

Report from NICER Users Group meeting - December 2021

The NUG met on December 10, 2021 to discuss the NICER team response to the NUG's spring report, and also to discuss the 'Exclusive Use' period at the request of the NICER team.

The NUG was pleased to see the NICER team's implementation (or planned implementation) of many of the NUG's recommendations. In several cases the NICER team requested additional input from the NUG. A summary of the discussion is below.

Comparison of ISM abundances between NICER and gratings spectra

In our NUG spring report we recommended a comprehensive and systematic study of the effects of the ISM with comparison to grating data. Understandably this would be a huge undertaking and so the NICER team responded asking for coordination with the NUG to move such a project forward. The NUG discussed ways in which such a project could take place and suggests proposing to NASA ADAP for funds to support a postdoc to carry out such a project. The NUG is happy to work with the NICER team to make progress towards this.

Unexplained residuals in the 1.5 - 2.5 keV range

The NICER team has noted it gets little feedback from the observing community regarding specific issues with spectra. The NUG will attempt to gather a series of ObsID numbers where members have noted specific issues that can then be investigated further.

The NUG also wondered about the feasibility of there being an automated report on the data quality for a given NICER ObsID, similar to a Chandra V&V report. This could be delivered with the data and warn users of high background or similar potential complications with their datasets.

Background models

The NUG was happy to see that the NICER team is working to include the background models and a 'switch' between them into extractor/xselect. This will be much more user-friendly, which will be very beneficial.

There was a suggestion that the description of the 3C50 model, and its usage, be made clearer (maybe the NICER team could work with the model author to make it more accessible to new/inexperienced users).

Furthermore, the NUG was excited at the background modeling improvement shown by Abdu Zoghbi's machine-learning method, and would encourage that to be incorporated into the NICER software release, if feasible.

Finally, several members noted that they sometimes see evidence of short (few hundred second) background flares on close inspection of their data. Similar to the suggested data quality report in the previous section, is it feasible that these can be identified automatically and flagged for the user? The NUG is conscious of the limited resources of the NICER team and so alternatively, a description of how users can do this could be added to the Data Analysis Threads.

GO Key Projects

The NUG still feels strongly that a Key Projects category for proposals would be desirable to encourage large, high impact projects to be submitted. The NUG recognizes that there is nothing stopping current proposers from submitting large Key Project type proposals, but, still feels that explicitly having such a category actively solicits them and therefore would be beneficial. To help better understand whether such projects actually are currently being submitted, the NUG requests to see submitted proposal statistics from the NICER team (e.g., a histogram of number of proposals vs time requested per proposal). How many proposals requesting over 300 ks have been submitted each cycle?

One possible way to assess the interest from the community in large/Key Projects would be to request short (1-page?) white papers outlining potential projects.

Light curve page for all NICER targets

The NICER team requested input on how the competing priorities of GO exclusive use vs. public display of near-real-time data should be balanced.

The NUG came up with several suggestions for this. Firstly, the light curves can be displayed as count rate only (no spectral information) and could use data that are fully public only (data in exclusive use period not included). Alternatively a 'check box' could be included on proposals for GO programs to opt into having their data (broadband count rate only) included in a public light curves page.

During this discussion, the NUG wondered why a 2-week verification period still exists for the GO projects. Is there something that prevents the data being sent to observers quicker than this?

Exclusive Use Period

The NUG was asked to discuss the current exclusive use policy. There was broad discussion of the policy with a recognition of both its pros and cons. The NUG was strongly supportive of keeping a 6-month Exclusive Use period, and happy with the status quo. It was viewed as vital to allowing first time users and early career researchers time to analyze the data without fear of

being scooped. These groups are particularly important to support since they are typically more diverse than more experienced researchers.

The NUG recognized the issue of multi-year projects and monitoring projects where data may start becoming public before the end of the observing campaign. The NUG felt that the current approach where researchers can request an extension to the exclusive use period for these projects on a case-by-case basis made sense, rather than changing the policy to extend the exclusive use period for all multi-year/monitoring projects. Requests from early career researchers or others who have significant life events (newborn child, caring of older family members) to extend the exclusive use period should be supported.

NUG Members:

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