



Michael W. Liemohn • Professor

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Dr. Nicola Fox, Heliophysics Division Director
National Aeronautics and Space Administration
Heliophysics Division
300 E Street, SW
Washington, DC 20546-0001

Dear Dr. Fox:

The Heliophysics Advisory Committee (HPAC), an advisory committee to the Heliophysics Division (HPD) of the National Aeronautics and Space Administration (NASA), convened on 1 October through 3 October 2019 at NASA Headquarters (HQ). The undersigned served as Chair for the meeting with the support of Dr. Janet Kozyra, HPAC Designated Federal Officer (DFO), of NASA-HPD.

Most HPAC members participated. Those in attendance at NASA HQ were Vassilis Angelopoulos (University of California, Los Angeles), Darko Filipi (Adcole Maryland Aerospace), George Ho (Johns Hopkins University Applied Physics Laboratory), Lynn Kistler (University of New Hampshire), Tomoko Matsuo (University of Colorado at Boulder), Rebecca Bishop (Aerospace Corporation), and me. A few committee members attended via telecon: Paul Cassak (West Virginia University), Larisa Goncharenko (Massachusetts Institute of Technology (MIT) Haystack Observatory), and Cora Randall (University of Colorado, Boulder). This letter summarizes the meeting outcomes.

One of our critical agenda items was receiving and discussing the Geospace Dynamics Constellation (GDC) mission Science and Technology Definition Team (STDT) report. Here are our findings and recommendations:

HPAC was asked to comment on whether the GDC STDT deliberation process and report have met their requirements. HPAC finds that the STDT's work was exemplary and laudable, and extends its sincere appreciation for the very significant amount of work the STDT members have volunteered towards the deliberations and writing. HPAC finds the report comprehensive and the science requirements and prioritizations well thought out and structured. They serve well the community and a future NASA mission implementation team.

HPAC was also asked to comment on how the GDC STDT was run as a FACA committee. Overall, the FACA rules enforced structure to the discussions, focusing them on science and measurement traceability. This was a positive impact of the

removal of the ability to discuss implementation specifics. However, HPAC finds that the FACA rules, while well-intended, were an impediment to efficient interactions. Specifically, while the large STDT membership provided considerable diversity of input to the process, the requirements to communicate and write collectively with the entire membership inhibited timely progress. Some of that was alleviated by using subgroups that still were required to report back and discuss issues with the STDT. Additionally, the STDT was not allowed to discuss STDT materials with the community. NASA reports at meetings were at a very top level (mostly on process rather than science). The STDT thus missed what might have been valuable feedback during the deliberation process. HPAC recommends that NASA reviews FACA rules of conduct to see how some interpretational relaxation could be provided. In addition, HPAC recommends that a NASA representative provides more frequent and detailed updates to the community. Else, future FACAs should perhaps be limited to smaller STDT groups.

Finally, HPAC was also asked if there are any recommendations for post-STDT actions. Given the importance of timely implementation of GDC in the Heliophysics line of missions, HPAC recommends that an implementation team be formed by NASA expeditiously, and that any potential technology infusion/maturation related to GDC be incorporated in the upcoming FY20 call for technology development proposals.

HPAC thanks the entire GDC STDT committee for their time commitment to complete this detailed report. We would like to especially thank Drs. Allison Jaynes and Aaron Ridley, the co-chairs of the STDT, for their tremendous effort shepherding this report through to completion. We would also like to commend Dr. Jared Leisner of NASA HQ for serving as the DFO for the GDC STDT and efficiently and effectively facilitating this process.

In summary, we fully accept the GDC STDT report and approve of its full release. We welcome any requests from NASA Heliophysics Division for clarification or elaboration on our findings.

Sincerely yours,



Michael W. Liemohn