

National Aeronautics and Space Administration



5
YEARS



R&A Practices in SMD
Presentation to Planetary Science Subcommittee

Dr. Paul Hertz
Chief Scientist, Science Mission Directorate, NASA
October 3, 2008

R&A Life Cycle



- Planning
 - Program and mission needs, community input, budget planning
- Solicitation
 - Writing ROSES, writing program elements, issuing ROSES
- Proposing
 - NOI, PI writes, AOR submits
- Evaluation
 - Compliance check, panel chairs, panel reviewers, non-panel reviewers, individual evaluations, panel meeting, summary evaluations, adjectival grades
- Selection
 - Selection recommendation, selection decision, notification
- Award
 - Technical package, revised SOW, release funds, commit funds, issue grant
- Execution
 - PI researches, progress reports, continuation package, release funds?, commit funds. issue supplement

Written Policies & Requirements



- NPR 7120.8, NASA Research and Technology Program and Project Management Requirements
- NPR 5800.1, Grant and Cooperative Agreement Handbook
- Guidebook for Proposers responding to a NASA Research Announcement

- SMD Management Handbook, especially Chapter 4
- SPD-01A: Handling Conflicts-of-Interest for Peer Reviews
- SPD-02: Handling Late Proposals
- SPD-05: Preventing Financial Conflicts for IPA Employees
- SPD-08: Requirements for Selection Decision Documents for NASA Research Announcements including ROSES
- SPD-09: Requesting Reconsideration of NRA Proposal Declination

R&A Peer Review Practices



New SPD in progress: Management of SMD's Research and Analysis (R&A) Peer Reviews

- Several iterations completed under Stern & Pendleton
 - Extensive discussion within SMD to capture best practices from all SMD disciplines
 - Incorporates statutory and regulatory restrictions where applicable
 - Does not mandate uniform practices
 - Does mandate uniform standards
- Draft will be completed “soon”
 - Current draft is 21 pages long
- Intended to be a public document
 - No decision on whether to put it out for comments before finalizing

Important note:

- This document applies to all SMD divisions.
 - Different disciplines have different practices that their communities recognize as appropriate and expected. THIS IS OKAY.

Principles of SMD Peer Reviews



1. SMD manages its R&A programs strategically, increasing the return from missions in progress or completed and laying the groundwork for missions yet to be initiated.
2. SMD seeks the input of the scientific community, as appropriate, in evaluating the scientific/technical merit, programmatic relevance, and cost reasonableness and realism of proposals.
3. SMD places the highest value on fair, unbiased, unconflicted, and competent reviews of all compliant and responsive proposals submitted.
4. SMD protects the confidentiality of proposers and reviewers, as well as the sensitive and proprietary content of proposals.
5. SMD strives to provide clear feedback to proposers in a timely fashion, including the disposition of the proposal and the major factor(s) that led to the acceptance or rejection of the proposal.
6. SMD entrusts its Program Officers with the responsibility and the authority to implement its principles and policies and to present well-supported selection recommendations to the Selection Official.
7. SMD charges its Selection Officials with advancing NASA's strategic goals and maximizing the science return within programmatic constraints by executing their judgment in making selection and non-selection decisions.

Definitions



- A REVIEW is made up of one or more PANELS.
- There are PANEL REVIEWERS and NON-PANEL REVIEWERS.
- A NON-PANEL REVIEWER is sometimes referred to as a MAIL-IN REVIEWER and is incorrectly referred to as an external reviewer.
- A single reviewer creates an INDIVIDUAL REVIEW.
- A panel creates a SUMMARY EVALUATION or a PANEL SUMMARY, sometimes incorrectly called a consensus evaluation.
- An INTERNAL REVIEWER is a reviewer from within the program office, usually used to refer to a reviewer from within SMD.
- An EXTERNAL REVIEWER is a reviewer from outside the program office, usually used to refer to a reviewer from outside SMD.

Participants in a SMD R&A Peer Review



- **PROGRAM OFFICER:** Civil Servant responsible for the review. [required, from SMD]
- **PANEL OFFICIAL(S):** Civil Servant(s) responsible for a panel. [required, may be reviewer]
- **REVIEW CHIEF:** Individual chairing a review. [optional]
- **PANEL CHAIR(S):** Individual(s) chairing a panel. [required, may be internal or external]
- **PANEL SECRETARY:** Individual recording panel action. [optional, not a reviewer]
- **PRIMARY REVIEWER:** Presenting reviewer for a proposal.
- **SECONDARY REVIEWER:** Supporting reviewer for a proposal.

Management of Peer Reviews (excerpts)



- Every review must have a Program Officer
 - The Program Officer has ultimate responsibility and authority for the review of proposals in this Review.
 - The Program Officer appoints other review managers (Review Chief, Panel Officials, Panel Chairs)
 - The Program Officer must make or approve the appointment of all peer reviewers and the assignment of all proposals to reviewers for review.
- The Program Officer may appoint a Review Chief.
 - The Review Chief helps manage the identification of reviewers, the assignment of proposals, and the identification of conflicts-of-interest and potential bias.

Management of Peer Reviews (excerpts)



- Every panel must be managed by a Civil Servant
 - The Civil Servant is called the Panel Official.
 - The Panel Official may identify reviewers and suggest proposal assignments to the Program Officer.
 - The Panel Official must ensure that every proposal receives a fair and competent evaluation.
 - A peer reviewer who is a Civil Servant may serve as the Panel Official.
- The Program Officer must appoint a Panel Chair for every peer review panel.
 - The Panel Chair may be external (e.g., a member of Community) or internal (e.g., SMD staff). The Panel Chair may be the Panel Official. A peer reviewer may serve as the Panel Chair.
 - The Panel Chair may help the Program Officer identify reviewers and assign proposals. Final assignments must be made by the Program Officer and/or Panel Official.
 - The Panel Chair fully manages the meeting, ensures actual and potential conflicts are logged, determines the flow of discussion, ensures the panel stays on topic, assigns action items and writing assignments, and ensures quality of consensus evaluation.

Management of Peer Reviews (excerpts)



- Peer reviewers should be selected such that every proposal receives a competent and unbiased evaluation by more than one peer reviewer.
 - Each proposal must be evaluated by at least two reviewers to assure that NASA's decisions are not based on the findings and opinions of a single person.
 - All assignments must avoid conflicts-of-interest and potential bias for panel reviewers.
 - All reviewers must submit individual reviews through NSPIRES prior to the panel meeting.
- Primary Reviewer
 - Present proposal to panel.
 - Take responsibility for generating summary evaluation.
 - Approve final summary evaluation.
- Secondary Reviewer
 - Supplement primary reviewer's presentation of proposal to panel.
 - Take notes of panel discussion.
 - Contribute to generating consensus evaluation.

Management of Peer Reviews (excerpts)



- Non-panel Reviewers.
 - Non-panel reviews are encouraged in all cases to ensure that each proposal is reviewed by multiple reviewers with appropriate expertise.
 - A non-panel review is required under the following circumstances.
 - o When the Program Officer knows that no panelists are strongly competent to review a proposal; or
 - o When conflicts-of-interest result in a panel that has three or fewer panel members eligible to review a proposal.
- All peer review panels must vote on the ratings for each proposal.
 - Each reviewer's vote can be viewed as an individual input and therefore there is no group advice.
 - Panels do not come to consensus on adjectival rating; the median of the votes is used.
- The peer review is neither expected nor allowed to formulate selection recommendations.

Management of Peer Reviews (excerpts)



- Recognizing the great variation in programs, there will necessarily be a difference in the optimal instructions for each review. However some things can be made uniform.
 - Describe the SMD solicitation, evaluation, and selection process.
 - Explain that peer review panels provide findings on individual proposals; they do not compare proposals, rank order proposals, or provide selection recommendations.
 - Emphasize the expectation of the confidentiality of the peer review.
 - Emphasize the avoidance of conflicts-of-interest and the appearance of bias by all peer reviewers.
 - Explain the role of every reviewer in identifying issues that affect the quality of the review; also explain the process for identifying issues to the appropriate review leader.
 - Explain what scientific merit is, as well as the definition of the ratings used for merit (taken from the Guidebook).
 - Explain clearly what role the peer review panel has in evaluating relevance and/or cost reasonableness, as well as the available ratings for these criteria.
 - Explain the role of the peer review in implementing SMD policies such as four year grants.

Management of Peer Reviews (excerpts)



- The Program Officer may conduct plenary sessions after the opening plenary.
 - Holding a plenary session early in the review can contribute to calibration between panels.
 - A post evaluation plenary session is beneficial but not required.
 - There are common circumstances where a plenary session may not be possible or may not be warranted.
 - In the absence of a post panel plenary session, SMD best practice is that the consensus evaluation should be read by at least two members of another panel who are not conflicted. This is a goal and not a requirement.
- The Program Officer must approve all summary evaluations (or panel summaries).
 - The summary evaluation must be read by several panel members who are not conflicted including the Primary Reviewer and all Secondary Reviewers.
 - The summary evaluation must be approved by the Primary Reviewer, the Panel Chair, and the Panel Official before the panel is adjourned.

Management of Peer Reviews (excerpts)



Peer review panels bring to the review the priorities and standards of the research community at large.

- Competence and lack of conflicts of interest or bias are the most important criteria for selecting peer reviewers.
- In addition to competence and fairness, the make up of peer review panels should reflect appropriately differences of viewpoint represented in the research community.
- Peer review panels should represent the multifaceted nature of the research community.
 - Recent experience on this panel and newcomers to this panel.
 - Institutional affiliation.
 - Discipline and practice.
 - Early career and more senior researchers.

Management of Peer Reviews (excerpts)



- The Program Officer must assure the quality of peer reviews.
 - The Program Officer is ultimately responsible to the Selection Official for the quality of the peer review.
 - The quality of a peer review includes the fairness and competence of reviewers, adherence of reviewers to published evaluation criteria and factors, and the degree to which the written evaluation fully and clearly captures the findings of the review panel members.
 - The Program Officer and the Review Chief ensure that all panels hold Proposers to the same standards.
 - The Panel Official and the Panel Chair ensure that no reviewers (panel and non-panel) have conflicts or bias, that all proposals receive a fair and competent evaluation, and that all written evaluations meet standards of quality.
 - The Panel Official and the Panel Chair must approve all final written summary evaluations before the peer review panel is adjourned.