

**August 17, 2023**

**COMMENTS TO FEDERAL REGISTER NOTICE 23-051. “RFI: NASA PUBLIC ACCESS PLAN FOR INCREASING ACCESS TO THE RESULTS OF NASA-SUPPORTED RESEARCH”**

The Chandra X-ray Center (CXC) and the Chandra Grants program are operated for NASA by the Smithsonian Astrophysical Observatory (SAO). Among other things, the CXC has responsibilities in the areas of operating and calibrating the Chandra X-ray Observatory, and managing the data pipeline and science data services to the public and science community. The CXC is directly involved in more aspects of the Chandra mission than is typical for most PI institutions on contract for NASA missions, and therefore is more exposed to impacts by the requirements described in the RFI than most NASA contractors are likely to be. Furthermore, Chandra is a mature mission with established solutions for mission science data and software handling that have been refined for two and a half decades, starting well before the 2013 White House Office of Science and Technology Policy (OSTP) memorandum aimed at improving the public’s access to the results of federally funded research. Adapting to —and providing ongoing support for — new requirements on data and software handling at this stage of the mission could potentially incur significant changes to operations.

We have reviewed the NASA Public Access Plan document and identified two broad areas of concerns worth comment— (a) items requiring clarification on how they would apply to the case of the CXC contract, and (b) induced adjustments that imply effort and resources beyond the CXC’s current capacity to readily absorb.

## Items requiring further clarification:

- A. The Chandra Grants program goes through two stages of the selection process. First, proposals are selected based on scientific merit. Second, successful proposers may apply for grant funds. Under existing NASA SMD policy SPD-41a, we concluded, based on informal discussions with NASA Open Science personnel, that a Data Management Plan (DMP) is only required for accepted Chandra proposals that request funding (stage two). However, under this Public Access Plan (under Part A, “Digital Scientific Data”), it states that, “DMPs will be reviewed as part of the overall NASA research proposal/project plan or contract review process.” This would seem to suggest that DMPs must be provided by proposers in the first stage. Is this intended to be such a change in policy? If so, there are potential impacts; see item E. below.
  
- B. Under Parts A (“Digital Scientific Data”) and C (“Software”), there are requirements on the “program officer” to monitor the compliance of funding recipients with their DMPs and Software Management Plans (SMPs), and to potentially withhold funding in cases of non-compliance. For the Chandra Grants program, SAO administers funding for most of the grants. Would SAO have to fulfill the role of “program officer” for purposes of compliance monitoring of grant recipients, or would this fall to a NASA Chandra program officer? Either way, there are potential impacts; see item F. below.

## Items implying significant impacts to effort / resources:

- C. The CXC serves the Chandra (science) Data Archive (CDA) to the science community for NASA. While fully calibrated science data are made publicly available, not all lower processing level data are made publicly available. Refactoring the interface would take up-front effort and potentially have knock-on effects in how parts of the data pipeline works.
- D. While the source code for the principal science analysis tool for researchers (CIAO) is publicly available, not all of the software components of the science data pipeline are *currently* publicly available (although that is addressed in the mission end-of-life closeout plan, once the software is no longer being updated). Altering the data system to make all components publicly available would require up-front efforts and would have knock-on effects on workflows.
- E. Support for guiding proposers and reviewing their DMPs and SMPs would incur up-front and continuing increases of effort and resources. Also note the item of clarification (A., above) as to whether this need only be done for the smaller set of stage 2 proposals (funding), or must be done for the larger set of stage 1 proposals (scientific merit).
- F. Following on from the prior item, if SAO is responsible for monitoring, measuring, and enforcing compliance of grant recipients to their DMPs, SMPs, and DOI and publication practices, that would incur large continuing and up-front costs. And even if a NASA Chandra program officer is responsible for this role instead of SAO (see item B.), SAO would still be practically involved in carrying out this oversight of recipients, and thus effort and costs would still be incurred to the Chandra contract.
- G. Under Part A (“Digital Scientific Data”), the Plan states that research datasets (not merely the calibrated science data) are expected to be made publicly available. The Plan mentions a NASA data portal (<https://data.nasa.gov>); for Chandra data, this portal currently redirects to HEASARC which in turn redirects to the CXC. While the CDA could in principle be such a repository for Chandra-related datasets, this would require

additional resources, both for set-up and for ongoing support to researchers, and constitutes a potential high impact on the CXC.

The leadership team at the Chandra X-ray Center has long supported the principle of broadening the availability of Chandra science, specifically, and all astrophysics research, generally. NASA is a large agency with many missions and programs arranged in different ways. Chandra has a mature, complex, somewhat unique program operation, and we hope that these comments provide a useful point of view on this Public Access Plan.

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