

Heliophysics Advisory Committee (HPAC) Report

Report to the NASA HQ Heliophysics Division
From the 22-24 October, 2024, HPAC Meeting

SUMMARY OF THE 22-24 OCTOBER, 2024, HPAC MEETING

We convened a hybrid meeting on Tues.-Thurs., 22-24 October, 2024.

- Ten HPAC members were present in person or remotely (see slide 3 for membership list).
- The Designated Federal Officer (DFO) was Dr. Janet Kozyra, NASA-Heliophysics Division (HPD).

Presentations to HPAC on 22 October:

- NASA Advisory Council (NAC) Science Committee (SC) – Recent Meeting Report, Dr. Paul Cassak
- Heliophysics Division Update & Response to Past HPAC Recommendations, Dr. Joseph Westlake
- Space Weather Council – Recent Meeting Report Discussion & Comments, Dr. Kelly Korreck
- Heliophysics Digital Resource Library (HDRL) Session & Open Science, Dr. Jared Bell, Dr. Susanna Finn, Brian Thomas
- IDEA Session and Discussion, Dr. Joe Westlake, Dr. Kelly Korreck, Dr. Michael New

Presentations to HPAC on 23 October:

- GPRAMA Procedures, Jennifer Kearns
- SMD RFI on ROSES Access, Dr. Michael New
- Habitable Worlds Observatory (HWO)-HPD Cross Divisional Opportunities, Dr. Megan Ansdell

We thank all of the speakers for their time and effort preparing material for this meeting.

We welcome any requests from NASA Heliophysics Division for clarification or elaboration on our findings and recommendations.

HPAC MEMBERS

- Aroh Barjatya (Embry-Riddle Aeronautical University), not present
- Dave Brain (University of Colorado Boulder), not present
- Paul Cassak (West Virginia University), Chair
- Nicole Duncan (BAE Systems, Inc.), not present
- Christoph Englert (U.S. Naval Research Laboratory), Vice Chair
- Matina Gkioulidou (Johns Hopkins University Applied Physics Laboratory)
- Farzad Kamalabadi (University of Illinois, Urbana-Champaign)
- Laura Peticolas (Sonoma State University), remote
- Chadi Salem (University of California, Berkeley)
- Lisa Upton (Southwest Research Institute)
- Marco Velli (University of California, Los Angeles)
- Jia Yue (Catholic University of America)
- Eric Zirnstein (Princeton University)

SUMMARY OF CONTENTS

- Kudos, Feedback, Notes, and Requests*
- Findings and Recommendations
 - Findings and Recommendations on Time Pressure of the Review Panel Process
 - Findings and Recommendations on ROSES
 - Findings and Recommendations on The Proposal Process
 - Findings and Recommendations on Harassment
 - Finding and Recommendation on Heliophysics Digital Resource Library (HDRL)
 - Findings and Recommendations on the Habitable Worlds Observatory
- Suggested Agenda Items for the Next HPAC Meeting (As Of Now)

*This section is to convey simple conclusions from HPAC that require no response or a brief response from HPD

KUDOS, FEEDBACK, NOTES, and REQUESTS (1 of 2)

- Kudos to HPD on the following activities and actions discussed at the HPAC meeting:
 - To Peg Luce in honor of her contributions to HPD during her many years in various administrative roles.
 - For continued success of missions, including the record-breaking Parker Solar Probe, and in the sounding rocket program.
 - For the impressive slate of mission launches in the next six months.
 - For the launch of the Heliophysics Technology website and the first annual report.
 - For the excellent forward-thinking efforts on Heliophysics Digital Resource Library (HDRL) and continued support of the community's data needs.
 - For working with HPAC to foster having difficult, yet important, discussions on IDEA matters of great importance to the heliophysics community.
 - For efforts to improve ROSES and the proposal process.
- We laud the Space Weather Council (SWC) on its fantastic work and pass along their report from the August 2024 meeting to HPD.
 - For the future, we task SWC (in order of priority, and as the SWC deems feasible) to (1) carry out the requested action from HPD on the SWAG report, (2) report on the elements that HQ should consider in their Space Weather Communications Strategy (bullet 1 on pg 26 of SWC report), (3) study data accessibility and usability (bullet 3 on pg 26 of SWC report), and (4) determine progress on the objectives listed in the OSTP Implementation Plan for the STMD gap analysis (bullet 2 on pg 26 of SWC report).

KUDOS, FEEDBACK, NOTES, and REQUESTS (2 of 2)

- We look forward to updates on plans for GDC and DYNAMIC which will be made after hearing back about the launch plausibility report, the FY25 federal budget, and the upcoming Decadal Survey (DS).
- To address suggestions from the NASA Advisory Council (NAC) Science Committee (SC) during the October 2024 meeting, we request information on how much HPD missions use the Deep Space Network (DSN) and on the FINESST program (the number of proposers from R1 vs. non-R1 institutions). We request similar information about proposers from R1 vs. non-R1 institutions for the ECIP program. The intention is to ascertain if the programs are sufficiently serving those at non-R1 institutions.
- We had discussions about the balance of the portfolio for mission size. We were interested in how decisions about the balance are made, but we recognize that the response may change as a result of the upcoming DS. We, therefore, have no request or action item for now, and will seek to revisit this topic after the DS has been released and HPD has released its response.
- We discussed the future of the International Space Station (ISS) in relation to HPD missions. As the ISS becomes privatized and the infrastructure will be determined, heliophysics will want to contribute to specifications (for power, pointing, size, and mass of hosted future HPD instrumentation, etc.). Such considerations will need to be addressed in sufficient time to allow for accommodations.
- We are interested in hearing about progress of the Space Weather Centers of Excellence, but we recognize that they have only had 6 months to operate. We will be interested in getting an update once they have been around for 1 year.
- We performed the GPRAMA review, voting “green” for both performance goals; see the separate document.
- We strongly request that travel arrangements for future HPAC meetings be initiated earlier.

FINDINGS AND RECOMMENDATIONS ON TIME PRESSURE OF THE REVIEW PANEL PROCESS

(1 of 2)

FINDINGS

- We find that proposal review panelists often face challenges due to time pressure both before and during the panels. Such time pressure discourages participation and exacerbates the potential for implicit bias, and therefore should be avoided to the extent possible.
- We find that a significant cause of this problem is that it typically takes asking 5-6 community members to fill each panelist role on a panel. (It is possible some of this is due to prospective panelists not getting enough time to prepare, but this clearly is not the whole problem.) This leads to delays in forming panels and a significant additional time burden on HPD's program managers.

FINDINGS AND RECOMMENDATIONS ON TIME PRESSURE OF THE REVIEW PANEL PROCESS

(2 of 2)

RECOMMENDATIONS

- We recommend several possible avenues that HPD may take to mitigate the time pressure:
 - Consistently have HPD program officers request that community members who decline to review help identify alternative experts willing to review.
 - Remind people that serving on panels is a responsibility of being a community member.
 - Express the expectation that awardees will serve on a panel during their project's performance period.
 - Further incentivize service on panels, such as increasing the honorarium (as was recently done by the Department of Education).
 - Give an appropriate amount of time for panel members to review proposals, even if it delays the time to make funding decisions.
 - Increase the discussion time during the proposal review process. To achieve this,
 - it may be easier if panels transition back to in-person.
 - consider holding panels on both the East/West Coasts.
 - it may be easier if small panels are virtual and large panels are in-person.

FINDINGS AND RECOMMENDATIONS ON ROSES

FINDINGS

- We find that the concerns shared by Dr. Michael New about ROSES are indeed problematic and ROSES is urgently in need of reform.
- We find that this is disproportionately problematic for early-career researchers.

RECOMMENDATIONS

We recommend considering modifications to ROSES (to be conveyed to Dr. Michael New):

- Consider speaking to Dr. Kelly Korreck about getting in touch with the “Diversability” team at NASA’s SMD SciAct program, which discusses accessibility, to get some practical quick tips about how to implement best practices for those who use screen readers or have other accessibility needs.
- We recommend that the SMD ROSES office reach out to Heliophysics communities by attending smaller workshops such as CEDAR, GEM and SHINE and collecting feedback in person.
- Consider moving Notice Of Funding Opportunities (NOFO) out of appendices and into top-level documents, as appendices are seen as containing supporting documentation and not primary information.
- We recommend creating documents that are shorter and less complicated, with links to the full compliance requirements or other details, so that potential proposers can quickly determine whether or not a NOFO is applicable to their expertise.
- We recommend talking to other funding agencies (e.g., NSF) and discuss how they have improved their solicitation processes.

FINDINGS ON THE PROPOSAL PROCESS

FINDINGS

- We find that there are potential approaches that could streamline the proposal process.
- We did not have sufficient time to discuss any strategies in depth and intend to revisit this at a future meeting, but we identified some viewpoints that could be taken into consideration.

DISCUSSION POINTS TO CONSIDER

- It could be useful to early-career, and potentially all, scientists to have opportunities to propose to solicitations that require fewer pages. Such an approach could also support quicker reviews. (This is already done in the Citizen Science NOFOs.)
- However, the number of pages in current solicitations is a maximum limit and proposers could always submit shorter proposals, but this can lead to panelists making unjustified assumptions about proposer effort.
- Some researchers find the length of proposals as they are to be necessary to explain complex proposal ideas and shortening proposals could limit those types of efforts. Shorter proposals may make it challenging to assess their feasibility due to a lack of sufficient detail.
- Solicitations for proposals that do not require a detailed budget would also support early-career scientists.

FINDINGS AND RECOMMENDATIONS ON HARASSMENT (1 of 3)

FINDINGS

- We find that harassment and bullying are impairing HPD efforts to remove barriers to participation in its funded programs. Harassment and bullying are the most egregious behaviors that must be removed to ensure positive inclusion efforts can be enacted.
- We find that there are multiple examples of systems in the community that are not adequately supporting victims of harassment and bullying.
- We find that community members that have these experiences do not feel welcome to do research and education in Heliophysics (*i.e.*, victims of harassment do not feel comfortable attending conferences, serving on panels, or serving on teams where their harasser may be present).
- We find that the heliophysics community is having a watershed moment that requires the entire community to take action that ensures victims of harassment will be heard and that those in positions of power and influence are doing everything possible to support them.
- We find that solutions to these problems must come from all sources - the community itself, institutions, societies, and agencies.
- We find there are many restrictions on the types of actions that HPD is legally allowed to take in order to help in these endeavors and recognize that there are challenges, but we assert that – at this moment in history – HPD must not focus on what cannot be done, but ***rather to seek ways to do everything that can be done to support the community on these issues, especially the victims.***
- We find that HPD can help mitigate these issues by addressing harassment directly with the community, by having difficult conversations on difficult topics, helping to normalize these discussions, and by actively demonstrating their support for action being taken to address these issues.

FINDINGS AND RECOMMENDATIONS ON HARASSMENT (2 of 3)

RECOMMENDATIONS

Acknowledging that this is a complex issue, and with a desire to create an inclusive environment for everyone to participate in Heliophysics, and to build a thriving community with positive team dynamics, we recommend the following suggestions which may improve the climate/culture within Heliophysics:

- Add to NOFOs that proposal teams must include their own Code of Conduct within the management section of the proposal, incorporating best practices and research-based strategies for creating a positive working environment (*e.g.*, as is done in proposals for the DRIVE Centers).
 - Consider requesting information about implementation within annual reports.
- For large missions and grant NOFOs, add a requirement to have an external evaluator partner perform culture/climate assessments, which would be provided back to the teams as guidance for making improvements (as is done with NASA education and NSF social science and ethics grants).
 - These external evaluation reports should also be submitted with annual reports and to the institution.
- Require the leadership of large teams to take bystander training (provided by NASA HPD or an external entity) and/or provide a designated appropriately trained (internal or external) person of contact for harassment/bullying issues (as is currently done with large teams for NSF grants).

FINDINGS AND RECOMMENDATIONS ON HARASSMENT (3 of 3)

RECOMMENDATIONS (continued)

- We recommend HPD encourages/requires large teams to go over inclusivity/Title IX issues at team meetings and share a summary and plan of action in the annual report.
- We recommend that HPD ensures that meetings/workshops supported by HPD funding have appropriate stipulations to require that meetings are sufficiently inclusive.
- We recommend that HPD lead by example and normalize the discussion via the following actions:
 - Partner with organizations to promote inclusivity within Heliophysics [e.g., the National Society of Black Physicists (NSBP) and/or the Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS)].
 - Actively support (e.g., financially) and promote IDEA initiatives within the Heliophysics community.
 - Include a slide/statement on harassment at conferences and town halls.
 - Create a “Sexual Assault and Harassment Prevention and Response Program”, similar to the one at NSF (see <https://new.nsf.gov/stopping-harassment/sahpr>), which can point to the ODEO page.
- We recommend that HPD consider rewarding/incentivizing reporting and institutions that are addressing complaints in a way that supports victims (being mindful of potential for false reports).
- We recommend that HPD encourage large teams to provide assertiveness training and coaching for potential harassment victims (e.g., guidance on what to do in certain situations).
- We recommend that HPD provide HPAC with statistics on the Title IX reports it receives so that trends can be tracked.

FINDING AND RECOMMENDATION ON HELIOPHYSICS DIGITAL RESOURCE LIBRARY (HDRL)

FINDING:

We find HDRL's vast array of efforts in creating indispensable core functionality for all the HSO datasets very impressive and we encourage the continuation of those efforts.

RECOMMENDATION:

We recommend the creation of a web interface serving as a focal point to the entire fleet of HPD's missions (including observables, sensor measurements, and science questions addressed by the measurements). Such a resource would significantly enhance the HDRL's objectives of accessibility and usability to all of HPD's investments.

- It would provide a valuable resource for enhancing community's awareness of existing capabilities and the state of scientific undertakings.
- It would serve the HPDs objective of promoting an integrated heliophysics system perspective.
- It would provide an inventory facilitating the identification of potential gaps in scientific understanding, and guide future scientific investments.

We note that such a capability would be complementary to HDRL's ongoing activities aimed at improved discovery interface and search capabilities by phenomena, methodology, etc.

FINDINGS AND RECOMMENDATIONS ON THE HABITABLE WORLDS OBSERVATORY

FINDINGS

- We find that there are numerous aspects of the Habitable Worlds Observatory (HWO) that will have overlap with science that is relevant to HPD.
- We find that interested community members should establish connections with the mission in the near term to contribute to the planning so that any infrastructure needs for heliophysics science can be incorporated into the mission.

RECOMMENDATIONS

- We recommend HPD convey to the HWO program officers our suggestion that the mission incorporate detection of magnetic fields, as they play a fundamental role in planet habitability and could benefit from heliophysics studies.
- We recommend HPD convey to the HWO program officers that they should do more outreach to the Heliophysics community.

SUGGESTED AGENDA ITEMS FOR THE NEXT HPAC MEETING (AS OF NOW)

- Continue to invite speakers on the subject of IDEA, such as successful inclusivity efforts inside or outside the heliophysics community