At the previous OPP Advisory Committee meeting it was agreed to create subcommittees to develop the terms of references for the three Committee of Visitor reviews that will be carried out during calendar year 2009. Whether three or only two subcommittees (SC's) will be needed is up for discussion at the November OAC meeting. The three program areas to be reviewed are Arctic Sciences, Antarctic Sciences, and Antarctic Infrastructure and Logistics.

The following draft notes were prepared on the basis on internal OPP discussions as a starting point for the work of the subcommittees

BACKGROUND

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 Visitors (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 managerial matters pertaining to proposal decisions; and (2) comments on how the outputs and outcomes generated by awardees have contributed to the attainment of NSF's mission and strategic outcome goals. NSF policy requires COV reviews at regular intervals of approximately three years for programs and offices that recommend or award grants, cooperative agreements, and/or contracts and whose main focus is the conduct or support of NSF research and education in science and engineering.

Decisions to award or decline proposals are ultimately made by NSF staff, based on evaluations by qualified reviewers who reflect the breadth and diversity of the proposed activities and the community. Systematic examination by the COV of a wide range of funding decisions by the COV provides an independent mechanism for monitoring and evaluating the overall quality of the Division's decisions on proposals, program management and processes, and results. The review of the Arctic and Antarctic Sciences activity will cover the fiscal years: FY 2006, FY 2007, and FY 2008. The review of the Antarctic Infrastructure and Logistics activity will cover, in addition, FY 2005.

Reports generated by COV's are used in assessing agency progress in order to meet government-wide performance reporting requirements, and are made available to the public. NSF has developed a template for these reviews: The standard template for 2008 reviews is attached but it should be noted that the 2009 template will probably contain some revisions.

Factors specific to OPP programs

The standard template was developed for evaluating program work processes and program outcomes associated with grant proposals submitted to NSF. As such it works well for almost all NSF Divisions. But because research grants awarded by the Office of Polar Programs generally require logistics and infrastructure support in order to succeed,

and because OPP is responsible for managing and overseeing those support functions, OPP COV's should also evaluate their effectiveness as well. Thus there are two broad areas to be considered in conducting the reviews: one associated with proposal review and grant outcomes; and another associated with the provision of support to grantees in the field.

The standard NSF Template will provide a good first-order basis for reviewing NSF decisions on whether to approve or decline proposals. However the COV's will need to take into account that the International Polar Year (IPY) was a significant driver of OPP activities during the period under review. Thus IPY guidelines promulgated by ICSU and by the U.S. National Academies of Research served as supplementary selection criteria for the IPY proposal solicitations. In addition, the IPY solicitations as well as the proposal reviews were conducted on an NSF-wide basis. Both factors will need to be taken into consideration and reflected in the eventual tasking to the Arctic and Antarctic Science COV's.

To a very considerable extent COV evaluations of both areas – proposal review and outcomes, and logistics support -- will be based on COV members' study of proposal and award jackets. The joint subcommittees (SC's) preparing the COV taskings will need to develop a supplementary framework in order to fully inform the reviews of the latter activities. This issue will be addressed in somewhat more detail below.

Notes concerning preparation of the tasking to the Arctic COV

The COV should review and prepare a report on the Division of Arctic Sciences as a whole and the specific programs:

- The Arctic Natural Sciences Program
- The Arctic Social Sciences Program
- The Arctic System Science Program
- The Arctic Observing Network program
- The Arctic (Polar) Education Program
- The Research Support and Logistics (RSL) Program

The tasking should include addressing the questions in the standard template except for any that the joint OPP/OAC COV subcommittee determines are irrelevant or less than critically important. Arctic Division management has identified several elements for possible special attention, as follows:
- The quality and effectiveness of the merit review process including
  - the selection of reviewers
  - the use of additional review criteria to promote IPY goals
- The way in which logistics costs either contained in, or estimates external to proposals factored into the program's award or decline decisions.
- the quality and significance of the results of the Division's programmatic investments including

- o the Division's balance and priorities
- o the Division's contribution to IPY
- the relationship between award decisions, program goals, and NSF's strategic goals
- The quality and effectiveness of the Division's supports for the implementation of projects through the Research Support and Logistics (RSL) program. Specifically:
    - o The appropriateness of the level and quality of service
    - o The extent to which the service enabled completion of the funded proposal.
    - o Whether the program adjusted services to match the changing needs of the research program.

Notes concerning preparation of the tasking to the Antarctic Science COV

The COV should review and prepare a report on the Division of Arctic Sciences as a whole and the specific programs:
- Integrated Systems Sciences
- Glaciology
- Earth Sciences
- Organisms and Ecosystems
- Astronomy and Aeronomy
- Ocean and Atmospheric Sciences

The tasking should include addressing the questions in the standard template except for any that the joint OPP/OAC COV subcommittee determines are irrelevant or less than critically important. Antarctic Sciences management notes that IPY factors could specifically be addressed in responses to template questions 2 and 12 in section A.3 and questions 2 and 3 in section A.4

Of special note for this COV is the linkage between the proposal merit review conducted by the Science Division and the review of logistics requirements conducted by the Infrastructure and Logistics Division. Comparison of the results of the two reviews sometimes shows that it will be impossible to support a particular highly meritorious proposal, at least not unless it is modified in some way. This linkage results in extensive interactions between AntSci program managers and AIL resource managers that inform the final program decisions.

Preliminary discussions between OPP staff and OAC members lead to the suggestion that those two COV's meet at the same time and they meet in joint session periodically throughout the three day period so that they can fully understand and review how these interactions affected award and decline decisions throughout the review period.

Additional notes on this linkage are offered in the next section.

Notes concerning preparation of the tasking to the Antarctic Infrastructure and Logistics and Environmental COV:

This COV will be asked to review particular aspects of the work of the AIL Division and also of the OPP office of Environment, Safety and Health. The nexus is to be the work of these organizations in evaluating and supporting the operational and environmental aspects of scientific research projects. Thus the COV will not be asked to review such factors as the quality of medical care in Antarctica or whether AIL contractors' inventory control mechanisms are optimal. While these and a host of other issues merit careful review, including them within the purview of this COV would require a different kind of expertise that is readily available in the research community. Thus a committee of physicians is tasked to conduct annual reviews of medical care, and a board of diving experts reviews procedures governing USAP for scientific diving safety.

Examples (not meant to be comprehensive) of questions this COV might address:
- Associated with research proposals emerging from merit review by Ant Sci Division:
    - Were the resource requirements accurately estimated, and in a timely fashion?
    - Did the ES&H Division conduct appropriate environmental impact reviews, and in timely fashion?
    - Are the results of the reviews documented adequately in the proposal jackets?
    - When logistics capability was inadequate for support of highly meritorious proposals, were efforts made to find alternatives?
    - To what extent was AIL able to deliver the committed logistics support to grantees working in Antarctica?
    - Did AIL take appropriate steps to improve its capability to deliver committed resources, or to modify its capability to meet changes in research community interests as reflected in grant proposals?
- Associated with management of US Antarctic program infrastructure:
    - Has AIL been effective in partnering with other federal agencies to provide logistics and infrastructure support?
    - Has AIL been proactive in seeking information about emerging research thrusts that require new infrastructure or logistics capabilities?
    - Has ES&H been effective in meeting the requirements of the research community for protected and specially managed areas?
    - Has AIL worked effectively with ES&H in developing infrastructure to meet new operational requirements?

The joint OPP-OAC developing the detailed tasking for this COV should consider carefully what information would be needed in order to inform the review.

****

The 2008 Standard Template for COV's starts on the next page. 2009 should be available soon.

NSF COMMITTEES OF VISITORS (COVs)

PART A. 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 under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

A.1 Questions about the quality and effectiveness of the program's use of merit review process. Provide comments in the space below the question. Discuss areas of concern in the space provided.

QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS	YES, NO, DATA NOT AVAILABLE, or NOT APPLICABLE[1]
1. Are the review methods (for example, panel, ad hoc, site visits) appropriate? Comments: Source: Jackets and the EIS. Select the "Type of Review" module.	

2. Are both merit review criteria addressed
 	
   a) In individual reviews?
 	
   b) In panel summaries?
 	
   c) In Program Officer review analyses?
 	
Comments:	

---

[1] If "Not Applicable" please explain why in the "Comments" section.

Source: Jackets	

3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals? Comments: Source: Jackets	
4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)? Comments: Source: Jackets	
5. Does the documentation in the jacket provide the rationale for the award/decline decision? (Note: Documentation in jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.) Comments: Source: Jackets	

6. Does the documentation to PI provide the rationale for the award/decline decision? (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 or telephoned with diary note in jacket) of the basis for a declination.) Comments: Source: Jackets	
7. Is the time to decision appropriate? Note: Time to Decision --NSF Annual Performance Goal: **For 70 percent of proposals, inform applicants about funding decisions within six months of proposal receipt or deadline or target date, whichever is later**. The date of Division Director concurrence is used in determining the time to decision. Once the Division Director concurs, applicants may be informed that their proposals have been declined or recommended for funding. The NSF-wide goal of 70 percent recognizes that the time to decision is appropriately greater than six months for some programs or some individual proposals. Comments: Source: Jackets and EIS-Web COV module. Select "Report View", then select "Average Dwell Time," and select any combination of programs or program solicitations that apply.	
8. Additional comments on the quality and effectiveness of the program's use of merit review process: 	

A.2 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

SELECTION OF REVIEWERS	YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE[2]
1. Did the program make use of reviewers having appropriate expertise and/or qualifications? Comments: Source: Jackets	
2. Did the program use reviewers balanced with respect to characteristics such as geography, type of institution, and underrepresented groups? Note: Demographic data is self reported, with only about 25% of reviewers reporting this information. Comments: Source: Jackets and EIS-Web COV module. The "Report View" has reviewers by state, institution type, minority status, disability status, and gender	
3. Did the program recognize and resolve conflicts of interest when appropriate?	

---

[2] If "Not Applicable" please explain why in the "Comments" section.

Comments:	
Source: Jackets	

4. Additional comments on reviewer selection:

A.3 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

RESULTING PORTFOLIO OF AWARDS	APPROPRIATE, NOT APPROPRIATE[3], OR DATA NOT AVAILABLE
1. Overall quality of the research and/or education projects supported by the program. Comments: Source: Jackets and program information	
2. Does the program portfolio promote the integration of research and education? Comments:	

---

[3] If "Not Appropriate" please explain why in the "Comments" section.

Source: Jackets and program information	
3. Are awards appropriate in size and duration for the scope of the projects? Comments: Source: Jackets and EIS-Web COV module has a "Report View" that gives average award size and duration for any set of programs or program solicitations you specify.	
4. Does the program portfolio have an appropriate balance of: • Innovative/potentially transformative projects? Comments: Source: Jackets and program information.	
5. Does the program portfolio have an appropriate balance of: • Inter- and Multi- disciplinary projects? Comments: Source: Jackets, program information, and some people use as a proxy data on jointly funded projects. See EIS-Web COV module, "Report Review" and select "co-funding from" and "co-funding contributed to" to find jointly supported awards.	

6. Does the program portfolio have an appropriate balance considering, for example, award size, single and multiple investigator awards, or other characteristics as appropriate for the program? Comments: Source: Jackets, program information, and EIS-Web COV module for information on award size.	
7. Does the program portfolio have an appropriate balance of: • Awards to new investigators? NOTE: A new investigator is an investigator who has not been a PI on a previously funded NSF grant. Comments: Source: EIS-Web COV module on "Funding Rate," filtered by PI Characteristic (use the pop-up filter).	
8. Does the program portfolio have an appropriate balance of: • Geographical distribution of Principal Investigators? Comments: Source: EIS-Web COV module, using "Proposals by State"	
9. Does the program portfolio have an appropriate balance of: • Institutional types? Comments: Source : EIS-Web COV module, using '' Proposals by Institution Type''	

10. Does the program portfolio have an appropriate balance: • Across disciplines and subdisciplines of the activity? Comments: Source: Jackets and program information	
11. Does the program portfolio have appropriate participation of underrepresented groups? Comments: Source: EIS-Web COV module, using "Funding Rate" with the pop-up filter (this allows you to see female and minority involvement, where involvement means being PI or co-PI).	
12. Is the program relevant to national priorities, agency mission, relevant fields and other constituent needs? Include citations of relevant external reports. Comments: Source: Program information	
13. Additional comments on the quality of the projects or the balance of the portfolio:

A.4 Management of the program under review. Please comment on:

---

1. Management of the program.

Comments:

---

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

Comments:

---

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

Comments:

---

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

Comments:

---

5. Additional comments on program management:

PART B. RESULTS OF NSF INVESTMENTS

.
The NSF mission is to:
- promote the progress of science;
- advance national health, prosperity, and welfare; and
- secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. The COV should look carefully at and comment on (1) noteworthy achievements based on NSF awards; (2) ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of awards.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

To assist the COV, NSF staff will provide award "highlights" as well as information about the program and its award portfolio as it relates to the three outcome goals of Discovery, Learning, and Research Infrastructure. The COV is not asked to review accomplishments under Stewardship, as that goal is represented by several annual performance goals and measures that are monitored by internal working groups that report to NSF senior management.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes ("highlights") as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

B.1 <u>OUTCOME GOAL for Discovery</u>: "*Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential benefit and establishing the nation as a global leader in fundamental and transformational science and engineering.*"

Comments:
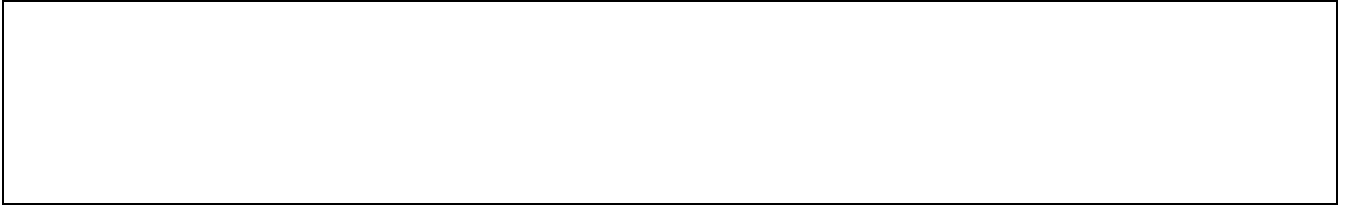
**B.2 <u>OUTCOME GOAL for Learning</u>: "*Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens."*

Comments:

**B.3 <u>OUTCOME GOAL for Research Infrastructure:</u> "*Build the nation's research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools."*

Comments:

PART C. OTHER TOPICS

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

C.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.

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

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

C.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