

Proposal Cycle: Updates and Plans

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Previous actions: none

Highlights of CDO activities

Report on Cycle 21

Cycle 22 and Beyond

Transient Science: new working group and possible CXC Workshop?

Chandra Cool Targets

Code of Conduct

Move towards dual-anonymous proposal reviews

Overhaul of accounting of constraints and TOOs.

Highlights

Cycle 21 Peer Review:

24-28th June- 2019, Hilton Logan Airport.

Target List posted 11th July

E-letters, including approved targets and peer review reports were mailed 25th July

Budget letters were mailed 8th Aug

Cost proposal deadline: 26th Sept 2019

Highlights

Numerous events to celebrate Chandra's 20th Anniversary — including reception at NASM on Aug 26

Twenty Years of Chandra Science Symposium
http://cxc.harvard.edu/symposium_2019/

AAS Meeting, 9-13 June, St. Louis, MO

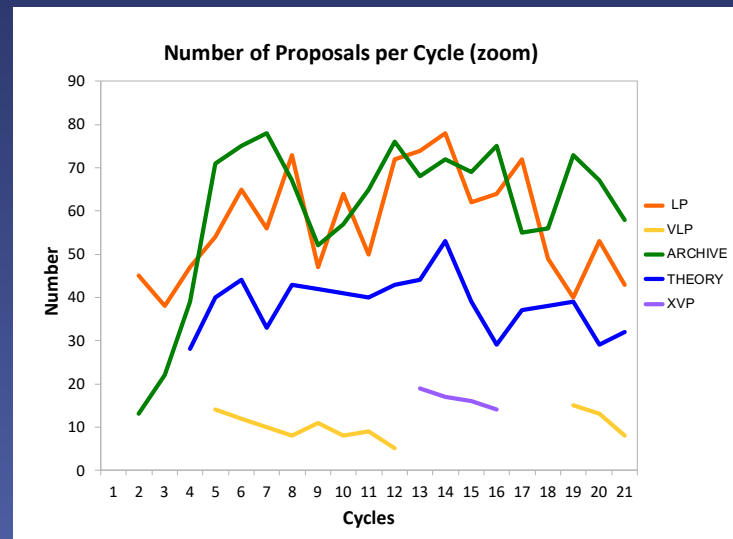
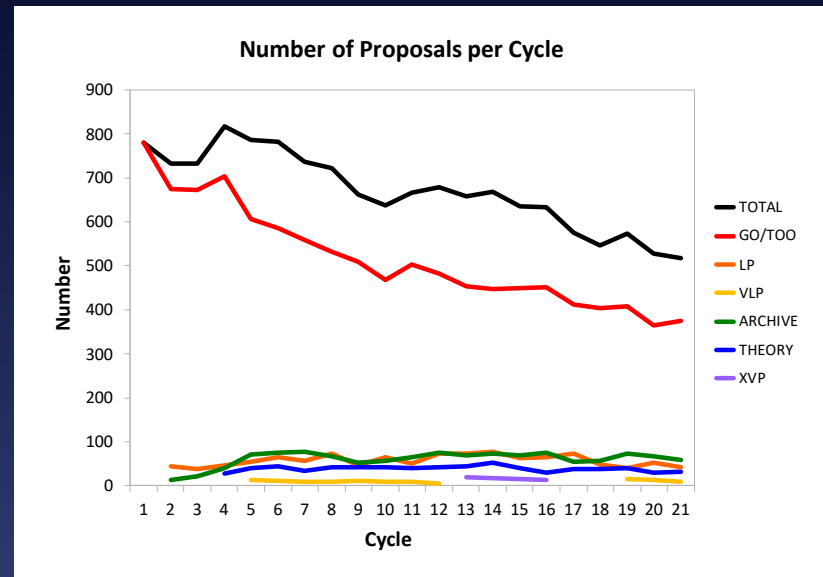
X-ray astronomy 2019, Sept 8-13, Bologna, Italy.

Cycle 21 Proposal Statistics

515 proposals submitted:

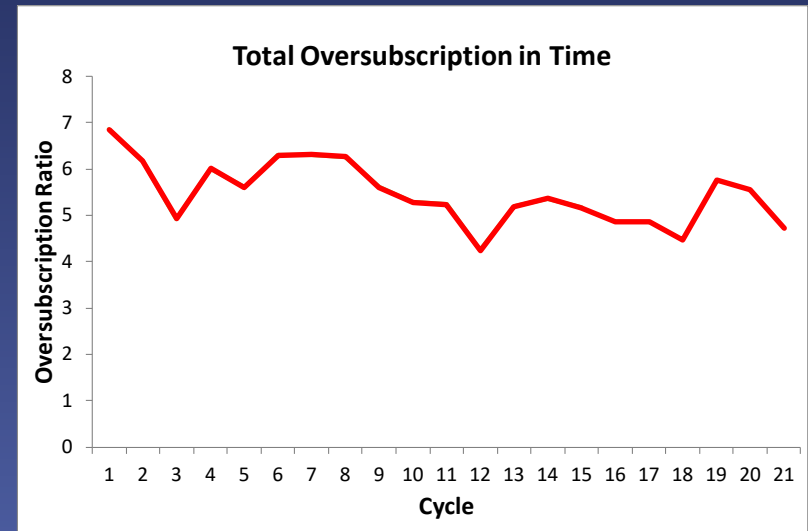
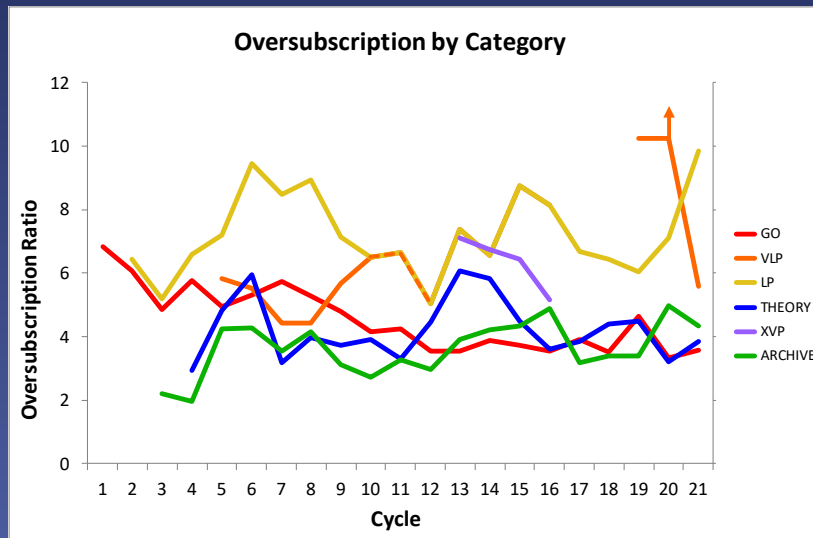
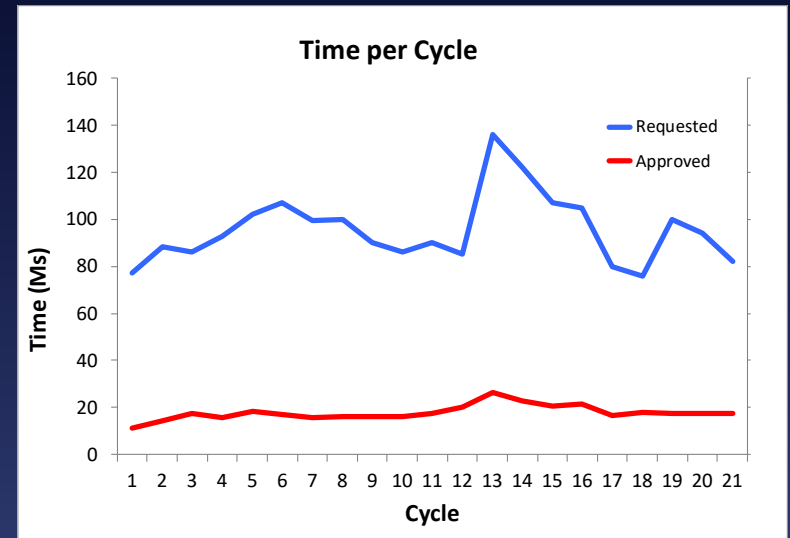
- GO 369 (inc. TOO, 364)
- LP 48 (53)
- VLP 8 (13)
- Archive 58 (67)
- Theory 32 (29)

168 approved



Cycle 21 Proposal Statistics

- Total Time: 16.8 Ms
- Oversubscription in time: 4.9
- GO oversubscription: 3.0
- LP oversubscription 9.8
- VLP oversubscription 5.6
- Two VLPs approved



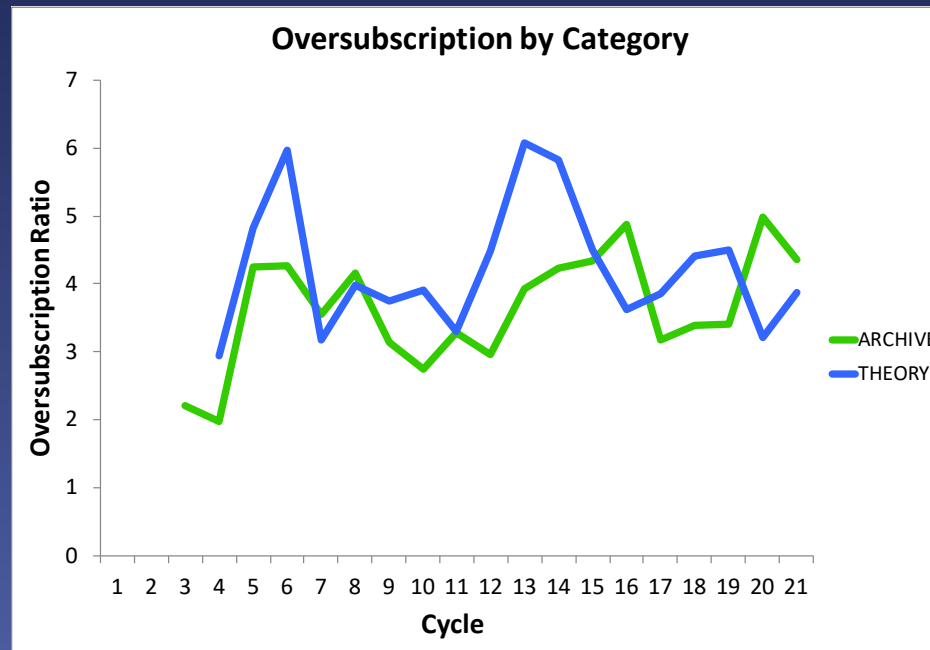
Cycle 21 Proposal Statistics

Archive:

- Budget: \$1050K
- Allocated \$1058K (17)
- Over-subscription: 4.3

Theory:

- Budget: \$600K
- Allocated: \$604K (9)
- Over-subscription: 3.8



Transient Science with Chandra

Senior review: “there will be a great demand for coordination between Chandra and a number of transient-optimized surveys (LSST, ZTF, LIGO-Virgo, etc.). The Chandra staff could proactively gather input from these communities in order to maximize the synergy between Chandra and these facilities.”

Transients currently covered by TOO and DDT programs

Community driven

But some programs beyond scope of DDT and science might benefit from shorter turn-around time than is possible with peer review

Set up working group to look at possible mission-directed program to maximize transient science

Possible 2020 science symposium “Enabling Transient Science with Chandra”

Chandra Cool Targets (CCTs)

We need to avoid overheating of various observatory sub-systems —> Significant restrictions in the durations of observations at various solar pitch angles

CCTs: A large pool of targets distributed across the sky (but avoiding the ecliptic poles) so that a cool target is always available - we never look at blank sky to cool off

A Call for CCT White papers issued in Sept 2018, first CCTs used in January 2019.

Working well, as of 9/19, 59 CCTs used for a total of 753 ks

Usage varies from week to week, expect ~1 Ms to be used this year

Chandra Cool Targets (CCTs)

What next?

Senior Review comment: “To maximize the scientific return from the cool targets a mechanism could be implemented for the regular evaluation and addition of new cool targets”

Not strictly necessary for operations: current crop of CCTs will last for many years

Important to retire programs that have enough data, enable new science areas/surveys to be explored.

Chandra Cool Targets (CCTs)

Refresh CCTs every ~3 years

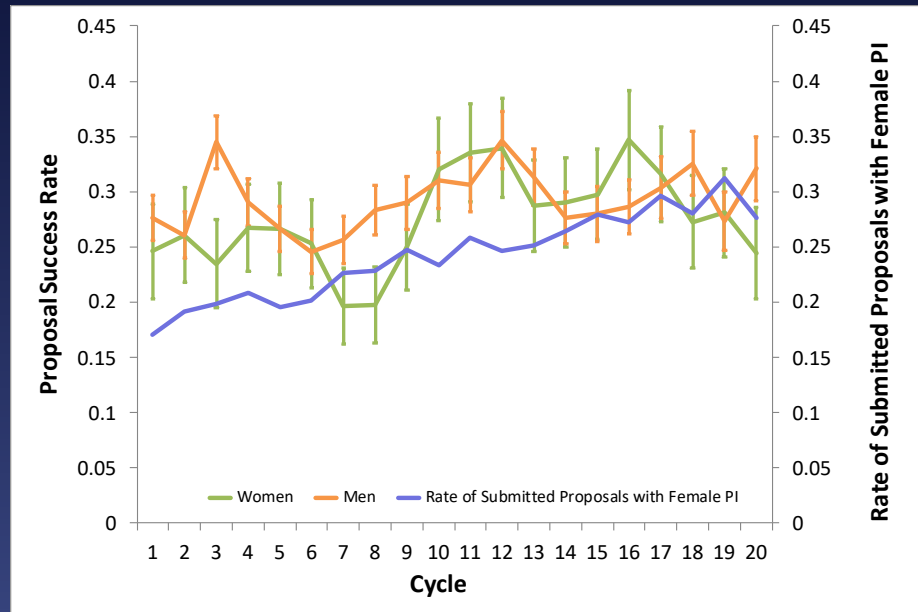
CCT Proposals will be evaluated by peer review along with all other proposal types (next solicitation in Cycle 23, CfP released 2021 for 3 year cadence)

The number of targets approved will be large but limited, in an attempt to balance the need for a deep pool vs. allowing highly ranked programs to accumulate useful data.

Proposers can request that current programs be continued

After the new CCTs have been approved the old CCTs will be removed from the database.

Dual-Anonymous Reviews



Acceptance rates for males and females statistically indistinguishable in recent years. We do see trends for senior women to do less well than senior male peers, in common with other observatories. Assumption is that these trends are due to implicit bias.

Dual-Anonymous Reviews

In 2018 StScI conducted a dual anonymous review: proposals were distributed to reviewers without names or identifying information. The names were revealed after the final rankings. Results from this initial trial were encouraging.

Paul Hertz, Director SMD Astrophysics Division, has instructed all NASA missions to conduct DA reviews for CfP released in CY2020 (with caveat “in the absence of any contra-indications from the Hubble Cycle 27 peer review”)

Our first Chandra DA review will be Cycle 22 or (more likely) Cycle 23. This involves considerable coding changes for our Reviewers Web Site.

Andrea P attending the DA workshop at StScI tomorrow

CXC Code of Conduct

No single place where ethical expectations are clearly stated

Conduct expected from proposers (e.g. plagiarism) in the CfP

Conduct expected from reviewers (confidentially and conflict of interest) in the Rules of the Peer Review

Expectations of grant holders in Terms & Conditions

CXC covered by Smithsonian non-discrimination and bullying rules

Bring it all together in a single document, with clear expectations for conduct by CXC staff, proposers, reviewers, guests etc.

Overhaul of constraints and TOOs

Spacecraft thermal constraints are not getting easier.

Guide Star Camera needs to be more carefully managed

Mission planning is becoming much more complicated.....increase in workload and stress levels for Mission Planning staff.

TOO Response times

Better align response times with mission planning weekly schedules

Category	Current response (days)	Current triggers	Proposed response (days)	proposed triggers
Very Fast	0-5	8	$0 < t \leq 5$	8
Fast	5-15	20	$5 < t \leq 20$	12
Med	15-30	26	$20 < t \leq 30$	34
Slow	>30	26	$t > 30$	26

keep overall number of triggers constant but shift to slightly slower triggers

TOO Response times

TOO Start and Stop Times

For TOOs the “exact CXC response time” often has a “stop” less than the nominal category.

e.g A TOO with response time 5-8 days is currently classed as Fast (nominal response 5-15 days)

However, a 5-8 day response is harder than 5-15.

Potential mitigations:

- Add a constraint to the trigger at the peer review

- Do not allow proposers to select stop times < nominal: require they propose for faster trigger

Changes to constraints

A constrained observation is one where the mission planning team do not have complete freedom to schedule it where they want

Common examples include window, phase and monitor constraints.

Constraints are awarded at the peer review in three flavors: easy, average and difficult.

They are strictly limited at the review and cannot be added later.

Preferences are also allowed: a constraint must be used if the core science requires it, a preference can be requested to enhance science.

Changes to constraints

All coordinated observations are constrained

No preferences allowed

Coordination with ground based observatories also constrained

Pointing/offset adjustments

For spatially extended targets PIs often ask to adjust offset/pointing once the roll angle is known. This should count as a constraint, with suitable algorithm to determine the category (easy, average, difficult)

Changes to constraints

Multiple constraints are more difficult than single constraints

currently multiple constraints are counted as one at the highest difficulty level.

Example 1: an observation with an easy phase, window and group constraint counts as “one easy” at peer review

Example 2: a difficult coordination plus an easy window counts as “one difficult”.

Simple, but the basic assumption is incorrect. Possible mitigation:

Add constraints together: example 1 becomes 3E, example 2 becomes 1D+1E.

An observation that is multiply constrained is charged one constraint level up.

Targets at High ecliptic latitudes

Targets at high ecliptic latitudes result in heating of the ACA. Mitigations:

The allowed duration of an “uninterrupt” constraint needs to be dependent on ecliptic latitude

Currently high latitude time is limited in the Big Project Panel: needs to be review-wide limit

High latitude time is one of the “currencies” handed out by the peer review, allocations given to topical and BPP.

Looking Forward - Resource Points?

The current simple classifications of constraints (easy, average, difficult) and TOO response times (3 categories) does not work well now.

- Ecliptic latitude needs to be factored in

- Multiple constraints are not adequately counted

- Three TOO categories does not represent the continuum of actual requested response times

- Accounting at the review is cumbersome

Replace with a single metric, Resource Points, that describes the impact of the observation

RPs replace constraints etc. at the review.

We will likely move in this direction, possibly for Cycle 22.

One-Time increase in Time allocated at the Review

Peer review at the end of June -> accepted targets in mid July -> takes AT LEAST two months to “clean” the newly ingested targets.

There is a disconnect between the end of the “stable” LTS and the availability of new targets - currently the LTS can be populated through about August-September

Note: we do not “run out of targets”. Rather, we run out of targets that can be placed in weekly bins in such a way thermal and other constraints are balanced. Cool GO targets have often been pulled forward to stabilize the previous year’s LTS.

Mitigation:

A one-time increase in available time (~4 Ms?) would result in an increased number of targets and an LTS that is stable through November.

An increase (possibly dramatic) in the use of CCTs.

Summary

Wonderful celebration year thus far, Cycle 21 peer review went smoothly.

Need to plan for transient surveys: suggest working group and possible summer workshop.

CCTs are working well, suggest peer review refresh ~3 years

Working towards DA reviews, probably for Cycle 23.

CXC Code of Conduct for Cycle 22

Summary

Overhaul of TOO and constraints accounting:

Better align TOO response times with weekly schedules.

Account for $T_{\text{stop}} < \text{nominal end of response window}$

All coordinated observations are constraints (no preferences and including GB observatories)

Pointing/offset adjustments count as constrained

Account for multiple constraints

Limit high ecliptic latitude review-wide

Resource points to replace current (inadequate) accounting.

Possible one-time increase in GO time to extend the stable LTS through to November