

III. Questions concerning the management of the program under review. Please comment on the following:

MANAGEMENT OF THE PROGRAM UNDER REVIEW

1. Management of the program.

Comments:

We were left with a sincere respect and even admiration for the dedication of the Program Directors and Section Head. Ensuring a respectful and thorough review of the proposals requires a great deal of effort and knowledge.

The previous STR Program Director retired since the last COV, and a replacement was not identified until months later. The STR transition appeared to be (unduly) difficult because of the lack of overlap between the prior Program Director and the incoming Program Director. The NSF staff performed admirably during this period, as it required a great deal of additional effort. The new Program Director is a well-known and respected scientist, which is extremely important in maintaining community trust in the review process (particularly during a period of extremely high proposal submissions relative to funding).

We are pleased that the Program Directors have flexibility in determining the proportion of funding that goes to Core research programs vs. directed programs such as SHINE, CEDAR & GEM. This allows the Program Directors to allocate according to proposal demand as well as community needs and priorities.

2. Responsiveness of the program to emerging research and education opportunities.

Comments:

There was an appropriate balance of resources to ensure sustainability of long-term activities as well as injecting vitality through new ideas and activities. Programs such as CAREER, EAGER and RAPID allow the Program Directors to make strategic decisions and provide flexibility in strategic allocation of resources. In days of increasingly constrained budgets, this is ever more challenging and important.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.

Comments:

The Program Directors are very active in engaging the community and ensuring that their needs are met; they interact regularly with members of the community and undertake outreach activities to be able to more clearly understand issues and anticipate future needs. This process influenced the development of the new Strategic Plan.

Lately, the Program Directors have been faced with the challenge of handling far more proposals than previously, and as a result the selection rates have declined precipitously. The community

outreach and communication efforts ensure that there is trust and respect throughout this difficult time, and the importance of their efforts cannot be understated.

4. Responsiveness of program to previous COV comments and recommendations.

Comments:

The COV this time around (as opposed to last time) was not tasked with issues relating to portfolio composition and allocation. We will address here the topics from the last COV report that are relevant to this program element.

c) Strategic Planning for GS

GS developed and released an updated strategic plan. The plan was responsive to the scientific community's ever-changing goals and priorities, and the Program Directors and Section Head were active in communicating the results.

e) Faculty Development in the Space Sciences

The previous COV recommended continued support of FDSS activities. The competition has been re-initiated this fiscal year and at least one award will be made. Future competitions will be held biannually.

g) Virtual vs. face-to-face panels

We concur with the previous COV that a balance of virtual vs. face-to-face panels best suits the need of the scientific community and allows economy in the review process. However, we somewhat disagree with the previous statement that "virtual panels are appropriate for the CEDAR, GEM and SHINE panel reviews where the participants in the panel are familiar with the topics being reviewed and are also familiar with each other." That attitude is not at all true for newer researchers, as more senior people are not as familiar with them and vice-versa. There are benefits to face-to-face panels, most notably the full focus of participants and the "organic" discussion environment; consensus is more achievable and panelists are more likely to express satisfaction with the result. However, the cost & travel savings allowed by virtual panels may allow more of the resources to go to research instead of reviews.

OTHER TOPICS

1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.

An analysis of the approval rate of women and minority PIs indicated a large fluctuation from year to year. However, the success rate of female PIs from 2011-2013 appeared to be anomalously low. The overall success rate from 2011-2013 STR proposals was 32%, while female PIs were only 12% successful, which was only 1/3 the success rate of male PIs (the total number of proposals was 47 from female PIs, so this is statistically significant). Part of this trend appears to be due to the SHINE panel reviews - in three years of panels, they did not recommend funding for a single female PI (all 20 proposals that received the "Fund" recommendation were by male PIs).

(Please note that we have learned that the awards made during FY2014 have a much better balance for women PIs. However, the COV was tasked with reviewing proposals for FY2011-13, so the FY2014 proposals were not part of the above analysis. We have also learned that NSF is considering including a discussion of "unconscious bias" as a prelude to panels, which we believe may help prevent situations like the 2011-13 SHINE results.)

Although we did not detect a clear bias in the evaluation and review process, we recommend that the NSF make efforts to determine the cause of this variation and take action if appropriate. We were very appreciative of the support of the NSF Program Directors in this analysis, as it was apparent that they found this to be an important issue.

2. Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

Based on the proposal actions we directly reviewed, and the data on the rest of the proposals, it was clear that the research topics appropriately addressed all aspects of the science covered by the STR Program. Additionally, the STR goal of supporting educational activities and students was clearly reflected in both the support of the SHINE workshops as well as the individual proposals. Reviewers and the Program Directors were mindful of whether a proposal requested support for a student or young scientist, and this information was given appropriate weight.

We applaud the effort of the STR Program Director in developing a joint program with the Astronomy Directorate to support cross-disciplinary solar research activities. Some vital research can "fall through the cracks" between it applies to both STR and Astronomy but may not receive priority from either. A joint program will allow the support of innovative scientific ideas in a cost-effective manner.

3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

4. Please provide comments on any other issues the COV feels are relevant.

5. NSF would appreciate your comments on how to improve the COV review process, format and report template.

In Section II we were asked "Does the documentation to the PI provide the rationale for the award/decline decision?" We found it difficult to evaluate the communication to the PI regarding the award/decline decision because many of the jackets were lacking this information.

Additionally, we believe it would be very useful to provide either preliminary statistical analysis on the proposal data, or provide enough information so that the panelists can perform the analysis. We examined the data to look for selection bias (institution, gender, seniority) and also examined the timeliness of the responses to the PIs. We received an excellent response from the NSF staff when we requested data, and all of the required information was efficiently provided.

SIGNATURE BLOCK:

For the [Replace with Name of COV]
[Name of Chair of COV]
Chair

CORE QUESTIONS and REPORT TEMPLATE for FY 2014 NSF COMMITTEE OF VISITOR (COV) REVIEWS

Guidance to NSF Staff: This document includes the FY 2014 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2014. Specific guidance for NSF staff describing the COV review process is described in the “COV Reviews” section of NSF’s Administrative Policies and Procedures which can be obtained at <https://inside.nsf.gov/aboutnsf/hownsfworks/rolesresponsibilities/Pages/Committee-of-Visitors.aspx>¹.

NSF relies on the judgment of external experts to maintain high standards of program management, to provide advice for continuous improvement of NSF performance, and to ensure openness to the research and education community served by the Foundation. Committee of Visitor (COV) reviews provide NSF with external expert judgments in two areas: (1) assessments of the quality and integrity of program operations and program-level technical and (2) managerial matters pertaining to proposal decisions.

The program(s) under review may include several sub-activities as well as NSF-wide activities. The directorate or division may instruct the COV to provide answers addressing a cluster or group of programs – a portfolio of activities integrated as a whole – or to provide answers specific to the sub-activities of the program, with the latter requiring more time but providing more detailed information.

The Division or Directorate may choose to add questions relevant to the activities under review. NSF staff should work with the COV members in advance of the meeting to provide them with the report template, organized background materials, and to identify questions/goals that apply to the program(s) under review.

Suggested sources of information for COVs to consider are provided for each item. As indicated, a resource for NSF staff preparing data for COVs is the Enterprise Information System (EIS) –Web COV module, which can be accessed by NSF staff only at <http://budg-eis-01/eisportal/default.aspx>. In addition, NSF staff preparing for the COV should consider other sources of information, as appropriate for the programs under review.

Guidance to the COV: The COV report should provide a balanced assessment of NSF’s performance in the integrity and efficiency of the **processes** related to proposal review. Discussions leading to answers of the Core Questions will require study of confidential material such as declined proposals and reviewer comments. **COV reports should not contain confidential material or specific information about declined proposals.** The reports generated by COVs are made available to the public.

We encourage COV members to provide comments to NSF on how to improve in all areas, as well as suggestions for the COV process, format, and questions. For past COV reports, please see <http://www.nsf.gov/od/oia/activities/cov/covs.jsp>.

¹ The COV Reviews section has three parts: (1) Policy, (2) Procedures, and (3) Roles & Responsibilities.

**FY 2014 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: June 10-12, 2014
Program/Cluster/Section: Space Weather Program
Division:
Directorate:
Number of actions reviewed: Awards: Declinations: Other:
Total number of actions within Program/Cluster/Division during period under review: Awards: Declinations: Other:
Manner in which reviewed actions were selected:
Date of program portfolio review

COV Membership

	Name	Affiliation
COV Chair or Co-Chairs:		
COV Members:		

INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program(s) under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

I. Questions about the quality and effectiveness of the program's use of merit review process. Please answer the following questions about the effectiveness of the merit review process and provide comments or concerns in the space below the question.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Are the review methods (for example, panel, ad hoc, site visits) appropriate?</p> <p>Comments:</p> <p>For the CubeSat program, the primary review method was an in-person panel. 19-member panels were convened on July 13-14 in 2010 and July 10-12, 2012. For most of the cases each proposal was reviewed by 4 panel members (i.e., one primary and three secondary reviewers), who provided individual written reviews. The tertiary reviewer wrote the panel summary. The panel was composed of diverse members – roughly half space scientists and half engineers, one-third female and two-thirds male. Mail-in reviews were primarily used to evaluate proposals whose focus was outside of space physics.</p> <p>Out of the 23 independent proposals submitted to each panel, five proposals were placed in the “highly recommended” category. As it was anticipated that at most two would be funded, the five receiving a rating of “highly recommended” were invited to respond to the reviewers’ comments. These responses were considered by the Program Director in consultation with the other Program Directors and the Section Head in the Geospace section when deliberating about final funding decisions.</p> <p>In addition to the reviewers’ comments, panel discussions, panel summaries, and responses to the reviewers’ comments by PIs of the “highly recommended” proposals, the focus of the science in the context of balance among funded CubeSat projects was considered when making final funding decisions. Efforts were made to select a diversity of science missions and instrument designs.</p> <p>For proposals funded under RAPID and INSPIRE mechanisms, only internal merit review by NSF Program Directors is required out of concerns for urgency</p>	<p>YES</p>

<p>combined with difficulty of appropriate evaluation under a regular submission to any individual program given the strong inter-disciplinary nature of these proposals. The funding of INSPIRE proposals requires that Program Directors from at least two separate NSF science disciplines work together and concur that the proposal is compelling to both programs.</p> <p>In response to the 2011 NASA NSF Space Weather Modeling Collaborations Partnership solicitation, a total of 51 proposals were submitted. The review was done by a combination of mail-in reviews and a panel. The Program Director collaborated with a NASA program officer to define review criteria and procedures that would meet both NASA and NSF requirements and to choose the reviewers. The panel was made up of 17 experienced space scientists (two female members) with the diverse backgrounds, and met over Sept 24-28, 2012. The panel highly recommended 13 proposals, 8 out of which were selected for funding (15% success rate).</p> <p>Data Source: EIS/Type of Review Module</p>	
<p>2. Are both merit review criteria addressed</p> <ul style="list-style-type: none"> a) In individual reviews? YES – except for one individual review b) In panel summaries? YES – except for one case c) In Program Officer review analyses? YES - always <p>Comments:</p> <p>For the CubeSat program, both merit review criteria are addressed adequately. The Program Director’s review analysis reflects the fact that both review criteria were discussed and taken into account in the panel deliberations. There is one case in which the assessment of the broader impacts was missing from the panel summary, even though it was addressed in 3 out 4 individual reviews.</p> <p>For the RAPID and INSPIRE proposals, standard merit review criteria (intellectual merit and broader impacts) were not always explicitly addressed, but the Program Director’s review analyses adequately described criteria specific to these programs regarding the uniqueness, urgency, innovativeness, or inter-disciplinarity.</p> <p>For proposals funded under the NASA NSF Space Weather Modeling Collaborations Partnership, both merit criteria are addressed explicitly in most individual reviews, panel summaries, and Program Director’s review analyses. We noted that the broader impacts criteria are not strongly addressed in comparison with other NSF proposal reviews.</p> <p>Data Source: Jackets</p>	<p>YES</p>

<p>3. Do the individual reviewers giving written reviews provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>For the CubeSat program, the individual reviewers provide sufficiently detailed comments and rationale in their assessment of the proposals with a few exceptions. In one case, a particular reviewer’s written review was terse, but there was an additional individual reviewer assigned to this proposal. The individual reviews sometimes reflect significantly different opinions, complementing each other.</p> <p>The reviewers were selected to provide complementary expertise in both the scientific merit and the feasibility of the engineering aspects of the proposed CubeSat projects. The Program Director’s Review Analysis did an excellent job of summarizing the individual reviews and panel summaries, as well as adding missing details regarding the panel discussions.</p> <p>For the NASA NSF Space Weather Modeling Collaborations Partnership proposals, the individual reviews provide sufficient detailed comments to specific questions and rationale in their assessment of the proposals. These specific questions include the strength and weakness of proposals with respect to following criteria (1) Scope and Requirements, (2) Scientific and Intellectual Merit, and (3) Relevance to the National Space Weather Program, NASA’s Living With a Star, and the NSF, as well as Broader Impacts.</p> <p>Data Source: Jackets</p>	<p>YES</p>
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>For the CubeSat program, the panel summary was written by a tertiary reviewer, who did not contribute an individual written review of the proposal. Most of the panel summaries provided a succinct but adequate summary of the individual proposal reviews, but the panel process that led to the rationale for the panel consensus was not always present in the panel summaries. (Perhaps, tertiary reviewer was less engaged with the proposal?) From the panel summaries alone, the proposers may not always be able to obtain sufficient information regarding the rationale for the panel consensus.</p> <p>In almost all cases the panel summaries addressed both the NSF Intellectual Merit and Broader Impacts criteria. In one case the Broader Impacts criteria was not explicitly addressed in the panel summary.</p> <p>For the NASA NSF Space Weather Modeling Collaborations Partnership proposals, four reviewers were assigned to each proposal to provide the individual reviews, and the panel summaries provided the rationale for the panel</p>	<p>YES</p>

<p>consensus.</p> <p>Data Source: Jackets</p>	
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>[Note: Documentation in the jacket usually includes a context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program director review analysis, and staff diary notes.]</p> <p>Comments:</p> <p>For the CubeSat program, the program director review analysis was particularly excellent, summarizing the proposal, the strength and weakness of the proposal pointed out by the individual reviewers, and detailing the panel process (i.e., explaining how diverging opinions of the individual reviewers came to the consensus, how the panel uncovered substantial technical issues of the proposal and influenced the proposal assessment). In addition, the review analysis explained the rationale for how the CubeSat Program Director in consultation with other program directors arrived at final funding decisions for cases in which proposals were in the “highly recommended” for funding category.</p> <p>For the RAPID and INSPIRE proposals, the Program Director’s review analyses and e-mail correspondence between the PI and the Program Directors provided the rationale for the award/decline decision.</p> <p>For the NASA NSF Space Weather Modeling Collaborations Partnership proposals, the information was available in the eJacket system only for a fraction of the 8 successful proposals that were funded by NSF because the proposal review process was managed by NASA. The Program Director’s review analyses and e-mail correspondence between the PI and the Program Directors provided the rationale for the award/decline decision.</p> <p>Data Source: Jackets</p>	<p>YES</p>

<p>6. Does the documentation to the PI provide the rationale for the award/decline decision?</p> <p>[Note: Documentation to PI usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), and, if not otherwise provided in the panel summary, an explanation from the program director (written in the PO Comments field or emailed with a copy in the jacket, or telephoned with a diary note in the jacket) of the basis for a declination.]</p> <p>Comments:</p> <p>For the CubeSat program, the Program Director’s review analysis always</p>	<p>YES, but DATA not always available from eJackets</p>
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<p>provided substantial rationale for the award/decline decision. But, records of the phone and e-mail exchanges between the PI and the program office were not always available as part of eJacket documents. We recommend keeping a communication log regarding the award communication with the PI.</p> <p>The context statements were well written and provided a detailed description to the PI regarding the panel process, including the handling of conflicts of interest.</p> <p>For the RAPID and INSPIRE proposals, it is not always clear how the rationale for the award/decline decision was communicated to the PI. Again, we recommend keeping a communication log regarding the award communication with the PI.</p> <p>For the NASA NSF Space Weather Modeling Collaborations Partnership proposals, the e-mail correspondence between the PI and the Program Director provided insight into how the rationale for the award decision was communicated to the PI. It is unclear how the decline decision was communicated with the PI. The proposers of highly recommended proposals that were not funded would have especially appreciated a briefing on the decision process.</p> <p>Data Source: Jackets</p>	
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>The CubeSat program's proposal selection process is very competitive with the success rate of about 10%. For both 2010 and 2012 panels, it was anticipated that only two out of 5 proposals in the highly recommended category would be selected for funding.</p> <p>We understand from conversations with the CubeSat Program Director that one or two additional highly recommended proposals were later funded with resources from other NSF programs and by other agencies.</p> <p>The PIs of the proposals rated "highly recommended" by the panel were invited to respond to the panel review, and the PIs provided an extensive response often almost as long as the proposal itself. This mechanism exemplifies the fairness and openness of this merit review process.</p> <p>We also wish to emphasize the thoroughness and clarity of the Review Analyses by the Program Director for the CubeSat program.</p>	

II. Questions concerning the selection of reviewers. Please answer the following questions about the selection of reviewers and provide comments or concerns in the space below the question.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p> <p>For the CubeSat program, the 19-member panels convened on July 13-14 in 2010 and July 10-12, 2012 and were made up of panel members with diverse background, gender, and experiences. Half of the panel members had engineering backgrounds, so they could comment on the technical feasibility of the proposed CubeSat missions, and the other half consisted of scientists who could assess the significance of science questions, including how they would be addressed by the data collected and the likelihood of closure by the analysis of the satellite observations. If the science topic happened to lie outside of the expertise of the panel, external mail-in reviews were requested to fill the gap.</p> <p>For the NASA NSF Space Weather Modeling Collaborations Partnership solicitation, the Program Director collaborated with a NASA program officer to define review criteria and procedures and to choose the reviewers. The 17-member panel convened on Sept 24-28, 2012 was made up of experienced and well-recognized space scientists (two female members) with diverse scientific backgrounds.</p> <p>Data Source: Jackets</p>	<p>YES</p>
<p>2. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>For the CubeSat program, the conflicts of interest were adequately checked by automated software, and the panel members with conflicts of interest did not participate in the discussion of proposals. In most cases, the jacket contained the results of the conflict of interest generated by the automated system. We found one case where this information was missing. Additionally, in some cases panelists identified additional conflicts of interest and did not participate in the discussion of the conflicting proposal.</p> <p>In the NASA NSF Space Weather Modeling Collaborations Partnership review</p>	<p>YES</p>

<p>process, the conflicts of interest were checked by automated software. In most cases, the jacket contained the results of the conflict of interest generated by the automated system.</p> <p>Data Source: Jackets</p>	
<p>Additional comments on reviewer selection:</p>	

III. Questions concerning the management of the program under review. Please comment on the following:

MANAGEMENT OF THE PROGRAM UNDER REVIEW

1. Management of the program.

Comments:

The Space Weather Research program is a new program within the Geospace Section established late in FY 2013, bringing together several existing cross-sectional activities of high priority. An important component of Space Weather Research program relevant to this COV is the CubeSat program, which was managed under the Facilities program prior to this time.

The CubeSat program is housed within the Space Weather Research program and is managed by the Space Weather Program Director. However, this program includes proposals from other disciplines, including lower atmospheric science and astronomy. The Space Weather Research Program Director has done an outstanding job developing and managing the new CubeSat program. The CubeSat proposal selection process is very competitive with a success rate of 10%. The review process is comprehensive, transparent, and of high integrity. The 19-member panel includes both scientists and engineers and the PIs of the highly recommended proposals are invited to respond to reviewer comments before final funding decisions are made.

The Space Weather Research program actively partners with other programs within the Geospace Section and the Atmospheric and Geospace Sciences Division and other agencies including NASA and NRO to leverage its limited resources. In particular, some of the program's activities are supported through strong partnership with NASA.

2. Responsiveness of the program to emerging research and education opportunities.

Comments:

The Space Weather Research program itself is established as a response to the broader Geospace Science community's input regarding crosscutting priorities. Examples include the NASA NSF Space Weather Modeling Collaborations Partnership and the CubeSat program. The CubeSat program in particular provides unique educational opportunities for undergraduate and graduate students who are involved in developing, constructing, testing, launching and operating the small satellite systems and in the analysis of the observations from the missions.

The Faculty Development in the Space Science program was created to address the low number of Space Science faculty positions at University around the country. These positions are often housed within physics and engineering departments. The Space Sciences community includes a relatively larger percentage of soft money scientists compared with other disciplines.

The Space Weather program also responded well to NSF-wide interdisciplinary initiatives, namely the co-funding of an INSPRIRE award to fund a unique and innovate research idea. On the other

hand, the NSF-Hazard SEES solicitation did not attract any space weather related proposals, in spite of the obvious fit of Space Weather to a major “natural hazards” component of NSF as pointed out by the previous COV.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.

Comments:

The Space Weather Research program uses a mix of internal and external guidance to develop the portfolio. This portfolio includes the NASA/NSF Collaborative Space Weather Modeling program (\$1.5 M); the NSF contribution to the NASA Community Coordinated Modeling Center (\$0.5 M); the Faculty Development in the Space Sciences program; AMPERE, SuperDARN and SuperMAG (\$1.7 M); and the CubeSat program (\$1.5 M). Several community wide strategic documents are used to inform the portfolio decisions including the NRC Decadal Survey, the CEDAR strategic plan, and the NSFAGS Section strategic planning process.

The rigorous CubeSat review process informs the portfolio decision of selected awards in this highly competitive program. This process includes input from both engineers and scientists on the review panel as well as an opportunity for the PIs of the highest ranked proposals to respond to reviewer comments before funding decisions are made. Additionally the Space Weather Research Program Director, in consultation with other Geospace Sciences Program Directors and the Section Head, seeks to maintain program balance. As evidenced in the Program Director’s Review Analysis, both the intellectual merit and broader impacts of the proposed project are strongly considered and the program strives to create a diversity of scientific topics and instrumentation amongst the funded CubeSat projects. Other community wide strategic planning documents also inform the selections.

4. Responsiveness of program to previous COV comments and recommendations.

Comments:

In response to the 2011 COV recommendation regarding the CubeSat program, the Geospace Section has taken three concrete actions: 1. the CubeSat program is now installed as part of the Space Weather Research program; 2. a dedicated funding line for the CubeSat program of \$1.5M was established; 3. an external evaluation of the CubeSat program was conducted and another is underway.

The 2011 COV expressed concerns that community interest in the Cubesat program might be reduced due to the low funding rates, but there were 23 independent proposals submitted for both 2010 and 2012 panels that the 2014 COV reviewed. The success rate of the CubeSat proposals was about 10%, and only 2 out of the 5 Highly Recommended proposals were awarded. We understand from conversations with the CubeSat Program Director that one or two additional CubeSat proposals were later funded with other resources. It is a tough competition, but the Program Director has effectively used the opinions of the panel and advice of other Program Directors to inform the fair and transparent award selection process.

The 2011 COV encouraged clarification of the primary objective of the CubeSat program. All the CubeSat awards reviewed by the 2014 COV strived to meet dual-objectives of education and training of students and creating new scientific knowledge.

To help facilitate the external evaluation process, the annual report of the CubeSat program was

published in October 2013. The CubeSat program has been reviewed in the NRC Decadal Survey. At NSF, the 2014 COV focused on the evaluation of the CubeSat program within the Space Weather Research program. It will be evaluated again in the extensive Geospace portfolio review that is planned for later 2014.

The 2011 COV recommended virtual panels when possible with the exception of the CubeSat panel, which was recommended as a continuing face-to-face panel. As noted above, the 2010 and 2012 CubeSat panels were face-to-face panels with representation from both scientists and engineers.

The 2011 COV recommended “that the highly successful CubeSat program presently run by GS should be funded with new NSF division-level resources. With increased resources, the CubeSat program would appropriately form its own “section”. The CubeSat program, now housed in the Space Weather Research program, has shown that it is successful. \$1.5 M is now devoted to the Cubesat program, but it is still primarily a Geospace program rather than a cross-directorate program. Any growth in scope would require additional funding.

The previous COV recommended that the Geospace Section undergo a more systematic strategic planning exercise. The Geospace Section completed a draft strategic plan for the section, after obtaining community input.

The 2011 COV recommended continuation of the Faculty Development in Space Sciences program. The Geospace Section is continuing this program with a staggered series of FDSS opportunities. A new solicitation for the re-initiation of the FDSS program was submitted for clearance in October 2013.

The 2011 COV recommended that the Geospace Section directors work together to enable more ways for coupling research across the different Geospace Section programs. The directors have worked together to offer interdisciplinary opportunities, for example through the NASA NSF Space Weather Modeling Collaboration.

OTHER TOPICS

1. Please comment on any program areas in need of improvement or gaps (if any) within program areas.
2. Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.
3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

We recommend exploration of the possibilities of expanding the CubeSat program by elevating it to an NSF-wide program and seeking additional sources of funding within the NSF and with other agencies such as NASA. The Space Weather Research program has done an excellent job in developing the CubeSat program and illustrating its potential for advancing scientific understanding while offering outstanding educational benefits. If the CubeSat program were to be elevated to a higher-profile cross-directorate program or section, a larger diversity of scientific projects across the NSF might take advantage of this opportunity.

4. Please provide comments on any other issues the COV feels are relevant.

We applaud the approachability of the Geospace Section Program Directors and Section Head and consider approachability essential for interaction with the scientific community.

The increasing number of proposals increases the workloads of the Program Directors and reviewers. We are concerned about this workload as they are already stretched thin with their current duties.

There are highly qualified proposals that are not funded due to a lack of revenue. A diversity of observational and modeling studies is important for obtaining a system perspective of the complex geospace environment and its connection to both the space environment and the lower atmosphere.

We thank the NSF Geospace Section for their service to the Geospace research and education community.

5. NSF would appreciate your comments on how to improve the COV review process, format and report template.

SIGNATURE BLOCK:

For the [Replace with Name of COV]
[Name of Chair of COV] Chair

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The Division or Directorate may choose to add questions relevant to the activities under review. NSF staff should work with the COV members in advance of the meeting to provide them with the report template, organized background materials, and to identify questions/goals that apply to the program(s) under review.

Suggested sources of information for COVs to consider are provided for each item. As indicated, a resource for NSF staff preparing data for COVs is the Enterprise Information System (EIS) –Web COV module, which can be accessed by NSF staff only at <http://budg-eis-01/eisportal/default.aspx>. In addition, NSF staff preparing for the COV should consider other sources of information, as appropriate for the programs under review.

Guidance to the COV: The COV report should provide a balanced assessment of NSF’s performance in the integrity and efficiency of the **processes** related to proposal review. Discussions leading to answers of the Core Questions will require study of confidential material such as declined proposals and reviewer comments. **COV reports should not contain confidential material or specific information about declined proposals.** The reports generated by COVs are made available to the public.

We encourage COV members to provide comments to NSF on how to improve in all areas, as well as suggestions for the COV process, format, and questions. For past COV reports, please see <http://www.nsf.gov/od/oia/activities/cov/covs.jsp>.

¹ The COV Reviews section has three parts: (1) Policy, (2) Procedures, and (3) Roles & Responsibilities.

**FY 2014 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: June 10-12, 2014
Program/Cluster/Section: Geospace Facilities
Division: AGS
Directorate: GEO
Number of actions reviewed: Awards: 19 Declinations: 4 Other: 3
Total number of actions within Program/Cluster/Division during period under review: 72 Awards: 47 Declinations: 6 Other: 19
Manner in which reviewed actions were selected: Examples were selected to cover a broad mix of actions, like awarded proposals, declined proposals, high score proposals declined, low score proposals awarded.
Date of program portfolio review

COV Membership

	Name	Affiliation
COV Chair or Co-Chairs:		
COV Members:		

**INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES
AND MANAGEMENT**

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program(s) under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

I. Questions about the quality and effectiveness of the program's use of merit review process. Please answer the following questions about the effectiveness of the merit review process and provide comments or concerns in the space below the question.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE
<p>1. Are the review methods (for example, panel, ad hoc, site visits) appropriate?</p> <p>Comments:</p> <p>The GF program relies mainly on mail-in reviews. All proposals have received at least 3 reviews. The majority of the reviews were comprehensive and ratings were appropriately assigned.</p> <p>Data Source: EIS/Type of Review Module</p>	<p>YES</p>
<p>2. Are both merit review criteria addressed</p> <p style="padding-left: 20px;">a) In individual reviews?</p> <p style="padding-left: 20px;">b) In panel summaries?</p> <p style="padding-left: 20px;">c) In Program Officer review analyses?</p> <p>Comments:</p> <p>Mail-in reviews and Program Director review analysis reflect both criteria. Reviewers took special care to address the relevance of both review criteria.</p> <p>Data Source: Jackets</p>	<p>a) YES</p> <p>b) N/A</p> <p>c) YES</p>

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<p>3. Do the individual reviewers giving written reviews provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>Individual reviewers thoughtfully and completely described their comments and concerns.</p> <p>Data Source: Jackets</p>	<p>YES</p>
<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments:</p> <p>Panel reviews are not part of the review process in the GF program.</p> <p>Data Source: Jackets</p>	<p>N/A</p>
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>[Note: Documentation in the jacket usually includes a context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.]</p> <p>Comments:</p> <p>The review analysis included well-documented rationale and justification for the award/decline decision. The ‘Review Analysis’ files were very helpful in summarizing the individual reviews and the merit review criteria.</p> <p>Data Source: Jackets</p>	<p>YES</p>

<p>6. Does the documentation to the PI provide the rationale for the award/decline decision?</p> <p>[Note: Documentation to PI usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), and, if not otherwise provided in the panel summary, an explanation from the program officer (written in the PO Comments field or emailed with a copy in the jacket, or telephoned with a diary note in the jacket) of the basis for a declination.]</p> <p>Comments:</p> <p>There was uniform evidence that the PD contacted the PI and provided clear explanations of the decision to decline or award the proposal.</p> <p>As far as we could determine, the documentation forwarded to the PI did not always include individual mail-in reviews. The official NSF notification did include them (or links to access them).</p> <p>Data Source: Jackets</p>	<p>YES</p>
<p>7. Additional comments on the quality and effectiveness of the program's use of merit review process:</p> <p>Overall, the merit review process is properly addressed.</p>	

SIGNATURE BLOCK:

For the [Replace with Name of COV]
[Name of Chair of COV]
Chair