

Dear Lori Glaze (Planetary Science Division Director), Thomas Zurbuchen (Associate Administrator of the Science Mission Directorate), and James Green (NASA Chief Scientist):

Equity, Diversity, and Inclusion (EDI)¹ efforts within the Planetary Science community have become a focus point of several NASA Assessment Groups (AGs) in recent years. During the August 2019 Outer Planets Assessment Group (OPAG) meeting, a request was made by to form a Working Group (WG) specifically focused on EDI issues within the field of planetary science as an interface between the community and NASA SMD/PSD.

To that end, the OPAG community formed the EDIWoG (The Equity, Diversity, and Inclusion Working Group). The EDIWoG is charged with creating and disseminating an organized structure to provide recommendations, resources, and findings associated with EDI issues to the larger AG Steering Committees and to the greater planetary science community. The group will focus on a range of near-term actions and longer-term issues, and will utilize volunteer sub-groups for each action item. The OPAG meeting discussion highlighted that this WG should not be exclusive to OPAG, due to the impact of EDI issues across the planetary science community, and members from the other AG Steering Groups have been included to provide input back to all AGs on ongoing EDI issues and to receive concurrence on items (like this letter). Additional volunteers have been gathered, and the current WG is over 40 members strong and growing.

The EDIWoG plans to gather community input in the form of a series of Professional White Papers in preparation for the Planetary Science Decadal Survey. To this end, we are gathering resources and reference literature, volunteer contributors and organizers. The EDIWoG is soliciting new, at-large members who are part of the planetary science community but do not necessarily associate with any of NASA's AGs or do not regularly attend the AG meetings.

The EDIWoG are advocating to NASA two actions:

1. SMD Demographics Survey. NASA Should support a survey across all of SMD that will enable analysis of multi-dimensional demographics data to understand the diversity aspects of our population, including data that goes beyond gender ratios and includes disciplines. Until the 2011 Planetary Workforce Survey,² we did not know the total number of active planetary scientists.³ That survey revealed that there were approximately 1200 PhDs doing planetary science research in the US. In the eight years since the survey, there have been considerable changes in the field: Missions have ended and new missions have begun; new academic departments now include planetary sciences; exoplanet research has exploded; NASA's Artemis project has resulted in a major renewed push for lunar science. Moreover, national efforts to enhance the diversity of STEM fields may be changing the demographics within planetary science.

¹ Improving equity promotes justice, impartiality and fairness within the procedures, processes and distribution of resources by institutions and systems. Tackling equity issues requires an understanding of the underlying or root causes of outcome disparities within our society. Diversity refers to a broad representation of a community's demographic mix, considering elements of human difference focusing on racial and ethnic groups, sexual orientation, gender, gender identity, abilities, religion, age and perspectives arising from different backgrounds. Inclusion refers to the degree in which diverse individuals are able to participate fully in the decision-making processes within an organization or group. While a truly "inclusive" group is necessarily diverse, a "diverse" group may or may not be "inclusive."

² <http://lasp.colorado.edu/home/mop/resources/planetary-science-workforce-survey>

³ Planetary science draws on researchers with a wide variety of backgrounds (geology, atmospheric science, geophysics, magnetospheric science, cosmochemistry, etc;), belonging to different organizations (AGU, AAS, GSA, etc;) and attending separate meetings (AGU, DPS, LPSC).

We furthermore suggest that NASA fully support the follow-up of Planetary Workforce Survey. The NASA PSD Director has stated support for this effort. However, it is EDIWoG's understanding that the PI of the study and the institute in charge (the American Institute for Physics) are still awaiting funds to begin this follow-up survey.

2. **Annual Mission Workplace Climate Surveys.** NASA should commission regular, professionally-designed climate surveys so that we can fully identify the equity and inclusion issues within our community, and ensure those climate surveys consider relevant axes of power and career structures. In particular, climate surveys should be utilized to determine if mission teams are inclusive, welcoming environments that allow the mission team to succeed. Management of NASA spacecraft teams presents two unique challenges: (1) NASA mission management places control of millions to hundreds of millions of dollars in the hands of a single individual or small number of individuals, and (2) mission management crosses institutional lines where no mechanism exists to resolve conflicts or deal with abuse of power. NASA has an obligation to the public to ensure that taxpayer dollars are not misused, and to ensure that the teams working on NASA missions are able to do their jobs without being hindered by abuse of power. Therefore, climate surveys should target populations and gather data that will enable evaluation of mission management, and illuminate problems that need addressing. One goal of these surveys should be to help identify problems so that NASA can create an action plan for addressing them, for example, tracking the evolution (and hopefully improvement) of a space mission's culture over time.

This second request has roots in an OPAG finding (#8) from the spring 2019 meeting: "OPAG requests that NASA commissions a professionally conducted workplace climate survey for the Europa Clipper Project within the next six months, and periodically conduct surveys for each of the other NASA planetary science mission projects to monitor the workplace environment. NASA should use the survey to identify and quickly address workplace climate issues to reduce risk to mission success, improve the mission team workplace environments, and identify and replicate best practices." As part of its response to this finding, NASA requested that OPAG "create a working group and by the end of October provide NASA with suggestions on content." (response from Curt Neibur's presentation: <https://www.lpi.usra.edu/opag/meetings/aug2019/presentations/Niebur.pdf>). The EDIWoG was created to respond to this request, and stands ready to provide NASA with suggestions on this topic. This WG whole-heartedly agrees with the OPAG finding. We suggest, as options, that NASA reach out to the following professionals to assist with this task, in no particular order: (1) Dr. Sylvia Hurtado of UCLA who was a director of the Higher Education Research Institute, which houses the Cooperative Institutional Research Program (CIRP), the longest-running study of higher education and who is interested in diversity in STEM; (2) Rankin & Associates specializes in assisting educational institutions in maximizing equity through assessment, planning and implementation of intervention strategies (<https://rankin-consulting.com>).

Thank you,

The Equity, Diversity, and Inclusion Working Group

Co-Chairs: Christina Richey (NASA JPL) and Moses Milazzo (Other Orb LLC)

Steering Committee: Justin Filiberto (representative for CAPTEM & MEPAG), Liz Rampe (representative for CAPTEM), Ryan Watkins (representative for LEAG), Kelsey Young (representative for LEAG), Linda Spilker (representative for OPAG), Kunio Sayanagi (representative for OPAG), Carolyn Ernst (representative for SBAG), Jessie Dotson (representative for SBAG), Noam Izenberg (representative for VExAG), Emilie Royer (representative for VExAG)

and Members of the EDIWOG (see attached spreadsheet).

With concurrence and support from the following Assessment Groups:

The Curation and Analysis Planning Team for Extraterrestrial Materials (CAPTEM)

The Lunar Exploration Assessment Group (LEAG)

The Mapping and Planetary Spatial Infrastructure Team (MAPSIT)

The Mars Exploration Program Analysis Group (MEPAG)

The Outer Planets Assessment Group (OPAG)

The Small Bodies Assessment Group (SBAG)

The Venus Exploration Assessment Group (VExAG)