways to reduce the nominal minimum 2-5 day interval to possibly as short as 1 day (and possibly less) for those detectors that do not require bright object checking (i.e., ACS/WFC, ACS/HRC, NICMOS, STIS/CCD and WFPC2). We therefore encourage the community to identify exciting HST science that would be enabled by a 2 day (or less) TOO turnaround time, and to submit Cycle 10 proposals accordingly.

In order to reflect the true cost of such ultra-rapid TOOs, and to enable the TAC to weigh science and resources appropriately, note that:

Proposers requesting a less than 2-day turnaround should add a fixed overhead of 15 orbits per activation to the total orbit request in their proposal.

This is the average expected telescope down-time due to this very fast TOO response.

■ Activation of a TOO
A Phase II program must be submitted before the TOO event occurs. If the observing strategy depends on the nature of the event, then the Phase II program should include several contingencies from which the observer will make a selection. The PI is responsible for informing STScI of the occurrence of the event and must provide an accurate target position. Implementation of a TOO observation after notification of the event requires approval by the STScI Director and is not guaranteed. If approval is granted, then the HST observing schedule is replanned to include the new observations. A turn-around time of less than 1 month requires the PI or his/her designee to be reachable by STScI personnel on a 24 hour basis between the TOO activation and the scheduling of the program.

If the triggering event for an approved TOO program does not occur during the observing cycle, the program will be deactivated at the end of the cycle. Unused TOO time does not carry over into the following cycle.
Proposal Categories

Using the STIS/MAMA Detectors and ACS/SBC in TOO Programs
TOO proposals that use the STIS/MAMA detectors or ACS/SBC must pass bright object checking before they can be scheduled. For rapid turn-around proposals, where the target may be varying in intensity, a strategy must be outlined to insure that the TOO will be safe to observe. A description of how you plan to deal with this issue should be provided in the ‘Special Requirements’ section of the proposal (see Section 8.1.17).

Note also that STIS/MAMA observations can not be scheduled in orbits affected by passages of HST through the South Atlantic Anomaly (SAA; see Section 2.3.2 of the HST Primer).

3.2 Snapshot (SNAP) Proposals
Snapshot (SNAP) programs consist of separate, relatively short observations whose durations are usually limited to 45 minutes or less (including all overheads). During the process of optimizing the HST observing schedule, the scheduling algorithm occasionally finds short time intervals where it is impossible to schedule any exposures from the pool of accepted GO programs. In order to make the HST schedule more efficient, STScI has developed the capability to insert Snapshot exposures into these gaps on objects selected from a large list of available candidates.

3.2.1 Characteristics of SNAPS
Proposers request a specific number of Snapshot targets. If the proposal is approved, a specific number of targets are allocated. However, there is no guarantee that any individual target will actually be observed. SNAPS are placed on the schedule only after the observing sequence has been determined for the higher-priority GO targets. The number of observations actually executed depends on the availability of appropriate schedule gaps. In general, only a fraction of the sample targets will actually be observed. Typical completion rates are in the range from 30-70% (for STIS/MAMA SNAPS, the inability to schedule these observations during SAA-impacted orbits reduces the completion rate to about 20%). However, there is no commitment on the part of STScI to obtain any completion factor for snapshot programs. Due to the nature of snapshot programs, observers cannot assign priorities to the targets to be observed. Nominally, SNAP programs terminate at the end of each cycle. However, they may be kept active, for scheduling efficiency reasons, for up to one additional cycle at decreased priority.

In recent years there have been over 500 snapshot observations scheduled per year, but this could be different in Cycle 10 and depends on many factors that are unknown at this time.

3.2.2 Guidelines for Proposing SNAPS
Please consider the following when developing your SNAP Proposal:

• Your willingness to waive part, or all, of the proprietary data-rights period is included in the selection criteria (see Section 6.2).
• You need not give a complete list of all targets and their coordinates in your Phase I proposal. However, you must specify the number of targets, and unambiguously identify the targets (e.g., reference to target lists in papers, or give a detailed description of the target characteristics).
• In the ‘Observation Summary’ section of the proposal (see Section 8.1.14) you should provide a typical example of a snapshot exposure.
• The observations should be as straightforward as possible, with a minimum of filter or grating motions.
Proposal Categories

- Shorter duration snapshot observations have more scheduling opportunities than longer ones. A SNAP observation should not require more than 45 minutes, including all overhead times (e.g., guide-star acquisition, target acquisition and readout times). While longer SNAP observations are not impossible, the probability of execution is small.
- SNAP observations should not be proposed with any special scheduling constraints (e.g., CVZ, timing requirements, or telescope orientation requirements).
- A snapshot must not have any links to other snapshots (e.g., relative timing or orientation constraints), even if the snapshots are of the same source.
- Repeated observations of the same source may be requested, but are not guaranteed. These should be counted as multiple targets (e.g., 10 different snapshot observations of the same galaxy counts as 10 targets).
- Moving target snapshot programs that are not time critical are acceptable. Moving target snapshots are not permitted with the ACS/SBC or STIS/MAMA detectors.
- ACS/SBC snapshots are allowed, but the total number of such targets accepted will not exceed 100, due to bright object checking requirements.
- Spectroscopic STIS/MAMA snapshots are allowed, but imaging STIS/MAMA snapshots are not allowed (use instead the ACS/SBC or ACS/HRC for this science).

3.3 Joint HST-Chandra Observing Proposals

If your science project requires observations from both HST and the Chandra X-ray Observatory, then you can submit a single proposal to request time on both Observatories to either the HST Cycle 10 or the Chandra Cycle 3 review. This avoids the “double jeopardy” of having to submit proposals to two separate reviews.

By agreement with the Chandra X-ray Center (CXC), STScI will be able to award up to 400 kiloseconds of Chandra observing time, and similarly the CXC will be able to award up to 100 orbits of HST time to highly rated proposals. The only criterion above and beyond the usual review criteria is that the project is fundamentally of a multi-wavelength nature, and that both sets of data are required to meet the science goals. It is not essential that the observations be done simultaneously. Chandra time will only be awarded in conjunction with HST observations (and should not be proposed for in conjunction with an AR proposal).

You should submit such joint proposals to the observatory that represents the prime science. While there is multi-wavelength expertise in the review panels for both observatories, typically the HST panels will be stronger in IR/optical/UV science and the Chandra panels in X-ray science. Evaluation of the technical feasibility is the responsibility of the observer, who should review the Chandra documentation or consult with the CXC (see Section 8.1.18 for details). For proposals that are approved, the CXC will perform detailed feasibility checks in Chandra Cycle 3. The CXC reserves the right to reject any previously approved observation that proves to be non-feasible, impossible to schedule, and/or dangerous to the Chandra instruments. Any Chandra observations that prove infeasible or impossible could jeopardize the overall science program and may cause revocation of the corresponding HST observations.

*Joint HST-Chandra proposals must be identified with the special ‘chandracoord’ flag in the ‘Special Proposal Type Flags’ section of the proposal (see Section 8.1.13). Also, you must include technical information about the Chandra observations in the ‘Coordinated Observations’ section of the proposal (see Section 8.1.18).*

3.4 Joint HST-NOAO Observing Proposals

By agreement with the National Optical Astronomy Observatory (NOAO), STScI will be able to award time on NOAO facilities for highly ranked proposals that request time on both HST
Proposal Categories

and NOAO telescopes. The award of time on NOAO facilities will be subject to approval by the NOAO Director, after nominal review by the NOAO TAC to avoid duplication of programs. The important additional criterion for the award of NOAO time is that both the HST and the ground-based data are required to meet the science goals of the project. It is not essential that the observations be done simultaneously. Under this agreement, NOAO time will only be awarded in conjunction with HST observations (and should not be proposed for in conjunction with an AR proposal). Major results from these programs would be credited to NOAO and HST.

NOAO has offered up to 5% of its available time to proposals meeting the stated criteria. NOAO observing time will be implemented during the two semesters from August 2001 through July 2002. Under this agreement approximately 20 nights per telescope per year will be available on most telescopes, with the following exceptions: only 1-2 nights will be available on the MMT and HET, and no time will be available on Gemini. In addition, time on the heavily-subscribed Mosaic cameras may be limited by the NOAO Director. Detailed information on available facilities is given on the NOAO/NASA Collaboration Web Page (internet address listed in Appendix E).

Evaluation of the technical feasibility of the proposed ground-based observations is the responsibility of the observer, who should review the NOAO documentation or consult NOAO directly (see Section 8.1.18 for details). If approved for NOAO time, the PI must submit, by March 31, 2001, the standard form(s) giving detailed observing information appropriate to the particular NOAO telescope and instrument. NOAO will perform feasibility checks, and NOAO reserves the right to reject any approved observation determined to be infeasible, impossible to schedule, and/or dangerous to the telescopes or instruments. Any NOAO observations that prove infeasible or impossible could jeopardize the overall science program and may cause revocation of the corresponding HST observations.

*Joint HST-NOAO proposals must be identified with the special ‘noaocoord’ flag in the ‘Special Proposal Type Flags’ section of the proposal (see Section 8.1.13). Also, you must include technical information about the NOAO observations in the ‘Coordinated Observations’ section of the proposal (see Section 8.1.18).*

### 3.5 Survey Proposals

A Survey Program should produce a large, uniform database with significant archival value, suitable for use by other scientists. Your commitment to waive part or all of the proprietary data-rights period is an important consideration in selecting such a program. Survey Programs can be Large, Regular or Snapshot Programs.

*Survey Proposals must be identified with the special ‘surveyprop’ flag in the ‘Special Proposal Type Flags’ section of the proposal (see Section 8.1.13).*

### 3.6 Innovative Proposals

STScI encourages programs that use the Observatory in innovative ways and that have the potential for enabling new scientific investigations of considerable promise and importance. It has therefore created the new category of *Innovative Proposals*. The Cycle 10 review panels and TAC will award up to 100 orbits (from a separate pool) to such proposals.

An Innovative Proposal should push the envelope of what is technically feasible with HST. The observations might be risky, in that they may not be guaranteed to achieve the intended scientific performance level, but they should not pose a health and safety risk to the Observa-
Proposal Categories

tory. The observations should aim at achieving a capability or level of performance that surpasses that specified as routine or default in the Instrument Handbooks.

A proposal that addresses new and original scientific questions using an observational approach that is already well established should NOT be flagged as an Innovative Proposal.

A primary criterion for Innovative Proposals is the potential for opening up new avenues of observation with HST that will enable new and important types of scientific investigations. In particular, it is not sufficient for an Innovative Proposal to merely make clever new use of the observatory, if it is not made clear how this may (ultimately) lead to high-quality scientific results. The resources needed at STScI to implement Innovative Programs will be considered as an additional criterion.

As an example of a previous program that would have fit well in the Innovative Category, users may want to review the proposal ‘Stellar Seismology from Space: From the Sun to the Stars’ (proposal ID 8115). This program uses STIS to disperse the light from a bright star and so allows the collection of many more photons than can be achieved with normal imaging. This increases the signal-to-noise ratio (S/N) to levels necessary (>1,000 per observation) to make the proposed type of measurement. A successful outcome would demonstrate the possibility of obtaining high S/N photometry of bright targets, opening the avenue for science that requires such precision.

Innovative Proposals must be identified with the special ‘innovative’ flag in the ‘Special Proposal Type Flags’ section of the proposal (see Section 8.1.13).

3.7 ARCHIVAL RESEARCH (AR) PROPOSALS

Observations in the HST Data Archive (see Section 1.4) are available for analysis by interested scientists through direct retrieval (which is free and does not involve financial support) or the HST Archival Research (AR) program, which can provide financial support for the analysis of the data.

Only U.S. Investigators (as defined in Section 11.2) are eligible for funding of Archival Research.

An Archival Research proposal may be submitted by a non-U.S. PI if there are one or more U.S. CoIs who request funding.

Proposals for AR funding are considered at the same time, and by the same reviewers, as proposals for observing time. Observing and AR proposals are compared competitively on the basis of scientific merit.

Please consider the following when developing your AR Proposal:

- The data you wish to analyze must reside (or be expected to reside) in the Archive, and released from proprietary rights, by the start of Cycle 10 (July 2001, nominally).
- Detailed budgets are not requested in Phase I, but are due in Phase II only (as is the case for GO and SNAP proposals; see Chapter 11 for details).
- Programs that require funding for Archival Research and also new observations should be submitted as two separate proposals: one requesting funding for the Archival Research, and the other proposing the new observations. The proposals should refer to each other so that the reviewers will be aware that the proposals are part of the same project.
- Researchers proposing an AR program that also uses data from other NASA centers should submit their AR proposal to STScI if the majority of the program involves HST archival data and its analysis. Conversely, requests for support of AR programs using
data primarily from other missions should follow the guidelines in the appropriate NASA Research Announcements.

We would like to point out in particular the following rich sources of information for Archival Research:

- The data obtained in the context of the HST Archival Pure Parallel Program (see Section 4.2.2; internet address listed in Appendix E).
- The data obtained for the Hubble Deep Field (HDF) and Hubble Deep Field-South (HDF-S) (internet addresses listed in Appendix E).

### 3.8 Calibration Proposals

HST is a complex observatory, with many possible combinations of observing modes and spectral elements on each instrument. Calibrations are maintained by STScI for all of the most important and most used configurations. However, STScI does not have the resources to fully calibrate all potential capabilities of all instruments. On the other hand, the astronomical community has expressed interest in performing calibrations for certain uncalibrated or poorly calibrated modes, with support from the GO program. In recognition of this, STScI is encouraging outside users to submit proposals in the new category of Calibration Proposals, which should aim at filling in some of the gaps in our coverage of the calibration of HST and its instruments.

*Calibration proposals should not be explicitly linked to any specific science program, but should provide a calibration that can be used by the community for existing or future programs.*

The proposals will be considered by the review panels and TAC in competition with pure science programs, so the primary criterion for acceptance will be the new science enabled by the successful completion of the program.

Potential proposers in this category are encouraged to study the Instrument Handbooks to determine whether STScI already provides an acceptable level of calibration or characterization, and to discuss their ideas with STScI staff. A pilot calibration program of the type discussed here is already active: a study of STIS FUV-MAMA observations with the repeller wire off (proposal ID 8431). Examples of other topics that GOs may wish to address are:

- Determination of the WFPC2 plate scale in the far-UV
- Determination of more accurate photometric transformations from WFPC2 to other photometric systems (especially for cool stars)
- NICMOS polarimetric calibration for cameras 1 and 2

For a complete description of the SI calibration plans/accuracies, and for other potential topics, please see the relevant instrument’s web page.

Successful proposers will be required to deliver data products and documentation to STScI to support future observing programs. Funding is available to support calibration proposals in the same manner as for normal science programs. However:

*Scientists affiliated with STScI are not eligible for any funding to support their role (as PI or CoI) in a Calibration Proposal.*

A Calibration Program can be a GO, SNAP or AR Program, and should fall in one of these categories. For GO and SNAP programs, the data obtained will be non-proprietary, as is the case for regular calibration observations. Proposers may request a proprietary period (which should be explained in the ‘Special Requirements’ section of the proposal; see Section 8.1.17), but such a request will be subject to panel and TAC review and will be granted only in excep-
Proposal Categories

Archival Research proposals may be appropriate in cases where the necessary data have already been taken. Regardless of the type of proposal, proposers are strongly encouraged to contact the appropriate instrument group to discuss their program prior to submission.

*A Calibration Program must be identified with the special ‘calibprop’ flag in the ‘Special Proposal Type Flags’ section of the proposal (see Section 8.1.13).*

This special flag should not be used for specific science programs that have special calibration requirements. In such cases the necessary calibration observations should be added to the science program, as described in Section 4.3.

### 3.9 Director’s Discretionary (DD) Time Proposals

Up to 10% of the available HST observing time may be reserved for Director’s Discretionary (DD) allocation. Scientists wishing to request DD time can do so at any time during the year, by using the [DD Submission Template on the Web](#) (internet address listed in Appendix E).

Observations obtained as part of a DD program generally do not have a proprietary period, and are made available immediately to the astronomical community. However, DD proposers may request and justify proprietary periods in their proposals.

Upon receipt of a DD proposal, the STScI Director will usually seek advice on the scientific merit and technical feasibility of the proposal from STScI staff and outside specialists. A proposal for DD time might be appropriate in cases where an unexpected transient phenomenon occurs or when developments since the last proposal cycle make a time-critical observation necessary. DD observations should *not* generally be requested if any of the following is true:

- The observations could plausibly have been proposed for in the most recent regular proposal Cycle, possibly as a Target-of-Opportunity proposal (see Section 3.1.4).
- The observations were proposed for in a previous regular proposal Cycle, and were rejected.
- The observations are not time-critical and can be proposed for in the next regular proposal Cycle.

The primary criteria for acceptance of DD proposals are extremely high scientific merit and a strong demonstration of the urgency of the observations.

The HST observing schedule is determined several weeks in advance of the actual observations. Although it is technically feasible to interrupt the schedule and initiate observations of a new target, short-notice interruptions place severe demands on the planning and scheduling process, decreasing overall observing efficiency and delaying other programs. Hence, requests for DD time must be submitted at least three months before the date of the requested observations, if possible. Requests for shorter turn-around times must be exceedingly well justified. In the case that a DD time proposal with a turn-around time of less than one month is accepted, the PI or his/her designee is required to be reachable by STScI personnel on a 24 hour basis between the submission and the implementation of the program, for Phase II preparation.

### 3.10 Guaranteed Time Observer Programs

NASA has generally awarded a portion of the observing time in the years following the installation of a new instrument to those scientists involved in the development of this instrument. The interests of these Guaranteed Time Observers (GTOs) are protected through certain duplication policies, as described in Section 5.2.1.
Chapter 4: Observation Types and Special Requirements

In This Chapter ...

- Primary Observations
- Parallel Observations
- Special Calibration Observations

4.1 PRIMARY OBSERVATIONS

Primary observations are those observations that determine the telescope pointing and orientation. GO or SNAP proposals with external targets are normally scheduled as primary. Primary observations can use a variety of special requirements and observation types, as described in the following subsections. There is also the opportunity for parallel observations, described in Section 4.2, which are simultaneous observations with instruments other than the primary instrument.

4.1.1 Continuous Viewing Zone (CVZ) Observations

Most targets are geometrically occulted in part of every HST orbit. However, this is not true for targets that lie close to the orbital poles. This gives rise to so-called Continuous Viewing Zones (CVZ) in two declination bands near +/- 61.5 degrees. Targets in these bands may be viewed without occultations at some time during the 56-day HST precessional cycle. Depending upon the telescope orbit and the target position, there may be up to 10 CVZ intervals with durations ranging from 1 to 105 orbits (7 days). Check the CVZ Tables on the Web (internet address listed in Appendix E) to determine the number of CVZ opportunities in Cycle 10 and their duration for a given target location. Passages of HST through the South Atlantic Anomaly restrict the longest uninterrupted observations to about 5-6 orbits. See Section 2.3.1 of the HST Primer for technical details about the CVZ.

Observations of targets in the CVZ are nearly twice as efficient as non-CVZ observations. Therefore, proposers should use CVZ visibility in their orbit estimates where possible.

STScI will make every effort to schedule the observations in this optimal way. However, because the number of CVZ opportunities are limited and unpredictable conflicts may occur between the proposed CVZ observations and other observations, a particular target’s CVZ times may be oversubscribed. Therefore, it may be necessary to schedule the requested CVZ observations using standard orbit visibilities (i.e., using a larger number of total orbits). This will be done at no penalty to the observer.

Continuous Viewing Zone observations must be marked in the ‘Observation Summary’ section of the proposal (see Section 8.1.14) using the keyword ‘CVZ’ (see Table 8.1).
Observation Types and Special Requirements

Note that it is to the proposer’s advantage to request CVZ observations (where possible). It allows a given set of observations to be done in a smaller number of orbits, which gives the proposal a competitive advantage over non-CVZ proposals during peer review.

Restrictions on Using the CVZ

The following special requirements are generally incompatible with use of the CVZ:

- The Shadow time (SHD) and Low-sky (LOW) special requirements (see Section 5.5 of the HST Primer, and also Section 8.1.14)
- Special timing requirements (including telescope orientation constraints; see Section 4.1.2 below)

Hence, observations that require low background or special timing requirements should not be proposed for execution in the CVZ, and orbit estimates in the Phase I proposal should be based on standard orbit visibility (see Table 6.1 of the HST Primer). If it is determined during the Phase II proposal implementation that an observation is unschedulable because of conflicts between the CVZ requirement and any other Special Requirements (e.g., SHD, LOW, timing, etc.), then the observing time may be revoked. Proposers who are in doubt about whether or not to request CVZ observations should contact the STScI Help Desk (see Section 1.5).

4.1.2 Time-Critical Observations

Proposals may request that HST observations be made at a specific date and time, or within a range of specific dates, when scientifically justified. Some examples of such cases are:

- astrometric observations,
- observing specific phases of variable stars,
- monitoring programs,
- imaging surface features on solar-system bodies,
- observations requiring a particular telescope orientation (since the orientation is fixed by the date of the observations; see Section 2.5 of the HST Primer),
- observations coordinated with observations by another observatory.

Any requests for time critical observations must be listed in ‘Special Requirements’ section of the proposal (see Section 8.1.17).

Time-critical observations impose constraints on the HST scheduling system, and should therefore be accompanied by an adequate scientific justification in the proposal.

Limitations Related to Time-Critical Observations

Time-critical events that occur over short time intervals compared to the orbital period of HST (such as eclipses of very short-period binary stars) introduce a complication because it will not be known to sufficient accuracy, until a few weeks in advance, where HST will be in its orbit at the time of the event, and hence whether the event will occur above or below the spacecraft’s horizon (see Section 2.3.3 of the HST Primer). Proposals to observe such events can therefore be accepted only conditionally.

Servicing Mission 3B is currently anticipated to occur in the July - December 2001 time frame, and will prevent regular science observations for approximately one month. Any observations that are constrained to execute in this period are at risk of being delayed or rendered infeasible by the servicing mission.

Special STIS NUV-MAMA Dark Campaigns may occur for one week in each of October 2001 and April 2002 (see Section 4.1.4). Other observations that are time critical or have orientation
restrictions constrained to these periods may be difficult to schedule, and FUV-MAMA observations will not be scheduled. Also, in preparation for the NUV-MAMA dark campaigns, both MAMAs will be run hot inducing high background rates for the two weeks preceding the campaigns. Neither FUV-MAMA nor NUV-MAMA observations will be scheduled during these two weeks.

### 4.1.3 Real-Time Interactions

Communications with HST in “real-time” are a limited resource, which require additional operational overheads, reduce observing efficiency, and greatly increase the scheduling complexities. However, in exceptional circumstances, some science programs may require such interactions. These observations will generally require the presence of the PI (or his/her designee) at STScI during such exposures, and STScI personnel will be present to assist the PI and send the command requests.

*Any requests for real-time interactions must be listed in the ‘Special Requirements’ section of the proposal (see Section 8.1.17).*

In such cases the scientific and operational justification for this should be presented clearly in the observing proposal. Typically, two-way real-time interactions for position updates should only be used when early-acquisition or reuse target offset techniques to refine the telescope pointing cannot be used (see Section 5.2 of the HST Primer).

### 4.1.4 STIS NUV-MAMA Low Dark Current Campaigns

The servicing mission SM3B (see Section 2.1.3 of the HST Primer) may include the installation of an aft-shroud cooling system (ASCS) for the axial instruments, which includes the STIS Thermal Interface Kit (STIK). The STIK will dramatically lower the operating temperatures of the STIS/MAMA tubes and lower their background rates (see the STIS Handbook for a description of the MAMA detectors). The ability to actively control the MAMA tube temperatures will enable us to take advantage of the lower phosphorescent emission dominating the NUV-MAMA background by temporarily lowering the background by factors of 2-6. STScI plans on two trials of this technique in Cycle 10. Currently planned intervals start at 00:00 UTC on October 22, 2001, and April 29, 2002, and have a duration of one week each. The fall campaign would accommodate the visibility of the south Galactic pole, the HDF-south field, and the Galactic center; the spring campaign would include the visibility window of the north Galactic pole and the HDF-north field. The two campaigns will each accommodate approximately 40 orbits of STIS NUV-MAMA observations. Proposals that require lower-than-normal NUV-MAMA backgrounds are invited for these campaigns. *Proposers should ensure that their observations are schedulable throughout at least one of the campaign intervals and should not overly restrict their observations with additional timing or orientation constraints.*

*Proposers wishing to obtain observations in these campaigns must mark these in the ‘Observation Summary’ section of the proposal (see Section 8.1.14) using the keyword ‘CAMP’ (see Table 8.1).*

Please note that the execution of programs selected for either of the two campaigns is contingent on both the ASCS installation during SM3B (which may be deferred to the next servicing mission instead), and on the actual launch date for SM3B (currently anticipated to occur in the July - December 2001 time frame). Approved programs will have to be resubmitted for a later cycle if the particular campaign does not occur in Cycle 10.
Observation Types and Special Requirements

Investigators who wish to propose for the STIS NUV-MAMA low dark current campaigns, or whose projects depend otherwise on the availability of the ASCS in Cycle 10, should frequently check the Cycle 10 Announcement Web Page (see Section 1.4) for updates on the anticipated details of SM3B.

The equilibrium background rate for the NUV-MAMA is currently approximately 1200 cts/s. After STIK installation, the rate is expected to drop to the range 600-900 cts/s (integrated over the full field). This in itself is a significant reduction, but background rates during the campaign intervals will likely be even lower, probably in the range of 100-400 cts/s. The actual values achieved will depend on the performance of the cooling system, reflecting uncertainties in our modeling of the actual behavior of the MAMA tube faceplate. We will not know these values until the cooling system is operated in orbit and the first campaign is executed. Consequently, there is the risk that proposals requiring background values at the low end of the predicted range may fail. Also, due to the short duration of the campaigns, and the anticipated oversubscription, any observations that fail will not be repeated, regardless of the reason for the failure. In addition, depending on the actual performance of the cooling system, one or both of the campaigns may be cancelled, or selected proposals requiring very low background rates may be individually cancelled if it is deemed that their science goals cannot be achieved.

As the FUV-MAMA will have to be turned off during the dark campaigns to help keep the NUV-MAMA cool, proposals must be constructed so that FUV-MAMA observations are in separate visits from NUV-MAMA observations. In addition, to take maximum advantage of the low-background period, target acquisitions will be the only CCD observations permitted in the same visit. Given the uncertainties surrounding the actual NUV-MAMA background for these campaigns, proposers should clearly state the signal-to-noise ratio required to achieve their science goals in the Phase I proposal. Full details of the signal-to-noise ratio calculations should be included, including the assumed background rate.

4.2 Parallel Observations

Since all of the Scientific Instruments (SIs) are located at fixed positions in the telescope focal plane, it is possible to increase the productivity of HST by observing simultaneously with one or more instruments in addition to the primary instrument. Those additional observations are called parallel observations.

Since each SI samples a different portion of the HST focal plane (see Section 2.2 of the HST Primer), an SI used in parallel mode will normally be pointing at a “random” area of sky several minutes of arc away from the primary target. Thus parallel observations are usually of a survey nature. However, many HST targets lie within extended objects such as star clusters or galaxies, making it possible to conduct parallel observations of nearby portions of, or even specific targets within, these objects.

Parallel observations are never permitted to interfere significantly with primary observations; this restriction applies both to concurrent and subsequent observations. Some examples of this policy are the following:

- A parallel observation will not be made if its inclusion would shorten the primary observation.
- Parallel observations will not be made if the stored command capacity or data volume limits would be exceeded.

Depending on whether a parallel observation is related to any specific primary observation, it is defined either as a coordinated parallel or pure parallel. Coordinated parallel observations are observations related to a particular primary observation in the same proposal. Pure Parallel
Observation Types and Special Requirements

observations are unrelated to any particular primary observation (i.e., the primary observation is in another program).

4.2.1 Coordinated Parallel Observations

Coordinated Parallel observations must be marked in the ‘Observation Summary’ section of the proposal (see Section 8.1.14) using the keyword ‘CPAR’ (see Table 8.1).

Coordinated Parallels consist of requests for use of two or more SIs simultaneously, typically in order to observe several adjacent targets or regions within an extended object. Proposals for coordinated parallel observations should present a description of a coherent science program that clearly requires the use of more than one SI simultaneously.

Proposers are not allowed to add coordinated parallel observations in Phase II that were not explicitly included and approved in Phase I.

4.2.2 Pure Parallel Observations

Pure Parallel observations must be marked in the ‘Observation Summary’ section of the proposal (see Section 8.1.14) using the keyword ‘PPAR’ (see Table 8.1).

Proposals for pure parallel observations may specify either specific or generic targets, although the latter are more common. Appropriate scheduling opportunities will be identified by STScI.

Experience with pure parallel observations over the last several years indicates that parallel observing programs should be kept simple, in order for them to schedule on top of the typical prime observing programs. Parallel programs requiring multiple successive orbits are less likely to schedule than those which can be executed in a single orbit (over the past year, of the parallel visits scheduled, 84% were a single orbit in duration, 11% were two orbits, 4% were three orbits, while four and five orbits were each about 1%). Due to resource constraints at STScI, only a limited number of pure parallel programs can be accepted in each cycle.

A “Default” HST Archival Pure Parallel Program has been in place since Cycle 7. This program consists of observation types using each of the possible pure parallel SIs and is used to obtain uniform, non-proprietary data sets for the HST Data Archive during parallel observing opportunities not used as coordinated or pure parallel GO observations. A plan for Cycle 10 observations has been developed by a Parallel Working Group chartered by the STScI. The scientific rationale for the observations, a description of the observations, and additional information can be found on the HST Archival Pure Parallel Program Web Page (see Appendix E).

STScI encourages submission of:

- Archival Research proposals to analyze data obtained as part of the HST Archival Pure Parallel Program in previous cycles.
- GO pure parallel proposals for observations that differ from the Cycle 10 Default HST Archival Pure Parallel Program.
- GO pure parallel proposals to carry out, for each of the instruments, either selected pieces or the entire Cycle 10 Default HST Archival Pure Parallel Program. The advantage of such proposals for GO investigators, if approved, is that they become eligible for funding (U.S. Investigators only) and will have responsibility for the Phase II implementation of the proposed part of the program. In addition, investigators in this category will be asked to participate in a reconstituted Parallel Working Group to refine the observing strategy of the Default Parallel Program for each scientific instrument, and to monitor the observations to assure that high quality data are taken. This coordination will be important for the final definition of the program but will not have to be extended.
Observation Types and Special Requirements

Observation Types and Special Requirements to the data analysis phase.
The review panels and TAC will select the best science and prioritize the parallel programs, including the Default Program. GO Programs may well replace the Default Program in order to keep the total number of parallel programs at a supportable level.

As in previous Cycles, all data taken in the context of the Default HST Archival Pure Parallel Program will be non-proprietary. GOs proposing for pure parallel programs should realize that unless they also request zero or short proprietary time, their proposals might suffer compared to others in the peer review process.

4.2.3 Restrictions and Limitations on Parallel Observations

■ ACS

When ACS is the prime instrument, ACS permits WFC parallel observations with HRC in prime and vice versa, for a preselected subset of filter combinations (so called Auto-Parallels). The filter choice for auto-parallel is predetermined by the filter used in the prime observation (see the ACS Instrument Handbook for details). Auto-parallel are created by software and execute automatically as pure parallels. Even if the observer does not specify auto-parallel in his/her proposal, the parallel data are proprietary, exactly in the same way as the prime data. Note that depending on the nature of the primary exposures, it may or may not be possible to obtain auto-parallel; see the ACS Instrument Handbook for details.

Any of the HST instruments can generally be used in parallel with any of the prime ACS observations and vice versa. However, special rules apply (due to commanding limitations) for combination with WFPC2 observations: (1) With ACS in prime, only pure WFPC2 parallels are allowed. (2) With WFPC2 in prime, only pure ACS parallels with either WFC or HRC are allowed.

The SBC may be used for coordinated parallel observations with a specified telescope orientation (if the field passes bright-object checking), but not for pure parallel observations.

■ FGS

The FGS may be used as the prime instrument with any other instrument for coordinated parallel observations.

■ NICMOS

NICMOS may be used for pure parallel programs in any combination of primary and parallel instruments. Please note that observations with different NICMOS cameras at the same time are not considered parallel observations.

■ STIS

The STIS/CCD detector may be used for pure parallel programs in any combination of primary and parallel instruments.

The STIS/MAMA detectors may be used together with any other instrument for coordinated parallel observations with a specified telescope orientation (if the field passes bright-object checking), but not for pure parallel observations.

■ WFPC2

The WFPC2 may generally be used for coordinated and pure parallel programs in any combination of primary and parallel instruments. However, when ACS is the prime instrument, then
WFPC2 may only be used for pure parallel observations and not for coordinated parallel observations.

- **Pointing accuracy**
  The spacecraft computers automatically correct the telescope pointing of the primary observing aperture for the effect of differential velocity aberration. This means that image shifts at the parallel aperture of 10 to 20 mas can occur during parallel exposures.

### 4.3 Special Calibration Observations

Data from HST observations are normally provided to the GO after application of full calibrations. Details of the standard calibrations are provided in the Instrument Handbooks (see Section 1.4).

In order to obtain quality calibrations for a broad range of observing modes, yet not exceed the time available on HST for calibration observations, only a restricted set, the so-called ‘Supported’ modes, may be calibrated. Other modes may be available but are not supported. Use of these ‘Available-but-Unsupported’ modes is allowed to enable potentially unique and important science observations, but is discouraged except when driven by scientific need. *Observations taken using Available-but-Unsupported modes that fail due to the use of the unsupported mode will not be repeated.* Use of these modes must be justified prior to the Phase II submission. For details consult the Instrument Handbooks (see Section 1.4).

Projects may need to include special calibration observations if either:

- a Supported mode is used, but the calibration requirements of the project are not addressed by the standard STScI calibration program, or
- an Available-but-Unsupported mode is used.

Any special calibration observations required in these cases must be included in the total request for observing time and in the Observation Summary of the proposal, and must be explicitly justified. Proposers can estimate the time required for any special calibration observations from the information provided in the Instrument Handbooks (see Section 1.4). Also, the STScI Help Desk (see Section 1.5) can assist you on this estimate, but such requests must be made at least 14 days before the submission deadline.

The data reduction of special calibration observations is the responsibility of the observer. All data flagged as having been obtained for calibration purposes will normally be made non-proprietary.
Chapter 5: Data Rights and Duplications

In This Chapter …

• Data Rights
• Policies and Procedures Regarding Duplications

5.1 DATA RIGHTS

GOs and GTOs have exclusive access to their science data during a proprietary period. Normally this period is the 12 months following the date on which the data, for each target, are archived and made available to the investigator after routine data processing. At the end of the proprietary period, data are available for analysis by any interested scientist through the HST Archive (see Section 3.7).

Proposers who wish to request a proprietary period shorter than one year (3 or 6 months), or who are willing to waive their proprietary rights altogether, should specify this in the proposal using the Proprietaryperiod keyword (see Section 8.1.10). Because of the potential benefit to the community at large, particularly (but not exclusively) in the case of snapshot, pure parallel or survey programs, proposers should give this possibility serious consideration (it is one of the selection criteria; see Section 6.2). If you request a shortened proprietary period, then you should explain the benefits of this in the ‘Special Requirements’ section of the proposal (see Section 8.1.17).

Proprietary periods longer than 12 months may on rare occasions be appropriate for long-term programs (see Section 3.1.3). Requests for data-rights extensions beyond 12 months must be made in the ‘Special Requirements’ section of the proposal (see Section 8.1.17); such requests are subject to panel and TAC review and approval by the STScI Director.

5.2 POLICIES AND PROCEDURES REGARDING DUPLICATIONS

Special policies apply to cases in which a proposed observation would duplicate another observation already obtained with HST, or currently in the pool of accepted HST programs.

5.2.1 Duplication Policies

An observation is a duplication of another observation if it is on the same astronomical target or field, with the same or a similar instrument, with a similar instrument mode, similar sensitivity, similar spectral resolution and similar spectral range.

*It is the responsibility of proposers to check their proposed observations against the catalog of previously executed or accepted programs.*

If any duplications exist, they must be identified in the ‘Observation Summary’ section of the proposal (see Section 8.1.14) using the keyword ‘DUP’ (see Table 8.1), and justified
Data Rights and Duplications

**strongly in the ‘Justify Duplications’ section of the proposal (see Section 8.1.19) as meeting significantly different and compelling scientific objectives.**

Any *unjustified* duplications of previously executed or accepted observations (including GO, SNAP and GTO Programs) that come to the attention of the peer reviewers and/or STScI could lead to rejection during or after the Phase I deliberations. Without an explicit review panel or TAC recommendation to retain duplicating exposures, they can be disallowed in Phase II. In these cases, no compensatory observing time will be allowed and the associated observing time will be removed from the allocation.

**GTO Observations**

Under NASA policy, GTO programs (see Section 3.10) are protected against acquisition by GOs of duplicate observations. Proposed GO observations that are judged to infringe upon this protection will be disallowed. However, the duplication protection is as specifically defined above; entire classes of objects or broad science programs are not protected. The GTOs are entitled to revise their programs after each cycle of GO selection, but they in turn may not duplicate previously approved GO programs. GTOs may not modify their programs in the time interval between the publication of the GTO/GO catalog in each cycle and the final submission of the Phase II GO programs selected for that cycle. The protection of each observation is in force throughout its proprietary data-rights period (see Section 5.1) and then expires.

**Snapshot Targets**

In addition to the duplication policies already mentioned, the following additional policies apply to snapshot targets.

- Snapshot targets may not duplicate approved GO or GTO programs in the same cycle.
- Snapshot observations may *not* be proposed that duplicate snapshot observations that were approved in Cycle 9, independent of whether or not they have executed.
- Snapshot targets may be proposed that duplicate snapshot observations that were approved in Cycles 8 or earlier, if they have not yet executed. If the previously approved observation executes after the Phase I deadline, then the new observation will be disallowed (unless there is an explicit panel/TAC recommendation to retain the exposure even if it is a duplication).

**Early-Acquisition Images**

Occasionally it may happen that a proposer requests an early-acquisition image (see Section 5.2.1 of the HST Primer) that is already in a GTO program, and would be protected according to the NASA policies outlined above. If an early-acquisition image is determined to be in conflict with a protected GTO image, then the GO-requested image may still be permitted, but may be used only for acquisition purposes.

**5.2.2 How to Check for Duplications**

To check for duplications among the observations that you wish to propose, please use the tools and links on the HST Data Archive Web Page (see Appendix E). Use one of the following two options:

- Use the HST Duplication Checking Web Form (see Appendix E).
- Use the Planned and Archived Exposures Catalog (PAEC; internet address listed in Appendix E). It contains summary information about exposures in ASCII format and can be browsed with any text editor. It is normally updated monthly, but will be kept fixed between the release of this Call for Proposals and the Phase I deadline.
Data Rights and Duplications

Also, you can use the Starview software (see Section 7.2.1 of the HST Primer), available from the Starview Web Page (see Appendix E). Whatever method you use, please make sure that you are not just searching the Archive for completed observations (e.g., by using the ASCII-format ‘Archived Exposures Catalog’) which would miss any exposures that have been approved but have not yet executed.
Chapter 6: Proposal Selection Procedures

In This Chapter …

• How STScI Evaluates Submitted Proposals
• Selection Criteria

6.1 HOW STScI EVALUATES SUBMITTED PROPOSALS

HST Programs are selected through competitive peer review. A broad range of scientists from the international astronomical community evaluates all submitted proposals, using a well-defined set of criteria (see Section 6.2). They rank the proposals and offer their recommendations to the STScI Director. Based on these recommendations, the STScI Director makes the final allocation of observing time.

6.1.1 The Review Panels

Regular GO (fewer than 100 orbits; see Section 3.1.2), SNAP and AR proposals will be considered in detail by review panels, each spanning several scientific categories (defined in Section 8.1.3). Proposers should frame their scientific justification in terms appropriate for a panel with a broad range of astronomical expertise.

Each review panel can recommend Regular GO proposals up to a certain limited number of orbits that it has been allocated. Usually, these recommendations will not require further approval of the TAC (see Section 6.1.2), and the scientific balance will be determined within each panel rather than by the TAC. The panels will also forward their comments on Large proposals (100 orbits or more; see Section 3.1.1) to the TAC for their consideration.

6.1.2 The Telescope Allocation Committee (TAC)

The TAC will be composed of a TAC chair, the panel chairs, and possibly a small number of other members of the international scientific community. The primary responsibility of the TAC is to review the Large proposals (100 orbits or more; see Section 3.1.1). The TAC will also be the arbiter of any extraordinary or cross-panel issues.

6.2 SELECTION CRITERIA

Evaluations of HST proposals are based on the following criteria.

Criteria for all Proposals

• The scientific merit of the project and its potential contribution to the advancement of scientific knowledge.
• The proposed program’s importance to astronomy in general. This should be stated
Proposal Selection Procedures

explicitly in the ‘Scientific Justification’ section of the proposal (see Section 8.1.15).

• The extent to which the expertise of the proposers is sufficient to assure a thorough analysis of the data.

• Is there evidence of a coordinated effort to maximize the scientific return from the program?

■ Additional Criteria for all GO and SNAP Proposals

• What is rationale for selecting the type and number of targets? Reviewers will be instructed to recommend or reject proposals as they are and to refrain from orbit or object trimming. Therefore, it is very important for you to strongly justify both the selection and the number of targets in your proposal, as well as the number of orbits requested.

• Why are the unique capabilities of HST required to achieve the science goals of the program? Evidence should be provided that the project cannot be accomplished with a reasonable use of ground-based telescopes (irrespective of their accessibility to the proposer).

• Is there evidence that the project has already been pursued to the limits of ground-based and/or other space-based techniques?

• What are the demands made on HST and STScI resources, including the requested number of orbits or targets, and the efficiency with which telescope time will be used?

• Is the project technically feasible and what is the likelihood of success? Quantitative estimates of the expected results and the needed accuracy of the data must be provided.

■ Additional Criteria for Large GO Proposals

• Is there a plan to assemble a coherent database that will be adequate for addressing all of the purposes of the program?

• Will the work of the proposers be coordinated effectively, even though a large team may be required for the proper analysis of the data?

• Is there evidence that the observational database will be obtained in such a way that it will be useful also for purposes other than the immediate goals of the project?

■ Additional Criterion for SNAP, Pure Parallel and Survey proposals

• Willingness to waive part or all of the proprietary period. While this is not the primary criterion for acceptance or rejection, it can provide additional benefit to any proposal and will be weighed by the reviewers as such.

■ Additional Criterion for Calibration and Innovative Proposals

• What is the long-term potential for enabling new types of scientific investigation with HST, and what is the importance of these investigations?

■ Additional Criteria for Archival Research Proposals

• What will be the improvement or addition of scientific knowledge with respect to the previous original use of the data? In particular, a strong justification must be given to reanalyze data if it has the same science goals as the original proposal.

• What are the demands on STScI resources, including funding and technical assistance?
Chapter 7: Guidelines and Checklist for Phase I Proposal Preparation

In This Chapter …
- General Guidelines
- Proposal Preparation Checklist

Cycle 10 Observing (GO/SNAP) and Archival Research (AR) proposals should be submitted electronically. You must send one filled-in LaTeX template file and one PostScript or PDF file for each proposal. Student Principal Investigators should send a certification letter from their faculty advisor (see Section 2.3.3).

7.1 General Guidelines

7.1.1 Deadline

The deadline for submitting GO, SNAP, or AR proposals is Friday September 8, 2000, 8:00 pm EDT.
Please submit well before the deadline if possible, to avoid possible last-minute hardware or overloading problems, or network delays/outages.

7.1.2 Page Limits and Format

You must use current Cycle 10 STScI proposal forms. Do not use forms from prior cycles.
The computer software used in the review and analysis of your proposed observations can interpret the proposal information only if it is in the correct format, so it is essential that you fill out the proposal template carefully and completely.

All proposals have a limit of 10 pages, with the exception of Large GO proposals for which the limit is 13 pages. The font size should not be smaller than 12 pt.
Some subsections of the proposal have a separate page limit, as discussed in Chapter 8. Note in particular that the ‘Scientific Justification’ section (Section 8.1.15) should be no more than 3 pages for Regular Programs and no more than 6 pages for Large Programs (see Section 3.1); in either case two more pages are allowed for (optional) figures, tables and references.
The following do not count towards the page limits for the proposal:
- That part of the ‘Observation Summary’ section of the proposal (see Section 8.1.14) that extends beyond 1 page,
- An optional glossary of acronyms and abbreviations (see Section 8.1.15),
- The ‘Previous HST Programs’ section of the proposal (see Section 8.1.22).
Table 7.1: Proposal Preparation Checklist

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Obtain Template</td>
<td>Send an e-mail message to <a href="mailto:newprop@stsci.edu">newprop@stsci.edu</a> containing the words 'request templates' in the subject line.</td>
</tr>
</tbody>
</table>
| 2) Receive Template | You will receive via return e-mail:  
- the Phase I Observing (GO/SNAP) Proposal Template file obstemplate.tex and the Archival Research (AR) Proposal Template file artemplate.tex;  
- the style file phase1.sty which includes the supertabular files;  
- an example of a completed observing template file in obsexample.tex. |
| 3) Fill out the Template | Fill out the appropriate Proposal Template file using your favorite text editor. Detailed Instructions can be found in Section 8.1. Summary instructions can be found in the templates themselves. |
| 4) Prepare a Postscript or PDF version of your proposal. | For most proposers, the easiest way to produce a Postscript or PDF version of the proposal is to use the LaTeX software on the completed proposal template. If you are not familiar with LaTeX, please check with your system manager for how to run it on your system, and how to use PostScript encapsulation for any figures. The STScI Help Desk (see Section 1.5) may also be contacted for assistance with any questions or problems. Some proposers may prefer to use different word processing software to produce a Postscript or PDF version of the proposal, and this is acceptable. However, note then that: (i) you must still complete and submit the cover part of the LaTeX template; and (ii) the Postscript or PDF file must include the information in the cover part of the proposal. All figures must be encapsulated into the PostScript or PDF file (i.e., you should create only one file). Please realize that any color figures in your file will be printed using grey scales, and will not be available to the reviewers in color. |
| 5) Send the completed proposal template to STScI: “LaTeX Submission” | To complete the first part of your submission, send the completed Phase I proposal LaTeX template file to STScI by e-mail to newprop@stsci.edu. Set the formattedsubmission keyword in the LaTeX template to either ‘EMAIL’ or ‘FTP’ (see Section 8.1.5), depending on how you plan to perform your formatted submission (see step 6). |
### Table 7.1: Proposal Preparation Checklist (CONTINUED)

<table>
<thead>
<tr>
<th>Step</th>
<th>Procedure</th>
</tr>
</thead>
</table>
| 6) Send the Formatted Version to STScI: “PostScript/PDF Submission” | To complete the second part of your submission, send your PostScript or PDF file to STScI in one of two possible ways:  
   a) e-mail: Send your PostScript or PDF file by e-mail to newprop@stsci.edu. Do not send your file as an attachment to your LaTeX submission (step 5).  
   b) ftp: If your PostScript or PDF file contains large figures some e-mail facilities may truncate or corrupt the file. If you think this may be a problem, you can transfer your PostScript or PDF file to STScI via ftp instead of e-mail. We have assigned a high security area for this purpose, and although you can put your files there, only the appropriate STScI staff can retrieve them. If you wish to use this option, please refer to the on-line ftp submission instructions (internet address listed in Appendix E). Do not put the LaTeX template in the ftp area. |
| 7) Receive an STScI acknowledgement of your “LaTeX Submission” | You will receive an acknowledgment of your unformatted LaTeX submission immediately after it has been received at STScI. Due to network problems, especially near the deadline, the acknowledgment messages may be delayed. Please do not re-submit your proposal without checking with STScI or waiting at least 2 to 3 hours. If no acknowledgment is received within a few days, you should contact the STScI Help Desk (see Section 1.5). |
| 8) Receive an STScI acknowledgement of your “PostScript/PDF Submission” | You will receive a separate acknowledgement for your PostScript or PDF submission. This acknowledgement will confirm whether or not your proposal has been printed successfully. This may not happen until several days after the deadline. If you have not received your second acknowledgment within one week, then please contact the STScI Help Desk (see Section 1.5). |
Chapter 8: Filling Out the Proposal Forms

In This Chapter …

• Items in the Proposal Templates

There are separate templates for GO/SNAP and AR proposals. The templates contain the items listed below. Some items appear in both templates, whereas other items appear only in one of the two templates.

8.1 Items in the Proposal Templates

8.1.1 Title

(This is item 1 in the GO/SNAP template; it is also item 1 in the AR template)

The title of your proposal should be informative, and must not exceed 2 printed lines. Please use mixed case instead of all caps.

8.1.2 Proposal Category

(This is item 2 in the GO/SNAP template; it does not appear in the AR template.)

Select one, and only one, of the following categories:

• GO—General Observer proposal
• SNAP—Snapshot proposal

8.1.3 Scientific Category

(This is item 3 in the GO/SNAP template; it is item 2 in the AR template)

Specify one, and only one, Scientific Category from the list below. Please adhere strictly to our definitions of these categories. If you find that your proposal fits into several categories, then please select the one that you consider most appropriate. If you are submitting a Calibration Proposal, then choose the Scientific Category for which your proposed calibration will be most important.

Scientific Category List

• SOLAR SYSTEM: This includes all objects belonging to the solar system (except the Sun and Mercury), such as planets, comets, minor planets, asteroids, planetary satellites, etc.
• STAR FORMATION: This includes forming and newly-formed stars, the material surrounding them, studies of proto-planetary disks, extra-solar planets, early evolution, pre-main sequence stars, T-Tauri stars, HH objects and FU Orionis stars.
• COOL STARS: This applies to stars with effective temperatures less than 10,000 K. It
includes subdwarfs, subgiants, giants, supergiants, AGB stars, pulsating/variable stars, brown dwarfs, stellar activity (coronae/flare), atmospheres, chromospheres, mass loss and abundance studies.

- **HOT STARS:** This applies to stars which spend a significant fraction of their observable lives at an effective temperature higher than 10,000 K. It includes OB stars, neutron stars, white dwarfs, Wolf-Rayet stars, blue stragglers, central stars of PN, variable hot stars, luminous blue variables, hot subdwarfs, supernovae, pulsars, X-ray binaries and CVs.

- **ISM AND CIRCUMSTELLAR MATTER:** This applies to the general properties of the diffuse medium within the Milky Way and nearby galaxies, including planetary nebulae, nova shells, supernova remnants, stellar jets (except star formation), winds and outflows, HII regions, giant molecular clouds, diffuse and translucent clouds, ionized gas in the halo, diffuse gas observed in emission or absorption, dust, dust extinction properties, dark clouds and deuterium abundance studies.

- ** STELLAR POPULATIONS:** This includes resolved stellar populations in globular clusters, open clusters or (OB) associations, in the Milky Way and in other nearby galaxies. Studies of color-magnitude diagrams, luminosity functions, initial-mass functions, internal dynamics and proper motions are in this category.

- **GALAXIES:** This includes studies of galaxies in the Hubble sequence, galaxy mergers and interactions, starburst galaxies, IR-bright galaxies, dwarf galaxies and low-surface brightness galaxies. Also included are studies of galaxy structure, morphology and dynamics, and observations of unresolved stellar populations and the globular clusters of galaxies.

- **AGN/QUASARS:** This encompasses active galaxies and quasars, including both studies of the active phenomena themselves, and of the properties of the host galaxies that harbor AGNs and quasars. The definition of AGN is to be interpreted broadly; it includes Seyfert galaxies, BL Lac objects, radio galaxies, blazars and LINERS.

- **QUASAR ABSORPTION LINES AND IGM:** This includes the physical properties and evolution of absorption line systems detected along the line of sight to quasars and of other diffuse IGM. It includes spectroscopy and imaging of damped Ly-alpha systems.

- **COSMOLOGY:** This includes studies of the structure and properties of clusters and groups of galaxies, strong and weak gravitational lensing, galaxy evolution through observations of galaxies at intermediate and high redshifts (including for example, the Hubble Deep Fields), cosmology in general, the structure of the universe as a whole, cosmological parameters and the extra-galactic distance scale.

### 8.1.4 Keywords

*This is item 4 in the GO/SNAP template; it is item 3 in the AR template*

From the list of Scientific Keywords in Appendix B, please select appropriate keywords that best describe the science goals of the proposal. Please give as many keywords as possible, but *not more than five*. It is not allowed to give no keywords at all. Use all capital letters, and do not modify the keywords.

### 8.1.5 Submission Mode

*This is item 5 in the GO/SNAP template; it is item 4 in the AR template*

Identify the mode of submission for the PostScript or PDF file: EMAIL or FTP (see Section 7.1.2).

You may provide information on a PostScript or PDF contact person by filling out **pscontactemail** with an e-mail address. This address will be used in addition to the e-mail address provided in the ‘Principal Investigator’ section of the proposal (see Section 8.1.6), when
acknowledging your PostScript or PDF submission.

8.1.6 Principal Investigator

(This is item 6 in the GO/SNAP template; it is item 5 in the AR template)

Enter the name, institutional affiliation, address, telephone number, and e-mail address of the PI. There can be only one PI per proposal. If appropriate, use the ESAmember keyword to identify that the PI has an institutional affiliation in an ESA member country.

8.1.7 Scientific Instruments

(This is item 7 in the GO/SNAP template; it does not appear in the AR template.)

Identify the Scientific Instrument(s) to be used in the project. The allowed choices are one or more of the following: ACS, FGS, NICMOS, STIS, WFPC2.

Proposers who wish to use ACS or NICMOS in Cycle 10 should frequently check the Cycle 10 Announcement Web Page (see Section 1.4) for updates on the anticipated details of SM3B (which may affect the availability of these instruments during Cycle 10).

8.1.8 Total GO Orbits or SNAP Targets

(This is item 8 in the GO/SNAP template; it does not appear in the AR template.)

For GO proposals, enter the total number of orbits requested for primary observations and parallel observations. Consult Chapter 6 of the HST Primer for instructions on how to calculate the appropriate number of orbits. Note that only whole orbits can be requested, and only whole orbits will be allocated. For long-term proposals, please provide a year-by-year breakdown of the orbits requested. For GO proposals, do not enter anything in the box for ‘total number of targets’, which is for SNAP proposals only.

For SNAP proposals, specify the total number of targets requested, and do not enter anything in the boxes for ‘requested orbits’.

8.1.9 Total Budget Request

(This item does not appear in the GO/SNAP template; it is item 6 in the AR template)

Please enter a U.S. dollar figure for your total budget request. See Chapter 11 for details on Grant Policies and allowable costs.

8.1.10 Proprietary Period

(This is item 9 in the GO/SNAP template; it does not appear in the AR template.)

If you wish to change the default proprietary period (12 months) for all observations in the program, enter either 0, 3, or 6 (months). See Section 5.1 on Data Rights for more information. Discuss the benefits of or need for a non-default proprietary period in Section 8.1.17.

8.1.11 Abstract

(This is item 10 in the GO/SNAP template; it is item 7 in the AR template)

Please write a concise abstract describing the proposed observations, including the main science goals and the justification for using HST. The abstract must fit on the first page of the printed proposal. This generally means that the Abstract should not be more than 20 lines (of approximately 80 characters per line).
8.1.12 Co-Investigators

(This is item 11 in the GO/SNAP template; it is item 8 in the AR template)

List the names, institutional affiliations, e-mail addresses, and US states or Foreign Countries of all CoIs. If appropriate, use the **ESAmember** keyword to identify that a CoI has an institutional affiliation in an ESA member country. If a proposal has a non-U.S. PI and one or more U.S. CoIs, then you must use the **AdminPI** keyword to indicate which U.S. CoI will be the Administrative PI for overseeing the grant funding for U.S. investigators (see Chapter 11).

8.1.13 Special Proposal Type Flags

(This is item 12 in the GO/SNAP template; it is item 9 in the AR template. Some of the keywords appear only in the GO/SNAP template and not in the AR template.)

- **calibprop**
  Set this keyword to ‘yes’ if you are submitting a Calibration Proposal (see Section 3.8).

- **chandracoord**
  Set this keyword to ‘yes’ if you are asking for both HST and Chandra observing time (see Section 3.3). You should then also provide detailed information on the Chandra observations in the ‘Coordinated Observations’ section of the proposal (see Section 8.1.18). Use this flag only if you are requesting new Chandra observing time; do not use it if the Chandra time has already been awarded.

- **innovative**
  Set this keyword to ‘yes’ if you are submitting an Innovative Proposal (see Section 3.6).

- **noaocoord**
  Set this keyword to ‘yes’ if you are asking for both HST and NOAO observing time (see Section 3.4). You should then also provide detailed information on the NOAO observations in the ‘Coordinated Observations’ section of the proposal (see Section 8.1.18). Use this flag only if you are requesting new NOAO observing time; do not use it if the NOAO time has already been awarded.

- **surveyprop**
  Set this keyword to ‘yes’ if you are submitting a Survey Proposal (see Section 3.5).

8.1.14 Observation Summary (OS)

(This is item 13 in the GO/SNAP template; it does not appear in the AR template.)

The OS lists the main characteristics of the observations that you propose to obtain. You must include in the OS all the configurations, modes and spectral elements that you propose to use, and all the targets that you propose to observe. Note the following:

- The OS can include observations of fixed targets (i.e., all targets outside the solar system whose positions can be defined by specific celestial coordinates), generic targets (i.e., targets defined by certain general properties, rather than by specific coordinates), and solar-system targets (i.e., moving targets).

- For SNAP proposals, the OS should describe a typical snapshot exposure (always less than one orbit) for one or a few of the targets. A complete description of the target list should be provided in the ‘Scientific Justification’ section of the proposal (see Section...
Filling Out the Proposal Forms

For Long-Term Programs, the OS should include information for all the proposed observations, not just the ones requested in Cycle 10.

Parallel observations must be included in the OS, and marked as such using the relevant special requirement flags (see Table 8.1). Auto-parallel observations with ACS (see Section 4.2.3) should not be listed. For NICMOS, list only observations with the primary camera, even if simultaneous observations are obtained with the other NICMOS cameras. If the observations with the other cameras are important for the science goals of the program, then describe this in the ‘Description of the Observations’ (see Section 8.1.16).

The OS should include special calibration exposures on internal sources or on external targets, if any (see Section 4.3). Special internal calibrations should be listed separately from external calibration exposures. When these special calibrations require additional orbits, they should be specified. The need for these calibrations should be justified in the ‘Description of the Observations’ (see Section 8.1.16).

If the OS takes up more than 1 page of the proposal, then the OS pages beyond the first one do not count towards the total proposal page limit (see Section 7.1.2).

The instrument parameters in the OS and their allowed values are not generally the same as those used in previous cycles; also, they are not the same as the corresponding instrument parameters used for Phase II programs. Please refer to Appendix C to determine which instrument parameters are available and allowed.

The OS consists of individual lines, each containing several separate pieces of information.

All exposures for a given target that use the same configuration and mode may be summarized in a single OS line.

Each row of the OS must include the following items:

- **Target Name**
  The target naming conventions for HST are defined in detail in the STScI Phase II documentation. A direct internet link to these conventions is available on the Cycle 10 Announcement Web Page (see Appendix E). Please adhere to these naming conventions throughout your proposal. For generic targets use a very short text description either of the target location or of the target itself (e.g., RANDOM-FIELD).

- **Target RA and DEC (J2000)**
  Supply the coordinates for fixed targets only. In Phase I, target positions with accuracies of order 1 arcmin are sufficient for the TAC and panel review (except in crowded fields where the identity of the target may be in question). However, in Phase II significantly more accurate coordinates are required, and it is the responsibility of the proposers to provide these. See the STScI Phase II documentation for details.

- **Target Magnitude**
  Supply the apparent total magnitude in the V passband for the entire target (galaxy, planet, etc.), if known. This information is used only for scientific review, not for exposure-time calculations. Note that some of the instruments have bright object safety limits. Observations that violate these limits are infeasible. See Section 5.1 of the HST Primer, or the Instrument Handbooks (see Section 1.4) for details.

- **SI Configuration**
  Enter the SI configuration. The available and allowed options for each SI can be found in
Operating Mode

Enter the operating mode. The available and allowed options for each SI can be found in Appendix C. For the FGS, the available Modes are POS and TRANS. For all other instruments, list SPECTRA if you are using a Spectral Element that disperses the light, and list IMAGING otherwise.

Spectral Element(s)

Enter all of the desired spectral elements (i.e., filters and gratings). The available and allowed options for each SI can be found in Appendix C. Note the following conventions:

- Several different spectral elements for different exposures may be included on the same OS exposure line, each separated by a comma (e.g., F555W,F656N).
- If more than one element is required for the same exposure, then join the elements with a + (e.g., F255W+POL45).
- If a STIS grating is used, then list in parentheses, immediately following the spectral element listing, the central wavelength in Angstroms for the exposures defined on the given line; e.g., G430M(4781, 4961).

Coronographic Apertures

If you are proposing coronographic observations with STIS, NICMOS, or ACS, then fill in this keyword. The available and allowed options for each SI can be found in Appendix C. For ACS, different coronographic apertures for different exposures may be included on the same OS exposure line, each separated with a comma (e.g., CORON1.8,CORON3.0). Do not fill in this keyword if you are not proposing coronographic observations.

Total Number of Orbits

Enter the total number of orbits (i.e., the sum of the orbits for all the exposures to which the given line of the OS refers). Consult Chapter 6 of the HST Primer for instructions on how to calculate the appropriate number of orbits for your observations.

Special Requirement Flags

Enter any of the flags listed in Table 8.1, when applicable. These options are the only allowed entries. Multiple entries are allowed, and should be separated by commas. For snapshot observations, only the DUP flag is allowed.
### Table 8.1: Special Requirement Flags for the Observation Summary

<table>
<thead>
<tr>
<th>Flag</th>
<th>Use this flag for</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPAR PPAR</td>
<td>Parallel observations. All of the exposures specified on this OS line are to be done in coordinated (CPAR) or pure (PPAR) parallel mode. List them both, if needed (see Section 4.2).</td>
</tr>
<tr>
<td>CVZ</td>
<td>Continuous Viewing Zone observations (see Section 4.1.1).</td>
</tr>
<tr>
<td>DUP</td>
<td>Observations which duplicate or might be perceived to duplicate previous or upcoming GO and/or GTO exposures (see Section 5.2.1).</td>
</tr>
<tr>
<td>LOW</td>
<td>Low-sky observations (see Section 5.5.1 of the HST Primer).</td>
</tr>
<tr>
<td>SHD</td>
<td>Shadow Time observations (see Section 5.5.2 of the HST Primer).</td>
</tr>
<tr>
<td>TOO</td>
<td>Target-of-Opportunity observations (see Section 3.1.4).</td>
</tr>
<tr>
<td>CAMP</td>
<td>STIS observations that should be done in one of the planned NUV-MAMA Low Dark Current Campaigns (see Section 4.1.4). Please check the Cycle 10 Announcement Web Page (see Section 1.4) frequently for updates on the anticipated details of SM3B, before submitting a proposal for these campaigns.</td>
</tr>
</tbody>
</table>

### 8.1.15 Scientific Justification

(*This is item 14 in the GO/SNAP template; it is item 10 in the AR template*)

This section should present a balanced discussion of background information, the program’s goals, its significance to astronomy in general, and its importance for the specific subfield of astronomy that it addresses. The members of the review panels will span a broad range of scientific expertise, so you should write this section for a general audience of scientists.

Depending on the type of proposal, the following items should also be included:

- SNAP proposals should describe the nature of the target sample.
- Pure Parallel and Survey proposals should address the potential use of the proposed database to the astronomical community.
- AR proposals should describe how the project improves upon or adds to the previous use of the data.
- Calibration proposals should describe what science will be enabled by the successful completion of the program, and how the currently supported core capabilities and their calibrations are insufficient to meet the requirements of this type of science.

The scientific justification should be no more than 3 pages for Regular Programs and no more than 6 pages for Large Programs (see Section 3.1). An additional two pages are allowed for (optional) figures, tables and references. Those proposers who consider this useful may add a glossary of acronyms and abbreviations. This glossary should not be more than 1 page, and does not count towards the total page limit for the proposal.
8.1.16 Description of the Observations

(This is item 15 in the GO/SNAP template; it does not appear in the AR template.)

Please provide a short description of the proposed observations. Explain the amount of exposure time and number of orbits requested (e.g., number of objects, examples of exposure-time calculations and orbit estimates for some typical observations). You should summarize your target acquisition strategies and durations where relevant.

Discuss and justify any non-standard calibration requirements (see Section 4.3), if any. You should estimate the number of orbits required for these special calibrations, and include them in the OS (see Section 8.1.14).

Long-term projects should provide summary information for the entire project, along with a cycle-by-cycle breakdown of the requested spacecraft orbits.

Calibration and Innovative proposals should present a detailed justification of how they will achieve the goals of the program, and if applicable, a description of the conditions under which these goals will be achieved.

There is no specific page limit for the Description of the Observations, but make sure that you do not exceed the total page limit for the proposal as a whole (see Section 7.1.2).

8.1.17 Special Requirements

(This is item 16 in the GO/SNAP template; it does not appear in the AR template.)

List and justify any special scheduling requirements, including requests for:

- Target of Opportunity (TOO) observations. For TOO observations, estimate the TOO’s probability of occurrence during Cycle 10, and state how soon HST must begin observing after the occurrence (see Section 3.1.4).
- CVZ observations (see Section 4.1.1).
- Shadow time or Low-sky observations (see Section 5.5 of the HST Primer).
- Scheduling during the STIS NUV-MAMA low dark current campaigns (see Section 4.1.4).
- Time-critical observations (see Section 4.1.2).
- Early acquisition observations (see Section 5.2.1 of the HST Primer).
- Target acquisitions that use the ‘Reuse target offset’ function (see Section 5.2.2 of the HST Primer).
- Real-time interactions (see Section 4.1.3, and Section 2.6.1 of the HST Primer).
- Scheduling of STIS/MAMA and STIS/CCD observations (other than target acquisitions) in the same orbit (see Section 6.2.3 of the HST Primer).
- Other special scheduling requirements (e.g., requests for non-SAA impacted observations).

Also, if applicable, discuss the benefits of or need for a non-default proprietary period request (different from 12 months).

8.1.18 Coordinated Observations

(This is item 17 in the GO/SNAP template; it does not appear in the AR template.)

If you have plans for conducting coordinated observations with other facilities that affect the HST scheduling, please describe them here (examples are coordinated or simultaneous observations with other spacecraft or ground-based observatories). Describe how the observations
Filling Out the Proposal Forms

will affect the scheduling.

If you have plans for supporting observations that do not affect HST scheduling, then don’t describe them here. If they improve your science case, then describe them in the ‘Scientific Justification’ section of the proposal (see Section 8.1.15).

**Joint HST-Chandra Observations**

Proposers requesting joint HST-Chandra observations (see Section 3.3) must provide a paragraph of technical justification for the Chandra portion of their program. This paragraph must include:

- the choice of instrument (and grating, if used),
- the exposure mode and chip selection (ACIS) or instrument configuration (HRC),
- the requested exposure time, justification for the exposure time, target count rate(s) and assumptions made in its determination,
- information about nearby bright sources that may lie in the field of view,
- a demonstration that telemetry limits will not be violated,
- a description of how pile-up effects will be minimized (ACIS only).
- information on whether the observations are time-critical; indicate whether the observations must be coordinated in a way that affects the scheduling (of either the Chandra or the HST observations).

Technical documentation about Chandra is available from the [Chandra X-ray Center (CXC) Web Page](http://cxc.harvard.edu) (see Appendix E), which also provides access to the Chandra Help Desk. The primary document is the Proposer’s Observatory Guide, available from the [Chandra User Documents Web Page](http://cxc.harvard.edu) (see Appendix E). Full specification of approved observations will be requested during the Chandra Cycle 3 period when detailed feasibility checks will be made.

Proposers requesting joint HST-Chandra observations must specify whether they were awarded Chandra time in a previous Chandra or HST cycle for similar or related observations.

**Joint HST-NOAO Observations**

Proposers requesting joint HST-NOAO observations (see Section 3.4) must provide a full and comprehensive technical justification for the NOAO portion of their program. This justification must include:

- the telescope(s) and instrument(s) on which time is requested,
- the requested observing time per telescope/instrument,
- a specification of the number of nights for each semester during which time will be required, and a breakdown into dark, grey and bright time,
- a description of any special scheduling or implementation requirements,
- information on whether the observations are time-critical; indicate whether the observations must be coordinated in a way that affects the scheduling (of either the NOAO or the HST observations).

Successful proposers will be asked to supply additional details about the observations, i.e., the same details required for NOAO proposals for the particular telescope/instrument. This “Phase II - NOAO” information must be submitted by the March 31, 2001 NOAO deadline for the Fall 2001 semester. Submission instructions will be forthcoming following notification of the results of the HST review.

Technical documentation about the NOAO facilities is available from the [NOAO Web Page](http://www.noao.edu) (see Appendix E). Questions may be directed to the NOAO Proposal Help Desk by email to
noaoprop-help@noao.edu. NOAO will perform feasibility checks on any approved proposals. Proposers requesting joint HST-NOAO observations must specify whether they were recently (in the last two years) awarded NOAO time for similar or related observations. A full and comprehensive scientific justification for the requested NOAO observing time and facilities must be given in the ‘Scientific Justification’ section of the proposal (see Section 8.1.15).

8.1.19 Justify Duplications

(This is item 18 in the GO/SNAP template; it does not appear in the AR template.)

Justify, on a target-by-target basis, any potential duplication with previously accepted GO or GTO observing programs. Use the DUP flag in the OS (see Section 8.1.14) to identify the duplicating observations. See Section 5.2.1 for policies on duplications.

8.1.20 Data Analysis Plan

(This item does not appear in the GO/SNAP template; it is item 11 in the AR template)

Provide a detailed data analysis plan for your AR proposal, including an estimate of the total number of data sets that will be analyzed, available resources, individual responsibilities where appropriate, and how the analysis will allow you to achieve your scientific objectives.

There is no specific page limit for the Data Analysis Plan, but make sure that you do not exceed the total page limit for the proposal as a whole (see Section 7.1.2).

8.1.21 Budget Narrative

(This item does not appear in the GO/SNAP template; it is item 12 in the AR template)

Describe concisely, but completely, what the requested AR funds will support (if awarded). Use words rather than dollar amounts (e.g., 3 months of support, including overhead and fringe benefits, for a graduate student who will work on the data reduction, and a 9 GByte hard disk drive for storage of the data and data analysis products). Provide a justification for why the requested items are necessary to achieve the goals of the program. See Chapter 11 for details on Grant Policies and allowable costs.

There is no specific page limit for the Budget Narrative, but make sure that you do not exceed the total page limit for the proposal as a whole (see Section 7.1.2).

8.1.22 Previous HST Programs

(This is item 19 in the GO/SNAP template; it is item 13 in the AR template)

Please list the program number and status of the data (especially publications) for each accepted GO/SNAP/AR program of the PI (e.g., GO-5847 - 9 Orbits - Apl. 488, 119, 1997). Identify and discuss any programs related to the proposal. Unpublished data from early cycles should be explained. A significant publication record will be regarded by the Review Panels and TAC as a strong plus. GTO programs and publications may be included at the PI’s discretion.

The text in this item of the proposal does not count towards the total page limit.
Chapter 9: Proposal Implementation and Execution

In This Chapter …

• Notification
• Phase II Submission
• Program Coordinator and Contact Scientist Support
• Duplication Checking
• Technical Review
• Proposal Scheduling
• Unschedulable or Infeasible Programs
• Access to Data Products
• Archival Research Support
• Visits to STScI
• Failed Observations
• Publication and Dissemination of HST Results

9.1 Notification
The panels and the TAC will meet approximately two months after the proposal submission deadline. Electronic notification of the outcome of the Phase I selection process will be sent to all proposers a little more than one month thereafter (mid/late December 2000).

9.2 Phase II Submission
Successful GO/SNAP proposers must submit a Phase II program, which provides complete details of the proposed observations. Detailed instructions on the preparation of Phase II programs are provided in the STScI Phase II documentation. The Phase II submission deadline will be approximately two months after notification of the Phase I outcome. Failure to submit a Phase II program by the required deadline will result in loss of the time allocation.

9.3 Program Coordinator and Contact Scientist Support
Accepted observing programs are assigned a Program Coordinator (PC), whose role is to help the observer deliver a Phase II program that is syntactically correct and will schedule successfully on the telescope.
Proposal Implementation and Execution

Selected programs (e.g., Target of Opportunity or moving target programs, or those using complicated observing strategies) will also be assigned a Contact Scientist (CS). The role of the CS is to provide advice on observing strategies, and to answer specific questions about instrument performance. Observers who are not automatically assigned a CS may request one. The CS is generally an Instrument Scientist involved in the calibration and characterization of the primary instrument used in the observer’s program.

9.4 Duplication Checking

Some computer-aided duplication checks are carried out in Phase II, in part by STScI and also by observers who wish to check whether any of their own observations are being duplicated. Any duplications found that were not explicitly justified in the Phase I proposal and recommended by the review panels or TAC will be disallowed. No compensatory observing time will be allowed and the observing time will be removed from the allocation.

9.5 Technical Review

STScI does not perform a technical review of submitted proposals in Phase I. However, a full technical feasibility review is performed in Phase II. STScI staff members carefully study all Phase II programs. Special attention is given to observations that are particularly complex, are human and technical resource-intensive, or require the use of limited resources (such as real-time acquisitions or TOO programs). All technically challenging or infeasible observations are flagged. Note that it is the responsibility of the PI to ensure that none of the observations violate bright objects constraints (see Section 5.1 of the HST Primer).

9.6 Proposal Scheduling

After Technical Review, observations determined to be feasible are scheduled for execution. The scheduling process attempts to optimize the overall HST efficiency. STScI will not contemplate requests to advance or postpone the scheduling of individual programs based on other considerations, with the possible exception of compelling scientific arguments.

9.7 Unschedulable or Infeasible Programs

Proposers should be aware that after acceptance of a proposal, the actual execution of the observations may in some cases prove impossible. Possible reasons include:

- The accepted observation may be found to be infeasible or extremely difficult for technical reasons only after receipt of the Phase II information; TOO and time-critical observations can be particularly complex to plan and execute, and will be completed only to the extent that circumstances allow.
- The observing mode or instrument selected may not be operational; or
- Suitable guide stars or scheduling opportunities may not exist.

Hence: All HST observations are accepted with the understanding that there can be no guarantee that the observations will actually be obtained.

Note also that the STScI Director reserves the right to disallow at any time any or all observations of an approved program if it is demonstrated that incorrect or incomplete information was provided in the Phase I proposal that may have significantly influenced the approval recommendation by the review panels or TAC.
9.8 ACCESS TO DATA PRODUCTS

Data products are stored in the Hubble Data Archive. Any processing or scientific analysis of the data beyond the standard “pipeline” calibrations performed by STScI are the responsibility of the observer.

Observers retrieve their data directly from the Data Archive. PIs must authorize electronic access to their data for themselves or for anyone else by sending e-mail to the Archive Hotseat (see Appendix A.1). Access must be specifically requested for each proposal and all Archive users should register on the Data Archive Registration Web Page (see Appendix E). The data do not become publicly available from the Data Archive until after the expiration of the proprietary period.

The HST Data Handbook (internet address listed in Appendix E) describes the data that are produced by the instruments. The Space Telescope Science Data Analysis Software (STS-DAS) Web Page (see Appendix E) has links to the software that is used to calibrate and analyze HST data, and to documentation on its use (see also Section 7.1.1 of the HST Primer).

• Observers with questions about the retrieval of their data should contact the Archive Hotseat (see Appendix A.1).
• Observers with questions about the analysis and calibration of their data should contact the STScI Help Desk (see Section 1.5).

9.9 ARCHIVAL RESEARCH SUPPORT

STScI provides limited assistance in the reduction and analysis of archived data. Although a Contact Scientist is not usually assigned to a funded AR program, STScI will do so upon request. The CS will serve as a single point of contact to help resolve calibration and data analysis issues. However, proposers should plan to conduct the bulk of their archival research at their home institutions, and should request funds accordingly. Limited resources preclude extensive assistance in the reduction and analysis of data by non-funded archival researchers.

• Archival Researchers with questions about the retrieval of data should contact the Archive Hotseat (see Appendix A.1).
• Archival Researchers with questions about the analysis and calibration of data should contact the STScI Help Desk (see Section 1.5).

9.10 VISITS TO STScI

After the observations have been obtained, observers who are new to HST may find it useful to visit STScI for 2-3 days to learn how to deal with their data. Also, in cases of particularly complex or difficult programs, observers may consider visiting STScI before the Phase II deadline. Expenses for such visits to STScI can be included in budgets for STScI grant funding if they conform to STScI’s General Grant Provisions (see Chapter 11 for details).

Visits can be arranged through the STScI Help Desk (see Section 1.5). Observers who visit STScI will be assisted by STScI staff to the extent that resources permit.

9.11 FAILED OBSERVATIONS

HST observations fail at a rate of a few percent. Some of these failures result from occasional guide stars that cannot be acquired, or from an instrument anomaly, or the telescope happening to be in a safe mode when a particular observation was scheduled. Such failures, which are obviously beyond the proposer’s control, are usually rescheduled for an automatic repeat. When this is the case, the proposer receives a notice to this effect.
A smaller fraction of failures do not have a clear cause, and may not be evident from our internal reviews of data quality. If you believe your observation has failed or is seriously degraded, then you may request a repeat using the Hubble Observation Problem Report (HOPR) Web Form (see Appendix E). The HOPR must be filed within 90 days after the observations are taken. In cases where the failure resulted from proposer error (e.g., incorrect target coordinates), a repeat will not be granted. In cases where the failure was a result of incorrect instrument performance, or incorrect information provided by the Institute, a repeat is usually granted.

The policies that apply to failures and repeats are described in the Policy Document for the Telescope Time Review Board (TTRB), available on the Web (see Appendix E). We wish to emphasize in particular:

• Standard policy dictates that if observations are to be repeated, the degraded/failed observations will be made public.
• If an observer has obtained more than 90% of the planned observations and the missing data are not uniquely important, then a repeat is not normally granted.
• If a snapshot exposure fails during execution it will not be repeated, regardless of the cause of the failure.
• Observations taken using Available-but-Unsupported modes that fail due to the use of the unsupported mode will not be repeated.
• Observations that are lost due to MAMA bright object violations will not be repeated.

9.12 Publication and Dissemination of HST Results

It is expected that the results of HST observations and Archival Research will be published in the scientific literature. All publications based on HST data must carry the following footnote (with the first phrase in brackets included in the case of Archival Research):

“Based on observations made with the NASA/ESA Hubble Space Telescope, obtained [from the data Archive] at the Space Telescope Science Institute, which is operated by the Association of Universities for Research in Astronomy, Inc., under NASA contract NAS 5-26555. These observations are associated with proposal ID(s) ####”

If the research was supported by a grant from STScI, the publication should also carry the following acknowledgment at the end of the text:

“Support for this work was provided by NASA through grant number #### from the Space Telescope Science Institute, which is operated by AURA, Inc., under NASA contract NAS 5-26555.”

In these phrases ‘####’ should be replaced by the relevant proposal ID or grant number(s).

One preprint of each publication based on HST research should be sent as early as possible to the following addresses:

• Dr. David Leckrone, HST Senior Scientist, Code 440, Goddard Space Flight Center, Greenbelt, MD 20771 USA.
• Office of Public Outreach, STScI, 3700 San Martin Drive, Baltimore, MD 21218, USA.

The advance information provided by a preprint is important for planning and evaluation of the scientific operation of the HST mission, and may be used for the selection and preparation of press releases.

Also, one preprint or reprint of each refereed publication based on HST research must be sent to:

• Librarian, Space Telescope Science Institute, 3700 San Martin Dr., Baltimore, MD
We remind HST observers that they have a responsibility to share interesting results of their HST investigations with the public at large. The Office of Public Outreach (OPO) of STScI is available to help observers use their HST data for public information and education purposes. Proposers can find guidelines and examples of these activities on the OPO Web page that discusses the Release of Scientific Findings to the Public (see Appendix E).
Chapter 10: Education & Public Outreach Proposals

In This Chapter …

• NASA OSS E/PO Policies
• HST Cycle 10 E/PO Proposals
• IDEAS

10.1 NASA OSS E/PO Policies

The NASA Office of Space Science (OSS) has developed a comprehensive approach to providing educational outreach to all educational levels (with a particular emphasis on pre-college education) as well as enhancing the public understanding of space science. OSS has incorporated these objectives as integral components of all its missions and research programs. Two key documents that establish the basic policies and guidelines for all OSS Education and Public Outreach (E/PO) activities are

• ‘Partners in Education: A Strategy for Integrating Education and Public Outreach Into NASA’s Space Science Programs’ (March 1995; a strategic plan), and
• ‘Implementing the Office of Space Science Education/Public Outreach Strategy’ (October 1996; an implementation plan),

both of which are available from the NASA Office of Space Science Web Page (internet addresses listed in Appendix E).

10.2 HST Cycle 10 E/PO Proposals

In accordance with OSS policies, STScI announces the opportunity for U.S. investigators (as defined in Chapter 11) with accepted HST Cycle 10 proposals (GO, SNAP or AR) to submit proposals for funding of E/PO activities.

Proposed E/PO activities should have some degree of intellectual linkage to the primary focus of the “parent” research proposal. Up to $10K per approved Phase I proposal may be proposed for an E/PO program. Successful GO/SNAP/AR proposers whose research is similar to that of other successful GO/SNAP/AR proposers or are from the same institution may combine their efforts to build a larger E/PO effort. Any E/PO proposal which is a collaboration of GO/SNAP/AR proposals can link a maximum of five awardees at $10K each, or up to $50K. A combined E/PO proposal must have a single PI and must adhere to all the proposal guidelines including partnering with a professional educator(s). The total amount of E/PO funding awarded in Cycle 10 will not exceed 2% of the currently available HST Cycle 10 GO/AR/SNAP budget.

The HST Cycle 10 E/PO Grant Program’s Call for Proposals will be released around the time of Phase I notification on the HST Cycle E/PO Web Page (see Appendix E). The deadline for
proposals is **Friday March 23, 2001, 5:00 p.m. EST**.

For more information or questions about the HST Cycle 10 E/PO Grant Program, please send e-mail to cycle_epo@stsci.edu.

### 10.3 IDEAS

STScI also wishes to call attention to the Initiative to Develop Education through Astronomy and Space Science (IDEAS) Grant Program, which it administers on behalf of NASA/OSS. This program, which currently selects proposals *yearly*, provides awards of up to $40K to enhance and encourage the participation of astronomers and space scientists in E/PO activities. The purpose of the IDEAS Grant Program is to provide start-up funding for innovative projects that promote science education through collaborative partnerships between professional astronomers and space scientists.

The Call for Proposals for the IDEAS Grant Program is typically released in July and can be accessed from the [IDEAS Web Page](#) (see Appendix E). The next deadline for proposals is **Friday October 13, 2000, 5:00 p.m. EDT**.

For more information or questions about the IDEAS Grant Program, please send e-mail to ideas@stsci.edu.
Chapter 11: Grant Funding and Budget Submissions

In This Chapter ...

- Overview
- Eligibility for STScI Grant Funds
- Allowable Costs
- Grant Period
- Award of Funds

11.1 Overview

Subject to availability of funds from NASA, STScI will provide financial support to eligible investigators of approved Cycle 10 programs. Such funding is awarded under the general conditions contained in the document General Grant Provisions of the Space Telescope Science Institute, referred to hereafter as the ‘General Grant Provisions’. The most recent version of this document is available at the STScI Grants Administration Office Web Page (internet addresses listed in Appendix E).

Budgets are not due in Phase I, but are required in Phase II from successful (GO, SNAP, AR or E/PO) proposers only. Separate budgets must be submitted by all investigators who request funding. Investigators who are not eligible for or who do not request funding do not need to send a budget. Detailed instructions for budget preparation and submission will be sent to successful proposers after the Phase I review has been completed.

Below we present a brief overview of the STScI funding policies and procedures. The information presented here is of an introductory nature only, and is not intended to be complete. The governing policies are always those contained in the General Grant Provisions. Investigators preparing AR proposals should not include in the total dollar amount (see Section 8.1.9) and budget narrative (see Section 8.1.21) of their Phase I proposal any costs that violate the General Grant Provisions.

Questions concerning funding policies and budget submissions should be directed to the STScI Grants Administration Office (see Appendix A.1).

11.2 Eligibility for STScI Grant Funds

Proposals for funding will be accepted from Universities and other nonprofit research institutions, private for-profit organizations, Federal employees, and unaffiliated scientists. Only U.S. PIs and CoIs are eligible to request funding.
Grant Funding and Budget Submissions

**U.S. Investigators are defined to be those investigators that fall in one of the following categories:**

- U.S. Citizens residing in the U.S., or abroad if salary and support are being paid by a U.S. institution.
- U.S. Permanent residents and foreign national scientists working in and funded by U.S. institutions in the U.S.

These definitions include U.S. CoIs on observing projects with non-U.S. PIs.

Proposals by non-U.S. PIs that have one or more U.S. CoIs *must* designate one of the U.S. CoIs as the ‘Administrative PI’. This person will have overall oversight and responsibility for the budget submissions of the U.S. CoIs.

When a U.S. investigator obtains grant funds for a project that also involves non-U.S. investigators, then no funding may flow through the U.S. investigator to the non-U.S. investigators.

### 11.3 Allowable Costs

Support may be requested for the acquisition, calibration, analysis, and publication of HST data, and related costs. Costs of the following types may be acceptable, if they conform to the General Grant Provisions:

- Salaries and wages.
- Costs for individuals providing research assistance, such as graduate students, post-doctoral research associates or science data aides.
- Fringe benefits.
- Publication costs.
- Travel.
- Computer services.
- Permanent equipment.
- Materials and supplies.
- Indirect costs.
- Funds to support ground-based observations.

Some of these costs should not amount to more than a certain absolute amount, or percentage of the total budget (this is the case, e.g., for funds to support ground-based observations). Please refer to the General Grant Provisions for details.

For-profit organizations should note that profit is not an allowable cost.

Preparatory funding may be requested if necessary to prepare for the receipt of HST data. Proposers may request up to 25% of the funds for their programs to be awarded prior to the start of the Cycle 10 observing schedule. Preparatory funds are part of the overall funding allocated for the program, and are not additional funds. Note that all pre-award expenditures are incurred at the risk of the investigator, and that all funding is contingent upon the availability of funds from NASA at the time the award is made.

### 11.4 Grant Period

It is anticipated that STScI will award funding for a period of one to two years, depending on the nature and complexity of the project. If the requested support is for more than one year, funding for the project will be on an annual basis, with additional funding for each subsequent grant year awarded after a favorable review of an annual performance report that will be required.
Grant Funding and Budget Submissions

Long-term projects that are approved for more than one cycle of observations will be funded on an annual basis. A budget for the analysis of current cycle observations must be submitted with an estimate of the funding requirements for subsequent cycles. Funding for subsequent cycles will be provided through an amendment to an existing STScI grant after the receipt of a detailed budget for each subsequent cycle by the budget deadline for that cycle.

11.5 Award of Funds

Shortly before the start of Cycle 10, each PI or Administrative PI of a program that has requested funding will receive notification from the STScI Director concerning the specific funding allocation. It is anticipated that requests for preparatory funding will be awarded prior to the start of Cycle 10. Additional funding up to the approved funding allocation will be awarded after the receipt of observational data for the given program.
Appendix A: Contact Information

In This Appendix ...

• Space Telescope Science Institute
• Space Telescope - European Coordinating Facility
• Canadian Astronomy Data Centre

A.1 SPACE TELESCOPE SCIENCE INSTITUTE

Internet:
http://www.stsci.edu/

Address:
3700 San Martin Drive, Baltimore, Maryland 21218, USA

Telephone:
[1] 410-338-xxxx (where xxxx is the extension number)
Main switchboard extension: 4700

Fax:
ext: 4767

STScI Help Desk:
ext: 1082; email: help@stsci.edu
from within the U.S. call toll-free: 1-800-544-8125

Archive Hotseat:
ext: 4547; email: archive@stsci.edu

Director’s Office:
Director: Steven Beckwith; ext: 4710; email: svwb@stsci.edu

Science Policies Division:
Head: Duccio Macchetto; ext: 4790; email: macchetto@stsci.edu

Science Program Selection Office:
Head: Meg Urry; ext: 4593; email: cmu@stsci.edu
Technical Manager: Brett Blacker; ext: 1281; email: blacker@stsci.edu

Grants Administration Office:
Manager: Elyse Wagner; ext: 4200; email: wagner@stsci.edu
Branch Chief: Ray Beaser; ext: 4200; email: beaser@stsci.edu

Office of Public Outreach:
Head: Peg Stanley; ext: 4536; email: pstanley@stsci.edu

Hubble Observation Department:
Observation Planning Team Lead: Denise Taylor; ext: 4824; email: dctaylor@stsci.edu
Contact Information

Science and Instrument Support Department:
ACS Lead: Mark Clampin; ext: 4711; email: clampin@stsci.edu
FGS Lead: Ed Nelan; ext: 4992; email: nelan@stsci.edu
NICMOS Lead: Daniela Calzetti; ext: 4518; email: calzetti@stsci.edu
STIS Lead: Gerard Kriss; ext: 4353; email: kriss@stsci.edu
WFPC2 Lead: John Biretta; ext: 4917; email: biretta@stsci.edu

A.2 SPACE TELESCOPE - EUROPEAN COORDINATING FACILITY

Internet:
http://ecf.hq.eso.org/

Address:
ST-ECF, European Southern Observatory, Karl-Schwarzschild-Strasse 2, D-85748
Garching bei München, Germany

Telephone:
[49] 89-320-06-291

Fax:
[49] 89-320-06-480

Email:
stdesk@eso.org

Comments:
The ST-ECF provides assistance to HST users in Europe. The ST-ECF produces a News-
letter, which, although aimed primarily at European HST users, includes articles of gen-
eral interest to the HST community. To receive the Newsletter, send full name and postal
address to the ST-ECF email address.

A.3 CANADIAN ASTRONOMY DATA CENTRE

Internet:
http://cadcwww.hia.nrc.ca/

Address:
CADC, Dominion Astrophysical Observatory, 5071 W. Saanich Rd., Victoria, B.C. V8X
4M6, Canada

Telephone:
[1] 604-363-0025

Email:
cadc@dao.nrc.ca

Comments:
The CADC provides assistance to HST users in Canada.
Appendix B: Scientific Keywords

The Tables in this Appendix list the Scientific Keywords that are valid for use in the Phase I proposal template (see Section 8.1.4).

### Table B.1: Generic Keywords

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<thead>
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<td>MULTIWAVELENGTH STUDY</td>
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<td>CHEMICAL ABUNDANCES</td>
<td>SURVEY</td>
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<td>VARIABILITY</td>
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### Table B.2: Solar System Keywords

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<td>KUIPER BELT OBJECTS</td>
<td>SUPPORT OF NASA PLANETARY MISSIONS</td>
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<td>PLANETARY ATMOSPHERES</td>
<td>SURFACES OF PLANETS/MOONS/OTHER</td>
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### Table B.3: Galactic Keywords

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<td>PLANETARY NEBULAE</td>
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<td>PROTO-PLANETARY DISKS</td>
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<tr>
<td>ECLIPSING BINARIES</td>
<td>PROTO-PLANETARY NEBULAE</td>
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<td>ERUPTIVE BINARY STARS AND CATAclySMIC VARIABLES</td>
<td>STAR COUNTS</td>
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<td>STELLAR ACTIVITY</td>
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<td>GALACTIC BULGE</td>
<td>STELLAR EVOLUTION AND MODELS</td>
</tr>
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<td>GALACTIC CENTER</td>
<td>SUBDWARFS</td>
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<tr>
<td>GALACTIC DISK</td>
<td>SUPERNOVA REMNANTS</td>
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<tr>
<td>GALACTIC HALO</td>
<td>T TAUER STARS</td>
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<tr>
<td>GIANTS AND AGB STARS</td>
<td>UV-BRIGHT STARS</td>
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<td>HERBIG-HARO OBJECTS</td>
<td>VARIABLE AND PULSATING STARS</td>
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<td>VERY LOW MASS STARS AND BROWN DWARFS</td>
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<tr>
<td>MAIN SEQUENCE STARS</td>
<td>WHITE DWARFS</td>
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<td>MASSIVE STARS</td>
<td>WINDS/OUTFLOWS/MASS-LOSS</td>
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<tr>
<td>NEUTRON STARS AND PULSARS</td>
<td>WOLF-RAYET STARS</td>
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<td>NOVA SHELLS</td>
<td>X-RAY BINARIES</td>
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<td>PECULIAR BINARY STARS</td>
<td>YOUNG STARS AND PROTOSTELLAR OBJECTS</td>
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### Table B.4: Galactic or Extra-Galactic Keywords

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<td>MICROLENSING</td>
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<td>DARK MATTER</td>
<td>MOLECULAR CLOUDS</td>
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<td>GLOBULAR CLUSTERS</td>
<td>STAR FORMATION</td>
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<td>H II REGIONS</td>
<td>RESOLVED STELLAR POPULATIONS</td>
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<tr>
<td>BL LAC OBJECTS AND BLAZARS</td>
<td>INTRACLUSTER MEDIUM</td>
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<td>IR-LUMINOUS GALAXIES</td>
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<tr>
<td>COOLING FLOWS</td>
<td>IRREGULAR GALAXIES</td>
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<td>LARGE SCALE STRUCTURE AND PECULIAR VELOCITIES</td>
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<td>LINERS</td>
</tr>
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<td>HIGH REDSHIFT GALAXIES</td>
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<td>HOST GALAXIES</td>
<td>YOUNG STAR CLUSTERS IN EXTERNAL GALAXIES</td>
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</table>
Appendix C: Instrument Parameters

In This Appendix ...

• ACS
• FGS
• NICMOS
• STIS
• WFPC2

The Tables in this Appendix list the Instrument Parameters that are valid for use in the Observation Summary of the Phase I proposal template (see Section 8.1.14). Note that not all combinations of Instrument Configuration, Mode, Spectral Elements and Coronographic Apertures are possible or technically feasible.

In all cases, you should consult the technical details in the Instrument Handbooks (see Section 1.4) to determine what is feasible.

C.1 ACS

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<td>see Table C.1</td>
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Table C.1: ACS Spectral Elements

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<th>F125LP</th>
<th>F140LP</th>
<th>F150LP</th>
<th>F165LP</th>
<th>F220W</th>
<th>F250W</th>
<th>F330W</th>
<th>F344N</th>
<th>F435W</th>
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<tr>
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<td>F502N</td>
<td>F550M</td>
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<td>F625W</td>
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<tr>
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<td>F388N</td>
<td>F423N</td>
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<td>F505N</td>
<td>F555N</td>
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<td>FR914M</td>
<td>FR931N</td>
<td>FR1016N</td>
<td>G800L</td>
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<td>POL0V</td>
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<td>POL60UV</td>
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<td>FR130L</td>
<td>FR200L</td>
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### C.2 FGS

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**Table C.2: FGS Spectral Elements**

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<th>F605W</th>
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### C.3 NICMOS

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**Table C.3: NICMOS Spectral Elements**

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<td>F207M</td>
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<td>F145M</td>
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C.4 STIS

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Table C.4: STIS Spectral Elements

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<td>G140M</td>
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<td>G430M</td>
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<td>F28X50II</td>
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<td>F25CN270</td>
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<td>F25NDQ4</td>
<td>F28X50II</td>
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</tr>
<tr>
<td>50CCD</td>
<td>F25LYA</td>
<td>F25NDQ1</td>
<td>F25QTZ</td>
<td>F28X50II</td>
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<td>F25CH III</td>
<td>F25MGH</td>
<td>F25NDQ2</td>
<td>F25SRF2</td>
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<td></td>
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<tr>
<td>F25CN182</td>
<td>F25ND3</td>
<td>F25NDQ3</td>
<td>F28X50LP</td>
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C.5 WFPC2

<table>
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<tr>
<th>Configuration</th>
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<tr>
<td>Mode</td>
<td>IMAGING</td>
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<tr>
<td>Spectral Elements</td>
<td>see Table C.5</td>
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<tr>
<td>Coronographic Apertures</td>
<td>do not fill in for WFPC2 observations</td>
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Table C.5: WFPC2 Spectral Elements

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<tr>
<th>Spectral Elements</th>
<th>F122N</th>
<th>F343N</th>
<th>F502N</th>
<th>F675W</th>
<th>F160BN15</th>
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<tbody>
<tr>
<td>F130LP</td>
<td>F375N</td>
<td>F547M</td>
<td>F702W</td>
<td>F785LP</td>
<td>FQUVN33</td>
</tr>
<tr>
<td>F160AW</td>
<td>F380W</td>
<td>F555W</td>
<td>F791W</td>
<td>FQUVN33</td>
<td>FQCH4N</td>
</tr>
<tr>
<td>F160BW</td>
<td>F390N</td>
<td>F569W</td>
<td>F814W</td>
<td>FQCH4N33</td>
<td></td>
</tr>
<tr>
<td>F165LP</td>
<td>F410M</td>
<td>F588N</td>
<td>F850LP</td>
<td>FQCH4P15</td>
<td></td>
</tr>
<tr>
<td>F170W</td>
<td>F437N</td>
<td>F606W</td>
<td>F850LP</td>
<td>FQCH4N15</td>
<td></td>
</tr>
<tr>
<td>F185W</td>
<td>F439W</td>
<td>F622W</td>
<td>F953N</td>
<td>FQCH4P15</td>
<td></td>
</tr>
<tr>
<td>F218W</td>
<td>F450W</td>
<td>F631N</td>
<td>F1042M</td>
<td>POLQ</td>
<td></td>
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<td>F255W</td>
<td>F467M</td>
<td>F656N</td>
<td>POLQN33</td>
<td></td>
<td></td>
</tr>
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<td>F300W</td>
<td>F469N</td>
<td>F658N</td>
<td>LRF</td>
<td>POLQP15</td>
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<td>F336W</td>
<td>F487N</td>
<td>F673N</td>
<td>POLQN18</td>
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# Appendix D: Glossary of Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>ACIS</td>
<td>AXAF CCD Imaging Spectrometer</td>
</tr>
<tr>
<td>ACS</td>
<td>Advanced Camera for Surveys</td>
</tr>
<tr>
<td>AR</td>
<td>Archival Research</td>
</tr>
<tr>
<td>ASCS</td>
<td>Aft-Shroud Cooling System</td>
</tr>
<tr>
<td>AURA</td>
<td>Association of Universities for Research in Astronomy, Inc.</td>
</tr>
<tr>
<td>CADC</td>
<td>Canadian Astronomy Data Centre</td>
</tr>
<tr>
<td>CAMP</td>
<td>STIS Campaign</td>
</tr>
<tr>
<td>CCD</td>
<td>Charge-Coupled Device</td>
</tr>
<tr>
<td>CoI</td>
<td>Co-Investigator</td>
</tr>
<tr>
<td>CPAR</td>
<td>Coordinated Parallel Observation</td>
</tr>
<tr>
<td>CS</td>
<td>Contact Scientist</td>
</tr>
<tr>
<td>CVZ</td>
<td>Continuous Viewing Zone</td>
</tr>
<tr>
<td>CXC</td>
<td>Chandra X-ray Center</td>
</tr>
<tr>
<td>DD</td>
<td>Director’s Discretionary</td>
</tr>
<tr>
<td>DEC</td>
<td>Declination</td>
</tr>
<tr>
<td>DUP</td>
<td>Duplicate Observation</td>
</tr>
<tr>
<td>EDT</td>
<td>Eastern (U.S.) Daylight-savings Time</td>
</tr>
<tr>
<td>E/PO</td>
<td>Education/Public Outreach</td>
</tr>
<tr>
<td>ESA</td>
<td>European Space Agency</td>
</tr>
<tr>
<td>EST</td>
<td>Eastern (U.S.) Standard Time</td>
</tr>
<tr>
<td>FGS</td>
<td>Fine Guidance Sensor(s)</td>
</tr>
<tr>
<td>FTP</td>
<td>File Transfer Protocol</td>
</tr>
<tr>
<td>FUV</td>
<td>Far Ultraviolet</td>
</tr>
<tr>
<td>GO</td>
<td>General Observer</td>
</tr>
<tr>
<td>GSFC</td>
<td>Goddard Space Flight Center</td>
</tr>
<tr>
<td>GTO</td>
<td>Guaranteed Time Observer</td>
</tr>
<tr>
<td>HDF</td>
<td>Hubble Deep Field</td>
</tr>
<tr>
<td>HET</td>
<td>Hobby-Eberly Telescope</td>
</tr>
<tr>
<td>HOPR</td>
<td>Hubble Observation Problem Report</td>
</tr>
<tr>
<td>HRC</td>
<td>High Resolution Camera (on Chandra) or High Resolution Channel (on ACS)</td>
</tr>
<tr>
<td>HST</td>
<td>Hubble Space Telescope</td>
</tr>
<tr>
<td>HTML</td>
<td>Hyper Text Markup Language</td>
</tr>
<tr>
<td>IDEAS</td>
<td>Initiative to Develop Education through Astronomy and Space Science</td>
</tr>
<tr>
<td>IR</td>
<td>Infrared</td>
</tr>
<tr>
<td>LOW</td>
<td>Low Sky Background</td>
</tr>
<tr>
<td>MAMA</td>
<td>Multi-Anode Microchannel Array</td>
</tr>
<tr>
<td>MMT</td>
<td>Multiple Mirror Telescope</td>
</tr>
<tr>
<td>NASA</td>
<td>National Aeronautics and Space Administration</td>
</tr>
<tr>
<td>NICMOS</td>
<td>Near Infrared Camera and Multi-Object Spectrometer</td>
</tr>
</tbody>
</table>
# Glossary of Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOAO</td>
<td>National Optical Astronomy Observatory</td>
</tr>
<tr>
<td>NUV</td>
<td>Near Ultraviolet</td>
</tr>
<tr>
<td>OS</td>
<td>Observation Summary</td>
</tr>
<tr>
<td>OSS</td>
<td>Office of Space Science</td>
</tr>
<tr>
<td>PAEC</td>
<td>Planned and Archived Exposures Catalog</td>
</tr>
<tr>
<td>PC</td>
<td>Program Coordinator or Planetary Camera</td>
</tr>
<tr>
<td>PDF</td>
<td>Portable Document Format</td>
</tr>
<tr>
<td>PI</td>
<td>Principal Investigator</td>
</tr>
<tr>
<td>PPAR</td>
<td>Pure Parallel Observation</td>
</tr>
<tr>
<td>RA</td>
<td>Right Ascension</td>
</tr>
<tr>
<td>SAA</td>
<td>South Atlantic Anomaly</td>
</tr>
<tr>
<td>SBC</td>
<td>Solar Blind Channel</td>
</tr>
<tr>
<td>SHD</td>
<td>Shadow Time</td>
</tr>
<tr>
<td>SI</td>
<td>Scientific Instrument</td>
</tr>
<tr>
<td>SM</td>
<td>Servicing Mission</td>
</tr>
<tr>
<td>SNAP</td>
<td>Snapshot</td>
</tr>
<tr>
<td>SPSO</td>
<td>Science Program Selection Office</td>
</tr>
<tr>
<td>STAC</td>
<td>Space Telescope Advisory Committee</td>
</tr>
<tr>
<td>ST-ECF</td>
<td>Space Telescope - European Coordinating Facility</td>
</tr>
<tr>
<td>STIK</td>
<td>STIS Thermal Interface Kit</td>
</tr>
<tr>
<td>STIS</td>
<td>Space Telescope Imaging Spectrograph</td>
</tr>
<tr>
<td>STScI</td>
<td>Space Telescope Science Institute</td>
</tr>
<tr>
<td>STSDAS</td>
<td>Space Telescope Science Data Analysis Software</td>
</tr>
<tr>
<td>TAC</td>
<td>Telescope Allocation Committee</td>
</tr>
<tr>
<td>TOO</td>
<td>Target of Opportunity</td>
</tr>
<tr>
<td>U.S.</td>
<td>United States</td>
</tr>
<tr>
<td>UTC</td>
<td>Coordinated Universal Time</td>
</tr>
<tr>
<td>UV</td>
<td>Ultraviolet</td>
</tr>
<tr>
<td>VTT</td>
<td>Visual Target Tuner</td>
</tr>
<tr>
<td>WFC</td>
<td>Wide Field Camera (on WFPC2) or Wide Field Channel (on ACS)</td>
</tr>
<tr>
<td>WF/PC</td>
<td>Wide Field and Planetary Camera 1</td>
</tr>
<tr>
<td>WFPC2</td>
<td>Wide Field and Planetary Camera 2</td>
</tr>
</tbody>
</table>
Appendix E: Internet Links

Archival Pure Parallel Program
http://archive.stsci.edu/hst/parallels/

Canadian Astronomy Data Centre
http://cadcwww.hia.nrc.ca/

Chandra User Documents
http://asc.harvard.edu/udocs/docs/docs.html

Chandra X-ray Observatory
http://chandra.harvard.edu/

Chandra X-ray Center (CXC)
http://asc.harvard.edu/

CVZ Tables
http://www.stsci.edu/ftp/proposer/cycle10/CVZ_Tables.html

Cycle 10 Announcement Web Page
http://www.stsci.edu/ftp/proposer/cycle10/announce.html

Data Archive
http://archive.stsci.edu/

Data Archive Registration
http://archive.stsci.edu/registration.htm

Data Handbook

DD Submission Template
http://www.stsci.edu/ftp/proposer/dd.html

Duplication Checking
http://archive.stsci.edu/cgi-bin/duplication

ftp submission instructions

General Grant Provisions of the Space Telescope Science Institute

Grants Administration Office
http://www.stsci.edu/ftp/stsci/grants/

HST Cycle E/PO Program
http://cycle-epo.stsci.edu/

Hubble Deep Field (HDF)

Hubble Deep Field-South (HDF-S)
Internet Links

**Hubble Observation Problem Report**
http://www.stsci.edu/public/request.html

**Implementing the Office of Space Science Education/Public Outreach Strategy**
http://spacescience.nasa.gov/edu/imp_plan.htm

**IDEAS (Initiative to Develop Education through Astronomy and Space Science)**

**NASA Office of Space Science (OSS)**
http://www.hq.nasa.gov/office/oss/

**National Optical Astronomy Observatory (NOAO)**
http://www.noao.edu/

**NOAO/NASA Collaboration Web Page**
http://www.noao.edu/gateway/nasa/

**Partners in Education: A Strategy for Integrating Education and Public Outreach Into NASA’s Space Science Programs**
http://spacescience.nasa.gov/edu/educov.htm

**Planned and Archived Exposures Catalog**
http://archive.stsci.edu/hst/catalogs.html

**Policy Document for the Telescope Time Review Board (TTRB)**

**Release of Scientific Findings to the Public**

**Scientific Instruments**
http://www.stsci.edu/instruments/

**Space Telescope - European Coordinating Facility**
http://ecf.hq.eso.org/

**Space Telescope Science Data Analysis Software (STSDAS)**
http://ra.stsci.edu/STSDAS.htm

**Space Telescope Science Institute**
http://www.stsci.edu/

**Starview**
http://archive.stsci.edu/starview.html