

NASA ADVISORY COUNCIL

EARTH SCIENCES ADVISORY COMMITTEE

NASA Headquarters
Washington, D.C.
May 29, 2018
1-2PM

TELECONFERENCE MEETING REPORT

J. Marshall Shepherd, Chair

Lucia Tsaoussi, Executive Secretary

Appendix A- Attendees

Appendix B- Membership roster

*Prepared by Joan M. Zimmermann
Zantech IT, Inc.*

May 29, 2018

Introduction

Dr. Lucia Tsaoussi, Executive Secretary of the Earth Science Advisory Committee (ESAC) opened the teleconference, which was devoted to a charge previously received from the Science Mission Directorate (SMD), to investigate whether the Research and Analysis (R&A) program was effectively identifying and funding a sufficient number of high-impact, high-risk proposals. The Deputy Associate Administrator (DAA) for SMD Research, Dr. Michael New, was noted as being present and available for comment. As part of the discussion, the ESAC addressed an analysis of data that had been gathered by peer review panels from eleven ROSES 2017 elements. The data represented proposal ratings and the panel assessment of interdisciplinary, multidisciplinary and high-impact research proposed. Dr. Tsaoussi turned the meeting over to Dr. J. Marshall Shepherd, Chair of the ESAC.

Response to R&A Charge

Dr. Shepherd felt that the response to the R&A charge seemed obvious for the Earth Science Division (ESD); i.e. that ESD already has a pretty good sense for selecting moderate to high-impact, high-risk science proposals. He noted that the other SMD divisions had provided input and that there had been some preliminary discussion at the Science Committee level of ESD's achievements in this vein, confirming Dr. Shepherd's initial conclusions. He and other peers in the discipline felt that there seems to be something about ESD that is inherently multidisciplinary. On this basis, he planned to write a succinct paragraph on ESD practices with regard to the questions of this call. He queried Committee members on possible consensus.

Dr. Daven Henze said that he did not disagree with Dr. Shepherd's conclusion and felt that overall the panels seemed to be doing a good job. He agreed with Dr. Shepherd's summary. Dr. Shepherd said he would distribute an email from Dr. Christian Kummerow, who had composed his thoughts on the R&A charge before receiving the 2017 data. Dr. Nancy Glenn commented that she would be interested to see a separate analysis of the New Investigator Program, wondering if it would reveal how or if identification as an early career proposer might influence the selection of high-risk, high-impact proposals. Dr. Shepherd said Dr. Kummerow had noted this item too. Dr. Michael Freilich asked if there were any ESAC comments on Dr. Kummerow's observation that more multidisciplinary proposals seemed to be rated lower by the panels. Dr. Ray Schmitt said he tended to agree with that statement, because people tend to protect their own discipline funding. Dr. Shepherd agreed, feeling the problem was not unique to NASA. Dr. Freilich encouraged ESAC to identify any ideas regarding how to change this trend, whether it concerned briefing panels on the nature of multidisciplinary research, or including specific wording in ROSES calls that might encourage proposers to submit multidisciplinary proposals. Dr. Richard Rood commented that it was a persistent problem, and he reported hearing of students being discouraged from believing that "interdisciplinary" proposals could be considered credible. He felt that NASA's management needed to take proactive steps to make interdisciplinary research a true priority. He also reported anecdotally that some Program Managers in the past felt that they did not receive proper credit for their program when participating with other disciplines. Dr. Jack Kaye weighed in to note proper use of the term regarding the label of "interdisciplinary" in context with specific program areas. For broader

programs like remote sensing theory, or new investigator programs, it is easier to accomplish because the panels themselves are interdisciplinary. This is true also of graduate student fellowships. In terms of getting credit, however, Dr. Kaye didn't think this was a particular issue in ESD; if a subject is within a PM's wheelhouse, it will get done, providing the PM is willing to reach out. He felt such practices were regarded favorably with respect to those who shared proposals and/or funding, and that ESD as a whole should get credit. Dr. Sara Tucker felt that the ROSES 2017 analysis was interesting but limited, and that it would be instructive to look at the history of the Venture Class program and the Earth Science Technology Office (ESTO) to see how they handle the risk question. Dr. Tsaoussi noted that this particular charge was strictly applied to the R&A program elements. Dr. Tucker asked how NASA handled proposals that extended over the breadth of SMD, such as some Planetary Science Division (PSD) proposals. Dr. Shepherd said this subject came up during a NAC Science Committee conversation regarding the study of dust devils on Mars, a potentially ESD/PSD venture. It is still unclear on how this sort of coordination is done. Dr. Kaye noted in this context that there are not many focused mechanisms for this type of coordination at the programmatic level. His sense was that if there is some proposal that is mostly Earth Science-oriented and has some overlap with another discipline, these haven't been historically solicited as such. There have been instances where ESD has put some language in a student fellowship call to specify interdisciplinary research. There are some areas in ESD laboratory chemistry that have the potential to support multiple disciplines. Dr. Henze felt that people who are applying should have a sense that the review panel is as interdisciplinary as the proposal; this can change the way people respond. Dr. Tsaoussi, citing her experience with many cross-disciplinary reviews, confirmed that these panels reflected the necessary discipline diversity. Dr. Henze felt in that case that the panel expertise should be openly conveyed/advertised to the proposers. Dr. Freilich suggested that ESAC put these concerns into a finding or recommendation; i.e. the calls should take extreme care to reward interdisciplinary research regardless of who is funding what.

Dr. Shepherd commented that he was taking note of discussion details to form a consensus-based letter to ESD and Dr. New. He noted that one emerging finding is that based on the analysis, that ESD is being responsive in identifying high-risk, high-impact proposals in its R&A program. ESAC members agreed unanimously on this point.

Dr. Shepherd aired a potential finding or recommendation that in multidisciplinary proposals, more specific language and support should be included in the panel reviews. Dr. Thomas Herring seconded the recommendation, and no disagreements were noted. Dr. Rood noted that he was not opposed, but thought that the given evidence was fairly anecdotal for a finding. He did however support the recommendation to provide specific guidance to Program Managers on interdisciplinary research, but was reluctant to make it a finding. Dr. Tsaoussi noted that a recommendation is stronger than a finding, and that ESAC should take this into account before concluding its deliberation. Dr. Anne Nolin suggested that ESAC ensure that it was clear on what interdisciplinary, or trans-disciplinary (reaching outside of academia) terminology really means. Drs. Shepherd and Tsaoussi agreed that the letter would stay within the terminology, based on the SMD definition of high-risk/high-impact research provided in the charge to the ESAC. Dr. Nolin added that diversity (multicultural, ethnic) criteria should also be included in the NASA calls, in the same way the National Science Foundation includes such criteria. Dr. Shepherd noted that while this may be outside the scope of the R&A charge, he fully supported

the idea. Dr. Tucker commented that there is a mild risk that if the language on risk and diversity is not carefully crafted, it may inadvertently weed out young, timid investigators, which in turn may affect the diversity of the proposers. NASA shouldn't leave people feeling they don't have a chance. Dr. Shepherd asked: should the finding stating that panels aren't currently diverse? Do we have this data on the diversity makeup of panels? Dr. Freilich suggested that ESAC simply recommend that ESD extend itself to ensure that panels are diverse.

Dr. Shepherd asked the ESAC for any other thoughts. Hearing none, he said he would work with Dr. Tsaoussi on crafting a statement that supports the conclusion that ESD does a good job at identifying high-impact, high-risk research. He noted that more specific guidance to ESD Program Managers may be forthcoming on multidisciplinary proposals, and perhaps more guidance on cross-divisional and interdivisional work. There would also be some language on understanding how NIP proposers are impacted by their perception of success rates in particular programs and some sort of recommendation on ensuring that panels are diverse. Dr. Tsaoussi noted that she was planning to hold a brief, non-FACA teleconference to briefly discuss the annual Government Performance Requirements Act (GPRA) exercise, to elicit brief feedback from ESAC. Dr. Shepherd concluded the meeting and adjourned at approximately 2 PM.

APPENDIX A ATTENDEES

Earth Science Advisory Committee Members

J. Marshall Shepherd, ESAC Chair, University of Georgia

Roland Burgmann, University of California, Berkeley

Andrew Dessler, Texas A&M

Nancy Glenn, Boise State University

Daven Henze, Colorado University at Boulder

Thomas Herring, Massachusetts Institute of Technology

Christian Kummerow, Colorado State University

Colleen Mouw, University of Rhode Island

Anne Nolin, Oregon State University

Ying Fan Reinfelder, Rutgers University

Anastasia Romanou, Columbia University

Ray Schmitt, Woods Hole Oceanographic Institute

Sara Tucker, Ball Aerospace

Lucia Tsaoussi, Executive Secretary, NASA Headquarters

NASA Attendees

Bob Bauer, NASA ESTO

Michael Freilich, NASA HQ

Lawrence Friedl, NASA HQ

Jack Kaye, NASA HQ

Jared Leisner, NASA HQ

Barry Lefer, NASA HQ

Kevin Murphy, NASA HQ

Michael New, NASA HQ

Kathy Hibbard, NASA HQ

Non-NASA Attendees

Joan Zimmermann, Zantech IT

APPENDIX B ESAC MEMBERSHIP

J. Marshall Shepherd, ESAC Chair
University of Georgia

Roland Burgmann
University of California, Berkeley

Ginny Catania
University of Texas at Austin

Greg Carmichael
University of Iowa

Andrew Dessler
Texas A&M

Nancy Glenn
Boise State University

Kass Green
Kass Green and Associates

Daven Henze
University of Colorado

Thomas Herring
Massachusetts Institute of Technology

Lucy Hutyra
Boston University

Ian Joughin
University of Washington

Jasmeet Judge
University of Florida

Christian Kummerow
Colorado State University

Colleen Mouw
University of Rhode Island

Anne Nolin
Oregon State University

Anastasia Romanou
Columbia University

Richard Rood
University of Michigan

Raymond Schmitt
Woods Hole Oceanographic Institute

Sara Tucker
Ball Aerospace