QUESTIONS ADDRESSED BY THE NSF OPP COMMITTEE OF VISITORS

1. Have the processes used by PRSS to establish its priorities been effective in capturing the long-term needs and priorities of the Antarctic research community?

COV RECOMMENDATIONS

1.1 Sponsor with the OPP Science Section, a community-wide workshop, or series of workshops on Grand Challenges in Antarctic Science.

1.2 Become more efficient and accurate in providing timely support cost estimates and innovative in enabling more complex projects.

1.3 Based on input from the Science community, PRSS should take a comprehensive "South of 60^{o}" look at other opportunities for infrastructure development to encourage the submittal of proposals that stretch the bounds set by current support limitations.

1.4 Work with OPP science section to identify logistical requirements and constraints in order to optimize USAP participation in the International Polar Year (IPY) and to provide support for collaborative international efforts funded by other nations.

OPP RESPONSE

OPP concurs with the importance of assessing the future directions of the research community and then reacting to them. Like NSF in general, OPP uses workshops to both allow the community to self-organize toward future research directions and, from workshop reports, to attempt to gauge future needs. This path was critical to developing the plans for studies of the West Antarctic Ice Sheet and for the deep drilling, for developing plans for the Cape Roberts Project and the ANDRILL program, for SOAR, for helicopter-supported field camps at various times throughout the years, for GLOBEC, and for other similar initiatives.

Cost estimating is discussed in more detail in response to Recommendation 3.

Additional workshops would be very useful in setting future directions. OPP must position itself to so that past practices do not preclude exploration of any new scientific frontiers that would require different logistics and/or infrastructure. To do this, OPP is building flexibility into the budgeting and resource allocation processes so that we can identify the trade-offs needed to respond to new directions and new challenges. An example of this is the recent establishment of a subcommittee of the OAC to examine options for resupplying the U.S. Antarctic Program. The options being examined might well open up new scientific frontiers in currently difficult-to-reach areas of Antarctica.

OPP has been taking an office-wide approach to planning for IPY. Program officers from the science sections and PRSS have been working over the last year to this end.

2. Has the balance between PRSS funding for support of specific scientific needs and investment in general infrastructure been appropriate?

COV RECOMMENDATIONS

2.1 Separate items in the PRSS budget that directly support science versus those that do not.

2.2 Provide science program managers with a concrete estimate of funds available for project support, at the time of proposal evaluation.

OPP RESPONSE

OPP agrees that the in order to plan effectively for large, complex science and infrastructure projects, it is critical for PRSS and the Antarctic Sciences Section to work collaboratively in planning outyear budgets.

OPP recognizes the essential importance of providing program managers with information adequate for their planning and decision needs. Modifications have already been made in our planning process, but some fundamental changes are still required. At a minimum, OPP will institute development of a joint planning process to complement the planning done in each Section. In the interim, program managers are being provided with "resource baskets" which allows them to allocate a fixed number of sea ice camps, field camps, helo/otter and Herc hours, etc., to meritorious proposals. The "resource basket" concept gives program managers concrete information on resources available, and implementing the integrated planning process will allow us to set annual direct science support budgets.

PRSS has been working with its prime contractor and other PRSS-supported USAP organizations to restructure its budgeting process. The new process identifies and tracks operations and maintenance costs distinct from infrastructure and science project costs. Some resources, however, support a wide variety of infrastructure and science needs (e.g., helicopter hours), and so it would be impractical to fully assign all costs to one category or another.

2.3 Make multi-year plans for IT acquisition and upgrades, and plan investment accordingly rather than pursuing an incremental "patch and upgrade" approach.

2.4 Invest in upgrading and modernizing the IT infrastructure at each of the three NSf Antarctic Science Stations.

2.5 Identify and pursue supplemental funding to ensure increased funding fro IT and IT security infrastructure.

OPP RESPONSE

OPP agrees with the importance of developing long-range integrated IT plans for the U.S. Antarctic Program, and PRSS is developing a multi-year acquisition plan for consideration by NSF management. PRSS will provide a draft for discussion at a future OAC meeting.

3. Once science projects have been recommended for funding, does PRSS plan and implement them effectively so that the research goals are achieved?

COV RECOMMENDATIONS

3.1 Continue to draw policy level attention to the pending crisis of polar class icebreaking support to ensure the uninterrupted functioning of the United States Antarctic Program (USAP).

3.2 Explore different options for fuel supply to McMurdo Station.

OPP RESPONSE

Icebreaking for the USAP is now being examined by elements of OMB and OSTP in the White House and by the Congress. In addition, the NAS will conduct a study to examine the national need for icebreakers. The work of the OAC's subcommittee on options for USAP resupply will be a key ingredient in finding solutions to the challenges presented. We expect that the USAP will emerge as a more flexible, efficient and effective organization over time. However, the possibility of a hiatus is real.

COV RECOMMENDATIONS

3.3 Develop a mechanism that delivers an accurate and timely workup of the full costs of supporting a project, including the logistics and field-support cost.

OPP RESPONSE

We agree with this recommendation. OPP Antarctic Sciences and PRSS are working together to implement a system to allow for improved analysis of support needs for large projects. Both sections recognize the need for detailed analysis to support sound project planning and that development of this analysis for large, complex projects may require additional time as well as substantive involvement of the proposing PI's in the process prior to a final funding decision. An award structured in distinct phases might be appropriate, in which milestones for design reviews and criteria for go/no-go decisions are used to move the project swiftly through planning and, if feasible, through implementation in a timely manner.

COV RECOMMENDATIONS

3.4 Consult with the Air National Guard to better define the capabilities of the LC130 for open field landings, including developing a protocol for this type of operation.

3.5 Explore whether Sunday flights can occur in cases where weather, aircraft maintenance or other issues have caused delays in the implementation of science programs.

OPP RESPONSE

OPP concurs, and PRSS will consult with the 109th AW to ensure consistency in the application of open field landings procedures and how to better manage open field operations. Alternatives will be explored should procedures show that the 109th AW is ill suited to provide open field landing support. OPP will also explore the feasibility of flying "make up" days for science projects affected by weather, maintenance and other issues. In fact, in the 2004/05 season, limited fuel flights to South Pole were scheduled for Sundays when the rotation of 109th AW personnel allowed.

COV RECOMMENDATIONS

3.6 Implement a major re-evaluation and improve POLARICE, with emphasis on usability.

OPP RESPONSE

OPP has tasked RPSC to begin the development of Version 3 of POLAR ICE. Version 3 development effort will address the shortfalls identified with Version 2 as noted by users and the COV. RPSC identified the following through user surveys and include: elimination of the itinerary planning requirement from most science projects; reexamining the work-flow logic to eliminate any unnecessary screens when there is no relevant data entry; evaluating the systems performance by identifying upgrades needed to ensure performance; evaluating the performance of POLAR ICE from the typical user's perspective via low speed access (e.g., 56 kb/s dial-up modem) to better assess user experience for further streamlining; and evaluating the feasibility of incorporating inter-annual SIP-to-SIP copy for Version 3, and if not possible, will continue to offer a custom manual process for grantees who request such support. A critical factor for success for Version 3 will be the participation of grantees as reviewers and testers of the changes in the Version 3. Greater effort will be expended by RPSC during Version 3 development to increase user participation for input.

4. Does PRSS plan for and implement science support and operations with appropriate regard for environmental issues (or without creating adverse environmental impacts.

COV RECOMMENDATIONS

4.1 Increase publicity for USAP environmental excellence.

4.2 Maintain environmental vigilance and take leadership in improving environmental protocols.

4.3 Improve energy conservation.

OPP RESPONSE

OPP's support for environmental protection and vigilance resulted in the creation of an Environment, Safety, and Health section in OPP. This section will establish policies and procedures and oversee the compliance of U.S. environmental rules and regulations. OPP is currently recruiting for an SES-level Section Head to lead the section. Polly Penhale, OPP's Environmental Officer, has overall responsibility for implementing, overseeing, and evaluating the incorporation of environmental policies and procedures related to environmental management, monitoring, protection and conservation in polar regions.

OPP fully supports energy conservation efforts and the use of renewable energies. PRSS is moving to establish instrumentation that allows measurement of consumption at major sources, facilitating an initial evaluation of energy consumption patterns. These data will be used to pinpoint inefficient practices and equipment. Close interaction will also become mandatory with science groups to ensure that specialty equipment (especially major items like the 10-m telescope) make energy conscious choices. Goals have been established for the reduction of the use of fossil fuels at the South Pole (10%), and similarly at McMurdo station. The goal for field camps is somewhat more ambitious in that we would like to see those camps independent from fossil fuel needs.

PRSS has for many years kept an eye on alternative energy developments to reduce dependence on fossil fuel. Until recently, solar, wind and fuel cell technology have not been able to produce sufficient capacity at reasonable cost, or had significant reliability question cautioning PRSS for consideration for deployment in the USAP. However, several advancements in the last three years make introduction of alternative energy sources more attractive at this time. Plans are in place to evaluate electric-powered vehicles, recognizing that the energy captured from a unit of fossil fuel is much greater in the USAP power plants (because of co-generation capture) than in a collection of individual vehicle's internal combustion engines. These are a few examples. PRSS will continue to pursue alternatives to the use of fossil fuels.

5. Do established training procedures adequately prepare grantees for work in Antarctica?

COV RECOMMENDATIONS

5.1 Reduce researcher time spent in on-ice training.

OPP RESPONSE

OPP agrees and views reduction of non-project time spent by researchers on the ice to be an important goal. Performance metrics have been established for the USAP support contractor that specifically targets reducing the time, especially for returning researchers, between arrival on the ice and the beginning of project work.

6. Does PRSS plan for an implement science support with due regard for quality of life issues?

COV RECOMMENDATIONS

6.1 Improve quality-of-life aspects in the area of housing, focusing on more amenable conditions in dorms and more flexibility in accommodating room assignment requests.

OPP RESPONSE

OPP agrees with the need to improve quality-of-life and the need to focus first on those associated with health and safety. These improvements are addressed in the McMurdo Long Range Plan and are implemented as needs arise and as funds are available.

7. Are the communication links between the science support organization and grantees effective in raising and addressing outstanding science support, operations, and infrastructure isses?

COV RECOMMENDATIONS

7.1 Establish a new researcher-mentoring program.

OPP agrees that this recommendation is worth investigating, and will take it under consideration.

COV RECOMMENDATIONS

7.2 Continue and expand the Area Users Committees.

OPP RESPONSE

OPP agrees with the COV's recommendation, and PRSS will work with RPSC and the Area User Committees to develop a plan. In addition, discussion of this topic is on the agenda for the up-coming OAC meeting.