

Getting the Most Out of the *Chandra* Helpdesk for Your Analysis



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Abstract

The *Chandra* Helpdesk is the primary gateway for users to directly interact with the CXC, receiving ~450-600 tickets annually over the past decade. The vast majority of these interactions concern X-ray data analysis with CIAO/Sherpa and SAOImage DS9. We will focus on the former, providing an overview of the helpdesk system and tips on crafting a helpdesk ticket to maximize how you, the user, can help us provide the most useful and informative response and get you on your way to doing science.

Overview

The *Chandra* Helpdesk provides support for:

- proposals and proposal planning
- observation scheduling and issues
- proprietary data and the *Chandra* Data Archive
- data analysis with CIAO, Sherpa, and DS9

The Science Data Systems group handles 75-85% of all tickets, including the brief spike around the annual CfP and cost proposal deadlines. For data analysis support, we can help with data processing steps and guide your understanding on why the steps are taken and the mistakes that can happen; however, we cannot help you perform your science.

Help Us Help You How to Write a Useful Ticket

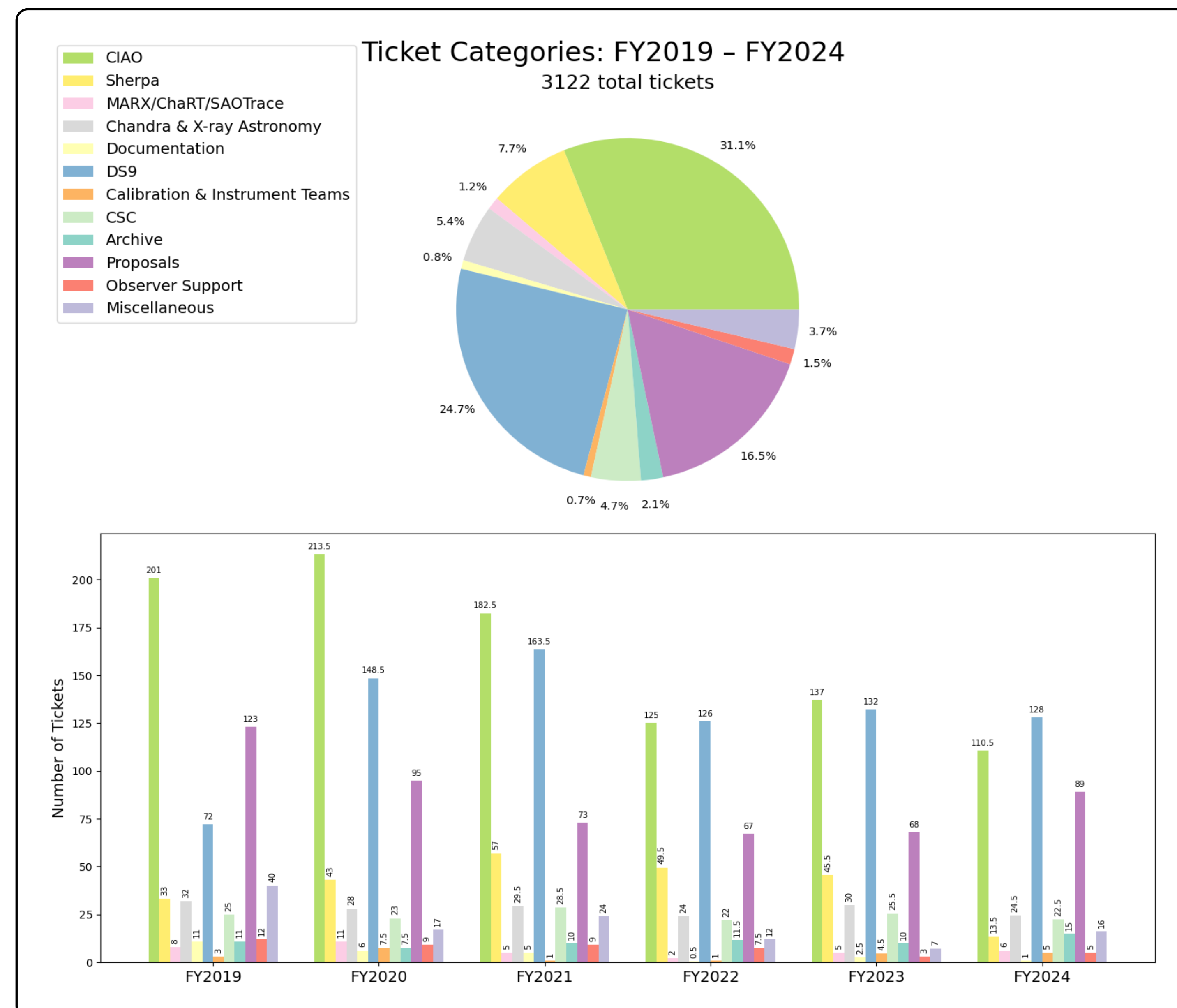
- Please provide details about the software being used, including:
 - CIAO version
 - CalDB version
 - Sherpa—stand alone or CIAO distribution
- Platform and operating system the software is running on.
- Question:
 - What is the problem or concern encountered?
 - Contextualize the question: what are you trying to do, what is your goal?
- What did you do?
 - describe what you've done and the steps taken
 - provide commands used
 - copy-and-paste text or provide a log file; no screenshots please
 - include any messages returned by tool, including warning and error messages
 - provide supporting data files (usually shared via Google Drive/Dropbox since the helpdesk software has limited file attachment support for files < 3 Mb)

Typical Helpdesk Ticket Questions

- ▶ I'm following this thread, but get an error message when running `acis_process_events` on an ACIS-S/HETG observation in CC-mode:
`# acis_process_events (CIAO 4.n): ERROR: CHIPY value < 1 or > 512.`
- ▶ I am trying to extract a spectrum for an ACIS observation and get zero exposure in the source region, help!
- ▶ I'm trying to figure out the pixel area of an image after removing a large number of regions. Can I do this with the `dmstat` tool? I'd like to compare the result with what I'm getting out of DS9/dax.
- ▶ There is a typo in this thread; a parameter name is misspelled in the example.

"Borderline" Questions

- ▶ I noticed that most of the counts in my region are at very soft energies and is also evident in the spectrum of this region. Deciding whether or not to include photons below 0.3 keV in the imaging/spectral analysis is critical for my case, so to what extent can the counts at very soft energies be trusted, given the known instrumental effects in that energy range?
We can have a discussion about the instrument calibration at the given energy regime and discuss concerns from the automated, in-orbit, event threshold filtering, but the question is really one of scientific judgement.
- ▶ I have been searching for long-term periodic variation (5d-3yr) in eight components of M87. Six components display no significant variation. The remaining two each have identical periodicities corresponding to 182.7 days (almost exactly half a year). The sources are not in close proximity to one another. Is there a known characteristic/aberration exhibited by *Chandra* that would account for this finding? All data used was recorded on ACIS-S3/ACIS-I3. My search of the CIAO threads and other forums does not seem to offer any information on the matter.
We can only discuss what we know about the instruments and spacecraft—which are not known to induce any periodicity on this time-scale—even though we personally may be aware of contemporaneous literature that has identified a quasi-periodicity on the reported time-scale in the years leading up to a major flare from this source.



Questions that are too General...

- ▶ I am doing analysis by counting counts to obtain the density of the circumstellar mass by obtaining luminosity and then flux. I am already familiar with doing this with *Swift*, but I am now having trouble with *Chandra*. I was wondering if based on my needs could you instruct me on how to use CIAO for my purpose?
- ▶ How do you remove a double source if it's contaminating the flux from the target source?

... or Beyond the Scope of the Helpdesk

- ▶ I can only see the abstracts of accepted proposals, can the entire proposal be made public?
- ▶ I am currently studying supernovae listed on the ChaSeR catalog and I need information to evaluate them. I was wondering if there would be a list of all these supernovae where more information (like the redshift or the explosion time) about these objects would be listed.
- ▶ I am fitting a spectrum but the nature of the source is unknown. I have tried many common models but the result is not good enough. The aim is to get a good fit to constrain the nature of the source, is there any way to tell which is the best model?
- ▶ How do I use HEASoft/FTools, XSpec, SAS, or ACIS Extract.

Finally...

- Please reply back if you are satisfied with the answer/solution so we can go ahead and close the ticket.
- If you have a completely unrelated question, instead of adding to an existing ticket, just open a new ticket.
- Help us help you. The more information you are able to provide up front means a quicker resolution to your concern!
- Ultimately, the documentation, software, and helpdesk are meant to help you get to a specific data product. What *you* do with the data product will be determined by your science goals and judgement.

Please find the CXC Helpdesk at — <https://cxc.harvard.edu/help>



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