

NASA ADVISORY COUNCIL

HELIOPHYSICS ADVISORY COMMITTEE

October 22-23, 2018

Teleconference

MEETING MINUTES



Michael Liemohn, Chair



Janet Kozyra, Executive Secretary

NASA Heliophysics Advisory Committee Meeting Minutes, October 22-23, 2018

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*Prepared by Jeanette Edelstein
Electrosoft*

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Monday, October 22

Welcome, Overview of Agenda

Dr. Janet Kozyra, the Designated Federal Officer for the Heliophysics Advisory Committee (HPAC), opened the meeting. HPAC was established under the Federal Advisory Committee Act (FACA) and operates under FACA requirements. The meetings are open to the public. Formal minutes are taken for the public record and published on the NASA website. Committee members must recuse themselves from any discussions that constitute a conflict of interest.

Dr. Nicola Fox, Heliophysics Division (HPD) Director, welcomed the Committee. Dr. Fox stated that she is looking forward to the full HPAC meeting in late December and appreciates all the work the Committee has done in pulling together the report to be discussed.

Preliminary Discussion of the GPRAMA Process

Dr. Michael Liemohn, HPAC Chair, reviewed the agenda and emphasized that it is focused purely on the Government Performance and Results Act (GPRA) Modernization Act (GPRAMA) process for HPD. The Committee would assess the HPD Annual Performance Indicators (APIs) and vote on them at the end of the meeting. The Committee would go through the source material for GPRAMA supplied by NASA HQ and discuss the categories in order to divide into small groups according to the best fits for assessment. The Committee would then adjourn to work on the assessments and finalize the responses. At the second session, on Tuesday, the Committee would review and deliberate on the text, finalize it, and vote. It would also debrief NASA at the end of the meeting.

Ms. Jennifer Kearns of the Science Mission Directorate (SMD) provided background on the GPRAMA process and reminders to the Committee from the guidance letter. GPRAMA requires three things: a strategic plan every 4 years, an annual performance plan, and an annual performance report to evaluate progress made in key areas. The three APIs to be evaluated are based on science objectives and call for expert review. HPAC is asked to assess progress on an annual basis. Ms. Kearns reviewed the key points in the guidance letter, which had been provided to the Committee in advance. The Committee needs to determine a rating for each API with a recorded vote. The assessment is meant to be objective, and high-level, rather than comprehensive. The time frame is roughly aligned with the fiscal year, but it is understood that the dates are approximate and the report may include information from late 2017. Any item considered must be based on work funded in whole or in part by NASA. New guidance this year asks for a streamlined report more in line with other Federal agencies, meaning that the character limit for each API will be reduced significantly (from 4,000 to 1,500). The Committee may use hyperlinking in their text to refer to additional information.

The APIs to be assessed are as follows:

- API HE-18-1: Demonstrate planned progress in exploring the physical processes in the space environment from the Sun to Earth and throughout the solar system.
- API HE-18-2: Demonstrate planned progress in advancing understanding of the connections that link the Sun, Earth, and planetary space environments, and the outer reaches of the solar system.
- API HE-18-3: Demonstrate planned progress in developing the knowledge and capability to detect and predict extreme conditions in space to protect life and society and to safeguard human and robotic explorers beyond Earth.

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The rating guidelines used for all science progress APIs are as follows:

- Green: Expectations for the research program fully met or exceeded in the context of the resources invested.
- Yellow: Some notable or significant shortfalls in the context of the resources invested, but some worthy scientific advancements achieved.
- Red: Major disappointments or shortfalls in the context of the resources invested, uncompensated by other unusually positive results.

Dr. Liemohn reviewed the material provided by NASA for each of the three API categories and recommended dividing the Committee into three groups, one for each API, to decide on which highlights to include in the report.

Ms. Kearns clarified that the Committee is not limited to 1,500 characters for their responses but that only 1,500 characters will appear in the annual report. NASA may cut down the Committee's work for the report. Dr. Liemohn observed that 1,500 characters is about one paragraph. Dr. Kozyra confirmed that the Committee wrote short paragraphs with lengthier backups for the 2017 report.

Dr. Liemohn reminded the Committee that they should cite specific papers published in the last 12 months and that it would be helpful to include a graphic for each API assessment. The Committee reviewed the document to pick lead writers for each API. Dr. Cora Randall noted that she is the project manager on one of the missions and principal investigator (PI) on one of its instruments, and Dr. Liemohn confirmed that that is not a conflict because the report is for assessment not funding. Dr. Lynn Kistler volunteered to lead the group for 18-1, Dr. Randall and Dr. Vassilis Angelopoulos volunteered to co-lead for 18-2, and Dr. Darko Filipi volunteered to lead for 18-3. Dr. Liemohn was to fill in on 18-1 and 18-3, so no one was working on an API alone.

Dr. Liemohn provided another reminder about not needing to create a comprehensive report but to aim to provide a good mix of examples that spread across the field. The Committee agreed to read through the highlight titles for each API together, and reviewed and discussed the possibilities for each API response.

Committee Work Session

The Committee prepared to take 15 minutes to work and then reconvene to discuss the plan for each API.

Ms. Kearns confirmed the GPRAMA process and stated that the ratings and the rationale behind them are more critical than the report. Given that the Science Mission Directorate's approach to the annual Strategic Review (previously known as the Strategic Objective Annual Review, or SOAR) is changing, and even though Dr. Kozyra mentioned that the last API report was used in strategic planning, there was no need to create this text with anything other than the GPRAMA evaluation in mind. Dr. Kozyra confirmed that, for the purpose of this report, the Committee should just do what is necessary for GPRAMA and other needs could be addressed as they arise.

Dr. Liemohn clarified that the Committee is to focus solely on the summary paragraph and the vote will be based on that. Regarding references and supporting information, the summary paragraph should include hyperlinks for more information on key results mentioned. The Committee was reminded to write

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for the intelligent layperson and avoid acronyms. Dr. Kozyra stated that all of the highlights came from the satellite teams themselves, and noted that there may be associated NASA press releases and stories.

A 15-minute work session allowed the Committee to develop the initial responses.

At the end of the work session, each lead writer reviewed their plans. Dr. Liemohn requested that each of the lead writers have the summary paragraphs, including supporting highlights and at least one graphic, ready for review, deliberation, editing, and presentation for voting during the next session on the following day.

Dr. Liemohn reviewed the agenda for the next day and the rules for quorum (half of the Committee plus one, seven in this case) for voting.

Adjourn

Dr. Liemohn adjourned the meeting for the day at 4:00pm.

Tuesday, October 23

Welcome, Overview of Agenda

Dr. Liemohn welcomed the Committee to the second day of the meeting and thanked everyone for joining. The agenda for the day was reviewed: the first hour would be a working session to review and finalize the API responses, and, then, additional Committee members would join to make a quorum for the deliberations and vote. For the vote, the Committee would read each response, vote, and then have a debrief back to Dr. Fox and Ms. Peg Luce. The debrief was to serve as time for any final questions and answers with NASA.

Committee Work Session

HPAC members continued their work on GPRAMA.

Dr. Liemohn reviewed the GPRAMA API text and the voting codes in preparation for deliberation and voting.

Deliberation and Voting on Annual Performance Indicators

When a quorum was reached on the teleconference, Dr. Kistler presented the summary for API HE-18-1, which addressed planned progress in exploring physical processes. The group determined that significant progress was made this year by NASA missions in understanding how plasmas are heated and accelerated. The first example was observations of the sun showing that both spicules and nanoflares contribute to heating the solar corona. A second example was the discoveries of heating and acceleration mechanisms at the bow shock and in the magnetosheath. The third example was the progress made by NASA satellite missions in understanding the chemistry and composition of the middle atmosphere.

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Dr. Liemohn called for a vote on the color rating. It was unanimous for green.

Dr. Randall presented the summary for API HE-18-2, which addressed planned progress in advancing our understanding of connections linking the sun, Earth, planetary space environments, and the outer reaches of the solar system. The first example described NASA satellites' elucidation of the effects of the solar wind on the entire Heliosphere and the revelation of new ways by which solar wind particles penetrate the interface with the magnetopause. The second example concerned gravity waves and our improving understanding of connections between atmospheric and space phenomena. A final example was about the effect of space weather on winds in the upper atmosphere.

Dr. Liemohn called for a vote on the color rating. It was unanimous for green.

Dr. Filipi presented the summary for API HE-18-3, which addressed planned progress in developing the knowledge and capability to detect and predict extreme conditions in space. The Committee determined that NASA missions advanced understanding of space weather phenomena capable of adversely affecting life and society here on Earth as well as human and robotic explorers beyond Earth. The response credited observations of the gateway between Earth's environment and space with improving short-term and long-term predictive capabilities of upper atmosphere forecast models and noted the new understanding of long-lasting effects created during 'superstorms.'

Dr. Liemohn called for a vote on the color rating. It was unanimous for green.

Dr. Liemohn asked for any comments from NASA. Dr. Luce thanked the committee for its work and emphasized that NASA values their feedback and assessment.

Adjourn

The meeting was adjourned at 2:20.

Appendix A Participants

<i>Heliophysics Advisory Committee members</i>	<i>Present</i>
Michael W. Liemohn, University of Michigan, Chair	10/22, 10/23
Vassilis Angelopoulos, UCLA	10/22, 10/23 2-2:30
Paul Cassak, West Virginia University	10/23
Darko Filipi, Adcole Maryland Aerospace	10/22, 10/23
George Ho, Applied Physics Lab	10/23
Lynn Kistler, University of New Hampshire	10/22, 10/23
Cora Randall, University of Colorado at Boulder	10/22, 10/23 2-2:30

** Note: A quorum was present on 10/23 during deliberations and voting on GPRAMA assessments, which was scheduled from 2:00-2:30 pm ET.*

NASA Participants

Janet Kozyra, NASA, HPAC Executive Secretary
Nicola Fox, HPD Director
Jennifer Kearns
Peg Luce, HPD Deputy Director
Vanessa Patrick

Other Attendees

Jeanette Edelstein, Electrosoft

Appendix B
Advisory Committee Membership

Michael W. Liemohn (Chair)

University of Michigan

Janet Kozyra (Executive Secretary)

NASA HQ

Vassilis Angelopoulos

UCLA

Paul Cassak

West Virginia University

Darko Filipi

Adcole Maryland Aerospace

Larisa Goncharenko

MIT Haystack Observatory

George Ho

Applied Physics Lab

Lynn Kistler

University of New Hampshire

James Klimchuk

NASA Goddard Space Flight Center

Tomoko Matsuo

University of Colorado at Boulder

William Matthaeus

University of Delaware

Mari Paz Miralles

Harvard-Smithsonian Center for Astrophysics

Cora Randall

University of Colorado at Boulder

Appendix C

Agenda

Heliophysics Advisory Committee (HPAC) Meeting

NASA Headquarters, Washington, DC

October 22-23, 2018

Monday October 22, 2:00-4:00 pm		
Call-in: 1-888-809-8966, 1-210-234-8402 (toll), Participant Passcode: 2100562 Website: https://nasa.webex.com , Meeting # 990 826 227, Password: HPAC20181! (case sensitive)		
2:00	Introduction	Janet Kozyra, DFO
2:05	Welcome and Opening Remarks	Nicola Fox, Division Director, NASA HQ
2:15	Overview of Agenda	Michael Liemohn, HPAC Chair
2:25	Preliminary discussion of the GPRAMA process (Annual HPD Performance Indicators)	Jennifer Kearns, NASA HQ
2:40	Committee work session on GPRAMA	
4:00	ADJOURN	

Tuesday, October 23, 1:00-2:30 pm		
Call-in: 1-888-809-8966, 1-210-234-8402 (toll), Participant Passcode: 2100562 Website: https://nasa.webex.com , Meeting # 990 232 943, Password: HPAC20181!		
1:00	Welcome – HPAC Day 2	Janet Kozyra, DFO
1:05	Overview of Agenda	Michael Liemohn, Chair
1:15	Committee work session on GPRAMA	
2:00	Deliberations and Voting on Performance Indicators	
2:30	ADJOURN	