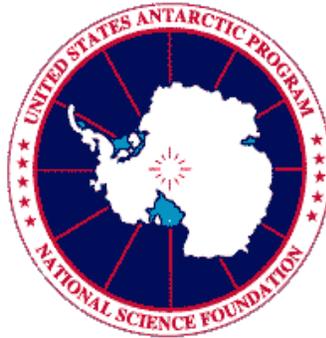


**Raytheon**

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# **UNITED STATES ANTARCTIC PROGRAM**



## **National Science Foundation Contract OPP 0000373**

**Report on the FY 2002  
USAP Research Support Facilities Survey  
Vol. I – Narrative, Figures, and Tables 1, 3-12**

**Raytheon Technical Services Company**

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**Raytheon**

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December 31, 2002

National Science Foundation  
Office of Polar Programs  
4201 Wilson Boulevard, Suite 755S  
Arlington, VA 22230

Attention: Dr. Harry Mahar

Subject: **REPORT ON FY 2002 USAP RESEARCH SUPPORT FACILITIES  
SURVEY**

Dear Dr. Mahar,

Raytheon Polar Services Company forwards the subject report, which consists of two volumes: Volume I "Narrative, Figures, and Tables 1, 3-12" and Volume II "Table 2 Master Report of Survey Responses" (published in hard copy format and distributed to you only under separate cover). The report reflects 121 responses of 214 total science projects, which is a 57% response rate.

RPSC will post and maintain this report on the RPSC web site:  
(<http://www.polar.org/usapserv/usapserv.htm>), minus Table 2.

Questions and comments concerning this document should be referred to Dr. Steven T. Kottmeier at 800.688.8606 ext. 32008.

Sincerely,

RAYTHEON TECHNICAL SERVICES COMPANY

Steven T. Kottmeier, Ph.D.  
Director, Performance Assurance/  
Quality Assurance, Polar Services

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NSF/OPP:

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Mr. Tom Yelvington, Program Manager

Mr. Steve Dunbar, Director, Science Support

# REPORT ON FY 2002 USAP RESEARCH SUPPORT FACILITIES SURVEY

## INTRODUCTION

This is the report on the FY 2002 U.S. Antarctic Program (USAP) Research Support Facilities Survey (FY 2002 GPRA Survey), a performance survey that provides data for the National Science Foundation (NSF), Office of Polar Programs (OPP), to respond to the NSF FY 2002 Performance Plan (see the NSF web site: <http://www.nsf.gov/od/gpra/>). The survey covers the USAP facilities (the three research stations at McMurdo, Palmer, and South Pole, field camps, two research icebreakers (R/V LAURENCE M. GOULD and R/V NATHANIEL B. PALMER), and one U.S. Coast Guard icebreaker (USCGC POLAR STAR), which support cutting-edge research in Antarctica. Results of the survey are an important indication of productive and unproductive days experienced by 121 science projects in Antarctica during FY 2002. The results are compared to the results from the FY 1999-FY 2001 surveys (see the RPSC web site: <http://www.polar.org/usapserv/usapserv.htm>). The survey identifies processes that are within the control of USAP facilities, which can be managed better to reduce the unproductive time and increase the productive time of science projects, and hence the throughput of scientific research in Antarctica.

## METHODS

The FY 2002 GPRA Survey was developed as a one page, web site-based form by the Raytheon Polar Services Company (RPSC) Director, Performance Assurance/Quality Assurance (PA/QA) and NSF/OPP Safety and Health Officer (Fig. 1). The Science Projects, Principal Investigators (PIs), and Project Planned Days were determined from the United States Antarctic Program 2001-2002 Science Planning Summary and information provided by the RPSC Science Support Division (Table 1). The PIs and Field Team Leaders were informed by an electronic (e-mail) message from the RPSC Director, PA/QA, in October 2001 that the survey was available on the RPSC web site in three formats: Excel, HTML, and text. The survey included an accompanying one page welcome from the RPSC Director, PA/QA (Fig. 2A). It also included a one page letter from the NSF/OPP Safety and Health Officer explaining the GPRA as it applies to the NSF/OPP, with instruction and encouragement to PIs and Field Team Leaders to complete the survey form (Fig. 2B). The survey was designed to be completed easily by PIs and Field Team Leaders using data collected during their projects' deployment to Antarctica. Hardcopies of the survey form and accompanying letter of explanation and instruction were also distributed to PIs and Field Team Leaders during their science project in-briefings and out-briefings in Antarctica. A significant percentage of surveys were completed electronically and sent via e-mail to the RPSC Director, PA/QA. The RPSC Science Support staff collected numerous hardcopy surveys from PIs and Field Team Leaders during science project out-briefings in Antarctica. All science projects were reminded late in FY 2002 to complete and submit their surveys soon after the completion of their work in FY 2002.

These methods resulted in a significantly fewer number of completed surveys for FY 2002 than the goal of 100% expected by the NSF/OPP and RPSC. Reminder messages and telephone calls were used by the RPSC Director, PA/QA, and NSF/OPP Science Program Managers, to encourage PIs and Field Team Leaders, who failed to respond to respond.

Completed survey forms were date stamped by RPSC and "working photocopies" made for recording analyses of the responses prior to inputting the data into a master Access database. The original completed surveys and working photocopies are files in the Director, PA/QA, office at RPSC Headquarters. Survey responses were entered into a master, Access database (Table 2),

which contains the data fields of the survey. This allowed for accurate sorting into custom and summary reports, and graphical presentation of the results. The results that follow represent 121 science project responses to the FY 2001 GPRA Survey received by RPSC through 23 December 2002.

## RESULTS AND DISCUSSION

A total of 121 of 214 science projects completed and submitted the survey for a 57% response rate (Table 3). Other Facilities and R/V LAURENCE M. GOULD (LMG), Palmer Station failed to respond, but accounted for 4% of the 57% total response. McMurdo Station had a 77% response rate, which contributed 29% of the 57% total response.

While the 57% response rate for the FY 2002 GPRA survey was significantly less than the mean response rate of 66% reported for the FY 1999-2002 surveys, it was an improvement over the lowest response observed in FY 2001 (48%). Science projects at McMurdo Station, McMurdo Station and the USCG Icebreaker, South Pole Station, and USCG Icebreaker (contributing 41% of the 57% total response) responded at greater percentage than their mean percentage for the FY 1999-2002 surveys. The science projects at all other facilities (contributing the remaining 16% of the 57% total response) responded at a lesser percentage than their mean percentage for the FY 1999-2002 surveys. The low response rate remains disappointing given that this is the third year that the survey was posted on the RPSC web site for completion, which science projects recommended in the FY 1999 survey would improve the survey and their response to it.

The 121 responding science projects comprised 610 scientists, with 8988 Total Project Days (Table 4a). This response is significantly lower than the total 214 (100%) projects comprising 805 scientists, with 23,640 Planned Project Days (Table 1).

The 121 responding science projects experienced an average of 74 Total Project Days (68 Productive Days and 6 Unproductive Days). This is significantly less Total Project Days than the mean for FY 1999-2002 surveys (86 Total Project Days from 77 Productive Days and 9 Unproductive Days). When Bad Weather Days (393 days accounting for 56% of Total Unproductive Days) (Tables 4a and 5) are removed, Total Project Days reduced to 8,595 Corrected Total Project Days (Table 4b). On average each science project experienced 71 Corrected Total Project Days (68 Productive Days and 3 Corrected Unproductive Days). This is significantly less Corrected Total Project Days than the mean for FY 1999-2002 surveys (82 Corrected Total Project Days from 77 Productive Days and 5 Unproductive Days).

Bad Weather Days accounted for the largest percentage (56%) of Unproductive Time (Table 5). This is significantly higher (the top of the range) than the mean 47% for the FY 1999-2002 surveys. Bad Weather Days contributed to the majority of the unproductive time at all facilities except Other Stations, R/V LAURENCE M. GOULD (LMG), and R/V LAURENCE M. GOULD (LMG), Palmer Station (Table 6). With the exception of Other Facilities and South Pole Station, this result is comparable to the means for the FY 1999-2002 surveys, where Bad Weather was the leading cause of unproductive time for these facilities. Bad Weather Days, while never unexpected in Antarctica, are not within USAP facility control and were removed from the more detailed analysis that follows.

Productive Time accounted for 92% and Unproductive Time accounted for 8% of Total Project Time (Fig. 3). This is different (more Productive Time and less Unproductive Time) than the mean of the FY 1999-2002 surveys (89% Productive Time, 11% Unproductive Time). When Bad Weather Days are removed from the Total Project Time, Productive Time increased to 96%

and Corrected Unproductive Time decreased to 4% (Fig. 4). This is different (more Productive Time and less Corrected Unproductive Time) than the mean of the FY 1999-2002 surveys (94% Productive Time, 6% Corrected Unproductive Time).

Excluding the R/V LAURENCE M. GOULD (LMG) and R/V NATHANIEL B. PALMER (NBP), percent Productive Time did not vary considerably among the USAP facilities. The Productive Time observed aboard the R/V LAURENCE M. GOULD (LMG) was 79% and aboard the R/V NATHANIEL B. PALMER (NBP) was 88%. The LMG accounted for 3% of the Total Productive Days and 11-20% of the Total Unproductive Days, while the NBP accounted for 5% of the Total Productive and 13-17% of the Total Unproductive Days (Figs. 5-7 and Table 7). The remaining USAP facilities exhibited 97-100% Productive Time and 0-3% Unproductive Time. These results suggest that most USAP facilities are productive antarctic research environments, but some facilities have areas where improvements in support will reduce unproductive time and enhance research throughput for science projects.

The sum of Bad Weather Days (56%), Other Circumstances (21%), and Delays in Transportation (13%), accounted for 90% of Unproductive Time (Table 5). The sum of these causes of unproductive time accounted for 81% of Unproductive Time in the mean of the FY 1999-2002 surveys.

When Bad Weather Days are removed, then Other Circumstances (48%), Delays in Transportation (30%), and Unavailability of Cryogenic Materials (7%) accounted for 85% of Corrected Total Unproductive Time (Table 5). This result for Other Circumstances and Delays in Transportation tracks (at a higher percentage) with the mean for the FY 1999-2002 surveys.

Other Circumstances accounted for 48% of the Total Corrected Unproductive Time (Table 5). This result is larger than the mean for the FY 1999-2002 surveys (40%). Seventeen different Other Circumstances caused unproductive days, ranging from Transit (33 days lost) to Computers and Painting the BioLab Building (1 day lost each) (Fig. 8). Three of the seventeen Other Circumstances resulted in 20-33 days lost; eight resulted in 5-10 days lost; and six resulted in 1-3 days lost. Most Other Circumstances are within USAP facility control and can be reduced, eliminated, and planned for to reduce the loss of productive time for science projects.

The leading Other Circumstance causing unproductive time among the facilities was Transit (33 total days lost) associated with the R/V LAURENCE M. GOULD (LMG) (17 days lost) (Fig. 9) and R/V NATHANIEL B. PALMER (NBP) (16 days lost) (Fig. 10). Penguins not in the Vicinity of the Research Vessel (LMG: 27 days lost, Fig. 9) and Power Outages (South Pole Station: 20 days lost, Fig 11) were the second and third leading Other Circumstances causing unproductive time. Various Other Circumstances were the leading causes of unproductive time at the remaining facilities: McMurdo Station – Unspecified (9 days lost, Fig. 12), McMurdo Station and USCG Icebreaker – Training (Snowcraft School) and Equipment Staging/Retrograde (2 days lost to each, Fig. 13), and Palmer Station – Painting the BioLab Building (1 day lost, Fig. 14).

Delays in Transportation accounted for 30% of the Total Corrected Unproductive Time (Table 5). This result is greater than the mean of 25% reported in the FY 1999-2002 surveys. Delays in Transportation accounted for the majority of the unproductive time experienced at McMurdo Station, Palmer Station, the R/V, Field Camps, and the USCG Icebreaker (tied at 50% with Failure of Equipment/Instruments).

Air Transportation accounted for 48% of transportation difficulties contributing to unproductive time, while Research Vessel Transportation accounted for 38% and Surface Transportation accounted for 14% (Fig. 15). These results are significantly different from the mean results reported in the FY 1999-2002 surveys, where Air Transportation accounted for a greater proportion (79%), and Research Vessel Transportation (17%) and Surface Transportation (4%) lesser proportions of the transportation difficulties (derived from data in Table 4b). These results suggest that Air Transportation support improved in FY 2002.

Effectiveness of Planning (actual vs. planned performance) resulted in a total of 165 days gained; an average of 1 total day gained per project (Tables 4c and 8). These results are significantly different than the mean for FY 1999-2002 surveys where 3 days were reported lost (Table 8). These results are also significantly different than the Science Project Planned Days (Table 1), where 3029 total days were lost (project reported vs. project planned), for an average of 25 days lost per project. This suggests there may be a significant difference between the NSF and RPSC project planning information and that reported by the projects in the GPRA survey. Alternatively, this portion of the survey was observed to be completed incorrectly by several projects, leading to potential errors in the data, and may be a poor indicator of the effectiveness of the planning process. Therefore, no in-depth analysis of the data obtained on Effectiveness of Planning is provided here.

Rating of Support Provided Your Project resulted in 100% satisfactory plus good and excellent ratings and 0% unsatisfactory and poor ratings (Fig. 16 and Table 9). These results are greater than the mean of the FY 1999-2002 surveys, which reported 98%. The results suggest that science projects were quite satisfied with their support in FY 2002.

Design of the Survey Captured Facility Support of Your Project, resulted in evaluations of 82% Yes, 17 % No, and 1% Not Answered (Fig. 17 and Table 10). The affirmative results are greater than the mean reported in the FY 1999-2002 surveys (72%). Multiple Stations (100%), and the R/V NATHANIEL B. PALMER (NBP) (93%) accounted for the greatest affirmation of the survey design (Table 10). R/V LAURENCE M. GOULD (LMG), R/V Field Camps (50%), and USCG Icebreaker (50%) accounted for the least affirmation of the survey design. These results suggest that while many of responding scientists were pleased with the design of the survey form, some improvements are needed. Suggestions for improving the design of the survey (Table 11) were reviewed and considered in the revision of the survey form for FY 2002 (Fig. 18).

Many responding scientists provided additional comments related to the support they received. These comments are provided (Table 12) for review by supporting USAP work centers for potential corrective actions.

## **TOP TEN RPSC RECOMMENDATIONS FOR IMPROVING THE SURVEY FOR FY 2002**

RPSC recommends the following improvements to the GPRA survey, based on its experience administering the survey in FY 2002:

1. Communicate early with the PIs and Field Team Leaders regarding the intent of the survey, and communicate regularly via the RPSC web site, e-mail messages, faxes, and telephone.
2. Reinforce completion of the survey during in-briefs and out-briefs of science projects in Antarctica. Collect as many completed surveys in Antarctica before science projects depart.
3. Investigate incentivizing completion of the survey, e.g. give Antarctic souvenirs to projects responding within 30 days of the completion of their research in Antarctica.

4. Continue partnering with RPSC Science Users Committees (ARVOC, MAUC, PAUC, and SPUC) to encourage completion of the survey by the scientific communities they represent.
5. Work closely with the Program Managers in the NSF/OPP Polar Research Support Section and Antarctic Science Section, to encourage response by all science projects.
6. Follow up with scientists that fail to respond within 30 days of the completion of their project in Antarctica.
7. Continue to summarize the results of the completed survey to the responding scientists, RPSC Users Committees, RPSC and other USAP organizations, and the NSF/OPP, on the RPSC web site and at meetings.
8. Revise the survey incorporating feedback from the respondents, the NSF/OPP, and RPSC (esp. Effectiveness of Planning).
9. Make completion of the survey a deliverable requirement of every NSF/OPP funded science project, and communicate that requirement clearly, beginning with guidelines on preparation of proposals.
10. Continue to track and report survey trends year-to-year.

## ACKNOWLEDGEMENTS

This survey was supported by the National Science Foundation Contract OPP 0000373 to Raytheon Technical Services Company, Polar Services. Thank you to the 121 PIs and Field Team Leaders that participated in the survey, for without their participation the survey would not have been possible. I thank the NSF/OPP Polar Research Support Section and Antarctic Science Program Managers for encouraging the PIs and Field Team Leaders to complete the survey. I appreciate the collaboration of Dr. Harry Mahar, NSF/OPP Safety and Health Officer, in the design of the survey and discussion of the survey results. My discussions of the survey and its results versus "Planned Days" with Ms. Altie Metcalf, NSF/OPP Budget and Planning Officer, were invaluable. I value the on-going discussions of the results and suggestions for improvement of the survey with the four RPSC Science Users Committees. Ms. Sheral Holley posted the FY 2002 survey form, Ms. Cathline Bridges posted the FY 2003 survey form, and the RPSC Web Team posted the final report of the FY 2002 survey, respectively on the RPSC web site. Last, I continue to be indebted to Ms. Celeste Dowell, RPSC Database Auditor, for her tireless entry of survey response data and preparation of various figures and tables, which made this report possible.

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**FY 2002 USAP RESEARCH SUPPORT FACILITIES SURVEY**

**INSTRUCTIONS:** This survey is designed to collect information regarding research support facilities in the United States Antarctic Program (USAP), for use by NSF/OPP in its annual performance plan report for the Government Performance and Results Act (GPRA). Each project Principal Investigator (PI) or Field Team Leader should **complete and return a separate survey for each facility, regardless of whether your project deployed to Antarctica during FY 2002.** Send your completed survey(s) via e-mail to: GPRA2002@polar.org. Contact the Raytheon Polar Services Company, Director, Performance Assurance/Quality Assurance (Steve.Kottmeier@polar.org, 800/688-8606, ext. 5510) with any questions.

**(1) PROJECT INFORMATION**

- A) Event number \_\_\_\_\_
- B) Principal Investigator (PI) \_\_\_\_\_
- C) Field Team Leader (if different from PI) \_\_\_\_\_
- D) List All Deploying Members of the Project Field Team ( Include PI and Field Team Leader as applicable .)
 

1 _____	3 _____	5 _____	7 _____
2 _____	4 _____	6 _____	8 _____
- E) USAP Research Support Facility supporting your project
 

<input type="checkbox"/> McMurdo and Field Camps	<input type="checkbox"/> Research Vessels (LMG or NBP) and Field Camps	Cruise # _____
<input type="checkbox"/> Palmer	<input type="checkbox"/> USCGC Icebreaker	Cruise # _____
<input type="checkbox"/> South Pole		
- F) Survey Period
 

<input type="checkbox"/> FY2002-1 (1 Oct 2001 – 31 Mar 2002, 182 total days)
<input type="checkbox"/> FY2002-2 (1 Apr 2002 – 30 Sept 2002, 183 total days)
<input type="checkbox"/> FY2002-3 (1 Oct 2001 – 30 Sept 2002, 365 total days)

**(2) QUALITY TIME IN ANTARCTICA**

**Note:** (1) Use elapsed calendar days rather than person-days in your responses.  
 (2) Include the number of days that technicians of the USAP Support Contractor supported your project.

- A) **Productive Days:** Estimate of the number of productive days your project experienced \_\_\_\_\_
- B) **Unproductive Days:** Estimate of the number of unproductive days your project experienced for each of the following reasons:
 

<b>Days Lost Due To:</b>		
1) Delays in cargo	_____	_____
2) Failure of USAP-provided equipment/instruments	_____	_____
3) Inadequate laboratory/observatory space	_____	_____
4) Problems with USAP-provided material (incorrect/insufficient)	_____	_____
5) Unavailability of cryogenic materials	_____	_____
6) Unavailability of USAP Support Contractor Science Technician	_____	_____
7) Problems with transportation (not related to bad weather delays) :		_____
aircraft <input type="checkbox"/>	research vessel <input type="checkbox"/>	surface vehicle <input type="checkbox"/>
Total Transportation		0
8) Bad weather delays	_____	_____
9) Other circumstances (please specify below)	_____	_____
_____		
10) <b>Subtotal Unproductive Project Days</b> (Sum of Lines 2B1-2B9)		<u>0</u>
<b>c) Total Project Days</b> (Line 2A + Line 2B10)		<u>0</u>

**(3) EFFECTIVENESS OF PLANNING**

Provide estimates of your project's Planned Days minus Actual Days for the following activities.  
**Note:** Enter: (a) Appropriate plus (+) or minus (-) sign; (b) Zero if Planned and Actual are equal; (c) NA if not applicable  
 For example, if you planned 5 days for transit to Antarctica and it required 7 days, then record (-2).

- |   | <u>Planned minus Actual</u> |
|---|-----------------------------|
| 1) Days in transit to Antarctica                | _____                       |
| 2) Days for field training                      | _____                       |
| 3) Days for field testing/set-up                | _____                       |
| 4) Days in transit to field                     | _____                       |
| 5) Days for experimentation and data collection | _____                       |
| 6) Down days                                    | 0                           |
| 7) Days for packing up                          | _____                       |
| 8) Days in transit from field                   | _____                       |
| 9) Days in transit from Antarctica              | _____                       |
| 10) <b>Total Planned minus Actual Days</b>      | <u>_____</u>                |
- (Sum of Lines 1-9)

**(4) OVERALL ASSESSMENT**

- A) Rate the support provided your project.  
 Unsatisfactory  Poor  Satisfactory  Good  Excellent
- B) Considering your responses, does this survey capture the way in which the USAP Research Support Facility supported your project? (see 1.E.)  
 Yes  No   
 If No, then please suggest how the survey might be improved to better capture your support (use separate page, as required)  
 \_\_\_\_\_  
 \_\_\_\_\_
- C) Describe any specific support difficulties your project encountered and suggested solutions (use separate page, as required) .  
 \_\_\_\_\_  
 \_\_\_\_\_

Figure 1 FY 2002 USAP Research Support Facilities Survey Form

## **WELCOME TO THE GPRA SURVEY FOR FY 2002**

The following three applications comprise the USAP Research Support Facilities Survey (GPRA Survey) for FY 2002. At the present time, only these versions of the GPRA FY 2002 survey are offered, but others will be developed as the web site ([www.polar.org](http://www.polar.org)) allows.

The first application is the GPRA Survey form in Microsoft Excel spreadsheet format. If you are a Microsoft Excel user, then download this application and use the tab and cursor arrow keys to move around the survey to complete it. Once your survey is completed electronically, then please send it as an e-mail message attachment to the e-mail address: [GPRA2002@polar.org](mailto:GPRA2002@polar.org).

The second application is the GPRA Survey form in HTML format. You will need to print out a hard copy from the HTML format to complete the survey.

The third application is the GPRA Survey form in Text format. You can either download this application to complete the survey electronically or print out a hard copy to complete the survey. If you decide to complete it electronically, then ensure that your Insert Key is on and replace the lined blanks with your responses. Once your survey is completed electronically, then please send it as an e-mail message attachment to the e-mail address: [GPRA2002@polar.org](mailto:GPRA2002@polar.org).

If you complete a hard copy of the survey, then please fax or mail it to:

**Director, Performance/Quality Assurance  
Raytheon Polar Services Company  
61 Inverness Drive East, Suite 300  
Englewood, CO 80112  
Fax: 303/662-1189**

Thank you in advance for your participation in the GPRA survey for FY 2002. Please request any further information required by contacting me:

**Steve Kottmeier, Ph.D.  
RPSC Director, Performance/Quality Assurance  
E-mail: [Steve.Kottmeier@polar.org](mailto:Steve.Kottmeier@polar.org)  
Phone: 800/688-8606, ext. 5510  
Fax: 303/662-1189**

**Figure 2a Welcome to the FY 2002 USAP Research Support Facilities Survey**

10 October 2001

Dear Principal Investigator or Field Team Leader,

Subject: **NSF and the Government Performance and Results Act for FY 2002**

As part of NSF's response to the Government Performance and Results Act (GPRA), NSF has prepared a Performance Plan for FY 2002 (April 9, 2001, see <http://www.nsf.gov/od/gpra/>).

Two important performance areas for FY 2002 are:

**1) Construction and Upgrade of Facilities**

**2) Operations and Management of Facilities**

Once facilities are constructed or upgraded, then operations and management of facilities are directly related to the successful accomplishment of scientific research. The Performance Plan for FY 2002 states:

Facilities must also operate efficiently and reliably and must offer appropriate opportunities, if they are to be valuable to those they serve. NSF program officers work closely with facility directors to ensure that facilities have appropriate resources to conduct operations and to provide maintenance support that ensures reliable operations.

The NSF has developed the following FY 2002 performance goal for the operations and management of facilities:

**FY 2002 Performance Goal IV-10: For 90 percent of facilities, keep operating time lost due to unscheduled downtime to less than 10 percent of the total scheduled operating time.**

The support of facilities is a significant portion of the NSF's budget. The entire Office of Polar Program's, Polar Research Support Section (OPP/PRSS) budget is counted as supporting USAP facilities. The total NSF FY 2002 Budget Estimate for Research Facilities is \$1.024 billion, of which PRSS request is \$181.21 million. PRSS has separated its program into four primary facilities:

McMurdo – including nearly all the large and small field camps  
Palmer,  
South Pole, and  
Research Vessels – including small field camps deployed/recovered by research vessels

In regards to operations and management of facilities, performance is measured as the average percentage among all facilities of full capacity "user units" lost during the year to breakdowns or other circumstances considered within the control of the facilities. The average across facilities is used in this instance because, although there should be latitude for some facilities to be run at greater failure rates with good reason, those facilities should be balanced by others operating more reliably. User units are defined separately for each facility, and are typically user-hours or something similar.

OPP has determined that a workable definition of a **user unit for USAP is a project observing day, or project-days**. For a South Pole observatory, this might be 365 days per year after the instrument is installed, or just when it is dark, approximately 180 days. For a cruise, we would expect that the cruise length is synonymous with the number of project days, even though we recognize that the vessel usually needs time to reach its work area.

OPP and Raytheon Polar Services Company (RPSC) have developed the attached FY 2002 GPRA Survey form to collect data used to report USAP science project observing days, for incorporation into the annual NSF GPRA report. In addition, the GPRA survey data are used by OPP, RPSC, and the other USAP support organizations to improve overall coordination and management of USAP science support, which should increase the number of science project observing days. Since the GPRA survey data has multiple uses, it is important that every science project participate in the survey in order to obtain a significant set of data.

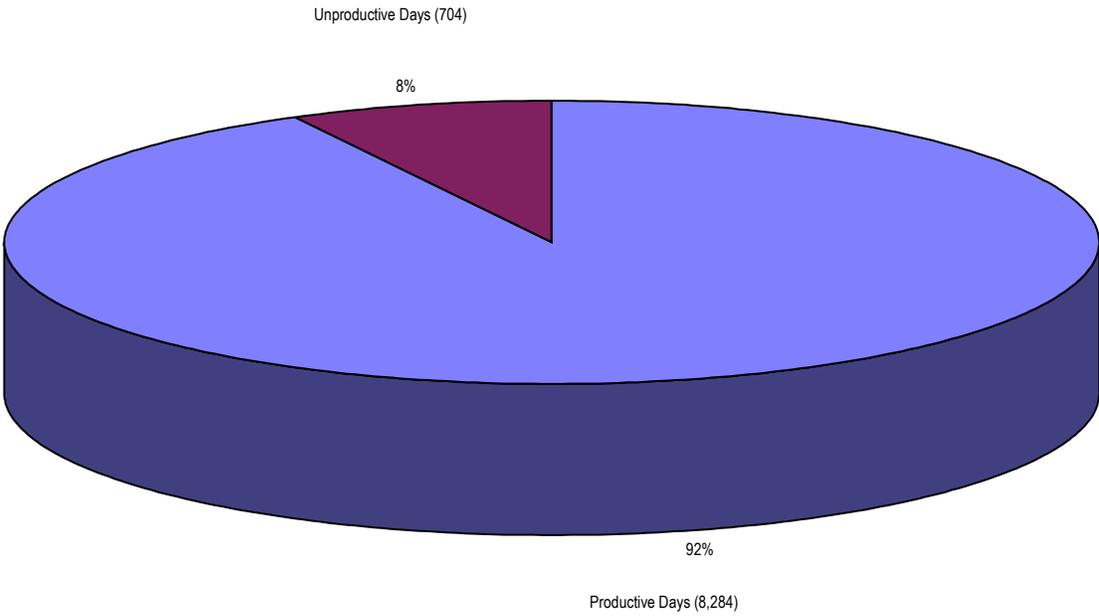
OPP intends that the data requested in the following GPRA survey form are easy for you to collect and also accurately reflect your experience in Antarctica. OPP encourages you to complete the survey during your field season in Antarctica or as soon after its completion as possible. We have established the website for such reporting <http://www.polar.org/usapserv/gpra2002> and encourage you to file your report electronically. OPP will post results from this survey, so you have an indication of the performance of the overall program.

Thank you for your participation.

Harry Mahar, Ph.D.  
NSF/OPP Science GPRA Coordinator

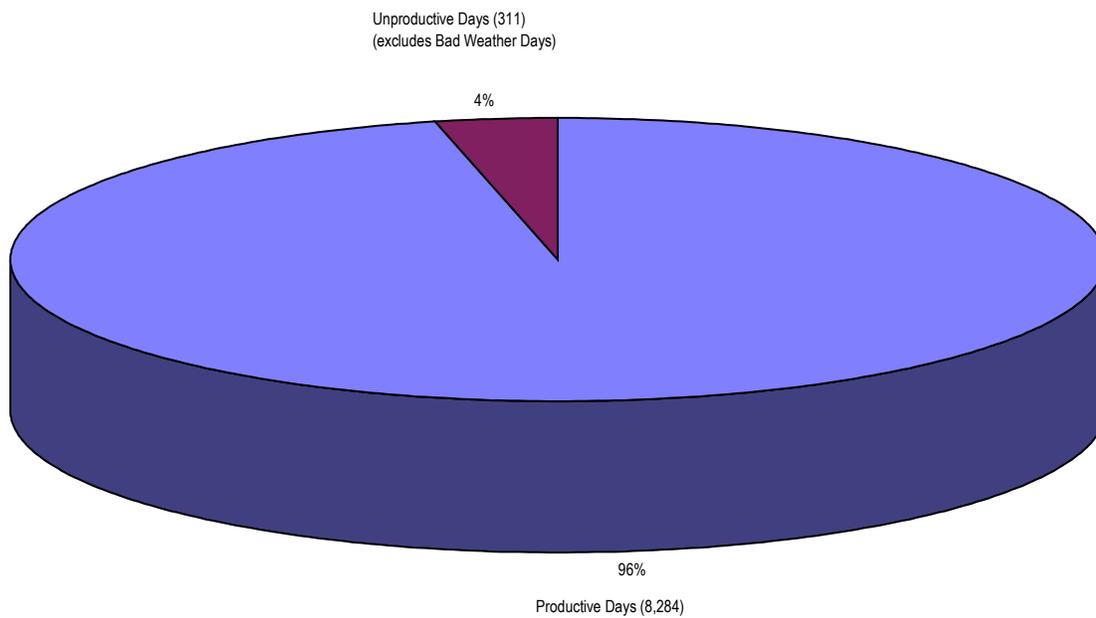
**Figure 2b Cover Letter to FY 2002 USAP Research Support Facilities Survey**

**FY 2002 USAP Research Support Facilities Survey**  
**Productive vs Unproductive Days**



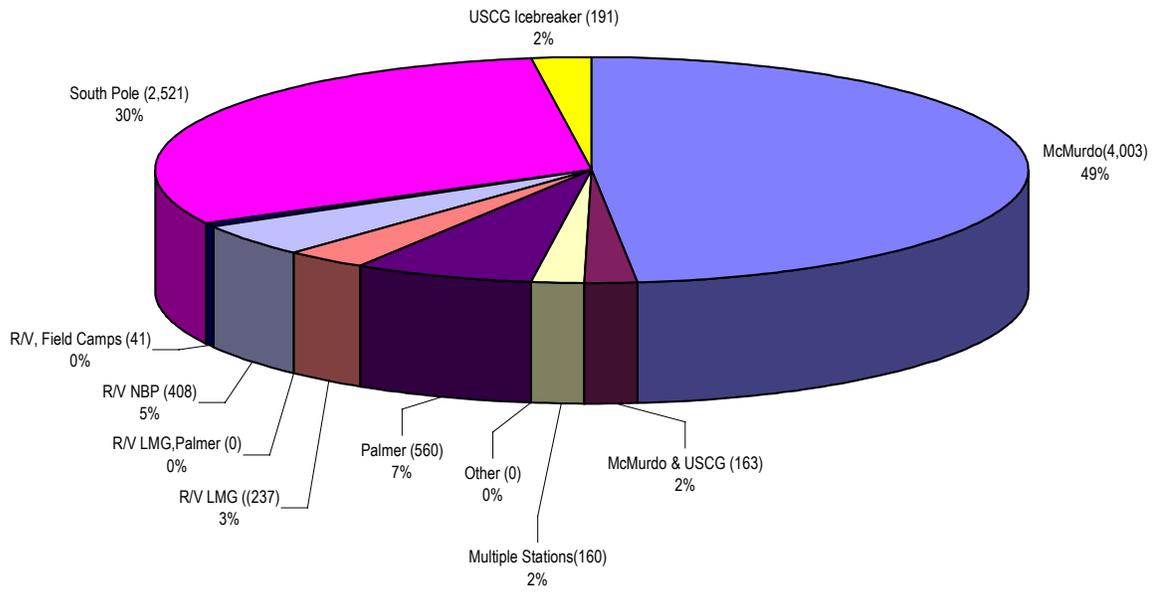
**Figure 3: Productive Days vs Unproductive Days**

**FY 2002 USAP Research Support Facilities Survey**  
**Productive vs Unproductive Days**  
(minus Bad Weather Days)



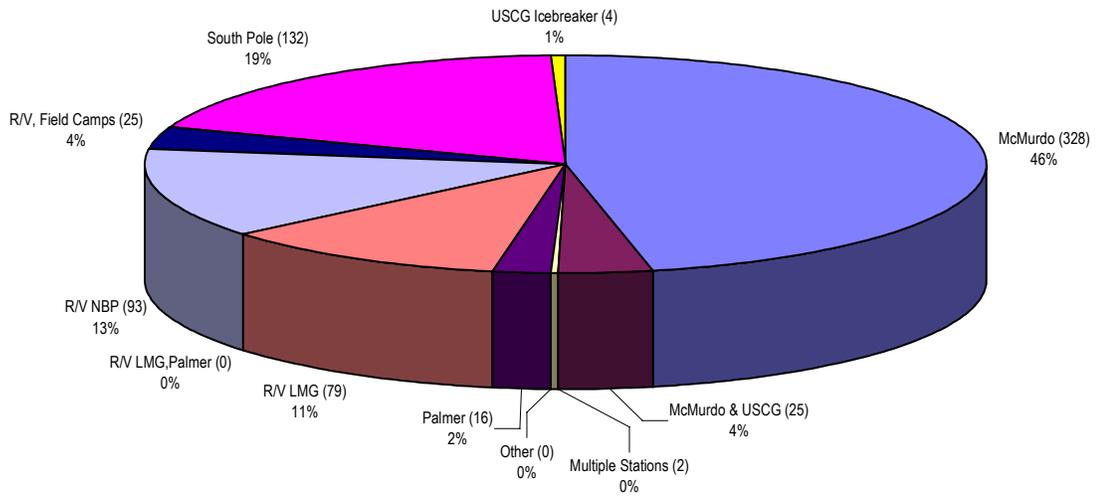
**Figure 4: Productive Days vs Unproductive Days minus Bad Weather Days**

**FY 2002 USAP Research Support Facilities Survey  
Facility Contribution to Total Productive Days**



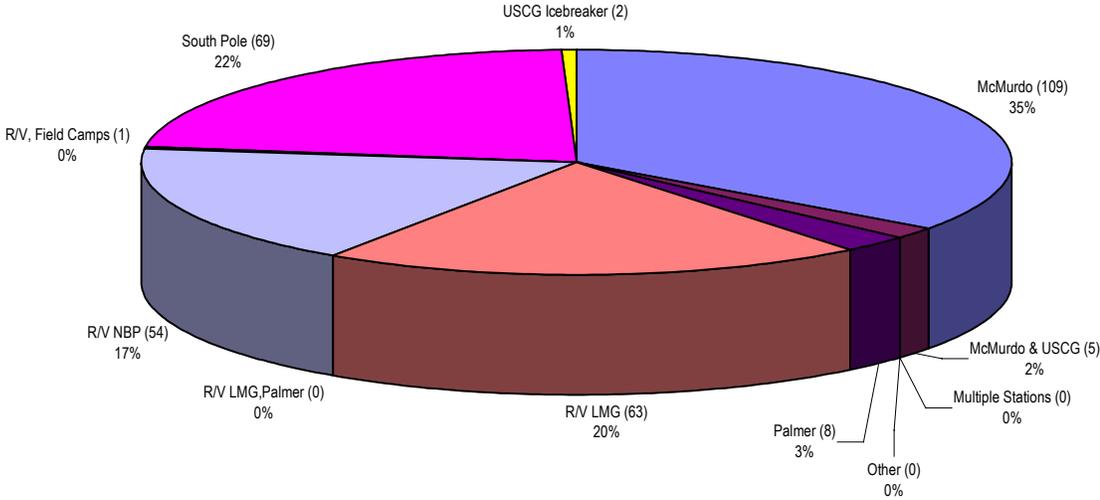
**Figure 5: Facility Contribution to Total Productive Days**

**FY 2002 USAP Research Support Facilities Survey  
Facility Contribution to Total Unproductive Days**



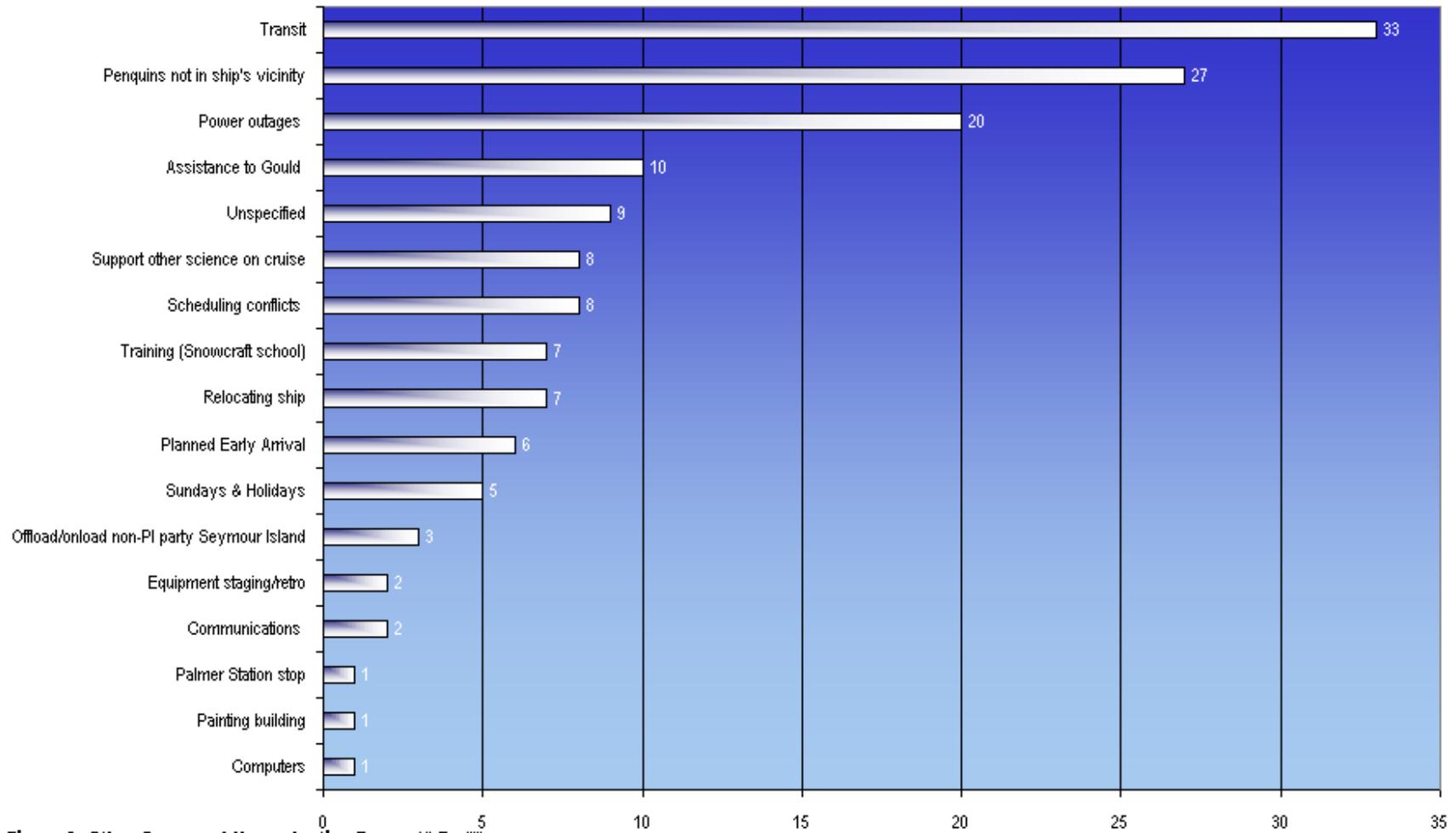
**Figure 6: Facility Contribution to Total Unproductive Days**

**FY 2002 USAP Research Support Facilities Survey  
 Facility Contribution to Total Unproductive Days  
 (minus Bad Weather Days)**



**Figure 7: Facility Contribution to Total Unproductive Days (minus Bad Weather Days)**

**FY 2002 USAP Research Support Facilities Survey  
Other Causes of Unproductive Days  
All Facilities**



**Figure 8: Other Causes of Unproductive Days - All Facilities**

FY 2002 USAP Research Support Facilities Survey  
Other Causes of Unproductive Days - R/V Laurence M. Gould

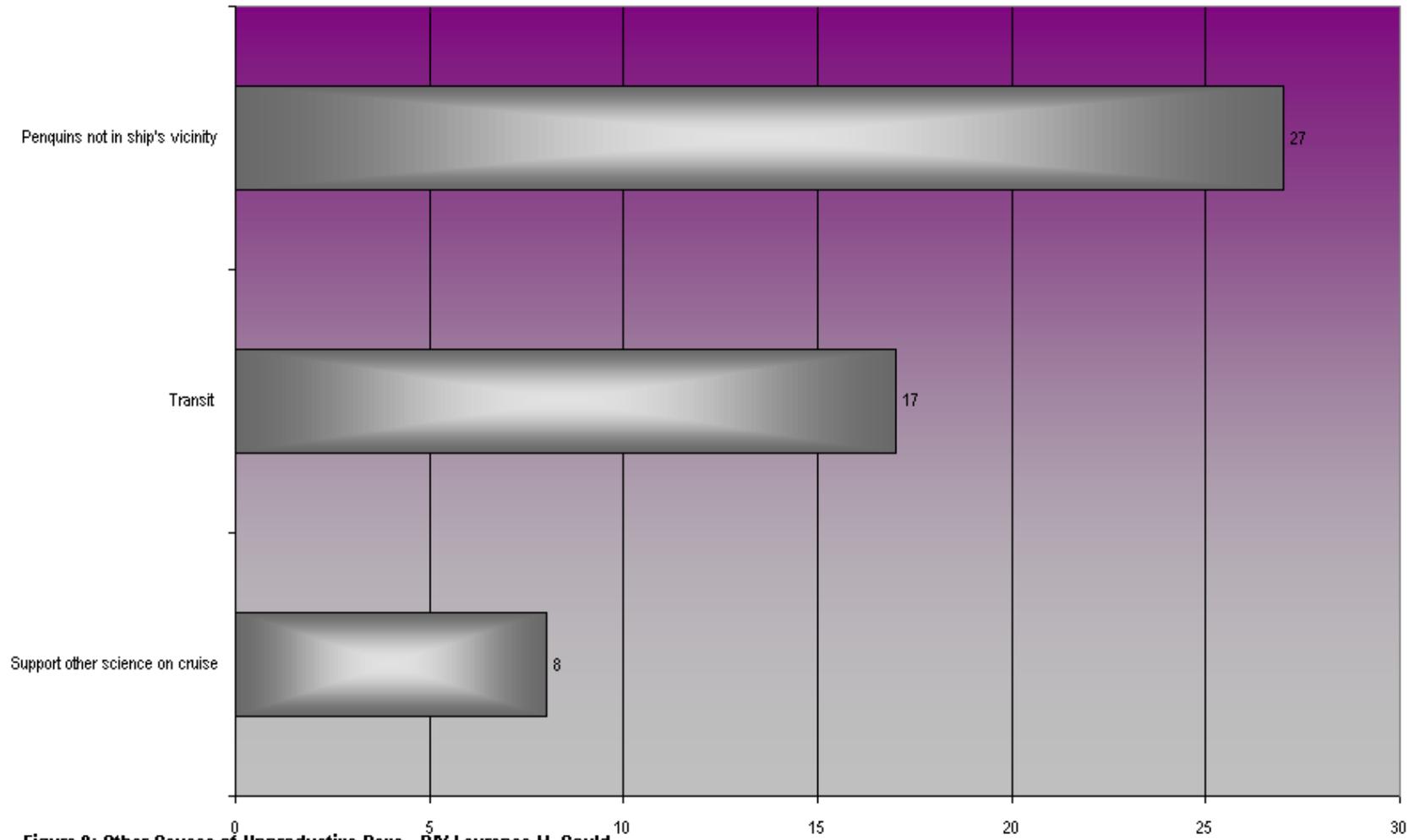
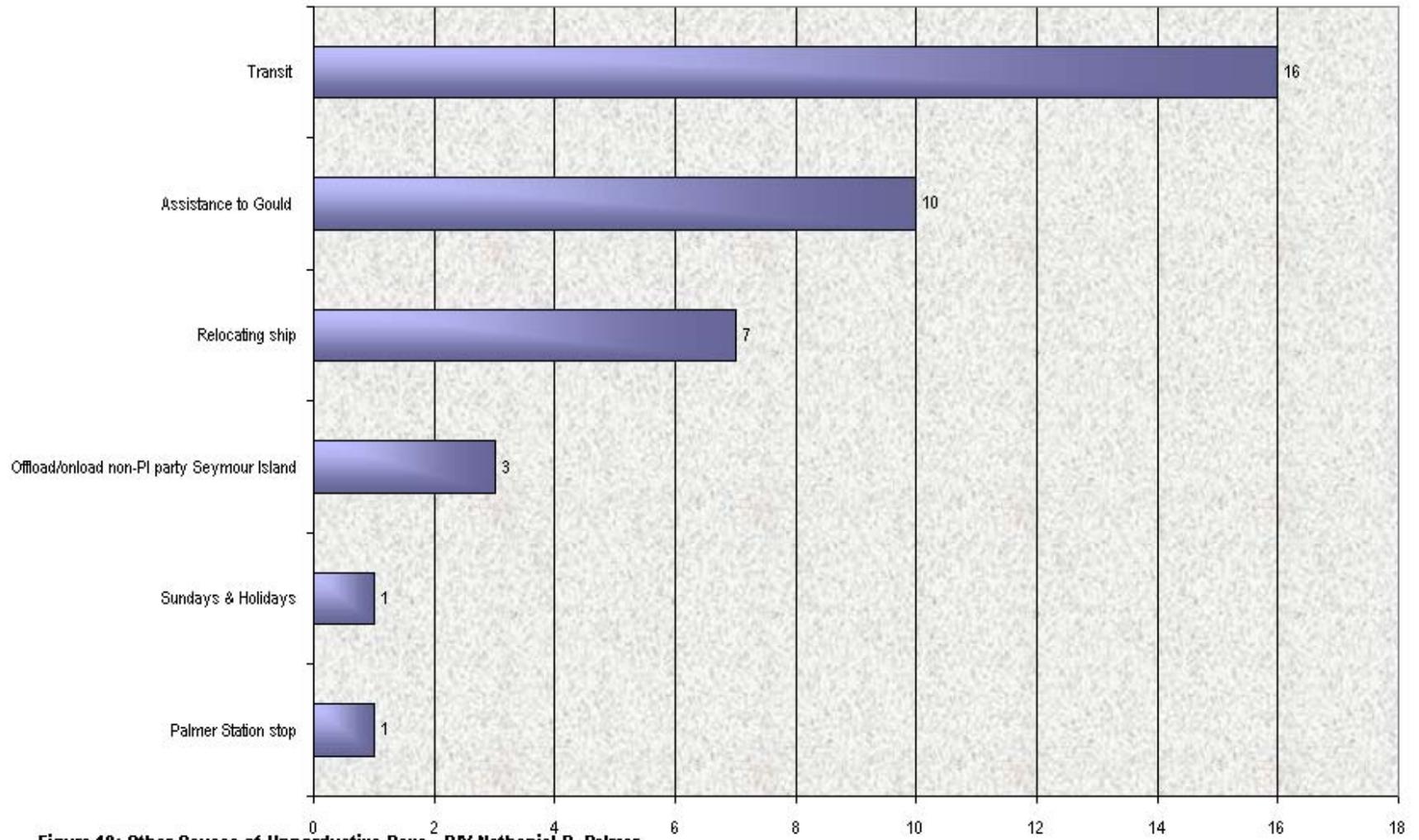


Figure 9: Other Causes of Unproductive Days - R/V Laurence M. Gould

**FY 2002 USAP Research Support Facilities Survey  
Other Causes of Unproductive Days - R/V Nathaniel B. Palmer**



**Figure 10: Other Causes of Unproductive Days - R/V Nathaniel B. Palmer**

FY 2002 USAP Research Support Facilities Survey  
Other Causes of Unproductive Days - South Pole Station

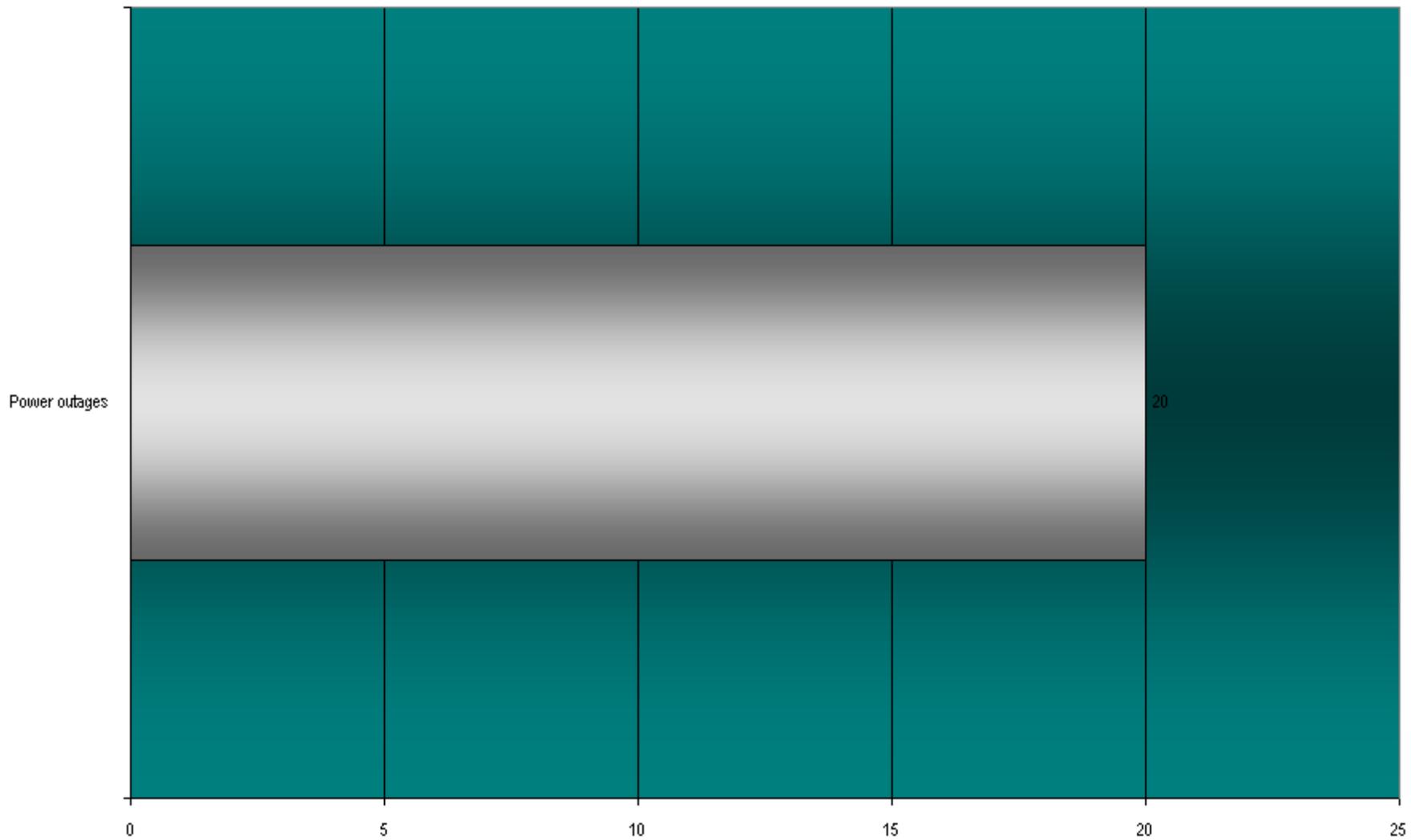


Figure 11: Other Causes of Unproductive Days - South Pole Station

FY 2002 USAP Research Support Facilities Survey  
Other Causes of Unproductive Days - McMurdo Station

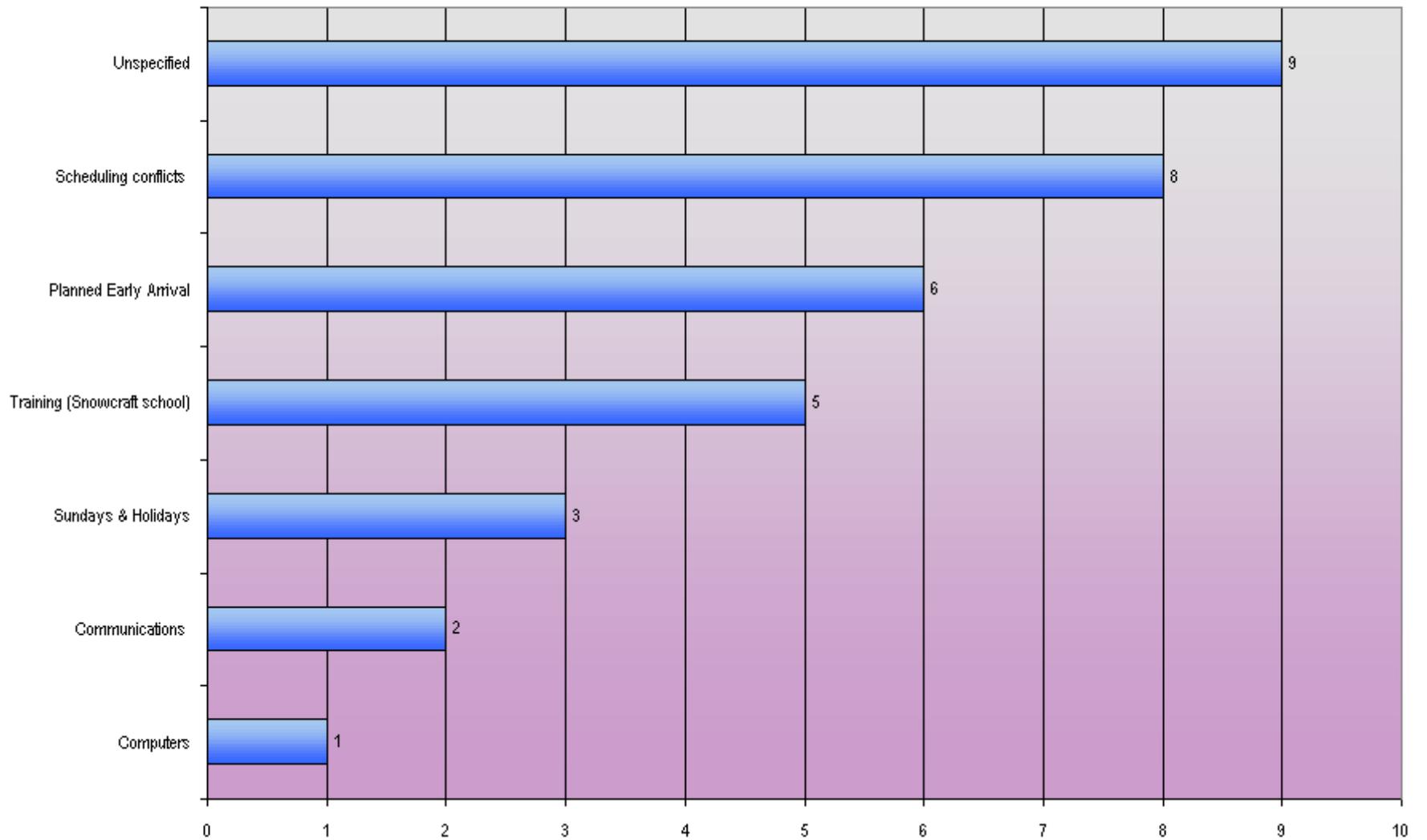
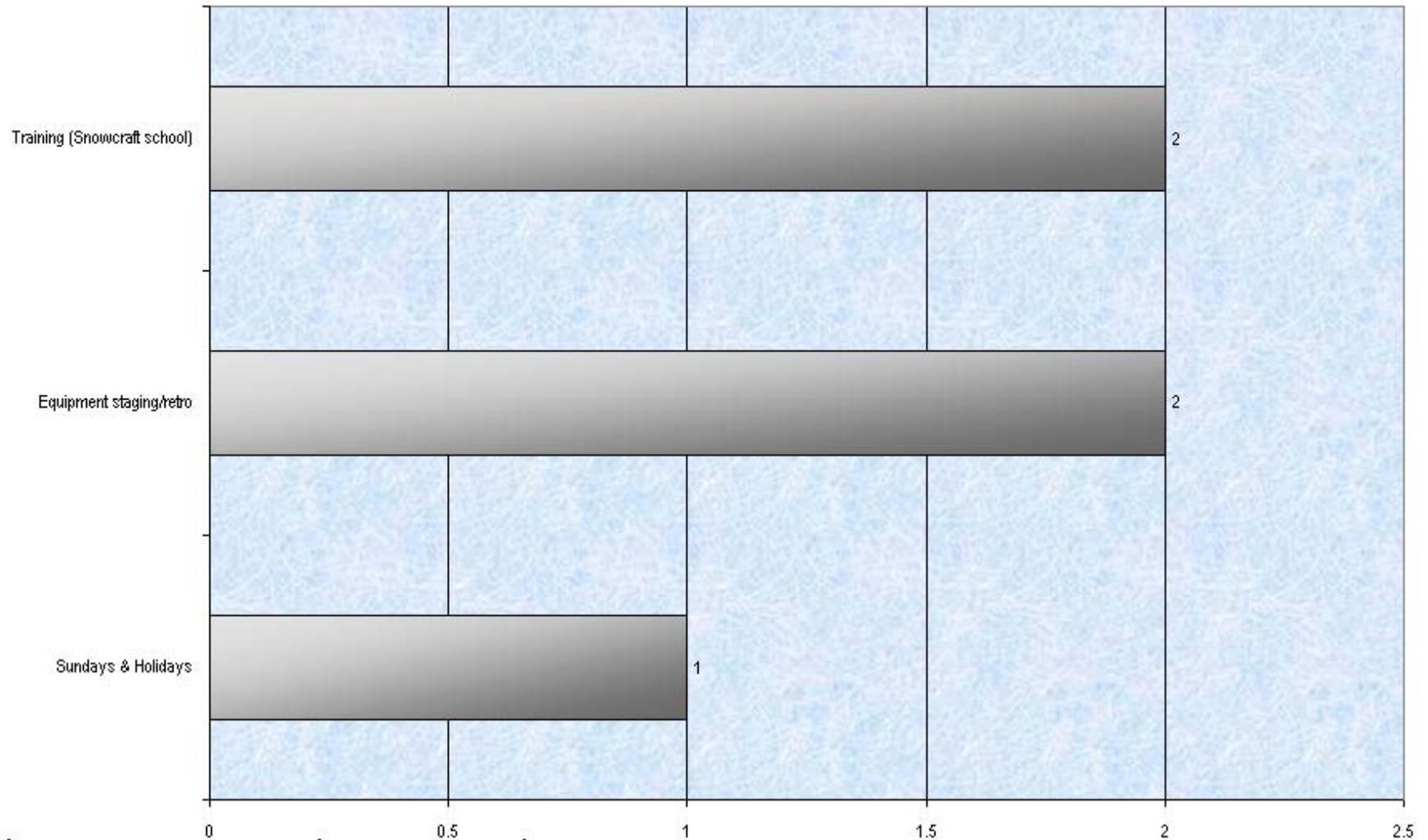


Figure 12: Other Causes of Unproductive Days - McMurdo Station

**FY 2002 USAP Research Support Facilities Survey  
Other Causes of Unproductive Days - McMurdo Station and USCG**



**Figure 13: Other Causes of Unproductive Days - McMurdo Station and USCG**

FY 2002 USAP Research Support Facilities Survey  
Other Causes of Unproductive Days - Palmer Station

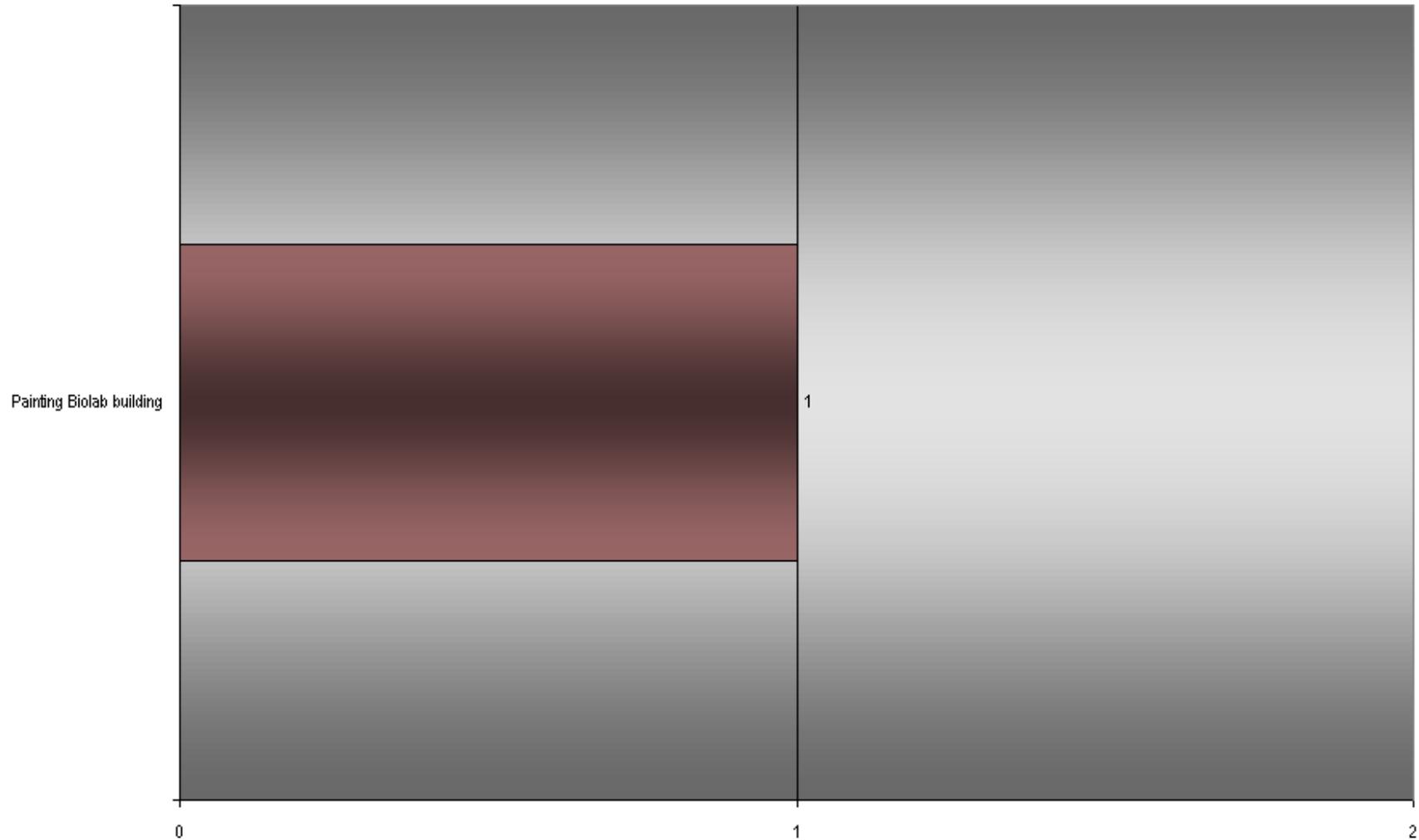


Figure 14: Other Causes of Unproductive Days - Palmer Station

FY 2002 USAP Research Support Facilities Survey  
Unproductive Days Caused by Transportation Difficulties

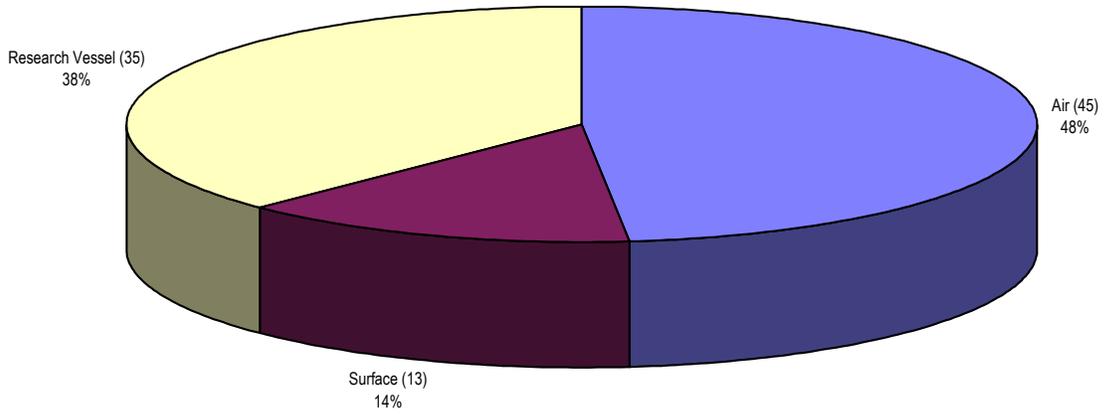


Figure 15: Unproductive Days Caused by Transportation Difficulties

FY2002 USAP Research Support Facilities Survey  
Rating of Support Provided Your Project

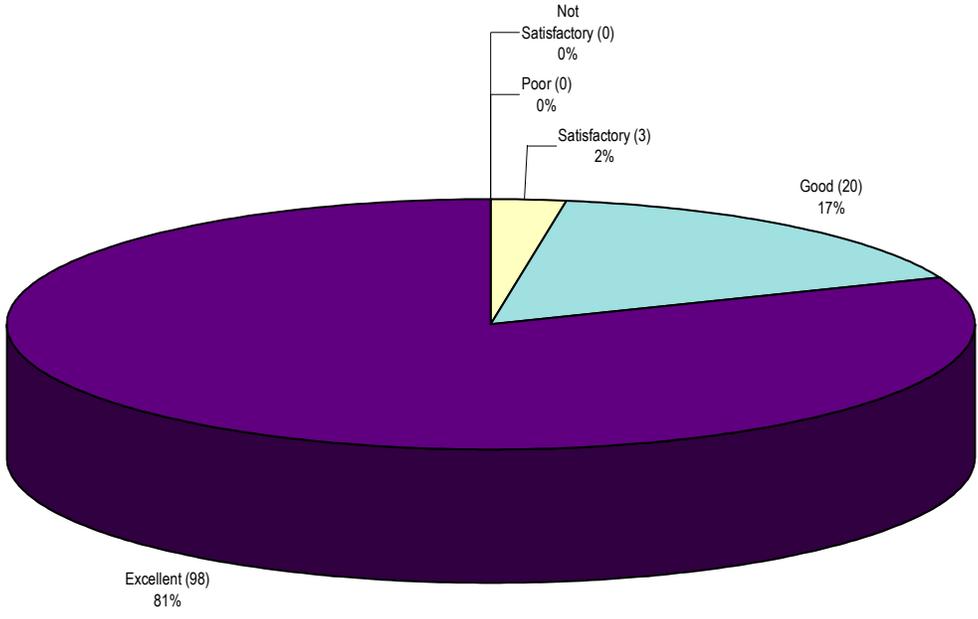


Figure 16: Rating of Support Provided Your Project

FY 2002 USAP Research Support Facilities Survey  
Survey Design Captured Facility Support of Your Project

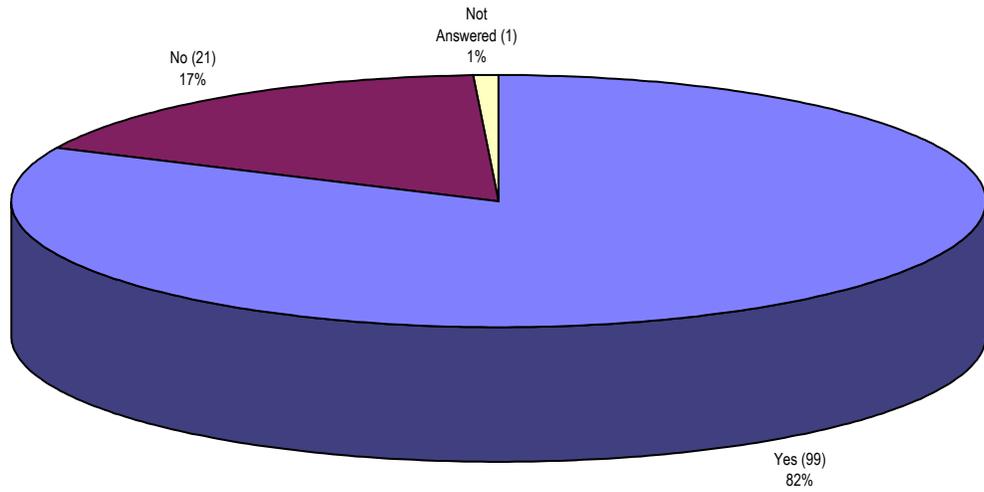


Figure 17: Survey Design Captured Facility Support of Your Project

**FY 2003 USAP RESEARCH SUPPORT FACILITIES SURVEY**

**INSTRUCTIONS:** This survey is designed to collect information regarding research support facilities in the United States Antarctic Program (USAP), for use by NSF/OPP in its annual performance plan report for the Government Performance and Results Act (GPRA). Each project Principal Investigator (PI) or Field Team Leader should **complete and return a separate survey for each facility, regardless of whether your project deployed to Antarctica during FY 2003.** Send your completed survey(s) via e-mail to: GPRA2003@usap.gov. Contact the Raytheon Polar Services Company, Director, Performance Assurance/Quality Assurance (Steve.Kottmeier@usap.gov, 800/688-8606, ext. 32008) with any questions.

**(1) PROJECT INFORMATION**

- A) Event number \_\_\_\_\_
- B) Principal Investigator (PI) \_\_\_\_\_
- C) Field Team Leader (if different from PI) \_\_\_\_\_
- D) List **All** Deploying Members of the Project Field Team (Include PI and Field Team Leader as applicable.)
- |         |         |         |         |
|---------|---------|---------|---------|
| 1 _____ | 3 _____ | 5 _____ | 7 _____ |
| 2 _____ | 4 _____ | 6 _____ | 8 _____ |
- E) USAP Research Support Facility supporting your project
- |  |  |                |
|--|--|----------------|
| <input type="checkbox"/> McMurdo and Field Camps | <input type="checkbox"/> Research Vessels (LMG or NBP) and Field Camps | Cruise # _____ |
| <input type="checkbox"/> Palmer                  | <input type="checkbox"/> USCGC Icebreaker                              | Cruise # _____ |
| <input type="checkbox"/> South Pole              |  |                |
- F) Survey Period
- |   |
|---|
| <input type="checkbox"/> FY2003-1 (1 Oct 2002 – 31 Mar 2003, 182 total days)  |
| <input type="checkbox"/> FY2003-2 (1 Apr 2003 – 30 Sept 2003, 183 total days) |
| <input type="checkbox"/> FY2003-3 (1 Oct 2002 – 30 Sept 2003, 365 total days) |

**(2) QUALITY TIME IN ANTARCTICA**

- Note:** (1) Use elapsed calendar days rather than person-days in your responses.  
 (2) Include the number of days that technicians of the USAP Support Contractor supported your project.
- A) **Productive Days:** Estimate of the number of productive days your project experienced \_\_\_\_\_
- B) **Unproductive Days:** Estimate of the number of unproductive days your project experienced for each of the following reasons:
- Days Lost Due To:*
- |  |       |
|--|-------|
| 1) Delays in cargo _____   |       |
| 2) Failure of USAP-provided equipment/instruments _____  |       |
| 3) Inadequate laboratory/observatory space _____   |       |
| 4) Problems with USAP-provided material (incorrect/insufficient) _____   |       |
| 5) Unavailability of cryogenic materials _____   |       |
| 6) Unavailability of USAP Support Contractor Science Technician _____  |       |
| 7) Problems with transportation (not related to bad weather delays):   |       |
| aircraft <input type="checkbox"/> research vessel <input type="checkbox"/> surface vehicle <input type="checkbox"/> Total Transportation | _____ |
| 8) Bad weather delays _____  | _____ |
| 9) Other circumstances (please specify below) _____  | _____ |
- 10) **Subtotal Unproductive Project Days** (Sum of Lines 2B1-2B9) \_\_\_\_\_
- C) **Total Project Days** (Line 2A + Line 2B10) \_\_\_\_\_

**(3) EFFECTIVENESS OF PLANNING**

- Provide estimates of your project's **Planned Days minus Actual Days** for the following activities.
- Note:** Enter: (a) Appropriate plus (+) or minus (-) sign; (b) Zero if Planned and Actual are equal; (c) NA if not applicable  
 For example, if you planned 5 days for transit to Antarctica and it required 7 days, then record (-2).
- |   |                             |  |                             |
|---|-----------------------------|--|-----------------------------|
|   | <b>Planned minus Actual</b> |  | <b>Planned minus Actual</b> |
| 1) Days in transit to Antarctica _____                |                             | 6) Down days _____                               |                             |
| 2) Days for field training _____                      |                             | 7) Days for packing up _____                     |                             |
| 3) Days for field testing/set-up _____                |                             | 8) Days in transit from field _____              |                             |
| 4) Days in transit to field _____                     |                             | 9) Days in transit from Antarctica _____         |                             |
| 5) Days for experimentation and data collection _____ |                             | 10) <b>Total Planned minus Actual Days</b> _____ |                             |
|   |                             |  | (Sum of Lines 1-9)          |

**(4) OVERALL ASSESSMENT**

- A) Rate the support provided your project.
- Unsatisfactory       Poor       Satisfactory       Good       Excellent
- B) Considering your responses, does this survey capture the way in which the USAP Research Support Facility (see 1.E.) supported your project?
- Yes       No
- If No, then please suggest how the survey might be improved to better capture your support (use separate page, as required)
- \_\_\_\_\_
- \_\_\_\_\_
- C) Describe any specific support difficulties your project encountered and suggested solutions (use separate page, as required).
- \_\_\_\_\_
- \_\_\_\_\_

Figure 18: FY 2003 USAP Research Support Facilities Survey Form

**Table 1: Science Project Planned Days for FY 2002**

		<b>Personnel</b>	<b>Project Planned Days</b>	<b>Project Reported Days</b>	<b>Percent Reported / Planned Days</b>
<b>Project</b>	1	47	365		
<b>Project</b>	2	19	94		
<b>Project</b>	3	0	93	0	0.00%
<b>Project</b>	4	8	80	75	93.75%
<b>Project</b>	5	10	365	99	27.12%
<b>Project</b>	6	11	365	79	21.64%
<b>Project</b>	7	5	365	30	8.22%
<b>Project</b>	8	6	365	99	27.12%
<b>Project</b>	9	3	365	84	23.01%
<b>Project</b>	10	3	365	108	29.59%
<b>Project</b>	11	0	324	0	0.00%
<b>Project</b>	12	8	365	102	27.95%
<b>Project</b>	13	0		0	
<b>Project</b>	14	0	365	0	0.00%
<b>Project</b>	15	0	365	0	0.00%
<b>Project</b>	16	0	365	365	100.00%
<b>Project</b>	17	0	365	365	100.00%
<b>Project</b>	18	1	365	0	0.00%
<b>Project</b>	19	1	48	0	0.00%
<b>Project</b>	20	0	365	0	0.00%
<b>Project</b>	21	1	44	7	15.91%
<b>Project</b>	22	0	11	0	0.00%
<b>Project</b>	23	5	57	48	84.21%
<b>Project</b>	24	5	365	360	98.63%
<b>Project</b>	25	5	365	360	98.63%
<b>Project</b>	26	2	17	0	0.00%
<b>Project</b>	27	2	7	0	0.00%
<b>Project</b>	28	0	365	0	0.00%
<b>Project</b>	29	2	365	139	38.08%
<b>Project</b>	30	1	25	182	728.00%
<b>Project</b>	31	1		182	
<b>Project</b>	32	1	9	182	2022.22%
<b>Project</b>	33	2	14	9	64.29%
<b>Project</b>	34	3	20	0	0.00%
<b>Project</b>	35	5	93	70	75.27%
<b>Project</b>	36	5	14	0	0.00%
<b>Project</b>	37	1	64	12	18.75%
<b>Project</b>	38	4	44	16	36.36%
<b>Project</b>	39	3	53	0	0.00%
<b>Project</b>	40	0	44	0	0.00%
<b>Project</b>	41	2	53	14	26.42%
<b>Project</b>	42	3	53	0	0.00%
<b>Project</b>	43	1	51	0	0.00%

**Table 1: Science Project Planned Days for FY 2002**

		<b>Personnel</b>	<b>Project Planned Days</b>	<b>Project Reported Days</b>	<b>Percent Reported / Planned Days</b>
<b>Project</b>	44	4	44	29	65.91%
<b>Project</b>	45	4	51		
<b>Project</b>	46	2	44	43	97.73%
<b>Project</b>	47	0	27	0	0.00%
<b>Project</b>	48	1	43	37	86.05%
<b>Project</b>	49	0	51	0	0.00%
<b>Project</b>	50	2	43	34	79.07%
<b>Project</b>	51	2	51	26	50.98%
<b>Project</b>	52	6	53	0	0.00%
<b>Project</b>	53	5	44	30	68.18%
<b>Project</b>	54	4	51	30	58.82%
<b>Project</b>	55	1	43	42	97.67%
<b>Project</b>	56	0	51	0	0.00%
<b>Project</b>	57	2	43	42	97.67%
<b>Project</b>	58	6	51	0	0.00%
<b>Project</b>	59	4	44	0	0.00%
<b>Project</b>	60	1	51	0	0.00%
<b>Project</b>	61	2	82	72	87.80%
<b>Project</b>	62	4	97	80	82.47%
<b>Project</b>	63	4	107	82	76.64%
<b>Project</b>	64	4	107	100	93.46%
<b>Project</b>	65	5	98	99	101.02%
<b>Project</b>	66	2	44	33	75.00%
<b>Project</b>	67	4	103	0	0.00%
<b>Project</b>	68	3	65	45	69.23%
<b>Project</b>	69	7	162	0	0.00%
<b>Project</b>	70	9	134	53	39.55%
<b>Project</b>	71	8	74	58	78.38%
<b>Project</b>	72	7	100	85	85.00%
<b>Project</b>	73	8	27	23	85.19%
<b>Project</b>	74	3	37	26	70.27%
<b>Project</b>	75	6	62	45	72.58%
<b>Project</b>	76	8	60	60	100.00%
<b>Project</b>	77	2	45	29	64.44%
<b>Project</b>	78	2	14	10	71.43%
<b>Project</b>	79	5	161	0	0.00%
<b>Project</b>	80	0	141	0	0.00%
<b>Project</b>	81	0	43	15	34.88%
<b>Project</b>	82	5	76	48	63.16%
<b>Project</b>	83	8	63	9	14.29%
<b>Project</b>	84	0		0	
<b>Project</b>	85	4	63	60	95.24%
<b>Project</b>	86	4	38	27	71.05%

**Table 1: Science Project Planned Days for FY 2002**

		<b>Personnel</b>	<b>Project Planned Days</b>	<b>Project Reported Days</b>	<b>Percent Reported / Planned Days</b>
<b>Project</b>	87	3	52	41	78.85%
<b>Project</b>	88	8	72	60	83.33%
<b>Project</b>	89	0	27	15	55.56%
<b>Project</b>	90	1	32	48	150.00%
<b>Project</b>	91	0	32	0	0.00%
<b>Project</b>	92	6	31	0	0.00%
<b>Project</b>	93	0	43	0	0.00%
<b>Project</b>	94	6	174	0	0.00%
<b>Project</b>	95	6	31	0	0.00%
<b>Project</b>	96	0	43	0	0.00%
<b>Project</b>	97	6	174	0	0.00%
<b>Project</b>	98	0	31	0	0.00%
<b>Project</b>	99	0	43	0	0.00%
<b>Project</b>	100	9	31	0	0.00%
<b>Project</b>	101	0	43	0	0.00%
<b>Project</b>	102	6	150	0	0.00%
<b>Project</b>	103	4	31	0	0.00%
<b>Project</b>	104	5	43	20	46.51%
<b>Project</b>	105	1	30	21	70.00%
<b>Project</b>	106	6	31	0	0.00%
<b>Project</b>	107	0	43	0	0.00%
<b>Project</b>	108	6	35	23	65.71%
<b>Project</b>	109	3	76	14	18.42%
<b>Project</b>	110	0		0	
<b>Project</b>	111	8	51	16	31.37%
<b>Project</b>	112	7	365	55	15.07%
<b>Project</b>	113	0	365	0	0.00%
<b>Project</b>	114	2	6	0	0.00%
<b>Project</b>	115	3	54	36	66.67%
<b>Project</b>	116	10	75	40	53.33%
<b>Project</b>	117	5	44	35	79.55%
<b>Project</b>	118	0	42	0	0.00%
<b>Project</b>	119	5	40	12	30.00%
<b>Project</b>	120	6	109	35	32.11%
<b>Project</b>	121	8	365	172	47.12%
<b>Project</b>	122	3	90	0	0.00%
<b>Project</b>	123	6	46	39	84.78%
<b>Project</b>	124	7	28	4	14.29%
<b>Project</b>	125	11	107	48	44.86%
<b>Project</b>	126	1		0	
<b>Project</b>	127	1	44	19	43.18%
<b>Project</b>	128	8	40	28	70.00%
<b>Project</b>	129	5	56	36	64.29%

**Table 1: Science Project Planned Days for FY 2002**

		<b>Personnel</b>	<b>Project Planned Days</b>	<b>Project Reported Days</b>	<b>Percent Reported / Planned Days</b>
<b>Project</b>	130	0	22	0	0.00%
<b>Project</b>	131	4	36	14	38.89%
<b>Project</b>	132	0	46	0	0.00%
<b>Project</b>	133	0	77	0	0.00%
<b>Project</b>	134	0	29	0	0.00%
<b>Project</b>	135	3	60	8	13.33%
<b>Project</b>	136	3	43	26	60.47%
<b>Project</b>	137	0	42	37	88.10%
<b>Project</b>	138	2	119	90	75.63%
<b>Project</b>	139	5	38	24	63.16%
<b>Project</b>	140	5	41	44	107.32%
<b>Project</b>	141	0		0	
<b>Project</b>	142	2	23	9	39.13%
<b>Project</b>	143	4	72	47	65.28%
<b>Project</b>	144	3	34	0	0.00%
<b>Project</b>	145	4	51	42	82.35%
<b>Project</b>	146	8	83	70	84.34%
<b>Project</b>	147	4	79	44	55.70%
<b>Project</b>	148	16	83	45	54.22%
<b>Project</b>	149	16	83	45	54.22%
<b>Project</b>	150	16	83	45	54.22%
<b>Project</b>	151	16	83	45	54.22%
<b>Project</b>	152	16	83	45	54.22%
<b>Project</b>	153	16	83	45	54.22%
<b>Project</b>	154	16	83	45	54.22%
<b>Project</b>	155	16	83	45	54.22%
<b>Project</b>	156	16	83	45	54.22%
<b>Project</b>	157	16	83	45	54.22%
<b>Project</b>	158	6	27	23	85.19%
<b>Project</b>	159	0	44	0	0.00%
<b>Project</b>	160	0	51	0	0.00%
<b>Project</b>	161	2	43	32	74.42%
<b>Project</b>	162	2	51	0	0.00%
<b>Project</b>	163	1	44	0	0.00%
<b>Project</b>	164	0	53	0	0.00%
<b>Project</b>	165	0	43	0	0.00%
<b>Project</b>	166	1	51	0	0.00%
<b>Project</b>	167	0	27	0	0.00%
<b>Project</b>	168	0	44	0	0.00%
<b>Project</b>	169	0	53	0	0.00%
<b>Project</b>	170	6	43	38	88.37%
<b>Project</b>	171	0	51	0	0.00%
<b>Project</b>	172	3	53	44	83.02%

**Table 1: Science Project Planned Days for FY 2002**

		<b>Personnel</b>	<b>Project Planned Days</b>	<b>Project Reported Days</b>	<b>Percent Reported / Planned Days</b>
<b>Project</b>	173	4	23	25	108.70%
<b>Project</b>	174	2	46	46	100.00%
<b>Project</b>	175	0		365	
<b>Project</b>	176	0		365	
<b>Project</b>	177	0	26	365	1403.85%
<b>Project</b>	178	0	365	0	0.00%
<b>Project</b>	179	0	365	0	0.00%
<b>Project</b>	180	0	58	0	0.00%
<b>Project</b>	181	5	29	20	68.97%
<b>Project</b>	182	0	365	0	0.00%
<b>Project</b>	183	8	365	355	97.26%
<b>Project</b>	184	0	365	0	0.00%
<b>Project</b>	185	0	11	0	0.00%
<b>Project</b>	186	0	365	0	0.00%
<b>Project</b>	187	3	34	8	23.53%
<b>Project</b>	188	0	365	0	0.00%
<b>Project</b>	189	3		0	
<b>Project</b>	190	2	12	17	141.67%
<b>Project</b>	191	2	365	0	0.00%
<b>Project</b>	192	0	365	0	0.00%
<b>Project</b>	193	4	48	40	83.33%
<b>Project</b>	194	2	365	0	0.00%
<b>Project</b>	195	0	132	0	0.00%
<b>Project</b>	196	5	63	28	44.44%
<b>Project</b>	197	6	85	85	100.00%
<b>Project</b>	198	8	131	99	75.57%
<b>Project</b>	199	0	365	0	0.00%
<b>Project</b>	200	0	365	0	0.00%
<b>Project</b>	201	0	365	0	0.00%
<b>Project</b>	202	2	31	24	77.42%
<b>Project</b>	203	4	14	13	92.86%
<b>Project</b>	204	1	365	0	0.00%
<b>Project</b>	205	1	365	0	0.00%
<b>Project</b>	206	1	365	0	0.00%
<b>Project</b>	207	0	47	0	0.00%
<b>Project</b>	208	0	47	0	0.00%
<b>Project</b>	209	0	365	0	0.00%
<b>Project</b>	210	0	73	0	0.00%
<b>Project</b>	211	2	32	30	93.75%
<b>Project</b>	212	1	71	75	105.63%
<b>Project</b>	213	1	72	60	83.33%
<b>Project</b>	214	4	52	46	88.46%

**Table 1: Science Project Planned Days for FY 2002**

	<b>Personnel</b>	<b>Project Planned Days</b>	<b>Project Reported Days</b>	<b>Percent Reported / Planned Days</b>
<b>Planned TOTALS</b>	<b>805</b>	<b>23,640</b>		
<b>Responses TOTALS</b>	<b>610</b>	<b>11,313</b>	<b>8,284</b>	<b>73.23%</b>

## **Table 2      Master Report of Survey Response**

Table 2 is a report of all collected data sorted by Event Number (WO Events are listed first). The report is derived from a Microsoft Access database of survey responses. One complete copy is available for review at the National Science Foundation from Dr. Harry Mahar.

**Table 3 Science Project Survey Response Rate by Facility**

**Fiscal Years 1999 through 2002**

<b>Facility</b>	<b>Fiscal Year</b>	<b>Total Projects</b>	<b>Responses</b>	<b>% Responses per Facility</b>	<b>% Responses per Total</b>
McMurdo	FY 2002	82	63	77%	29%
Mean	FY 1999-2002	80	60	75%	31%
Range	FY 1999-2002	71-87	39-73	55-94%	20-42%
McMurdo & USCG	FY 2002	6	4	67%	2%
Mean	FY 1999-2002	2	2	42%	1%
Range	FY 1999-2002	0-6	0-4	0-100%	0-2%
Multiple Stations	FY 2002	5	3	60%	1%
Mean	FY 1999-2002	5	3	61%	2%
Range	FY 1999-2002	3-6	0-5	0-100%	0-3%
Other	FY 2002	2	0	0%	0%
Mean	FY 1999-2002	3	1	23%	0%
Range	FY 1999-2002	1-5	0-2	0-50%	0-1%
Palmer	FY 2002	16	5	31%	2%
Mean	FY 1999-2002	15	8	47%	4%
Range	FY 1999-2002	12-19	2-12	17-79%	1-7%
R/V LMG	FY 2002	30	9	30%	4%
Mean	FY 1999-2002	26	16	65%	8%
Range	FY 1999-2002	19-34	9-18	30-95%	4-10%
R/V LMG,Palmer	FY 2002	1	0	0%	0%
Mean	FY 1999-2002	3	1	43%	1%
Range	FY 1999-2002	1-5	0-2	0-100%	0-1%
R/V NBP	FY 2002	33	14	42%	7%
Mean	FY 1999-2002	25	15	68%	8%
Range	FY 1999-2002	16-33	13-19	42-95%	7-11%
R/V, Field Camps	FY 2002	3	2	67%	1%
Mean	FY 1999-2002	3	2	82%	1%
Range	FY 1999-2002	1-5	1-3	60-100%	1-2%
South Pole	FY 2002	33	19	58%	9%
Mean	FY 1999-2002	31	17	56%	9%
Range	FY 1999-2002	28-34	13-20	38-71%	7-11%
USCG Icebreaker	FY 2002	3	2	67%	1%
Mean	FY 1999-2002	2	1	46%	1%
Range	FY 1999-2002	0-3	0-2	0-67%	0-1%
<b>TOTALS</b>	<b>FY2002</b>	<b>214</b>	<b>121</b>	<b>57%</b>	<b>57%</b>
Mean	FY 1999-2002	193	125	66%	65%
Range	FY 1999-2002	175-214	95-150	48-86%	48-86%

**Table 4a Science Project Quality Time in Antarctica by Facility**

**Fiscal Years 1999 through 2002**

Facility	Fiscal Year	Responses	# Team Members	Project Days	Productive Days	Unproduct. Days	Causes of Unproductive Days											
							Delays In Cargo	Failure Equipment/ Instruments	Inadequate Lab/ Observ Space	Incorrect/ Insufficient Material	Cryogenics Unavail	Science Tech Unavail	Air	Surface	R/V	Transportation Total	Bad Weather	Other Circumstances
McMurdo	FY 2002	63	396	4331	4003	328	7	11	0	6	0	0	40	11	0	51	219	34
	Mean FY 1999-2002	60	295	4431	3960	471	22	22	5	7	0	0	88	4	0	92	271	54
	Range FY 1999-2002	39-73	169-396	6204	2784-5537	315-667	7-45	4-60	0-11	0-18	0-0	0-0	32-166	1-11	0-0	33-167	208-366	34-85
McMurdo & USCG	FY 2002	4	16	188	163	25	0	0	0	0	0	0	0	0	0	0	20	5
	Mean FY 1999-2002	2	8	75	68	8	1	0	0	0	0	0	0	0	0	0	5	1
	Range FY 1999-2002	0-4	0-16	0-188	0-163	0-25	0-4	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-1	0-20	0-5
Multiple Stations	FY 2002	3	10	162	160	2	0	0	0	0	0	0	0	0	0	0	2	0
	Mean FY 1999-2002	3	8	214	134	80	0	1	0	0	0	0	24	0	1	25	31	24
	Range FY 1999-2002	0-5	0-13	0-463	0-206	0-292	0-0	0-2	0-0	0-0	0-0	0-0	0-91	0-0	0-2	0-91	0-105	0-96
Other	FY 2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mean FY 1999-2002	1	2	41	35	7	0	0	0	0	0	0	3	0	0	3	4	0
	Range FY 1999-2002	0-2	0-5	0-132	0-120	0-14	0-0	0-0	0-0	0-0	0-0	0-0	0-8	0-0	0-0	0-8	0-10	0-0
Palmer	FY 2002	5	16	576	560	16	0	0	0	0	0	0	0	0	7	7	8	1
	Mean FY 1999-2002	8	22	1113	1018	96	4	16	1	4	0	4	0	0	6	6	54	9
	Range FY 1999-2002	2-12	7-43	542-2043	497-1838	16-205	0-13	0-49	0-2	0-9	0-0	0-15	0-0	0-0	0-8	0-8	8-114	1-15
R/V LMG	FY 2002	9	34	316	237	79	1	0	0	0	0	0	0	0	10	10	16	52
	Mean FY 1999-2002	16	72	516	433	83	2	6	2	1	0	1	0	3	11	13	24	36
	Range FY 1999-2002	9-18	34-90	316-738	237-641	39-116	0-6	0-16	0-4	0-2	0-1	0-2	0-0	0-9	15	8-24	16-31	2-52
R/V LMG,Palmer	FY 2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mean FY 1999-2002	1	4	81	74	7	2	3	0	1	0	0	0	0	0	1	1	0
	Range FY 1999-2002	0-2	0-9	0-280	0-253	0-27	0-8	0-10	0-0	0-2	0-0	0-0	0-1	0-0	0-1	0-2	0-5	0-0
R/V NBP	FY 2002	14	44	501	408	93	0	0	0	0	0	0	0	0	16	16	39	38
	Mean FY 1999-2002	15	78	622	559	64	2	8	0	1	0	0	0	0	8	8	26	19
	Range FY 1999-2002	13-19	44-129	501-908	408-856	52-93	0-5	0-20	0-0	0-2	0-0	0-1	0-0	0-0	17	0-17	17-39	1-38
R/V, Field Camps	FY 2002	2	7	66	41	25	0	0	0	0	0	0	0	0	1	1	24	0
	Mean FY 1999-2002	2	8	133	115	18	0	0	0	0	0	0	0	0	1	1	15	2
	Range FY 1999-2002	1-3	7-9	16-254	16-214	0-40	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-2	0-2	0-30	0-8
South Pole	FY 2002	19	78	2653	2521	132	11	0	10	0	21	0	5	2	0	7	63	20
	Mean FY 1999-2002	17	94	3472	3142	331	11	75	10	33	18	0	9	1	0	10	86	89
	Range FY 1999-2002	13-20	59-126	5174	2521-4500	126-674	6-17	0-247	0-24	0-83	0-50	0-1	5-12	0-2	0-0	6-13	30-155	20-173
USCG Icebreaker	FY 2002	2	9	195	191	4	0	1	0	0	0	0	0	0	1	1	2	0
	Mean FY 1999-2002	1	5	61	59	1	0	0	0	0	0	0	0	0	0	0	1	0
	Range FY 1999-2002	0-2	0-9	0-195	0-191	0-4	0-0	0-1	0-0	0-0	0-0	0-0	0-0	0-0	0-1	0-1	0-2	0-0
<b>TOTALS</b>	<b>FY2002</b>	<b>121</b>	<b>610</b>	<b>8988</b>	<b>8284</b>	<b>704</b>	<b>19</b>	<b>12</b>	<b>10</b>	<b>6</b>	<b>21</b>	<b>0</b>	<b>45</b>	<b>13</b>	<b>35</b>	<b>93</b>	<b>393</b>	<b>150</b>
	Mean FY 1999-2002	125	595	10759	9596	1164	43	130	17	46	18	5	124	7	26	157	516	233
	Range FY 1999-2002	95-150	429-705	8391-	7702-13816	689-1786	19-88	12-405	10-28	5-97	0-51	0-19	39-218	2-13	17-	66-254	319-708	150-332

**Table 4b Science Project Quality Time minus Bad Weather Days**

**Fiscal Years 1999 through 2001**

Facility	Fiscal Year	Responses	# Team Members	Corrected Total Project Days *	Productive Days	Corrected Unproduct. Days *	Causes of Unproductive Days												
							Delays In Cargo	Failure Equipment/ Instruments	Inadequate Lab/ Observ Space	Incorrect/ Insufficient Material	Cryogenics Unavail	Science Tech Unavail	Air	Surface	R/V	Transportation Total	Bad Weather	Other Circumstances	
McMurdo	FY 2002	63	396	4112	4003	109	7	11	0	6	0	0	40	11	0	51	219	34	
Mean	FY 1999-2002	60	295	4160	3960	200	22	22	5	7	0	0	88	4	0	92	271	54	
Range	FY 1999-2002	39-73	169-396	2891-5914	2784-5537	107-377	7-45	4-60	0-11	0-18	0-0	0-0	32-166	1-11	0-0	33-167	208-366	34-85	
McMurdo & USCG	FY 2002	4	16	168	163	5	0	0	0	0	0	0	0	0	0	0	20	5	
Mean	FY 1999-2002	2	8	70	68	3	1	0	0	0	0	0	0	0	0	0	5	1	
Range	FY 1999-2002	0-4	0-16	0-168	0-163	0-5	0-4	0-0	0-0	0-0	0-0	0-0	0-1	0-0	0-0	0-1	0-20	0-5	
Multiple Stations	FY 2002	3	10	160	160	0	0	0	0	0	0	0	0	0	0	0	2	0	
Mean	FY 1999-2002	3	8	183	134	49	0	1	0	0	0	0	24	0	1	25	31	24	
Range	FY 1999-2002	0-5	0-13	0-358	0-206	0-187	0-0	0-2	0-0	0-0	0-0	0-0	0-91	0-0	0-2	0-91	0-105	0-96	
Other	FY 2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mean	FY 1999-2002	1	2	37	35	3	0	0	0	0	0	0	3	0	0	3	4	0	
Range	FY 1999-2002	0-2	0-5	0-122	0-120	0-8	0-0	0-0	0-0	0-0	0-0	0-0	0-8	0-0	0-0	0-8	0-10	0-0	
Palmer	FY 2002	5	16	588	560	8	0	0	0	0	0	0	0	0	7	7	8	1	
Mean	FY 1999-2002	8	22	1059	1018	42	4	16	1	4	0	4	0	6	6	6	54	9	
Range	FY 1999-2002	2-12	7-43	530-1929	497-1838	8-91	0-13	0-49	0-2	0-9	0-0	0-15	0-0	0-0	0-8	0-8	8-114	1-15	
R/V LMG	FY 2002	9	34	300	237	63	1	0	0	0	0	0	0	0	10	10	16	52	
Mean	FY 1999-2002	16	72	492	433	59	2	6	2	1	0	1	0	3	11	13	24	36	
Range	FY 1999-2002	9-18	34-90	300-717	237-641	13-85	0-6	0-16	0-4	0-2	0-1	0-2	0-0	0-9	15	8-24	16-31	2-52	
R/V LMG,Palmer	FY 2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mean	FY 1999-2002	1	4	80	74	6	2	3	0	1	0	0	0	0	0	1	1	0	
Range	FY 1999-2002	0-2	0-9	0-275	0-253	0-22	0-8	0-10	0-0	0-2	0-0	0-0	0-1	0-0	0-1	0-2	0-5	0-0	
R/V NBP	FY 2002	14	44	462	408	54	0	0	0	0	0	0	0	0	16	16	39	38	
Mean	FY 1999-2002	15	78	597	559	38	2	8	0	1	0	0	0	8	8	8	26	19	
Range	FY 1999-2002	13-19	44-129	462-886	408-856	28-54	0-5	0-20	0-0	0-2	0-0	0-1	0-0	0-0	17	0-17	17-39	1-38	
R/V, Field Camps	FY 2002	2	7	42	41	1	0	0	0	0	0	0	0	0	1	1	24	0	
Mean	FY 1999-2002	2	8	118	115	3	0	0	0	0	0	0	0	1	1	1	15	2	
Range	FY 1999-2002	1-3	7-9	16-224	16-214	0-10	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-0	0-2	0-2	0-30	0-8	
South Pole	FY 2002	19	78	2590	2521	69	11	0	10	0	21	0	5	2	0	7	63	20	
Mean	FY 1999-2002	17	94	3386	3142	245	11	75	10	33	18	0	9	1	0	10	86	89	
Range	FY 1999-2002	13-20	59-126	2590-5019	2521-4500	69-519	6-17	0-247	0-24	0-83	0-50	0-1	5-12	0-2	0-0	6-13	30-155	20-173	
USCG Icebreaker	FY 2002	2	9	193	191	2	0	1	0	0	0	0	0	0	1	1	2	0	
Mean	FY 1999-2002	1	5	60	59	1	0	0	0	0	0	0	0	0	0	0	1	0	
Range	FY 1999-2002	0-2	0-9	0-193	0-191	0-2	0-0	0-1	0-0	0-0	0-0	0-0	0-0	0-0	0-1	0-1	0-2	0-0	
<b>TOTALS</b>	<b>FY2002</b>	<b>121</b>	<b>610</b>	<b>8595</b>	<b>8284</b>	<b>311</b>	<b>19</b>	<b>12</b>	<b>10</b>	<b>6</b>	<b>21</b>	<b>0</b>	<b>45</b>	<b>13</b>	<b>35</b>	<b>93</b>	<b>393</b>	<b>150</b>	
Mean	FY 1999-2002	125	595	10243	9596	648	43	130	17	46	18	5	124	7	26	157	516	233	
Range	FY 1999-2002	95-150	429-705	8072-14957	7702-13816	311-1141	19-88	12-405	10-28	5-97	0-51	0-19	39-218	2-13	35	66-254	319-708	150-332	

**Table 4c Science Project Effectiveness of Planning and Overall Assessment**

**Fiscal Years 1999 through 2002**

Facility	Fiscal Year	Effectiveness of Planning										Overall Assessment								
		Actual versus Planned Performance										Rating of Support Provided					Survey Captured			
		Transit to Ice	Transit to Field	Field Training	Field Testing Set-up	Experiment Data Collection	Planned Down Days	Packing Up	Transit From Field	Transit From Ice	Total Days Lost/ Gained	Not Satisfactory	Poor	Satisfactory	Good	Excellent	Yes	No	Not Answered	
McMurdo	FY 2002	-8	-20	3	16	53	27	5	-9	6	68	0	0	1	9	53	54	9	0	
	Mean FY 1999-2002	-97	-83	-6	-7	13	12	6	-18	-14	-201	1	1	6	12	50	35	24	4	
	Range FY 1999-2002	-238 to -8	-148 to -20	-16 to 3	-19 to 16	-23 to 53	-3 to 27	3 to 11	-54 to -3	-37 to 6	-470 to 68	0-1	0-1	0-13	9-14	24-72	4-54	5-69	0-11	
McMurdo & USCG	FY 2002	0	-14	0	1	0	0	1	0	0	-12	0	0	0	1	3	3	1	0	
	Mean FY 1999-2002	0	-8	0	1	0	0	1	-1	0	-8	0	0	1	1	1	1	0	0	
	Range FY 1999-2002	0-0	-14--2	0-0	0 to 1	0 to 0	0 to 0	0 to 1	-1 to 0	0 to 0	-12 to -3	0-0	0-0	0-0	1-1	0-3	0-3	0-1	0-1	
Multiple Stations	FY 2002	4	1	0	10	20	0	1	1	4	41	0	0	0	0	3	3	0	0	
	Mean FY 1999-2002	0	-24	-1	3	12	0	1	1	2	-7	0	0	1	0	2	1	2	0	
	Range FY 1999-2002	-7-4	-96-1	-4-1	0 to 10	0 to 29	0 to 0	0 to 2	-1 to 3	0 to 4	-89 to 41	0-0	0-0	0-3	0-0	0-5	0-3	0-5	0-0	
Other	FY 2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Mean FY 1999-2002	-1	-1	0	0	0	0	0	-1	-1	-4	0	0	0	1	0	1	0	0	
	Range FY 1999-2002	-3-0	-3-0	0-0	-1 to 0	0 to 0	0 to 0	-1 to 0	-3 to 0	-3 to 0	-8 to 0	0-0	0-0	0-0	0-0	0-2	0-0	0-2	0-0	
Palmer	FY 2002	-9	0	0	-1	2	1	-1	0	0	-8	0	0	0	1	4	4	1	0	
	Mean FY 1999-2002	-2	-6	-1	-4	-34	2	-5	-1	-4	-54	0	0	2	1	7	4	4	3	
	Range FY 1999-2002	-9-2	-24-0	-1-0	-8 to 0	-102 to 10	1 to 3	-14 to 0	-4 to 0	-25 to 9	-176 to 22	0-1	0-0	0-5	1-1	1-14	1-9	0-10	0-8	
R/V LMG	FY 2002	7	7	0	0	33	5	2	6	8	68	0	0	0	1	8	5	4	0	
	Mean FY 1999-2002	-1	2	0	-3	-3	-2	-3	3	6	-5	1	0	2	2	13	7	4	5	
	Range FY 1999-2002	-6-7	-3-7	0-0	-7 to 0	-30 to 33	-8 to 5	-7 to 2	0 to 6	1 to 12	-47 to 68	0-1	0-0	0-5	1-2	8-18	2-11	3-6	0-15	
R/V LMG,Palmer	FY 2002	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Mean FY 1999-2002	0	0	0	0	-3	0	0	0	-1	-4	0	0	1	0	1	1	1	0	
	Range FY 1999-2002	-1-0	0-0	0-0	-1 to 0	-10 to 0	0 to 0	-1 to 0	0 to 0	-2 to 0	-15 to 0	0-0	0-0	0-3	0-0	0-1	0-1	0-2	0-1	
R/V NBP	FY 2002	13	0	0	1	-9	-1	1	1	4	10	0	0	0	2	12	13	1	0	
	Mean FY 1999-2002	6	-1	-1	0	-14	-5	0	0	2	-10	0	1	4	3	12	8	7	3	
	Range FY 1999-2002	0-13	-4-1	-2-0	-1 to 2	-23 to -6	-9 to -1	-4 to 2	-1 to 1	0 to 5	-33 to 11	0-1	0-1	0-12	2-4	8-15	0-13	1-17	0-11	
R/V, Field Camps	FY 2002	-1	0	0	0	31	18	0	0	0	48	0	0	0	0	2	1	0	1	
	Mean FY 1999-2002	-2	0	-1	0	8	9	0	0	-1	10	0	0	0	1	1	1	1	1	
	Range FY 1999-2002	-6-0	0-1	-2-0	0 to 0	0 to 31	0 to 18	0 to 1	0 to 0	-3 to 0	-8 to 48	0-0	0-0	0-1	0-2	1-2	0-1	0-3	0-1	
South Pole	FY 2002	-48	0	0	-1	-29	-2	-5	0	1	-84	0	0	1	6	12	15	4	0	
	Mean FY 1999-2002	-42	8	3	-5	-55	2	-2	5	0	-88	1	0	4	6	15	10	10	3	
	Range FY 1999-2002	-56--28	-6-40	0-10	-11 to -1	-152 to -14	-2 to 5	-5 to 2	-2 to 20	-7 to 6	-213 to 0	0-4	0-0	0-8	5-6	7-29	1-15	1-30	0-9	
USCG Icebreaker	FY 2002	10	10	0	0	10	0	1	0	3	34	0	0	1	0	1	1	1	0	
	Mean FY 1999-2002	3	3	0	0	2	0	0	0	1	9	0	0	1	0	0	1	1	0	
	Range FY 1999-2002	0-10	0-10	0-0	0 to 1	-1 to 10	0 to 0	0 to 1	0 to 0	0 to 3	-1 to 34	0-0	0-0	0-2	0-0	0-1	0-1	0-0		
<b>TOTALS</b>	<b>FY 2002</b>	<b>-32</b>	<b>-16</b>	<b>3</b>	<b>26</b>	<b>111</b>	<b>48</b>	<b>5</b>	<b>-1</b>	<b>26</b>	<b>165</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>20</b>	<b>98</b>	<b>99</b>	<b>21</b>	<b>1</b>	
	Mean FY 1999-2002	-137	-106	-6	-16	-73	18	-2	-12	-15	-358	3	1	20	25	103	68	54	18	
	Range FY 1999-2002	-273 to -32	-255 to -16	-18 to 3	-41 to 26	-249 to 111	-12 to 48	-17 to 13	-37 to -1	-51 to 26	-772 to 165	0-8	0-2	3-43	20-29	55-153	9-99	21-139	1-56	

**Table 5 Causes of Unproductive Days**

**Fiscal Years 1999 through 2002**

Causes of Unproductive Days	Unproductive Days			Percent of Unproductive Days			Percent of Corrected Unproductive Days *		
	FY2002	FY 1999 - FY 2002		FY2002	FY 1999 - FY 2002		FY2002	FY 1999 - FY 2002	
		Mean	Range		Mean	Range		Mean	Range
Bad Weather	393	516	319-708	56%	47%	36-56%	n/a	n/a	n/a
Other Circumstances	150	233	150-332	21%	21%	19-24%	48%	40%	29-48
Transportation	93	157	66-254	13%	13%	10-17%	30%	25%	18-33%
Unavailability of Cryogenic Materials	21	18	0-51	3%	3%	0-7%	7%	5%	0-14%
Delays in Cargo	19	43	19-88	3%	3%	3-5%	6%	6%	6-8%
Failure of Equipment / Instruments	12	130	12-405	2%	8%	2-23%	4%	14%	4-35%
Inadequate Lab/Observatory Space	10	17	10-28	1%	2%	1-2%	3%	3%	2-4%
Incorrect / Insufficient Material	6	46	5-97	1%	3%	1-7%	2%	6%	1-13%
Unavailability of Science Techs	0	5	0-19	0%	1%	0-3%	0%	1%	0-5%
<b>Total Unproductive Days</b>	<b>704</b>	<b>1164</b>	<b>689-1787</b>						
<b>Total Corrected Unproductive Days</b>	<b>311</b>	<b>648</b>	<b>311-1142</b>						

\* Corrected does not include Bad Weather Days

**Table 6 Science Project Quality Time minus Bad Weather Days and Percentages of Facility Unproductive Days minus Bad Weather Days**

Facility	Fiscal Year	Responses	# Team Members	Corrected Total Project Days *	Productive Days	Corrected Unproduct. Days *	Unproduct. Days	Percent of Each Cause of Unproductive Days to Corrected Unproductive Days												
								Delay in Cargo	Failure of Equip. Anstr.	Inadequate Lab/ Observ.	Incorrect/ Insufficient Material	Cryogenics Unavail	Science Tech Unavail	Air	Surface	RV	Transport. Total	Other Circumstances	Bad **	
McMurdo	FY 2002	63	396	4112	4003	109	328	6%	10%	0%	6%	0%	0%	37%	10%	0%	47%	31%	67%	
	Mean FY 1999-2002	60	295	4160	3960	200	471	11%	11%	2%	3%	0%	0%	44%	2%	0%	46%	27%	57%	
	Range FY 1999-2002	39-73	169-396	2891-5914	2784-5537	107-377	315-667	6-13%	4-16%	0-5%	0-6%	0-0%	0-0%	30-54%	0-10%	0-0%	31-56%	18-54%	43-67%	
McMurdo & USCG	FY 2002	4	16	168	163	5	25	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	80%
	Mean FY 1999-2002	2	8	70	68	3	8	40%	0%	0%	0%	0%	0%	10%	0%	0%	10%	50%	68%	
	Range FY 1999-2002	0-4	0-16	0-168	0-163	0-5	0-25	0-80%	0-0%	0-0%	0-0%	0-0%	0-0%	0-20%	0-0%	0-0%	0-20%	0-100%	0-80%	
Multiple Stations	FY 2002	3	10	160	160	0	2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%	
	Mean FY 1999-2002	3	8	183	134	49	80	0%	1%	0%	0%	0%	0%	49%	0%	1%	50%	49%	39%	
	Range FY 1999-2002	0-5	0-13	0-358	0-206	0-187	0-292	0-0%	0-22%	0-0%	0-0%	0-0%	0-0%	0-56%	0-0%	0-22%	0-78%	0-51%	0-100%	
Other	FY 2002	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Mean FY 1999-2002	1	2	37	35	3	7	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%	0%	62%	
	Range FY 1999-2002	0-2	0-5	0-122	0-120	0-8	0-14	0-0%	0-0%	0-0%	0-0%	0-0%	0-0%	0-100%	0-0%	0-0%	0-100%	0-0%	0-83%	
Palmer	FY 2002	5	16	568	560	8	16	0%	0%	0%	0%	0%	0%	0%	0%	88%	88%	13%	50%	
	Mean FY 1999-2002	8	22	1059	1018	42	96	8%	37%	1%	9%	0%	9%	0%	0%	13%	13%	22%	56%	
	Range FY 1999-2002	2-12	7-43	530-1929	497-1838	8-91	16-205	0-14%	0-54%	0-6%	0-26%	0-0%	0-45%	0-0%	0-0%	0-88%	0-88%	13-45%	27-70%	
R/V LMG	FY 2002	9	34	300	237	63	79	2%	0%	0%	0%	0%	0%	0%	0%	16%	16%	83%	20%	
	Mean FY 1999-2002	16	72	492	433	59	83	3%	10%	3%	1%	0%	1%	0%	4%	18%	22%	60%	28%	
	Range FY 1999-2002	9-18	34-90	300-717	237-641	13-85	39-116	0-7%	0-23%	0-5%	0-2%	0-1%	0-3%	0-0%	0-12%	11-62%	12-62%	15-83%	20-67%	
R/V LMG, Palmer	FY 2002	0	0	0	0	0	0	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	
	Mean FY 1999-2002	1	4	80	74	6	7	33%	42%	0%	17%	0%	0%	4%	0%	4%	8%	0%	17%	
	Range FY 1999-2002	0-2	0-9	0-275	0-253	0-22	0-27	0-36%	0-45%	0-0%	0-100%	0-0%	0-0%	0-5%	0-0%	0-5%	0-9%	0-0%	0-19%	
R/V NBP	FY 2002	14	44	462	408	54	93	0%	0%	0%	0%	0%	0%	0%	0%	30%	30%	70%	42%	
	Mean FY 1999-2002	15	78	597	559	38	64	6%	20%	0%	3%	0%	1%	0%	0%	22%	22%	50%	40%	
	Range FY 1999-2002	13-19	44-129	462-886	408-856	28-54	52-93	0-18%	0-67%	0-0%	0-7%	0-0%	0-2%	0-0%	0-0%	0-61%	0-61%	4-70%	29-46%	
R/V, Field Camps	FY 2002	2	7	42	41	1	25	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	0%	96%	
	Mean FY 1999-2002	2	8	118	115	3	18	0%	0%	0%	0%	0%	0%	0%	0%	27%	27%	73%	84%	
	Range FY 1999-2002	1-3	7-9	16-224	16-214	0-10	0-40	0-0%	0-0%	0-0%	0-0%	0-0%	0-0%	0-0%	0-0%	0-100%	0-100%	0-80%	0-100%	
South Pole	FY 2002	19	78	2590	2521	69	132	16%	0%	14%	0%	30%	0%	7%	3%	0%	10%	29%	48%	
	Mean FY 1999-2002	17	94	3386	3142	245	331	4%	31%	4%	13%	7%	0%	4%	0%	4%	4%	36%	26%	
	Range FY 1999-2002	13-20	59-126	2590-5019	2521-4500	69-519	126-674	3-16%	0-48%	0-14%	0-28%	0-52%	0-1%	2-7%	0-3%	0-0%	2-10%	21-48%	23-48%	
USCG Icebreaker	FY 2002	2	9	193	191	2	4	0%	50%	0%	0%	0%	0%	0%	0%	50%	50%	0%	50%	
	Mean FY 1999-2002	1	5	60	59	1	1	0%	50%	0%	0%	0%	0%	0%	0%	50%	50%	0%	60%	
	Range FY 1999-2002	0-2	0-9	0-193	0-191	0-2	0-4	0-0%	0-50%	0-0%	0-0%	0-0%	0-0%	0-0%	0-50%	0-50%	0-0%	0-100%		
<b>TOTALS</b>	<b>FY 2002</b>	<b>121</b>	<b>610</b>	<b>8595</b>	<b>8284</b>	<b>311</b>	<b>704</b>	<b>6%</b>	<b>4%</b>	<b>3%</b>	<b>2%</b>	<b>7%</b>	<b>0%</b>	<b>14%</b>	<b>4%</b>	<b>11%</b>	<b>30%</b>	<b>48%</b>	<b>56%</b>	
	Mean FY 1999-2002	125	595	10243	9596	648	1164	7%	20%	3%	7%	3%	1%	19%	1%	4%	24%	36%	44%	
	Range FY 1999-2002	95-150	429-705	8072-14957	7702-13816	311-1141	689-1786	6-8%	4-35%	2-4%	1-13%	0-14%	0-5%	11-28%	0-4%	2-11%	18-33%	29-48%	36-56%	

**Fiscal Years 1999 through 2002**

\*Corrected = Bad Weather Days are not included

\*\* Percentage = Bad Weather of Total Unproductive Days

**Table 7 Facility Contribution to Productive and Unproductive Days**

**Fiscal Years 1999 through 2002**

Facility	Fiscal Year	Corrected Total Project Days *	Productive Days	Corrected Unproduct. Days *	Facility Percent of			
					Facility Productive Days	Facility Unproductive Days	Total Productive Days	Total Unproductive Days
McMurdo	FY 2002	4112	4003	109	97%	3%	48%	35%
	Mean FY 1999-2002	4160	3960	200	95%	5%	41%	31%
	Range FY 1999-2002	2891-5914	2784-5537	107-377	94-97%	3-6%	36-48%	27-35%
McMurdo & USCG	FY 2002	168	163	5	97%	3%	2%	2%
	Mean FY 1999-2002	70	68	3	96%	4%	1%	1%
	Range FY 1999-2002	0-168	0-163	0-5	0-97%	0-4%	0-2%	0-2%
Multiple Stations	FY 2002	160	160	0	100%	0%	2%	0%
	Mean FY 1999-2002	183	134	49	73%	27%	1%	6%
	Range FY 1999-2002	0-358	0-206	0-187	0-100%	0-52%	0-2%	0-24%
Other	FY 2002	0	0	0	0%	0%	0%	0%
	Mean FY 1999-2002	37	35	3	93%	7%	0%	0%
	Range FY 1999-2002	0-122	0-120	0-8	0-98%	0-30%	0-1%	0-1%
Palmer	FY 2002	568	560	8	99%	1%	7%	3%
	Mean FY 1999-2002	1059	1018	42	96%	4%	10%	6%
	Range FY 1999-2002	530-1929	497-1838	8-91	94-98%	1-6%	6-14%	3-9%
R/V LMG	FY 2002	300	237	63	79%	21%	3%	20%
	Mean FY 1999-2002	492	433	59	88%	12%	5%	12%
	Range FY 1999-2002	300-717	237-641	13-85	79-97%	3-21%	3-8%	2-21%
R/V LMG,Palmer	FY 2002	0	0	0	0%	0%	0%	0%
	Mean FY 1999-2002	80	74	6	93%	8%	1%	1%
	Range FY 1999-2002	0-275	0-253	0-22	0-100%	0-8%	0-2%	0-2%
R/V NBP	FY 2002	462	408	54	88%	12%	5%	17%
	Mean FY 1999-2002	597	559	38	94%	6%	6%	9%
	Range FY 1999-2002	462-886	408-856	28-54	88-97%	3-12%	5-6%	3-17%
R/V, Field Camps	FY 2002	42	41	1	98%	2%	0%	0%
	Mean FY 1999-2002	118	115	3	98%	2%	1%	1%
	Range FY 1999-2002	16-224	16-214	0-10	96-100%	0-4%	0-3%	0-3%
South Pole	FY 2002	2590	2521	69	97%	3%	30%	22%
	Mean FY 1999-2002	3386	3142	245	93%	7%	33%	33%
	Range FY 1999-2002	2590-5019	2521-4500	69-519	90-97%	3-10%	30-38%	22-45%
USCG Icebreaker	FY 2002	193	191	2	99%	1%	2%	1%
	Mean FY 1999-2002	60	59	1	99%	1%	1%	0%
	Range FY 1999-2002	0-193	0-191	0-2	0-100%	0-1%	0-2%	0-1%
<b>TOTALS</b>	<b>FY2002</b>	<b>8595</b>	<b>8284</b>	<b>311</b>	<b>96%</b>	<b>4%</b>		
	Mean FY 1999-2002	10243	9596	648	94%	6%		
	Range FY 1999-2002	8072-14957	7702-13816	311-1141	92-96%	4-8%		

**Table 8 Effectiveness of Planning  
Average Days Lost/Gained**

**Fiscal Years 1999 through 2002**

Facility	Average Days Lost (-) Gained (no sign)		
	FY2002	Mean FY 1999-2002	Range FY 1999-2002
McMurdo	1	-3	-6 to 1
McMurdo & USCG	-3	-1	-3 to 0
Multiple Stations	14	-1	-22 to 14
Other	0	-3	-8 to 0
Palmer	-2	-3	-16 to 11
R/V LMG	8	1	-3 to 8
R/V LMG,Palmer	0	-3	-8 to 0
R/V NBP	1	-1	-3 to 1
R/V, Field Camps	24	5	-3 to 24
South Pole	-4	-5	-13 to 0
USCG Icebreaker	17	5	-1 to 17
<b>TOTALS</b>	<b>1</b>	<b>-3</b>	<b>-6 to 1</b>

**Table 9 Rating of Support Provided****Fiscal Years 1999 through 2002**

<b>Facility</b>	<b>Rating of Support Provided</b> (Percent of Satisfied + Good + Excellent)		
	<b>FY2002</b>	<b>Mean FY 1999-2002</b>	<b>Range FY 1999-2002</b>
McMurdo	100%	98%	97-100%
McMurdo & USCG	100%	100%	100-100%
Multiple Stations	100%	100%	100-100%
Other	100%	100%	100-100%
Palmer	100%	99%	95-100%
RV LMG	100%	97%	94-100%
RV LMG,Palmer	100%	100%	100%
RV NBP	100%	97%	93-100%
RV, Field Camps	100%	100%	100-100%
South Pole	100%	96%	90-100%
USCG Icebreaker	100%	100%	100-100%
<b>TOTALS</b>	<b>100%</b>	<b>98%</b>	<b>96-100%</b>

NOTE: FY 1999-2000 represents sum of Satisfied and Excellent.

**Table 10 Survey Design Captured Facility Support****Fiscal Years 1999 through 2002**

Facility	Design Captured Facility Support (Affirmative Percentage)		
	FY2002	Mean FY 1999-2002	Range FY 1999-2002
McMurdo	86%	81%	78-86%
McMurdo & USCG	75%	71%	67-75%
Multiple Stations	100%	75%	25-100%
Other	n/a	100%	100-100%
Palmer	80%	64%	50-80%
R/V LMG	56%	48%	15-61%
R/V LMG,Palmer	n/a	89%	67-100%
R/V NBP	93%	71%	53-93%
R/V, Field Camps	50%	67%	50-100%
South Pole	79%	79%	71-92%
USCG Icebreaker	50%	67%	50-100%
<b>TOTALS</b>	<b>82%</b>	<b>72%</b>	<b>64-82%</b>

**Table 11 Suggestions For Improving the USAP Research Support Facilities Survey**

**McMurdo**

Project	1	The form should be redone so that percentages are used.
Project	2	It's hard to credit the use productive/unproductive days as an assessment tool in an environment where judgement calls on the weather are par for the course - do you stay home because of the weather or because of increased risk of travel?
Project	3	More comment boxes. We had fantastic support at each and every stage of our field season.
Project	4	Cannot differentiate lab support from field work.
Project	5	The hassle with the electronic forms used by RSPC (sic) are a time sink and should reflect in the negative side of the support Rating. This form is a typical example, in which one is unable to fill because there is not possibility of new lines. My experience has been that it takes upwards of a week to get set up to fill the...
Project	6	The Antarctic support was excellent. The Denver support was terrible.
Project	7	Our outbrief will be more informative.
Project	8	We don't rate ourselves in terms of productive and nonproductive days - just because we have a weather delay in the field, it doesn't mean that our day is nonproductive - we usually can work even if the helicopter can't come. The days lost in McMurdo hurt us the most because there is little we...
Project	9	Could include more room to cite individuals who support projects.

**McMurdo & USCG**

Project	1	Use person days instead of calendar days.
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**R/V LMG**

Project	1	Since this was a multidisciplinary cruise, we lost time for our project that was used by other projects. This was an anticipated loss, that can not be well accounted for in the form as designed. Nor can time at Palmer
Project	2	This survey addresses the land based projects better. For marine science often you have to deal more with weather issues than a delay due to persons or equipment.
Project	3	The survey is a better evaluator.

**R/V NBP**

Project	1	I think that number of days missed is a strange and misleading way to assess the adequacy and quality of support. Support was excellent. Even if we had missed days due to delays or weather, support still can and would have been excellent.
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**South Pole**

Project	1	Since our project is ongoing, most questions on this survey do not represent the support problems we have, if any. The survey looks to be geared to support on field missions.
Project	2	This survey does not take into consideration the ability of the CARA science team to adjust the priorities of the group in order to keep the project going. For example, if USAP does not deliver something on a timely basis, CARA attempts to redirect activity to something else. If CARA was a single project, then the delay in delivery would cause lost days that would need to be reported in this survey.
Project	3	CARA is a complex project with many people and activities which does not fall into the categories listed. Exit interview would be a better mechanism.

**USCG Icebreaker**

Project	1	You cannot use one form to capture the variations among projects.
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## Table 12 Describe USAP Support

### McMurdo

Project	1	When shipping equipment from UK, do NOT send through PTH, instead send directly to Christchurch to avoid unnecessary customs delays.
Project	2	Would like to know what equipment ordered did not make it.
Project	3	We need telemetry from gauging stations to increase effectiveness.
Project	4	Network, see comments
Project	5	Transportation to Williams Field for flights. Large vehicles or more frequent runs or prioritize the 2 essential survey members.
Project	6	Overall, excellent support from all support services in McMurdo.
Project	7	My biggest current gripe is with the ESP system for season planning. The server-based system is cumbersome and platform dependent. It should be replaced with a PDF Upload system following the example of NSF's Fastlane system for proposal submission.
Project	8	Discussed in Out-brief.
Project	9	1)Transportation difficulties to the ice runway. 2) Fuel caches that were poorly marked/located.
Project	10	Lack of knowledge of SSI (Mt Bastion) by support staff. Quality of some food items poor, (food room help excellent). Outdated food items and hand warmers.
Project	11	1) Full helicopter close support days difficult to obtain in McMurdo scheduling. 2) Lack of Twin Otter support (1 day requested).
Project	12	Stay with paper forms until you have figured out the electronic forms. It should not take more than one afternoon to fill said forms. Period.
Project	13	Continual disorganization and loss of information in the Denver office resulting in much frustration and loss of time on our end. I found the Fixed Wing Operations support and the Twin Otter pilots to be excellent. Alana Jones and Jeanine Watkins were nearly always available for discussion and information. They were flexible and easy to work with.  The Kenn Borek operation is outstanding and the pilots and engineers should be recognized for their contributions to the USAP program. I found them all to be very efficient and helpful. Sean Loutitt met with us early in our season to familiarize himself with our project and needs. We always departed smoothly and on schedule. The pilots clearly work hard while in the field and are very efficient planning stops, fueling the aircraft, etc. I was very pleased with the support we received from them.  Chas Day has already had preliminary discussions with Sean about the pullout of the sites in January and looks forward to continued smooth coordination with the Fixed Wing Operations office and the Kenn Borek crews.

## Table 12 Describe USAP Support

Project 14	<p>Overall, this season has been a complete success. In some experimental areas, we exceeded our expectations for our first field season. Since our project is an integration of bench work and fieldwork, we rely on a diversity of support here in McMurdo. Our progress in the lab was largely facilitated by effective ordering (thanks to Peggy Malloy) and the efficiency of the Crary Staff. In the field, Fleet Ops (especially Ralph Horak) was efficient and flexible in support of our fishing. Curt LaBombard I Science Construction was fantastic and built our field equipment in just a few days, allowing us to start collection of specimens in a timely manner. In addition, we received outstanding cooperation from EC; Stacy Rowland worked with us and arranged for replacement vehicles when necessary. In addition, Joe Yarkin is helping us arrange for solar power for an electric winch we routinely use for deploying fish traps. We found that having a shared truck (122) was particularly helpful. We saved significant amounts of time and energy and increased our productivity as a result of this convenience. The truck was especially helpful during the set up period. Finally, the skidoo mechanics were very responsive when we had problems early in the season. In the Crary, we lacked nothing. The stockroom staff was particularly helpful in finding all the materials we needed. In terms of cargo, we were not missing a single item.</p> <p>During the season I came across only two negative issues that are worth mentioning. The first is alluded to on the outbrief survey under the 'Unproductive Days' category. The other is a question of support that needs to be addressed. Early in the season we were significantly set back in the field when the incorrect generator was delivered to power an electric winch. The sequence of events in the saga "The Red Winch" included a complete overhaul of the winch, moving it back and forth from CSEC to the MEC, and numerous tests until someone noticed that the incorrect generator was being used and, in fact, there was nothing wrong with the winch at all. As a consequence, we lost 8 days, but were able to catch up and only lost about 3 days all told. This was not a devastating problem but is worthy of explanation, given that I listed 'unproductive days' on the survey.</p> <p>The other issue is one of support of field teams that are a hybrid of sort-not deep field, but not routine day-trippers either. At the end of the season, unbeknownst to me, my project was cut off from access to field food. We need these modest field food supplies in order to work effectively on the sea ice. As part of our regular routine, we travel out to fish in the open or in fish huts and there are many days that we miss lunch or dinner due to unexpected delays. We ask to carry field food (e.g., granola bars, juice and chocolate) with us so that we can bridge the nutritional gap when we need to do so. In addition, when the weather is bad and we are doing a good deal of physical labor, those snacks mean the difference between getting work done and having to quit. Thus, support for our fieldwork in the form of access to the field rations would be greatly appreciated. Finally, I was never contacted about being cut off from access to the food room, my lab was inspected in my absence and without my knowledge and therefore, I feel that communication on this support issue could be greatly improved.</p>
Project 15	Some problems with continuous power at Williams Field. I think that Phil Austin and Al Sutherland have already addressed this problem.
Project 16	Shuttle schedule to Williams Field and scheduling of vans was not good for us. We had limited hours to test
Project 17	1) Field camp support responsibilities need to be established between McMurdo and S. Pole to eliminate any confusion. 2) Cargo numbering system for each ICDS projects need to be identified by separate numbers (Currently all are 150-
Project 18	In our outbrief, I mentioned an apparent disconnect between present weather and forecast weather (or air operators planning).
Project 19	1) Computer network speed (Internet link, not Intranet). Network is extremely slow. 2) A smaller, more efficient speed vac for drying samples for transport would be nice.
Project 20	We didn't have any significant support problems. The only difficulty was the repeated lack of a lead line when the helicopter came. This problem seems to have been the result of miscommunication and has, I hope, been resolved.
Project 21	Inaccurate bulk fuel delivery quantity.
Project 22	Excellent support for everyone.
Project 23	No difficulties.
Project 24	BFC, MEC support excellent, McMurdo telecoms Chris great.
Project 25	I should have been timely informed of construction delays. Desire to know when construction will be complete.

## Table 12 Describe USAP Support

### McMurdo & USCG

- Project 1 We lost about 35 person days waiting for the Coast Guard; two of our persons could have stayed home as a result. So, in the future, if the plan is to do something on approximately the date shown in the plan, it should be done. Otherwise, why plan; rather, show up in McMurdo and see needs what?
- Project 2 Before we came down to Antarctica there was a slight miscommunication about our SIP form. Continued improvements to the form to make it more self-explanatory would be helpful. This was a relatively minor problem, overall you did a great job!
- Project 3 We probably should have taken an additional day to set-up equipment-test it out.
- Project 4 None, I was on the icebreaker almost the entire time.

### Multiple Stations

- Project 1 See attachment (no attachment found)

### Palmer

- Project 1 Once we are on station, we do not have "unproductive days". We do, however, have days where we cannot do what we have planned as our highest priority because, for example, our supplies for that were not ordered on time. Many of our supplies were not ordered until immediately before we deployed even though they were on our SIP that was submitted on time in March. There is no excuse for this. Either hire more purchasing agents or new ones.
- Project 2 None this past year.

### R/V LMG

- Project 1 The only problem that we experienced was the cable to the HTI echosounding transducer parting. ET Peter Martin repaired the cable and re-deployed the HTI in such a way as not to cause chafing. We recommend suspending the HTI from bungee cords to prevent violent movement during rough weather. We also recommend that HTI provide software that yields output in a more user-friendly format. We will talk with HTI about this.
- Project 2 We received exceptional support from all RPSC staff and boat crew. Support from Rothera Station was critical to our success, and much appreciated. New zodiac engines would have improved our effectiveness.
- Project 3 There were delays in cargo and some cargo that didn't arrive before we sailed. Some cargo that did arrive on time were not the correct items. The Raytheon personnel at the inport found adequate substitutes for the mis-purchases. The cargo that didn't arrive on time was a new tail fin for the HTI acoustic system. When the existing tail was damaged by ice, the MTs would have replaced it. Instead they fashioned new fins from material on board and made do with the damaged tail. Thus, no project days were lost largely due to the efforts of the field support personnel. This year we had good weather most of the cruise. During most of the bad weather days, we were in sheltered areas or in ice, so we lost little working time. The 12 hours that I lost was during an open water station out at the shelf break. Because I run live animal experiments in the aquarium room, every time the weather decks are closed, I either lose a time point for data collection or I lose experiments entirely. Last year I lost entire experiments. This year I only lost time points. The aquarium room needs access from inside the ship. Also our dive operations were delayed several times and almost cancelled due to problems with outboard motors. The MTs worked very hard to keep them operational. New, more powerful outboard motors are urgently needed. Lastly, we were unable to work in some areas where we had planned stations due to ice. I believe that a larger vessel with greater ice breaking capabilities is needed to support Antarctic research science. Over all the cruise was very successful. These comments are meant to be suggestions for improvement.
- Project 4 Freezer Van had a refrigerant leak. The ET's on board did an excellent job in trouble shooting and keeping it down to temperature.
- Project 5 Computer technician should be equally proficient with both PC and Apple. We worked during transit time taking samples across Drake Passage-the item total transit days becomes irrelevant.

## Table 12 Describe USAP Support

### R/V NBP

- Project 1 Galley food could be upgraded. One of IT techs was in training, and PI was not informed (hence a problem was unexpected)
- Project 2 None: Support could not have been better, thanks!
- Project 3 We had difficulty because of the new marine technicians on board. We got into an unsafe situation with a tow because of the marine tech's inexperience. However, this is Raytheon's fault, not the Marine Tech. These new techs should never have been sent out on this project (where there is so much going on and there isn't a lot of room for ...)

### South Pole

- Project 1 We experience difficulties with transportation of small cargo items between Dome and the SPASE shack due to the fact that SPASE is not served by the shuttle service.
- Project 2 Original packing crates were missing after two years at the South Pole. The station had to re-build crates for us. Suggest to have better inventory or tracking system for used crates and boxes.
- Project 3 None this past year.
- Project 4 Cryogenics improved but still not perfect. Improvement in hold times of Wessington dewars essential for future...

### USCG Icebreaker

- Project 1 Confusion among McM and ship operation as to who is supporting project.