CORE QUESTIONS and REPORT TEMPLATE
for
FY 2016 NSF COMMITTEE OF VISITOR (COV) REVIEWS

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/.

FY 2016 REPORT TEMPLATE FOR NSF COMMITTEES OF VISITORS (COVs)

The table below should be completed by program staff.

Date of COV: 31 March – 1 April 2016
Program/Cluster/Section: Atmosphere Section
Division: Atmosphere and Geospace Sciences
Directorate: Geosciences
Number of actions reviewed: **Awards: 268** **Declinations: 99** **Other: 14**
Total number of actions within Program/Cluster/Division during period under review: **Awards: 512** **Declinations: 1151** **Other: 31**
Manner in which reviewed actions were selected: All 1663 program jackets were available for the COV review. Approximately a quarter of available jackets were highlighted by the Section Program Directors and the Section Head and presented to the COV for evaluation. Jackets were chosen based on the relevance of information within the jacket to the questions posed to the COV members in the COV Template. Additional jackets beyond those highlighted by Program Directors and Section Head were made available to the COV in response to specific requests for information by the COV. A two-hour web-based meeting with the Section and COV members was conducted to explain the role of the COV; clarify the NSF ethics requirements; familiarize the COV with the NSF electronic jacket system; provide overviews of the Section programs under review; and review the data that were assembled for the COV. Over a period of three weeks following the web-based meeting, individual meetings between Section Program Directors and COV counterparts pertaining to each of the science programs were conducted to address specific programmatic issues and questions. A two-day in-person meeting was held 31 March – 1 April 2016.

COV Membership

	Name	Affiliation
COV Chair or Co-Chairs:	Dr. Kimberly Prather Dr. Anantha Aiyyer	University of California at San Diego North Carolina State University
COV Members:	Dr. Caspar Ammann Dr. Patricia Quinn Dr. Dev. Niyogi Dr. Daniel Vimont Dr. C.-H. Moeng Dr. Paul Reasor Dr. Daniel Keyser Dr. Yemane Asmerom Dr. Luisa Molina	NCAR NOAA/PMEL Purdue University University of Wisconsin NCAR NOAA/AOML State University of New York at Albany University of New Mexico Molina Center for Strategic Studies in Energy and the Environment

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
1. Are the review methods (for example, panel, ad hoc, site visits) appropriate? **Comments**: The majority of proposal reviews are ad hoc and conducted via mail. Panels are used for complex, interdisciplinary calls with other programs, or for those involving field campaigns or facilities that require review of the broader synergies. Occasionally, site reviews for Centers and virtual panels are also conducted. The review analyses contained in jackets reveal that Program Directors weigh the reviewer recommendations carefully and their review analysis is thoughtful (especially in "borderline" cases) and consistently of high quality. The COV finds the review process appropriate and recommends that the current approach of mail-in reviews be continued as is. The COV also recommends that year-round proposal submission continue to be the primary mode of the proposal solicitation and evaluation process. The COV finds this mode of proposal submission is highly appropriate and relevant to the manner in which the scientific community has been developing its programs and pursuing discoveries in the field.	Yes

Data Source: Jackets	
2. Are both merit review criteria addressed a) In individual reviews? b) In panel summaries? c) In Program Director review analyses?	Yes
Comments: a) The degree to which individual reviewers comment on both criteria is variable. Most reviewers focus on the intellectual merit component. Reviewers provide comments on broader impacts more often for proposals that have an educational impact (e.g., training teachers to teach, or undergraduate education opportunities) and for proposals where the PI has detailed the broader societal impacts. The COV encourages continued communication from the Section to the broader community regarding what constitutes good and useful broader impact considerations, and how broader impacts are used to provide metrics related to the projects, and the program's value to national, international and scientific priorities. The COV is aware that this issue of broader impacts is currently a Foundation-wide discussion and encourages continued participation in that process and deliberations. b) See above c) Both criteria are consistently addressed in the Program Director review analyses. In particular, the COV notes that Program Director's review analyses contain great attention to the broader impacts in each case and articulate how such impacts (or lack thereof) contribute to the decision to award or decline. **Data Source: Jackets**	

3.e Do the individual reviewers giving written reviews provide substantivee comments to explain their assessment of the proposals?e **Comments**: In general, substantive comments were received from the majority of the reviewers. This speaks to the level of effort reviewers provide as well as to the ability of the Program Directors to identify reviewers that are familiar with specific research areas. **Data Source: Jackets**	Yes
4.e Do the panel summaries provide the rationale for the panel consensus (ore reasons consensus was not reached)?e **Comments**: The program makes limited use of panels. In the cases reviewed by the COV, the panels generally offered clear arguments for 'mission critical' versus 'highly desirable' components of a project **Data Source: Jackets**	Yes
5.eDoes the documentation in the jacket provide the rationale for thee award/decline decision?e [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.] **Comments**: The COV notes that review analyses written by Program Directors are an important part of the documentation included in the jackets. These analyses consistently showed thoughtful motivation for the award/decline decisions. The COV also notes that special attention was often paid to supporting early career scientists and underrepresented groups. The degree to which the program directors consider and critically evaluate reviews, project merit, broader impacts, relevance to the rest of the field, etc. is very impressive. Our recommendation is to keep up the good work. **Data Source: Jackets**	Yes

6.eDoes the documentation to the PI provide the rationale for the award/declinee decision?e [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.] **Comments:** A summary of the rationale for either an award or decline is communicated to the PI(s). Typically, the communication is via e-mail from the Program Director. The communication regarding declines are more extensive, putting both the positive points and concerns in context. The initial communication is followed by forwarding the verbatim reviews and panel summary (where applicable). In some cases the e-mail communication is followed by phone conversations. Sometimes a proposal may need to be scaled back or a smaller award may be useful in testing a proof of concept. In those instances reviewed here, the Program Directors have shown responsiveness to provide the necessary feedback to the PIs, including the potential for a smaller award or a follow up proposal. The COV highlights this as a good practice and encourages the program to continue to provide formative guidance to the PIs for developing successful continuing discussions. **Data Source: Jackets**	Yes
7.eAdditional comments on the quality and effectiveness of the program's usee of merit review processe **Comments:** The COV reiterates its strong support of the year-round solicitation of proposals and the review process that is currently in place in the Atmospheric Section. As prior COVs have emphasized, we encourage Program Directors to continue providing early-career PIs with sufficient rationale and appropriate details from their review analysis on 'declines' to enhance the potential for future success	

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
1. Did the program make use of reviewers having appropriate expertise and/or qualifications? **Comments**: The COV finds that the reviewers were mostly active researchers in the general area of the proposed work. No problems with qualification of researchers were noted. The choice of relevant expert reviewers for large projects is particularly important due to a smaller reviewer pool and potential conflicts, and the program has done a good job in identifying experts within (or closely related) area. **Data Source: Jackets**	Yes
2. Did the program recognize and resolve conflicts of interest when appropriate? **Comments**: The program directors have been vigilant in recognizing and resolving conflict of interest situations. This is again by nature of the review process that is in place within the Section that allows for rolling submissions, and *ad hoc* reviews which makes the process much more robust as the reviewers are picked for individual proposal rather than a large panel. In panels too, conflict disclosure is enforced effectively. In instances when conflicts were discovered they were promptly corrected by withdrawing the review request or conducting reviews involving different sections should there be a conflict of interest with the Program Director. Program Directors, particularly in the smaller programs, appear to be well aware of perceptions and outright conflicts of interest among reviewers and are able to balance these situations appropriately. **Data Source: Jackets**	Yes

3. Additional comments on reviewer selection: **Comments**: The COV feels that while the practice of soliciting reviewers from outside the United States is good for addressing the science aspects, it is possible that at times the international reviewers may need an even more explicit guidance on the broader impacts criteria and the role of diversity. The COV encourages the program to consider whether there is a need for more guidance for the non-U.S. based reviewers, if the need arises.	

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

MANAGEMENT OF THE PROGRAM UNDER REVIEW
1.eManagement of the program. Please address qualities such as timeliness in making decisionse and program mortgages.e **Comments:** The COV finds that the program is well managed. The average dwell time for the divisions is about 6 months, which appears to be reasonable given constraints outside the control of the program and meets Foundation wide goals for dwell time. The COV encourages the programs to consider ways to reduce dwell times, especially in programs that are taking substantially longer than average. It was noted that there has been a serious staff shortage in Atmospheric Chemistry (AC) in recent years. The COV encourages expediting the replacement of key support staff in AC as this will help reduce the longer dwell times for this particular program. The COV recognizes that the upward trend in proposal submissions continues and the atmospheric science community requests for large field programs pose a significant challenge for program mortgages and maintaining an appropriate balance to each program portfolio. The COV encourages the programs to consider ways to mitigate mortgage burdens due to uncertainties in budgets from year to year. One approach would be to provide upfront funding for all years to the PI as is being done in some divisions. **Data Source: Jackets, NSF presentation**
2.eResponsiveness of the program to emerging research and education opportunities.e **Comments:** Across a variety of award types, the programs appear to be highly responsive to emerging research and education opportunities. A review of jackets for CAREER and PRF awards found that cutting-edge research, in terms of the use of advanced instrumentation or modeling methods, was funded. One example is a SAVI award that provided the framework for U.S. scientists to set up cooperative research activities with a European effort studying new cloud particle formation and growth. This provided U.S. researchers access to a state-of-the-art cloud chamber. In the area of climate change and paleoclimate research, the paleoclimate program (PCP), through personnel leadership and financial commitment continues to investing nearly 60% of its annual budget to the P2C2 program.

The Section has continued its support of RAPID (Rapid Response Research) and EAGER (Early-concept grants for Exploratory Research) during the COV review period. No more than 5% of the budget is devoted to these mostly non-peer-reviewed projects. This is an appropriate level of support for such high-risk research.

The COV strongly endorses the current approach of funding through a range of award types, including both peer-reviewed and non-peer reviewed projects.

Data Source: Jackets

3.eProgram planning and prioritization process (internal and external) that guided the developmente of the portfolio.e

Comments:
The COV recognizes the challenges in planning and prioritization processes faced by the Section and the differences in the operation between the programs. While, in general, support for various categories of funding is driven by community proposals, programs often need to prioritize support for large field campaigns and funding of individual awards. The programs will need to determine the appropriate portfolio balance between non-field and field projects.

The current balance of priorities seems appropriate, but the COV also recognizes that there is significant community pressure for large and costly field programs. In particular, the COV notes the significant pressure due to National Center for Atmospheric Research (NCAR)-led field campaigns and encourages the program to consider effective strategies to prioritize needs for field studies. Additionally, for paleoclimate research, it will be desirable to provide support for analytical instrumentation acquisition within AS.

Data Source: Jackets

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

Comments:

The use of virtual panels: The Atmosphere Section (AS) response to previous COV concerns about virtual panels was mostly an assurance that there is no intention of going fully virtual and that best practices are being explored. Virtual panel interactions tend to be "serial" by nature and a great deal of other "atmospheric" information is lost in the process. The value of what is gained in the more organic nature communal process outweighs the logistical burden posed by in-person participation. .

The awarding of large enduring awards: This concern is not uniformly relevant across the AS programs. The PCP awards during the review period had a median value of 188K, with only one proposal that involved extensive international work exceeding $1M. The 5th most expensive award was $640K. Does the exceptionally high success rate of certain PIs and groups reflect continued

excellence or some aspect of inertia or deeper community connection? One of the tangible benefits of periodic recalibration of programs through community involvement is that it allows for broadening participation, as has happened in the case of P2C2.

Broader Impacts: The 2013 COV raised a persistent concern related to the lack of attention paid to the broader impacts in proposal reviews and panel summaries. Unfortunately, those concerns are not allayed by the current situation. Panel summaries have improved in this regard, although there is a large amount of variability. Moreover, there is some aspect of "pure research puritanism" that is widely prevalent in the community. Program directors have little leverage to compel compliance in a situation where it is already difficult to find reviewers. Some of this can be fixed in the panel process with leadership from the program directors.

Feedback to PIs: The previous panel pointed out the need for "documentation to the PI regarding the funding recommendation". We don't share the same concern. To the contrary, the level of feedback provided by AS program directors is impressive as compared to other programs with which we are familiar.

International Reviewers: As noted earlier, soliciting reviews from experts outside the U.S. may be very beneficial but it also may require effort on the part of the program to clarify to international reviewers the importance of broader impacts and diversity. We encourage the program to carefully evaluate the pros and cons of soliciting international reviewers prior to making a determination.

CAREER and AGS: Some skepticism was expressed by the 2013 COV regarding the efficacy of the CAREER and AGS Post-Doc Programs. We disagree. A career award can be truly transformative in a young scientist's research and educational work. Postdoctoral fellowship is another area of investment that has the potential for lasting impact as we usher in new investigators into the field.

Balance: The 2013 COV raised what look like contradictory concerns: the need to respond to emerging research and education opportunities on one hand and what they fear as too much emphasis on inter- and multidisciplinary projects. We think it is possible to do programmatically inter- and multidisciplinary work and simultaneously preserving the focus provided by individual PIs.

Rural and Underserved communities: The AS was encouraged to pay greater attention to rural underserved communities. There is a distinct difference in the concentration and higher success rate of proposals from the U.S. Northeast and West Coast. As stated previously, this could be due to the fact that there are large and well established communities in climate science in these areas. Regardless, the need for broader participation is something to which attention should be given.

Data Source: Jackets

IV. Questions about Portfolio. Please answer the following about the portfolio ofe awards made by the program under review.e

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE, OR DATA NOT AVAILABLE
1.eDoes the program portfolio have an appropriate balance of awards acrosse disciplines and sub-disciplines of the activity?e **Comments**: The distribution of awarded proposals is appropriate across disciplines and sub-disciplines of our field. It includes activities such as data gathering, analysis, modeling and integration. Funded proposals focus on critical knowledge gaps in physical meteorology, atmospheric chemistry, dynamics, and climate process over tropical, midlatitude, and arctic regions; interactions among regions; and over multiple time scales. Studies address chemical and physical processes that include aerosol/cloud interactions, mixing processes, ocean impacts on weather and climate. Special projects have focused on specific regions of the tropical Pacific, Indian Ocean, high-latitude Atlantic, South America, Northeast Pacific, Southeast Asia, and Africa. Finally, funded project address observational, model, and theoretical studies. A survey across the unfunded proposals does not indicate a specific bias against a particular subject area or region. **Data Source: EIS/Committee of Visitors Module. From the Report View drop-down, select the Funding Rate module to see counts of proposals and awards for programs. The Proposal Count by Type Report View will also provide a summary of proposals by program.**	**APPROPRIATE**
2.eAre awards appropriate in size and duration for the scope of the projects?e **Comments**: The COV finds that awards are appropriate in size and duration for the scope of the projects. Most of the awards are 36 months in duration, with the exception of broad efforts (e.g. COSMIC, MMAP, CLIVAR). Exceptions to the 36 month duration are highlighted and are justified due to the scope of the particular project. Other exceptions to the 36 month funding model include Climate Process Teams that are funded on a continuing basis (with other agencies as well), EAGER or RAPID proposals, conferences, and non-reviewed extensions. Interestingly, for the 36 month proposals, there does	**APPROPRIATE**

not appear to be any relationship between the requested dollar amount of a proposal and the funding decision. Occasionally, some of the larger requested proposal budgets are "scaled back" to smaller actual awards; this process is described and well justified in the jackets, and is justified by the reviews. **Data Source: EIS/Committee of Visitors Module. From the Report View drop-down, select Average Award Size and Duration.**	
3.aDoes the program portfolio include awards for projects that are innovativea or potentially transformative?a **Comments**: The COV finds that the program portfolio includes several projects that are innovative and potentially transformative. These include several large multi-institution collaborative field campaigns. By funding basic and potentially transformative research, NSF fills a critical need in the field. Basic research is critical for furthering our understanding of key elements of the climate, weather, physical, and chemical systems, and we do not see other agencies or organizations addressing this need. **Data Source: Jackets**	**APPROPRIATE**
4.aDoes the program portfolio include inter- and multidisciplinary projects?a **Comments**: The Section program portfolio includes inter-disciplinary projects, as well as inter-agency projects. The COV feels that the current "bottom up" approach taken by the programs is appropriate. It allows emergence of important multi-disciplinary activities that address critical science issues rather than prescribing a required interdisciplinary focus (which often result in cobbling together teams of researchers who meet a need for interdisciplinary expertise, but may not be addressing a critical scientific issue). For example the P2C2 program is such a bottom up effort organized by the community with support from the Paleoclimate Program with buy-in from across the Directorate of Geosciences. **Data Source: Jackets**	**APPROPRIATE**
5.aDoes the program portfolio have an appropriate geographical distributiona of Principal Investigators?a	**APPROPRIATE**

Comments: The geographical distribution of PIs is uneven with some regions receiving more awards. The state-by-state distribution of awards may in part reflect the uneven geographical distribution of institutions with large and mature atmospheric science programs. A general addition to the geographic distribution might be an effort to involve local educators and researchers in the locations where field-based research is happening. It would ensure that some regions are not just data rich but also become richer in activity and build the potential to broaden the PI pool. **Data Source: Jackets**	
6.eDoes the program portfolio have an appropriate balance of awards toe different types of institutions?e **Comments:** The COV recognizes that this a challenging task for the program. Some research activities require a large center to bring a variety of experts while others are best accomplished by individual PIs. In general, it appears that a large percentage of awards go to traditional academic research institutions. The decision to sunset large centers is a good example of how the program has responded to reviewer concerns about the distribution of funding. It also demonstrates the willingness of the AS programs to be responsive to community concerns (as voiced by the reviewers). **Data Source: Jackets**	**APPROPRIATE**
7.eDoes the program portfolio have an appropriate balance of awards to newe and early-career investigators?e NOTE: A new investigator is an individual who has not served as the PI or Co-PI on any award from NSF (with the exception of doctoral dissertation awards, graduate or postdoctoral fellowships, research planning grants, or conferences, symposia and workshop grants.) An early-career investigator is defined as someone within seven years of receiving his or her last degree at the time of the award. **Comments**: The COV finds that although the success rate of new investigators is a little lower than the overall rate, the difference is not large enough to be of concern. The Section also supports several CAREER proposals each year; however, CAREER funding rate is much lower but is again appropriate given its nature. The COV recognizes the efforts by program directors to provide	**APPROPRIATE**

timely and useful feedback to new investigators. We encourage program directors to continue the good work so that new investigators continue to remain in the field. **Data Source: Jackets**	
8.eDoes the program portfolio include projects that integrate research ande education?e **Comments**: The program portfolio includes activities that integrate research and education. It is especially noteworthy that some of the larger awards (e.g., CMMAP) have documented efforts at integrating educational components. It is also good to see that same project supporting 14 or 15 graduate students per year. Similarly, COSMIC appears to support integration of education and research. This is appropriate – a large award such as CMMAP or COSMIC should address multiple facets of NSF's priorities, including education. On typical grants, it appears that the standard method for integrating education into research is to simply include graduate student funding on a proposal. However, reviewers do not seem to put much weight on integration of education and research. **Data Source: Jackets**	**APPROPRIATE**
9.eDoes the program portfolio have appropriate participation ofe underrepresented groups[1]?e **Comments**: This continues to be a major area where additional work is needed. It is probably safe to say that no geoscience field has an appropriate participation from underrepresented groups. While the overall participation of women has improved, only about 5% of proposals were received from other underrepresented groups. The COV recognizes that there are no magic bullets to solve this long-standing issue. However, it strongly encourages the program to prioritize the participation of underrepresented groups through better integration of	**INAPPROPRIATE**

[1] NSF does not have the legal authority to require principal investigators or reviewers to provide demographic data. Since provision of such data is voluntary, the demographic data available are incomplete. This may make it difficult to answer this question for small programs. However, experience suggests that even with the limited data available, COVs are able to provide a meaningful response to this question for most programs.

emerging ideas, data and research on increasing diversity. This may entail close cooperation with groups and agencies within and outside NSF. **Data Source: Jackets, NSF presentations**	
10.aIs the program relevant to national priorities, agency mission, relevanta fields and other constituent needs? Include citations of relevant externala reports.a **Comments**: The COV strongly feels that the Section supports activities that are critical to national priorities and agency mission. For example, the P2C2 Program was initiated to help address the national climate change priority. The Section frequently receives proposals that are motivated by national reports or workshops, or are in response to major events such as hurricanes, oil spills, heat waves, floods and tornado outbreaks. More generally, we believe the program fills a critical niche in the federal system as the only program devoted to basic science research on climate, weather and related processes. Research in these areas is directly relevant to national interests ranging from public safety to environment and food security. Research funded by the Section demonstrates that climate science is far from a complete body of knowledge, and the value of climate science is limited at least as much by lack of understanding as it is by lack of resolution or quantitative uncertainty estimates (see for example Held 2012, "The Gap between Simulation and Understanding in Climate Modeling", Bulletin of the American Meteorological Society). The Section is in a unique position to improve understanding and serve as the generator of new fundamental understanding to underpin efforts at better climate impact assessments and future climate projections led by other programs and agencies. The program provides funding for students and early career scientists to participate at topical workshops to enable networking and enhance career development. **Data Source: Jackets**	**APPROPRIATE**
11.aAdditional comments on the quality of the projects or the balance of thea portfolio:a **None**	

V. The Division of Atmospheric and Geospace Sciences (AGS) Postdoctoral Research Fellowship program has been in existence since FY2012 (current AGS PRF solicitation: http://www.nsf.gov/pubs/2014/nsf14509/nsf14509.htm). During the COV period (FY2013–FY2015), AS programs received more than 100 PRF proposals.

COV member input on the usefulness of the program would be appreciated. Please address the following questions. Comments and suggestions on aspects of the PRF not addressed by the following questions are very welcome.

Postdoctoral Research Fellowship program

1.eCurrently, the PRF award is made directly to the person and not to an institution as in moste grants. Does the "freedom" afforded by directly supporting the postdoc outweigh thee administrative burden on the postdoc (e.g., managing health care, travel) and NSF staff whoe seemingly jointly serve the traditional SRO/SPO role?e

Comments:
The stated goal of the PRF program is to prepare recent Ph.D. recipients for careers in universities and research laboratories as independent research scientists. A decided advantage of making the award directly to the fellow rather than to the mentor or institution is that the fellow is able to select the mentor and institution that provide the best opportunity for conducting his/her proposed research. Another advantage of making the award directly to the fellow is that the process of writing a successful proposal as a sole PI and managing the funds for the resulting award may be viewed as excellent hands-on training for future permanent positions in universities and laboratories, where securing and managing an external funding portfolio is an essential requirement. In view of these considerations, it would appear that the advantages of funding the fellow directly more than compensate the administrative burden on the fellow.

However, the COV finds that NSF staff, particularly the program directors are being excessively burdened owing to the fact that, effectively they also act as sponsored research officers (SRO/SPO). Remedies should be considered that might serve to lessen this burden, such as arranging for fellowship funds to be managed by the institution with which the fellow is affiliated as would be done in the case of traditional research grants. If this option is not practical, selected NSF personnel could be designated to assist program officers and fellows with routine post-award procedural issues, or NSF could contract with an outside organization such as UCAR to manage the post-award funding process. There are other units within the Division that administer similar programs and would be worth exploring combining efforts in this regard. In conjunction with these options, fellows could be offered the opportunity to informally network with each other, which would allow newer fellows to draw upon and benefit from the experience of their more advanced PRF colleagues in navigating the post-award phase of their fellowships.

2.eWhat role do you see the AGS PRF playing in the context of other available postdoce programs (e.g., NCAR ASP, NOAA Climate and Global Change)?e

Comments:
The AGS PRF appears to be the only postdoctoral fellowship program that allows the fellow complete flexibility to propose a research project within the disciplines under the purview of the AGS, as well to select a mentor and institution that provide the best opportunity for conducting the proposed research project. The former program cited above applies to research performed at NCAR (http://www.asp.ucar.edu/pdfp/pd_announcement.php), whereas the latter is targeted to research that aligns with the interests of the NOAA Climate Program Office (http://www.vsp.ucar.edu/cgc/). The National Research Council (NRC) postdoctoral awards

apply to research performed at U.S. federal laboratories and affiliated institutions (http://sites.nationalacademies.org/pga/rap/).

a.oThe availability of postdoctoral programs is not uniform across disciplines. Does it makeo sense to have a postdoctoral award program that would be unique to an Atmosphere Sectiono program (i.e., PDM) rather than AGS in general?o

Comments:
In view of the advantages of the PRF program cited in response to question #1, it would appear to be appropriate to continue the program under the auspices of the AGS Division.

b.ds there too much redundancy or overlap in postdoctoral programs? Other than checks ofo pending and current support, should potential redundancy be monitored?o

Comments:
The attributes of the PRF program cited in the heading of the response to this question render it complementary to other postdoctoral programs in the disciplines under the purview of AGS. An additional complementary aspect of the PRF program is that a large proportion of the fellows conduct their research at U.S. universities, which is not an option in the other available postdoctoral fellowship programs mentioned above with the exception of the NOAA Climate and Global Change program. It is recommended that potential redundancy be monitored through the practice of checking current and pending support of proposals submitted to the PRF program. If redundancy is perceived to be problematic in certain disciplines supported by the AS, the reasons for declinations of awards should be tracked to determine whether redundancy with other postdoctoral programs renders the PRF program less competitive than desirable in these disciplines.

3.eCurrently, the PRF proposal is due to NSF in the middle of January. Does the timing of thee postdoc announcement and award cycle make sense in the context of graduation, facultye positions, and other postdoc programs?e

Comments:
The current proposal deadline appears to result in the start of fellowships no earlier than the following summer of a calendar year, which may result in declination of a PRF award in favor of other fellowship offers that are received earlier. Considerable flexibility is provided by the option of deferring the fellowship start up to one year after notification of its award. If the timing of the announcement and award cycle for the PRF program is viewed as disadvantageous to proposers who are applying to other fellowship programs, alternative options might be considered such as changing the deadline for proposal submission to a date early enough to result in award decisions at times comparable with those of competing postdoctoral programs. Alternatives to a single annual deadline also might be considered such as accepting applications on a quarterly basis as is done for the NRC postdoctoral awards or on a rolling basis as is done for traditional research proposals submitted to the AS.

4.eShould the postdoc program be limited to U.S. academic institutions, or open to other typese of institutions such as NCAR, government labs, or foreign organizations?e

Comments:
To the extent that the PRF program is intended to allow a prospective fellow maximum flexibility in proposing a research project and selecting a mentor and institution, limiting this selection to U.S. academic institutions would appear to be disadvantageous to the fellow. At the same time, it might be advisable to consider requiring justification for proposing to conduct research at NCAR, federal laboratories, and foreign organizations. Such justification should address why the proposed research cannot be performed at U.S. academic institutions, such as a mentor or research facility that only can be found elsewhere.

5.eShould there be any restrictions on where the postdoctoral candidate works in relation to theire Ph.D. institution or any other post-Ph.D. work experience?e

Comments:
The option of choosing a graduate adviser as a research mentor should be discouraged if not prohibited, consistent with the goal of the PRF program to provide recent Ph.D. recipients the opportunity to become independent research scientists. Aside from this exception, prospective fellows should have the option to continue at their current institution, but should be required to provide appropriate justification addressing why the proposed research cannot be performed elsewhere.

6.eShould the timing of when a postdoctoral candidate can apply to the solicitation be changed?e Relevant information from the solicitation is:e

a.eCandidates must either currently be a graduate student or have held a PhD degree in ae scientific or engineering field for no more than 3 years prior to the award start date;e

b.eAwardees must begin the fellowship within 12 months of notification of an award.e

Comments:
The COV concurs with the intent of these requirements: the first ensures that prospective fellows are recent Ph.D. graduates and thus are in the appropriate phase of their careers to take full advantage of the opportunities provided by a PRF fellowship; the second appears to offer prospective fellows with a reasonable amount of flexibility in completing their Ph.D. or another postdoctoral fellowship. Accordingly, no change to these requirements is recommended.

7.eWhat metrics should be used to assess the success of the PRF program?e

Comments:
Candidate metrics include the success and impact of the research conducted by the fellow, as demonstrated through conference presentations and refereed journal publications resulting directly from a PRF award, career development activities conducted during the tenure of an award such as advising undergraduate research projects or participating in other informal teaching activities, and the timely placement of the fellow in permanent positions in academic or research institutions.

8. Currently, a mentor is required to submit a mentoring plan as part of the proposal. Should there be formal monitoring of the postdoctoral fellow–mentor relationship?

Comments:

Formal monitoring of the relationship between a fellow and his/her mentor could prove as difficult as attempting to do the same for a Ph.D. student and adviser. Nevertheless, less-formal options might be considered, such as requiring the mentor to sign off on progress reports submitted by the fellow to NSF.

OTHER TOPICS

1. The Atmosphere Section (AS) encompasses three components of science, infrastructure, and people. In an overall sense, please provide an assessment of the relative roles of each of these three components in the AS portfolio. In particular, please assess such factors as:

    a. Observing and computing facilities that are available to the AS community and the support provided to the science contained in the AS portfolio;
    b. Field studies and their impacts on programs;
    c. Early-career support programs, which include the AGS Postdoctoral Research Fellowship and Career awards.

    It is not possible to provide comprehensive assessments for all of these factors, but pointed comments that note positive aspects to be reinforced, needs for improvement, gaps, and impacts to programs would be helpful.

Response: The COV strongly endorses the early career support programs that are in place currently. We also endorse the AGS PRF fellowships but also recognize the additional administrative burden it has placed on program directors. As noted earlier in this report, the COV encourages the program to consider remedies to lessen the burden on the program directors while retaining prestigious PRF fellowship. Additional support to the Paleoclimate Program will be beneficial for acquisition/support of analytical instrumentation in light of the critical role of analytical data in major scientific discoveries.

2.eBased on the COV examination of the current AS processes and portfolio, pleasee comment on the best manner in which the AS partakes in NSF-wide initiatives suche as Innovations at the Nexus of Food-Energy-Water Systems (INFEWS) and the GEO-wide initiative of Prediction and Resilience to Extreme Events (PREEVENTS).e

Response: The COV finds that the current approach to multi-disciplinary studies is appropriate.

3.ePlease comment on any program areas in need of improvement or gaps (if any) withine program areas.e

Response: The COV did not find any gaps that need improvement.

4.ePlease provide comments as appropriate on the program's performance in meetinge program-specific goals and objectives that are not covered by the above questions.e

Response: Nothing more to add here

5.ePlease identify agency-wide (i.e., outside NSF) issues that should be addressed bye NSF to help improve the program's performance.e

Response: Nothing more to add here

6.ePlease provide comments on any other issues the COV feels are relevant.e

Response: Nothing more to add here

7.eNSF would appreciate your comments on how to improve the COV review process,e format and report template.e

Response: The current COV process seems appropriate and efficient.

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SIGNATURE BLOCK:

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For the AS 2016 COV
Anantha Aiyyer
Co- Chair

_____

For the AS 2016 COV
Kim Prather
Co- Chair

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SIGNATURE BLOCK:

8.3.16

For the AS 2016 COV
Anantha Aiyyer
Co- Chair

For the AS 2016 COV
Kim Prather
Co- Chair