

McMURDO AREA USERS'
COMMITTEE
(MAUC)
MEETING

August 7, 2002
Centennial, Colorado

McMURDO AREA USERS' COMMITTEE MEETING August 7, 2002

MAUC Members

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See Page 50 for notification list- National Science Foundation and Raytheon Polar Services Company participants

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MAUC Charter

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Agenda

McMurdo Area Users' Committee

Annual Meeting, 7 August 2002

Pole Auditorium

Raytheon Polar Services Company, Centennial, Colorado

7:00-7:30 CONTINENTAL BREAKFAST

7:30-8:20 OPENING

- Welcome and introduction of attendees (10 min) N.Dunbar C.LaBombard
- Overview of meeting agenda (10 min) N.Dunbar C.Labombard
- NSF welcome and remarks (15 min) TBD
- RPSC welcome and remarks (15 min) RPSC/S Dunbar

8:20-8:45 COMMITTEE BUSINESS

- Review of last year's issues (15 min) R.Score N.Dunbar
 - Review and approval of membership (10 min) N.Dunbar
- BREAK (15 min)

9:00-9:45 PLANNING AND TRAVEL

- Introduction of new planning manager concept (15 min) S.Dunbar
- Polar ice status and current state of ESP (15 min) S. Holbrook
- DSG (travel/population team) K.Nevins J.Benson

9:45-12:00 IT/COMMUNICATION AND RELATED ISSUES/INFORMATION

- Internet Security (15 min) T. Howard
- Comms infrastructure for near-field (<200 km) (15 min) S.Toft
- McMurdo comms issues (sat. of McM-CONUS link) (15 min) TBD
- GPS/GIS capabilities (15 min) K.Brunt C.Kurnick
- Status of Iridium phones (voice and data) (30 min) M.Perry Iridium Reps
- Discussion and communication wrap up (30 min)

BREAK FOR LUNCH

1:00-1:45 TRANSPORTATION ISSUES

- Herc availability for future years (10 min) NSF
- South Pole Traverse status report (15 min) J. Wright
- Fleet status (trucks,Piston Bully's, snow machines) (10 min) L.Cook K.Salveson
- Fast Ice concerns for McMurdo (10 min) T.Scambos

1:45-2:30 FIELD SPECIFIC ISSUES

- Alternative (non-diesel/gas) power (15 min) K.Salveson A.Hanson
- Status of new field camps (15 min) C.LaBombard
- Field clothing status (15 min) M.Rider

BREAK

2:45-4:00 FACILITIES, LABORATORY, AND MISCELLANEOUS

- SSC and JSOC status (10 min) S.Meredith
- Code of Conduct/lab safety for Crary Lab (10 min) R.Score
- Crary Library and Capital equipment (15 min) S.Alexander
- Sample Shipments (15 min) M.Davis
- Meteorology program at McM (status, availability) K. Hill
- Wrap up (10 min)

4:00-5:00 EXECUTIVE SESSION

MAUC members

Actions/Recommendations MAUC Meeting August 7, 2002

Action Item 1

The MAUC feels that the current RPSC web site (<http://www.rpsc.raytheon.com/>) should undergo some reorganization. The main purpose of the reorganization will be to make the web site easier to navigate, and to make it quicker to reach the parts of the web site that most scientists use on a regular basis. Facts and information necessary for deployment need to be made more readily accessible, such as RPSC personnel contact information, cargo mailing information, and information regarding the medical exams. It would be desirable to have most of the content as 'html' pages rather than .pdf downloadable files, for more rapid browsing. Also, to implement some separation between "grantee-oriented" and "RPSC-oriented" content on the web site. We see two sub-parts to this action item:

- A. MAUC MEMBERS WILL POLL THEIR RESPECTIVE COMMUNITIES IN ORDER TO COLLECT RECOMMENDATIONS FROM THE SCIENCE COMMUNITY. THOSE COMMENTS WILL BE TRANSMITTED TO NELIA DUNBAR, WHO WILL THEN MAKE RECOMMENDATIONS TO RPSC.**
- B. RPSC WILL CHANGE THE WEB SITE ACCORDING TO ABOVE RECOMMENDATIONS.**

Action Item 2

KELLY NEVINS WILL SPEAK TO AMERICAN AIRLINES, AND ALSO TO THE SECURITY GROUP AT THE LOS ANGELES INTERNATIONAL AIRPORT, ABOUT THE TRANSPORT OF SAMPLES BACK TO THE UNITED STATES. KELLY WILL DETERMINE IF IT WOULD BE USEFUL FOR PEOPLE TO HAVE AN OFFICIAL LETTER FROM NSF EXPLAINING THEIR INVOLVEMENT WITH THE USAP, AND IF SO, WILL PREPARE THIS LETTER AND IMPLEMENT ITS DISTRIBUTION TO APPROPRIATE PERSONNEL.

Action Item 3

The MAUC recognizes the need for conservation of internet bandwidth to CONUS, and will help RPSC in asking the scientists to cooperate with RPSC and NSF's requests to limit non-mission-related use of the web. However, we strongly endorse the development of greater internet bandwidth for McMurdo-CONUS, in the interest of mission-related needs. Increased bandwidth would facilitate greater use of near-real-time satellite image data on sea ice, surface temperature, route safety, weather phenomena, snow conditions, etc. It would support better collaboration with CONUS scientists. It would facilitate northbound transfer of new and important data, as well as the ongoing data stream of AVHRR, SAR, and DMSP data. It would support any future ground station data transfer, such as for Landsat 7 or Terra/Aqua. **WHILE RECOGNIZING THAT THE NSF AND RPSC ARE FOCUSING ON THIS PROBLEM, WE WOULD LIKE TO BE RECOMMEND THAT UPGRADING THE CURRENT MCMURDO-CONUS INTERNET WEB BANDWIDTH MAINTAINS A VERY HIGH PRIORITY, AND THAT UPDATES ON PROGRESS BE PRESENTED AT FUTURE MAUC MEETINGS.**

Action Item 4

THE MAUC RECOMMENDS THAT, WHEREVER POSSIBLE, RPSC PUTS TRAINING CLASSES THAT NOW TAKE PLACE IN MCMURDO ON THE WEB SO THAT THEY CAN BE ACCESSED BY USAP PARTICIPANTS PRIOR TO TRAVELLING TO ANTARCTICA. Examples of classes that could go on the web would be recycling/garbage training, high altitude

awareness, and some of the safety courses that now take place once a grantee has arrived in McMurdo. This would allow grantees to maximize productive research time in Antarctica.

Action Item 5

STEVE ALEXANDER WILL PREPARE A QUESTIONNAIRE GEARED AT UNDERSTANDING HOW RESEARCHERS USE THE CRARY LIBRARY, INCLUDING ASKING ABOUT WHAT TYPES OF REFERENCE BOOKS WOULD BE USEFUL, IF ANTARCTICA-ORIENTED "HISTORY OF SCIENCE" BOOKS WOULD BE USED, AND HOW MUCH RESEARCHERS FEEL THAT THEY MIGHT USE ON-LINE JOURNALS. THIS QUESTIONNAIRE WILL BE DISTRIBUTED TO THE COMMUNITY BY MEMBERS OF THE MAUC. THE RESULTS OF THIS SURVEY WILL BE USED TO PROVIDE FUTURE DIRECTION FOR CRARY LIBRARY ACQUISITIONS. STEVE WILL ALSO INVESTIGATE THE POSSIBILITY OF ACCESSING ON-LINE JOURNALS THROUGH NSF.

Action Item 6

THE MAUC WILL PROVIDE INPUT TO THE CAPITAL EQUIPMENT PURCHASE LIST. THESE ITEMS WILL BE DISCUSSED AND PRIORITIZED AT THE 2003 MAUC MEETING

Action Item 7

An action item from last year's meeting addressing the creation of a priority list for improvement to field camp structures was not carried out (Action Item 1, MAUC 2001 page 52). The MAUC decided that a better approach is for investigators to approach RPSC directly with regard to field camp upgrades. **THE MAUC WILL DISTRIBUTE AN ANNUAL POLL TO SCIENTISTS WHO USE PERMANENT FIELD CAMP STRUCTURES IN ORDER TO DETERMINE THE RESPONSIVENESS OF RPSC AND NSF TO CAMP STRUCTURE UPGRADES, AND WILL REPORT ANY PROBLEMS AT THE MAUC MEETING.**

Action Item 8

CURT LABOMBARD WILL REVIEW THE SCIENCE OUTBRIEFS, AND WILL PROVIDE A SUMMARY OF RECURRING THEMES TO THE MAUC TWO MONTHS BEFORE THE 2003 MAUC MEETING. AGENDA ITEMS FOR THE MEETING WILL BE PARTLY DRAWN FROM THE OUTBRIEF SUMMARY.

Action Item 9

THE MAUC WILL PUT TOGETHER A DOCUMENT SUMMARIZING THE BENEFITS OF THE NOW-DISCONTINUED ANTARCTIC JOURNAL OF THE U.S. (AJUS), AND SUGGESTIONS FOR AN ELECTRONIC REPLACEMENT. A pre-MAUC meeting poll of scientists found a strong majority of users supported the continuation of the AJUS in some form (~5 to 1). The content of the AJUS is appropriate for an electronic journal, which might be less costly and easier to manage. Further, it is an excellent vehicle for reporting early results, which are generally information-oriented rather than interpretation-oriented. Pilot research projects conducted in the field alongside of the funded target study are often reported in the journal. It is an excellent vehicle for building the writing skills of student scientists, thus contributing to education. The past AJUS represent an important and unique data set, containing many facts and observations that would otherwise be lost. **NELIA DUNBAR AND TED SCAMBOS WILL TAKE THE LEAD IN PREPARING THIS DOCUMENT.**

Action Item 10

MAUC members are concerned about landfast ice conditions over the next few years due to climate/ocean effects of the large bergs in the region. In the past year, an extensive, thick fast ice shelf extending far north of Cape Byrd was largely removed by two record-breaking weather events: a December storm, and early January warmth. Current satellite images show the same fast ice situation setting up again in McMurdo Sound, with thick fast ice building north of Cape Byrd (Fig. 1). **MAUC RECOMMENDS THAT RPSC PREPARE AN OUTLINE STRATEGY OF HOW TO MANAGE MCMURDO AND SOUTH POLE IF THE STATION IS NOT ABLE TO BE RE-SUPPLIED BY SHIP IN EARLY 2003, OR IN SOME FUTURE YEAR. THIS PLAN SHOULD INCLUDE SOME CAPABILITY TO CONTINUE LIMITED SCIENCE ACTIVITY AND INSTRUMENT MONITORING.**

Action Item 11

AN INFORMAL MAUC MEETING WILL BE HELD IN MCMURDO STATION IN MID-NOVEMBER 2002. THIS MEETING WILL BE HELD IN PLACE OF THE MAUC AD HOC MEETING HELD IN PRIOR YEARS. EXACT DATE TO BE DETERMINED LATER.

Action Item 12

THE NEXT MAUC MEETING WILL BE HELD ON TUESDAY JULY 15, 2003.

Welcome, review of Agenda, and Round Table Introductions

Nelia Dunbar welcomed MAUC members, NSF representatives, and RPSC staff to the meeting. Following round table introductions and a review of the meeting agenda, the status of the May 2001 action items were reviewed (page 52).

NSF Welcome

Bob Wharton, Executive Officer, Polar Programs, welcomed MAUC members and thanked the MAUC for their continued time and effort in serving on this user committee.

Continued discussion included:

The OPP budget for the next fiscal year is still in Congress. It is anticipated that the budget will be finalized after the election. As of this date, the NSF anticipates approximately \$300 million for FY03, which is 2% over last year or a \$6 million increase. Specifically this will result in \$68 million in Antarctica, \$40 million in grant funds, and \$130 in science and operations.

Positive indications from Congress are that there may be increased budgeting for OPP over the next five years. If the budget is increased, the NSF is considering increasing the size of grant funding and extending the duration of grant to possible 5-year grant cycles.

RPSC Welcome

Steve Dunbar, Director Science Support, as of February 2002, discussed structure changes within RPSC over the last year including the April 2002 relocation to 7400 South Tucson Way.

Steve also noted the following:

- RPSC will be recruiting a new Deputy Director, Science Support to fill the vacancy created when Steve was named Director, Science Support.
- An Area Director for each of the three Antarctic stations will be named for the upcoming season. In the past, supervisors/managers reported directly to the Station Manager. As there are many supervisors/managers, the newly created Area Director positions will have the authority to align the goals of all to better support science.
- RPSC is striving to reach and maintain the Raytheon Corporate goals of continuously improving processes; protect the unique and fragile Antarctic environment, and provide all USAP participants with a safe and healthy work environment.

New Planning Manager Concept

At the direction of the NSF, a Planning Support Group (Planning Support Managers-PSM) will be hired by RPSC to better support the scientists and grantees traveling to Antarctica. The PSM will be in contact with funded PIs and grantees from the outset, working with PIs on the Science Information Packet (SIP) issues, procurement requests, Research Support Plan (RSP), and they will also follow through to the season-end Outbriefs.

Steve Dunbar and Brian Stone discussed the plans for RPSC to hire 6 employees (PSMs) for the newly approved Planning Group at RPSC. Brian noted that the main idea is to develop a continuous planning system that will provide information and support for the long term. RPSC recognized the need to hire staff that can work year round in the headquarters office to provide this continuous support. Per Steve, the Planning Group will be comprised of knowledgeable, Antarctic experienced personnel. Steve will provide MAUC members with a copy of the job description and the science community will be solicited for applicants.

A question posed by PAUC- What, if any, are the negative sides to implementing Planning Support Managers? Will there be resulting micro-management?

Brian Stone responded that the OAC members urged that flexibility be maintained and the NSF recognizes the need to be flexible. However, through the PSM planning stages and the communication between PSMs and grantees, it is anticipated that there will be fewer needs for re-works in the field and that changes/requests will be addressed prior to the grantees' arrival in Antarctica.

Steve Dunbar added that minimal spare resources on site make planning a necessity and good planning also results in getting the most out of our resources. The PSMs will be advocates; they will be on management level; and they will be cross-trained to make them more knowledgeable in all the various areas being supported by RPSC. The PSM will be especially beneficial to the new grantees coming into the program.

Jim Scott, Operations Manager McMurdo Station, next informed MAUC of the corporate restructure being implemented for the 2002-2003 season. This change should be transparent to grantees, does not involve hiring new staff, and should allow for improved re-allocation of resources. Cleve Cleveland, IT Manager, Andy Young, Field Manager, and Mike Hush, Logistics Manager, will report to Jim Scott under the new Operations Support Structure.

B.K. Grant, Bob Farrell, and Jim Scott, Operations Managers for South Pole, Palmer Station and McMurdo Station respectively, are working closely to better understand each other's station and how to better support the grantees.

POLAR ICE and Electronic Support Plan (ESP) Status

Steve Dunbar noted that POLAR ICE is expected to be a major improvement over the ESP software and additional staff has been hired for the POLAR ICE development. Scott Holbrook, IT Senior Software Architect, presented more detailed information on the development plans for POLAR ICE.

POLAR ICE will be a:

- Web-based environment providing advantages over the current client-server architecture
- Single point of interaction for grantees, the NSF, and RPSC
- Integration to existing RPSC data streams
- System architecture that is scalable and extensible
- First step to integrated support environment
- and Future goals are:
 - Automated services
 - Wireless data access

POLAR ICE Overview

- What is POLAR ICE?
 - **Participant On-Line Antarctic Research Information Coordination Environment**
 - "Next-Generation Software for the 7th Continent"
 - A Web-based data collection and dissemination system

- Designed to capture and administer all relevant support requirements for scientific research in Antarctica
- Captures all data currently captured in ESP – and more
 - System administration and data maintenance accelerated
 - More robust reports to fit business needs
 - Flexible data manipulation to support On-Ice usage
- Target Audiences
 - Grantees, RPSC, NSF
- POLAR ICE represents a paradigm shift
 - Client-server replicated application to Web-based architecture
 - No longer will users download packaged software applications
 - Accessible from any Internet-connected computer
 - Interoperable with all browsers
- POLAR ICE provides administrative functionality
 - Latency of report data has been problematic
 - Inability for Work Center personnel to update records
 - Creates support issues to keep inventories current
 - No system rebuild/redeploy required when changes occur

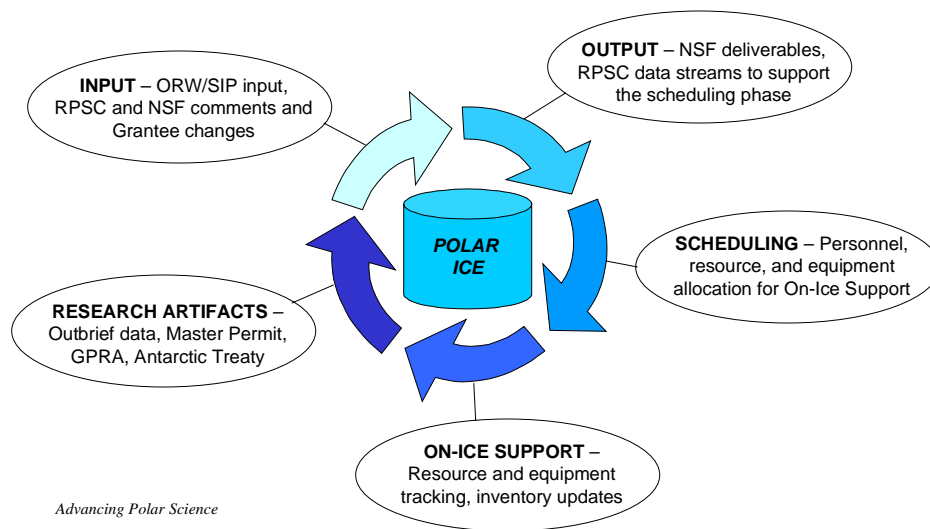
POLAR ICE Vision

- POLAR ICE addresses the user experience
 - The user views the software as a Web service
 - This is a primary design goal for both interface and flow
 - Currently migrating ESP users to a Web interface
- POLAR ICE is based on the entire planning process lifecycle
 - All phases are supported
 - Extensible for process modification



PLANNING PROCESS SUPPORT

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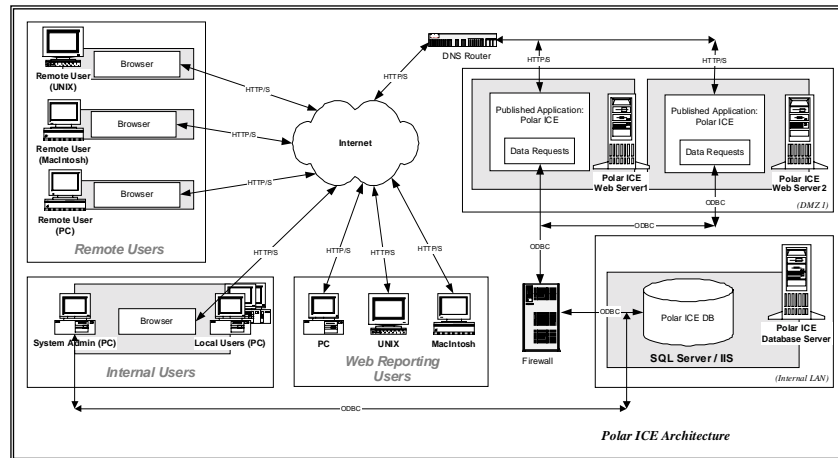
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POLAR ICE Overview 6



HARDWARE ARCHITECTURE

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POLAR ICE Overview 7



SOFTWARE ARCHITECTURE

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- **Three-tier architecture**
 - Allows for optimum system access time
 - Promotes overall system scalability
 - Multiple systems used to develop all layers

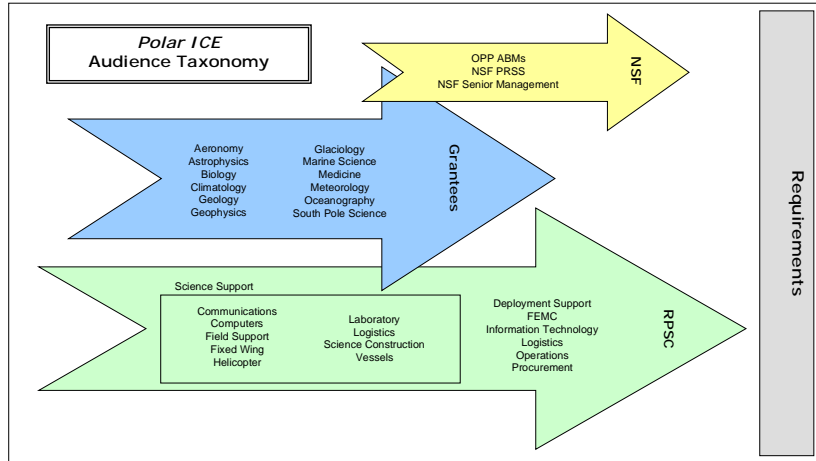
Layer	Functionality	System
Presentation	User interface and input/output	HTML
Application	Business rules and system logic	Cold Fusion / ASP / XML
Data	All system data sources	MS SQL Server 7/2000 MS IIS

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POLAR ICE Overview 8

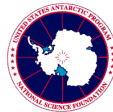


AUDIENCE TAXONOMY



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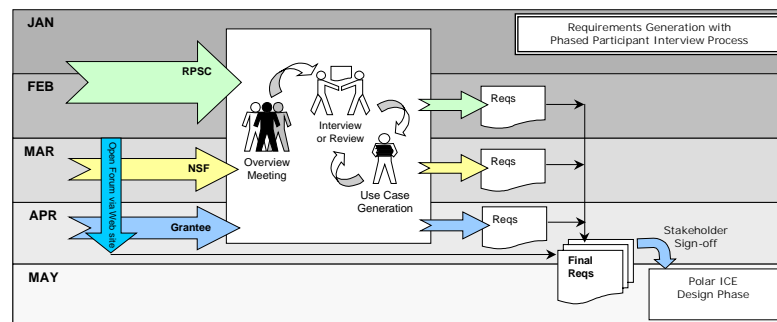
POLAR ICE Overview 9



REQUIREMENTS INTERVIEWS



- **Phased interview approach**



- **Focus on the planning process role**
- **Required system entry points**
 - Input/output needs, reporting requirements, document review

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POLAR ICE Overview 10

Baseline Requirements

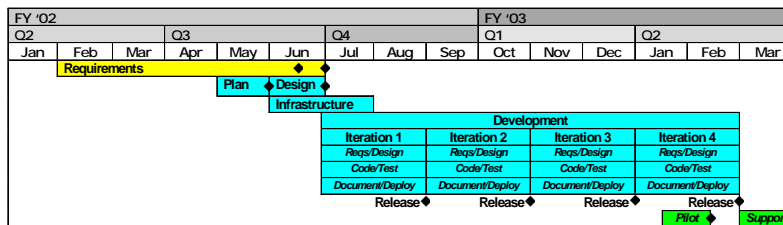
- Grantee Requirements
 - Stable system with reliable access to input, update, and review all ORW and SIP information electronically
 - Available to multiple collaborative Grantees
 - Proprietary information is protected
 - Improved interface and connectivity
- RPSC Requirements
 - Ability to view, add, modify, and delete inventory items
 - Ability to view real-time data on ORWs and SIPs
 - Support for creating the final RSP
- NSF Requirements
 - Derive electronic reports including PI contact information
 - Monitor the progress of ORWs and SIPs
 - Ability to view and compare projected with actual seasonal support
 - Support annual budgeting and funding decisions



Timeline Implications



- RPSC:

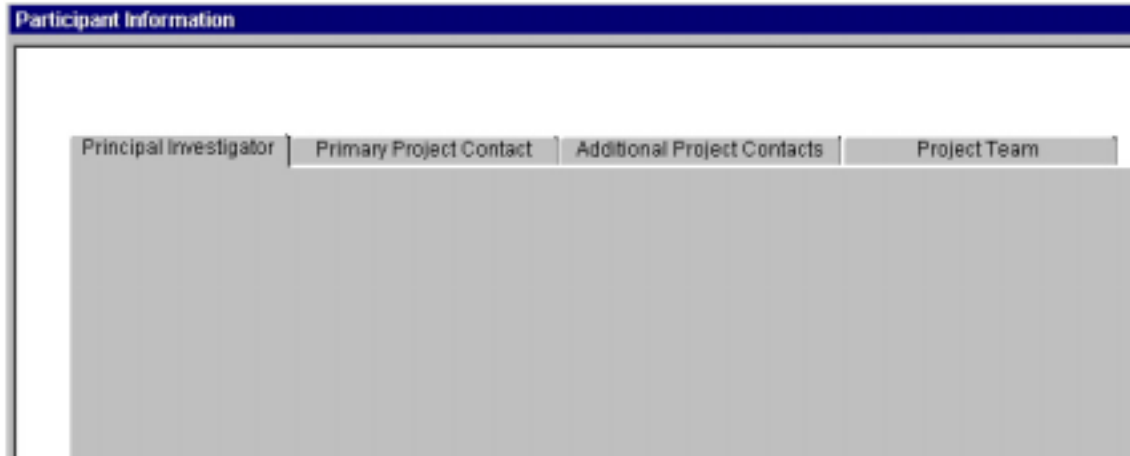


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POLAR ICE Overview 13

Sample User Interface

- Simpler User Interface Driven by Grantees
 - Each ORW/SIP section has tabbed sections
 - Simplifies Data Input
 - Reduces Errors in Finding Requirement Location



Other comments: A suggestion from Ted Scambos: the RPSC website could be improved to make it more user friendly. Steve Toth, IT Director, responded that a major initiative for RPSC and the USAP is to overhaul the various websites and have them more interactive. Determining who and how to better govern the website is a difficult task and may prove to be a 6-9 month project. Steve Toth noted that the issue Ted Scambos expressed is one of the issues that will be addressed. User Committees are asked to send website suggestions to Steve Toth (steve.toth@usap.gov)

Action Item 1

The MAUC feels that the current RPSC web site (<http://www.rpsc.raytheon.com/>) should undergo some reorganization. The main purpose of the reorganization will be to make the web site easier to navigate, and to make it quicker to reach the parts of the web site that most scientists use on a regular basis. Facts and information necessary for deployment need to be made more readily accessible, such as RPSC personnel contact information, cargo mailing information, and information regarding the medical exams. It would be desirable to have most of the content as 'html' pages rather than .pdf downloadable files, for more rapid browsing. Also, to implement some separation between "grantee-oriented" and "RPSC-oriented" content on the web site. We see two sub-parts to this action item:

- A. MAUC members will poll their respective communities in order to collect recommendations from the science community. Those comments will be transmitted to Nelia Dunbar, who will then make recommendations to RPSC.**
- B. RPSC will change the web site according to above recommendations.**

Population Team and Travel (DSG) Discussion

Jon Benson, McMurdo Population Management Coordinator, reported that, in response to the recent NSF mandate for continent-wide population management, an FY03 design plan is now in place and staff has been hired. It is anticipated that a full policy implementation will be in place for FY04.

Benefits to Science Community are:

- Verification that Requested Deployment and Redeployment Flight Dates on SIP are Available
- Dates of Travel will be Provided to Principal Investigators via the Research Support Plan (RSP)

This will:

- Minimize Time in Christchurch
- Reserve Flight Date to and from Ice
- Maximize Time/Resources on Ice (example)
 - 11/21/02 CONUS-CHC
 - 11/24/02 Clothing Issue
 - 11/25/02 CHC-McM
 - 02/04/03 McM-CHC
- Confirmation that Travel Request Worksheets Match Requested Flight Dates

McMurdo 2002-2003 Updates:

- Participants Must Be Identified by Name for Medical Packets to be Sent
- Double Deployments Require NSF Approval
- Deployments Exceeding Funding Memo or ORW Require NSF Approval
- Kelly Kells, Chalet Admin, is Point of Contact for Redeployment Changes and Confirmations

Kelly Nevins, Supervisor, Travel Department, reviewed the following guidelines for deploying grantees and noted that she is available to answer grantee questions.

GENERAL

All tickets for USAP Participants will be issued from and returned to the same city, unless otherwise approved by the DSG Manager or the NSF Program Manager.

Personal travel is not considered when purchasing a ticket with government funds.

The FAR states that a government contractor must use a U.S. Flag carrier, except in certain instances listed in the government regulations. Consequently, all deployments to Chile will be on a U.S. Flag Carrier, except in extraordinary cases when all carriers are booked full and an individual must deploy on that particular date. In this case, alternative carriers will be investigated and used, if practical. RPSC Travel will manage USAP Participants so they can be booked on a U.S. Flag Carrier, by possibly moving the participant forward or backward of a desired deployment date. In cases where it is not feasible because of programmatic reasons, RPSC will book them expeditiously.

NSF agrees that the ticketing policies should be flexible enough to handle most situations. RPSC will diligently attempt to get the lowest reasonable fare for the government; however, RPSC will also strive to meet an individual's programmatic requirements.

Tickets being purchased for roundtrip of USAP Participants are one of four types:

2-month excursion fare: Ticket is valid for a maximum of 2 months. These tickets are being purchased for USAP Participants who plan to be deployed for less than 2 months.

3-month excursion fare: Ticket is valid for a maximum of 3 months. These tickets are being purchased for USAP Participants who plan to be deployed greater than 2 months, but less than 3 months.

6-month excursion fare: Ticket is valid for a maximum of 6 months. These tickets are being purchased for USAP Participants who plan to be deployed greater than 3 months, but less than 6 months.

12-month coach fare: Ticket is valid for a maximum of 12 months. These tickets are being purchased primarily for USAP Participants who will be deployed to Antarctica for longer than 6 months. Due to the high cost of these tickets, they are being purchased only when necessary to deploy personnel on a specific time schedule or if other class fares are not available.

Grantees

Grantee tickets will be issued from Airport Of Departure (AOD) to Chile and return. This ticket is typically an excursion fare ticket that requires a 14-day advance purchase. The date deploying from AOD or U.S. Port of Embarkation to Chile cannot be changed. If a situation occurs where the date must be changed, the ticket has to be cancelled and re-issued. The additional cost of the ticket may be significant and is the responsibility of the Grantee, unless for approved programmatic reasons. All change requests must be in writing to the Travel Supervisor and approved by the NSF.

All tickets for Grantees will be issued from and returned to the same city, unless otherwise approved by the NSF. Grantees will be ticketed on their requested departure date as reflected on the submitted TRW (Form PA-A-100b). If the U.S. Flag Carriers are fully booked on that particular date, and RPSC cannot move an RPSC employee to another day to accommodate the Grantee, RPSC will request the Grantee to move either forward or backward to a date where a seat is available. If the Grantee insists on traveling on a date that requires an upgrade, RPSC will accomplish the upgrade with approval from the NSF. If the Grantee insists on traveling on a fully booked date, RPSC will arrange for an alternate foreign flag carrier if the requirements of the FAR for unavailability of U.S.-flag carriers are met.

Grantee/PI ticketing from abroad: This applies to all Grantees, whether identified in the proposal stage or later. The DSG will not issue tickets with originating travel from outside the United States unless specifically approved in advance from the NSF. ESP has been updated to provide identification of international ticketing requirements. The Participant is to provide their own ticketing from their home to their PIs institution stateside. The DSG will provide ticketing from the home institution to the international Gateway City (Punta Arenas, Chile). If, in the opinion of the DSG Manager or the Travel Supervisor in the absence of the DSG Manager, it is in the best interest of the USAP and the Grantee for the DSG to provide ticketing from a U.S. city other than that of the home institution, such ticketing may be approved. The ticket cannot be at a greater cost than it would be from the home institution city.

If a Grantee insists on flying via a different airline carrier than that being identified by RPSC, a cost comparison will be run. If there is no increase in cost, the ticket may be purchased as long as the Grantee understands that they will be responsible for all related change fees, whether for programmatic or personal reasons. Other carriers do not have the same flexibility as the RPSC issued tickets, and are therefore discouraged.

Procedures Redeployment

General

Employees, Grantees and all USAP personnel issued tickets by RPSC may take personal time upon return from Antarctica. Tickets were purchased for business travel; therefore all changes for personal travel must be made by the participant by contacting a travel agent or the airline directly. Change fees and any other additional costs are the responsibility of the traveler. RPSC issued tickets utilizing American Airlines may call Meeting Services at 1-800-433-1790 to make changes for personal reasons. Additionally, the RPSC website contains additional information pertaining to changes for personal reasons.

PLEASE NOTE: These tickets have an expiration date of 2 months, 3 months, 6 months or one year. The traveler is responsible for checking with the airline to find out the rules of their ticket.

The following options are available (at the individual's own cost):

Personal time in Chile.

A "side" trip can be made from Chile to a vacation destination, then back to Chile for redeployment.

Any traveler, on personal time, choosing to re-deploy after the maximum validity of the ticket will be personally responsible for any additional costs. If the maximum stay ticket has expired it must be upgraded within one year of issue at the traveler's own expense. All change fees and added costs will be the responsibility of the participant. AGUNSA will only make changes for business travel. All programmatic travel changes should be worked out at Palmer Station by the Station Manager or on the vessel by the Marine Projects Coordinator (MPC) before the individual arrives in Chile. This includes obtaining appropriate approvals. Once exceptions and alternatives to travel plans are known, they should be transmitted to AGUNSA in Chile in time to make suitable arrangements, if possible. AGUNSA will not provide travel services for personal travel.

If it is necessary to upgrade tickets for programmatic reasons, AGUNSA will reissue the original tickets.

If it is necessary for a person to travel on a Foreign Flag Carrier, then the original ticket will be returned to the RPSC Travel office in Denver for a refund.

Excess Baggage: If an individual is entitled to excess baggage, AGUNSA will provide an MCO coupon for Punta Arenas-Santiago-(Miami or DFW)-AOD. If the individual elects to take an alternative route, this MCO can be applied to the alternative route. However, any additional excess baggage charges, such as subsequent legs of a stopover or alternative route, are the responsibility of the individual.

Action Item 2

Kelly Nevins will speak to American Airlines, and also to the security group at the Los Angeles International Airport, about the transport of samples back to the United States. Kelly will determine if it would be useful for people to have an official letter from NSF explaining their involvement with the USAP, and if so, will prepare this letter and implement its distribution to appropriate personnel.

Internet Security

Tim Howard presented the following internet security information and noted that information security within RPSC is being developed to comply with Federal Information Systems requirements.

<p>WHY INFORMATION SECURITY? Information Security is Mandatory for Federal Information Systems.</p>	<ul style="list-style-type: none"> ➤ GISRA- Government Information Security Reform Act (2001) ➤ OMB A-130 Policy for management of federal systems ➤ 40 U.S.C 1441 Information Technology Reform Act
<p>WHY ARE WE HERE?</p>	<ul style="list-style-type: none"> ➤ Information Security is an existing federal government requirement with renewed emphasis ➤ Federal government requires mandatory periodic training for all users of federal IT systems, including contractor personnel and science grantees ➤ Annual training supplemented by periodic reminders keeps us aware of the major security issues and this briefing satisfies your training requirement ➤ We need science grantee input to write effective policies and procedures
<p>BASIC ELEMENTS OF INFORMATION SECURITY</p>	<ul style="list-style-type: none"> ➤ Information Security is: <ol style="list-style-type: none"> 1. Confidentiality – Protect our personal information from unauthorized access or disclosure 2. Integrity – Protect information from being changed inadvertently or by unauthorized people 3. Availability – Protect information resources so we can use them when we need them ➤ What do we protect against? <ol style="list-style-type: none"> 1. External Threats – Natural disasters (flood, storm damage, fire); Criminal events (robbery, arson); Information-focused attacks (hackers) 2. Internal Threats – Accidental loss or change of data; Fraud, Waste and Abuse; Disgruntled users; Unethical behavior
<p>USAP INFORMATION SECURITY CONSIDERATIONS</p>	<ul style="list-style-type: none"> ➤ USAP network is: <ol style="list-style-type: none"> 1. A federal government network- target for hostile activities. 2. An open network to support science mission – vulnerable to attack 3. Integral to station safety, morale and quality of life ➤ Network intrusions can: <ol style="list-style-type: none"> 1. Place safety of station residents at risk


	<ol style="list-style-type: none"> 2. Create havoc with science data 3. Could allow intruders to move to other government networks 4. Could undermine public confidence in NSF
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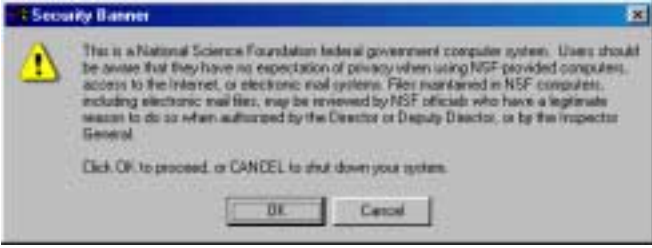
What are we trying to protect?



- **Bandwidth – our scarcest resource**
- **Privacy Act information**
- **HIPAA information such as medical records and reports**
- **Science and Proprietary information**
- **Military airlift schedules; DV/VIP activities - OPSEC**

<p>USAP Information Security Policies</p> <p>5000.1 USAP Information Security Program</p> <p>5000.2 InfoSec Organization & Admin</p> <p>5000.3 Program Information Categorization</p> <p>5000.4 Security Risk Management</p> <p>5000.5 Information Security Architecture</p> <p>5000.6 Acceptable Use</p> <p>5000.7 User Access</p> <p>5000.8 Security Auditing</p> <p>5000.9 Security Training & Awareness</p>	<p>5000.10 Personnel Security</p> <p>5000.11 Physical Security</p> <p>5000.12 Security Incident Management</p> <p>5000.13 Contingency & Disaster Planning</p> <p>5000.14 Virus Protection & Detection</p> <p>5000.15 Security Configuration Management</p> <p>5000.16 Certification & Accreditation</p> <p>5000.17 Non-USAP Systems</p>
<p>INFORMATION SECURITY PROGRAM</p>	<ul style="list-style-type: none"> ➤ Policies and Procedures – the policy process includes comments from science community ➤ Information Architecture – Establishes standards for IT; phase-out legacy equipment and applications that present unacceptable security risks ➤ Certification and Accreditation – Assess sites, systems and applications to identify and mitigate risks ➤ Awareness and Training – Help users understand their role in protecting the infrastructure
<p>USER RESPONSIBILITIES</p>	<ul style="list-style-type: none"> ➤ Protect Confidentiality of our information: <ol style="list-style-type: none"> 1. Protect sensitive information 2. Use passwords properly 3. Log off/password screen savers when leaving your system

	<ul style="list-style-type: none"> ➤ Protect Integrity of our information <ol style="list-style-type: none"> 1. Use passwords properly 2. Ensure your information is backed up 3. Use anti-virus software to check items before installing 4. Use only authorized software ➤ Protect Availability of our information resources <ol style="list-style-type: none"> 1. Use the infrastructure for acceptable purposes only 2. Take proper care of equipment 3. Use only authorized software 4. Use anti-virus software to check items before installing 5. Know what to do in an emergency or disaster situation
<p>Password Tips  D@rkg066Le\$ 2#gluvsHelp R3dc0@t th1Kpant\$</p>	<ul style="list-style-type: none"> ➤ Change your password regularly ➤ Use strong passwords (8 characters, mixed characters) ➤ Protect your password – NO sharing
<p>PROPOSED ACCEPTABLE USES OF USAP IT RESOURCES Acceptable Uses – Not to interfere with mission; Subject to risk assessment; NSF may supersede at any time</p>	<ul style="list-style-type: none"> ➤ Personal telephone/fax use ok – user may pay charges ➤ Personal email use ok – not to interfere with mission ➤ Personal internet use ok – not to interfere with mission ➤ Recreational web browsing ok – not to interfere with mission; no downloads of prohibited material ➤ Instant messaging ok – reasonable use ➤ Personal encryption ok – user may be asked to share key to support investigations ➤ Third party software ok – user to run antivirus checks and must have license ➤ Email lists ok – provide unsubscribe info to station IT ➤ Personal business – limited to activities ok ➤ User has the responsibility to read the entire policy – will have to sign an agreement for account access
<p>PROPOSED PROHIBITED USES OF USAP IT RESOURCES Prohibited Uses – Users may not engage in prohibited activities</p>	<ul style="list-style-type: none"> ➤ No illegal activities ➤ No adverse activities ➤ No classified information ➤ No downloading pornographic, sexist, racist or threatening material ➤ No email chains, or email broadcasts ➤ No personal servers for email, web, ftp, telnet, or similar applications – all project servers must be in SIP and NSF approved ➤ No chat room or newsgroup participation from usap.gov ➤ No political campaigning ➤ No network gaming activities ➤ No personal e-commerce or non-program business activities ➤ No network monitoring tools ➤ User has the responsibility to read the entire

<p>The USAP Banner- “This is a National Science Foundation federal government computer system. Users should be aware that they have no expectation of privacy when using NSF-provided computers, access to the Internet, or electronic mail systems. Files maintained in NSF computers, including electronic mail files, may be reviewed by NSF officials who have a legitimate reason to do so when authorized by the Director or Deputy Director, or by the Inspector General.”</p>	<p>policy – will have to sign an agreement for account access</p> <ul style="list-style-type: none"> ➤ NSF standard banner – deployed on all information systems attached to USAP infrastructure ➤ Deployment brings USAP into compliance with NSF and federal directives ➤ No expectation of privacy – government may access what users might consider personal communications ➤ USAP approach – not normally monitoring people, but do monitor network activity
	
<p>INFORMATION SECURITY CONTACTS Questions, comments, concerns? Contact: The USAP Help Desk: helpdesk@usap.gov Your station IT Manager RPSC Information Security Mgr Tim Howard, 301.794.5325 timothy.howard@usap.gov RPSC IT Director Steve Toth, 720.568.2006 steve.toth@usap.gov NSF/OPP Technology Director Pat Smith, 703.292.7455 pdsmith@nsf.gov NSF/IG Hotline: 703.292.7100 oig@nsf.gov</p>	<p>Station IT Managers: <u>McMurdo</u> Cleve Cleavelin, 720.568.2062 cleve.cleavelin@usap.gov <u>South Pole</u> Bill McAfee, 720.568.2048 bill.mcaffee@usap.gov <u>Palmer Station</u> Lora Folger, 720.568.2095 lora.folger@usap.gov <u>Research Vessels</u> Dave Leger, 720.568.2164 dave.leger@usap.gov <u>Denver</u> MaryBeth Schomas, 720.568.2222 marybeth.schomas@usap.gov <u>Christchurch</u> Bruce Holm, 011.643.358.8139 bruce.holm@iac.org.nz</p>

<p>HOW WILL THIS AFFECT THE SCIENCE USER?</p>	<ul style="list-style-type: none"> ➤ On a government network, rules of use are more restrictive than your home institution ➤ Some activities, such as servers, will be more closely managed than in the past ➤ SIPS take on a greater importance in defining requirements; if it isn't in the SIP, you may encounter a delay at the station ➤ Policies bring a standardized process for change, which should eliminate surprises ➤ Firewalls protect the infrastructure; rules can be set to allow science activities to occur across the Internet ➤ Standards and architecture will help you connect to the network with minimal delay ➤ Cautiously Implementing secure services, such as SSH instead of telnet, and Secure FTP protect science and network resources from intrusion
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<p>SUMMARY</p> <p>Information security protects the confidentiality, integrity and availability of our information and information resources</p> <p>Information security strengthens our infrastructure to ensure bandwidth is available to support science and operations mission</p> <p>Information security ensures that the free flow of information continues among authorized users in the program</p> <p>Poor security puts lives and science mission at risk</p> <p>Strong passwords strengthen security</p> <p>Know the USAP Acceptable Use policy and follow it</p> <p>Know who you go to for help, advice or problem reporting</p> <p>Information Security affects all users, not just IT; we are ALL responsible</p>

Dale Abel, IT Manager, Systems and Service, asked that MAUC identify bandwidth requirements if they're going to be extreme so that IT can work through any problems/spikes with transmissions. Brian Stone also noted that grantees should identify bandwidth needs in the SIP.

Action Item 3

The MAUC recognizes the need for conservation of internet bandwidth to CONUS, and will help RPSC in asking the scientists to cooperate with RPSC and NSF's requests to limit non-mission-related use of the web. However, MAUC strongly endorses the development of greater internet bandwidth for McMurdo-CONUS, in the interest of mission-related needs. Increased bandwidth would facilitate greater use of near-real-time satellite image data on sea ice, surface temperature, route safety, weather phenomena, snow conditions, etc. It would support better collaboration with CONUS scientists. It would facilitate northbound transfer of new and important data, as well as the ongoing data stream of AVHRR, SAR, and DMSP data. It would support any future, ground

station data transfer, such as for Landsat 7 or Terra/Aqua. **While recognizing that the NSF and RPSC are focussing on this problem, MAUC would like to be recommend that upgrading the current McMurdo-Conus internet web bandwidth maintains a very high priority, and that updates on progress be presented at future MAUC meetings.**

Action Item 4

The MAUC recommends that, wherever possible, RPSC puts training classes that now take place in McMurdo on the web so that they can be accessed by USAP participants prior to travelling to Antarctica. Examples of classes that could go on the web would be recycling/garbage training, high altitude awareness, and some of the safety courses that now take place once a grantee has arrived in McMurdo. This would allow grantees to maximize productive research time in Antarctica.

CPS/GIS Capabilities

Kelly Brunt and Chuck Kurnick provided PAUC with an update of the services provided by UNAVCO. These are:

- Pool of GPS equipment
- Technical Support: Training, Field
- Data Archiving
- Research and Development

Hand Held Units

- Accuracy = 3 to 5 meters
- Good for navigating to a spot

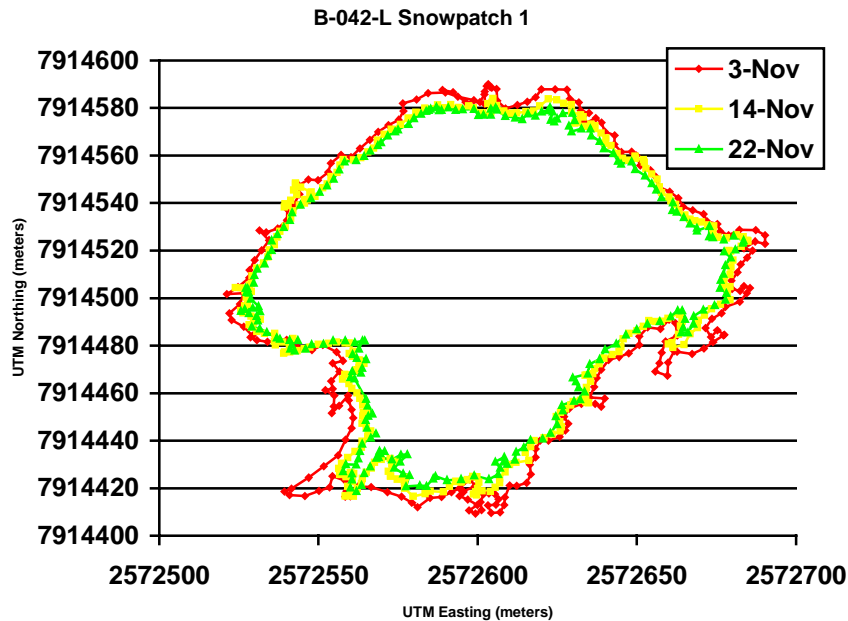
Dual Frequency Receivers

- Uses external antenna
- Accuracy can be millimeter-level
- Two receivers running simultaneously
 - Errors can be removed in real-time (RTK)
 - Errors can be removed during post processing

Types of GPS Surveys

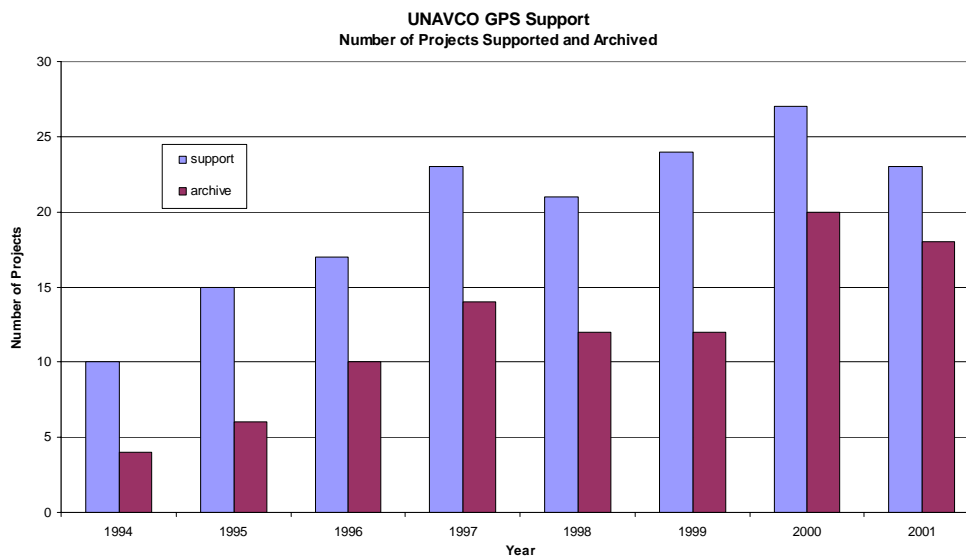
- Static
 - Sub-cm precision, long baselines, long occupations
- Rapid Static
 - cm precision, short baselines, short occupations
- Kinematic
 - cm precision, short baseline, very short occupations
- Continuous Kinematic
 - Decimeter precision on each epoch
- Real-Time Kinematic (RTK)
 - cm or meter precision, requires telemetry

Types of Projects



- Volcano deformation
 - Static surveys and continuous stations (SuomiNet)
- Glacier/ice stream velocity (rapid static or kinematic)
- Mapping: tides/coastline, sea ice cracks (continuous kinematic)
- Geo-referencing of aerial photos (rapid static)
- Navigation to randomly-generated sample locations (RTK)
- Iceberg movement and tilt (kinematic)

Contact UNAVCO at www.unavco.ucar.edu



GPS to GIS

Geospatial (GPS) Data Sources:

- UNAVCO
- Garmin

GIS Support

- Incorporate GPS data with digital GIS data
- Build a GIS project
- Export images

5 NSF	<u>2000-2001 season project count:</u> 19 Grantee	4 RPSC
5 NSF	<u>2001-2002 season project count:</u> 30 Grantee	17 RPSC

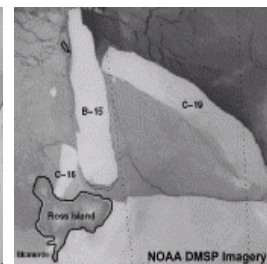
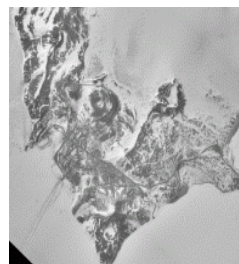
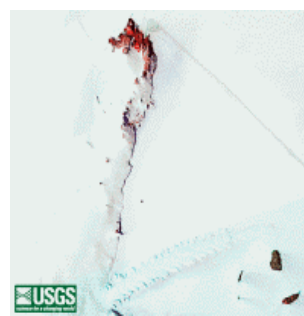
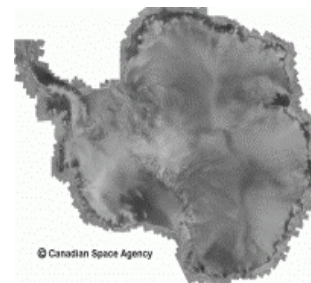
Digital GIS Data

Continent Data:

- ADD Data
- RADAR Data

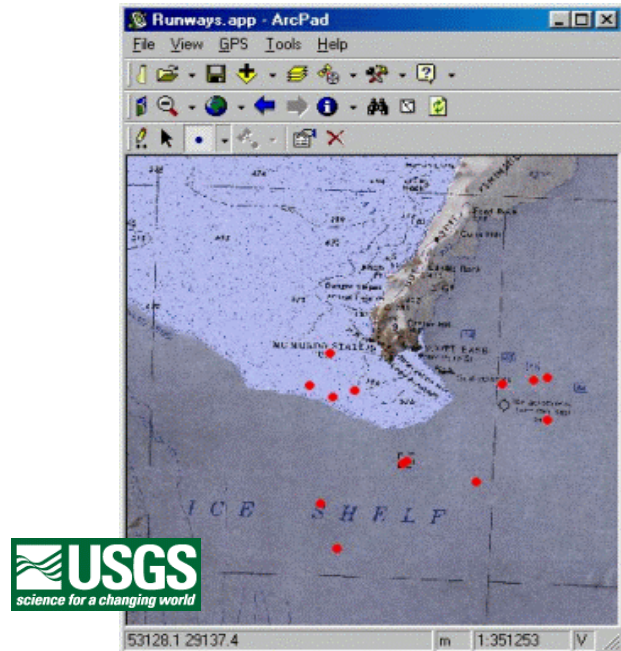
Local Data:

- USGS LANDSAT 7 Data
- USGS Topographic Data
- Aerial Photography
- NOAA DMSP Imagery

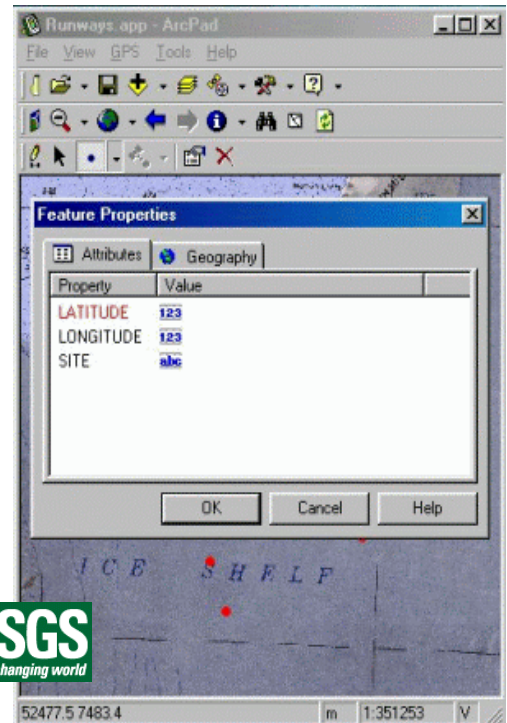
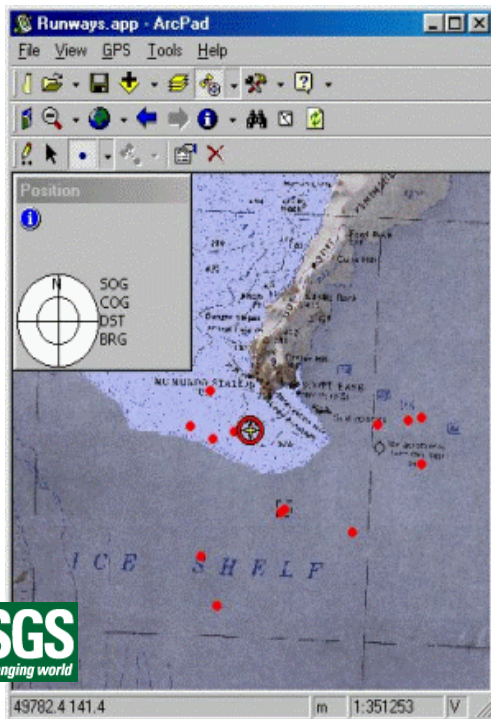


ArcPad

- Compaq iPaq
- ESRI ArcPad software
- GPS card



ArcPad



World Wide Web: <http://www.polar.org/it/GIS/index.htm>

Status of Iridium Phones

Mitch Perry, IT Project Engineer, provided information and the following presentation on Iridium phone use at McMurdo.

Iridium Satellite Launches



- IS-1 Launched 5 spare satellites Feb'02
- IS-2 Launched 2 spare satellites Jun'02

Iridium Constellation Configuration

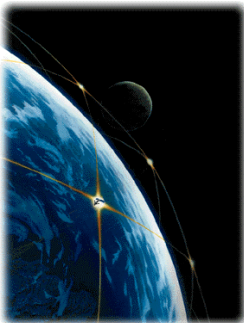
	Plane 1	Plane 2	Plane 3	Plane 4	Plane 5	Plane 6	
Slot 1	SV74 MS-9 5/17/98	SV22 MS-3 8/21/97	SV55 MS-8 3/30/98	SV19 MS-4 9/27/97	SV50 MS-7 2/18/98	SV18 MS-2 7/9/97	Slot 1
Slot 2	SV72 MS-9 5/17/98	SV23 MS-3 8/21/97	SV28 PR-2 9/14/97	SV34 MS-4 9/27/97	SV56 MS-7 2/18/98	SV42 LM-1 12/6/97	Slot 2
Slot 3	SV75 MS-9 5/17/98	SV76 LM-4 8/19/98	SV29 PR-2 9/14/97	SV35 MS-4 9/27/97	SV52 MS-7 2/18/98	SV40 MS-5 11/9/97	Slot 3
Slot 4	SV70 MS-9 5/17/98	SV25 MS-3 8/21/97	SV30 PR-2 9/14/97	SV36 MS-4 9/27/97	SV53 MS-7 2/18/98	SV39 MS-5 11/9/97	Slot 4
Slot 5	SV62 PR-3 4/6/98	SV45 MS-6 12/20/97	SV31 PR-2 9/14/97	SV05 MS-1 5/5/97	SV84 MS-11 11/6/98	SV80 MS-10 9/8/98	Slot 5
Slot 6	SV63 PR-3 4/6/98	SV46 MS-6 12/20/97	SV32 PR-2 9/14/97	SV06 MS-1 5/5/97	SV10 PR-1 6/18/97	SV17 MS-2 7/9/97	Slot 6
Slot 7	SV64 PR-3 4/6/98	SV47 MS-6 12/20/97	SV33 PR-2 9/14/97	SV07 MS-1 5/5/97	SV54 MS-7 2/18/98	SV15 MS-2 7/9/97	Slot 7
Slot 8	SV65 PR-3 4/6/98	SV20 (89) LM-5 12/19/98	SV57 MS-8 3/30/98	SV08 MS-1 5/5/97	SV12 PR-1 6/18/97	SV81 MS-10 9/8/98	Slot 8
Slot 9	SV66 PR-3 4/6/98	SV49 MS-6 12/20/97	SV58 MS-8 3/30/98	SV04 MS-1 5/5/97	SV13 PR-1 6/18/97	SV38 MS-5 11/9/97	Slot 9
Slot 10	SV67 PR-3 4/6/98	SV26 MS-3 8/21/97	SV59 MS-8 3/30/98	SV37 MS-4 9/27/97	SV83 MS-11 11/6/98	SV41 MS-5 11/9/97	Slot 10
Slot 11	SV68 PR-3 4/6/98	SV03 (78) LM-4 8/19/98	SV60 MS-8 3/30/98	SV61 LM-2 3/25/98	SV16 PR-1 6/18/97	SV43 MS-5 11/9/97	Slot 11
Spare 1	SV14 (92) LM-6 6/11/99	SV11 (88) LM-5 12/19/98	SV1 IS-1	SV51 LM-2 3/25/98	SV86 MS-11 11/6/98	SV77 MS-10 9/8/98	Spare 1
Spare 2	SV21 (93) LM-6 6/11/99	SV2 IS-1	SV3 IS-1 2/5/02	SV4 IS-1 2/5/02	SV5 IS-1 2/5/02	SV82 MS-10 9/8/98	Spare 2
Drifter			SV98 IS-2 6/20/02	SV97 IS-2 6/20/02			Drifter

Color Codes:

- Delta
- Proton
- Long March

NOTE: All launch dates are GMT

Satellite Constellation Status



- 66 Fully Operational Satellites
- 14 In-orbit Spares
- 8 Year Satellite remaining life estimate
 - Independent Evaluation (Aerospace Corporation)
 - Recalculation to be done after June launch
 - Satellite Life Extension Program (SLEP)

Iridium Constellation Viability Through mid-2010



October 8, 2001

Mr. Dannie Stamp
Chief Operating Officer
Iridium Satellite LLC
8440 South River Parkway
Tempe, Arizona 85284

Subject: Contract No. 15501, Task order No. 001
Report on Iridium Satellite Reliability and
Constellation Lifetime Prediction

Dear Mr. Stamp:

Under the subject Contract and Task Order, The Aerospace Corporation has completed an analysis of the Iridium Constellation lifetime, and has documented its findings in the report entitled: "Report on Iridium Satellite Reliability and Constellation Lifetime Prediction."

The analysis used actual On-Orbit Space Vehicle history and took into consideration the improved reliability due to operation and software workarounds for key failure modes. Based on these inputs and the results of the Aerospace Corporation's satellite reliability modeling tools and analyses, the Iridium Constellation is predicted to remain viable through mid-2010.

If you would like to further discuss the results of this effort, please feel free to contact me at (310) 336-7647.

Sincerely,

J. M. Womack, Director
Reliability and Statistics Department
Risk Assessment and Management Subdivision
Systems Engineering Division

Herc Availability for Future years

There is an LC130 Aircraft Conference taking place August 7 or August 8, per Brian Stone. The current plans for FY03 are 395 USAP missions and 56 additional Guard missions (Christchurch to McMurdo) for a total 451 missions. The NSF is in discussion with the Air National Guard to determine the final total missions. The Air National Guard is requesting 466 missions but due to ramifications such as increased staffing to accommodate more missions, this request must be studied further.

South Pole Traverse Status Report

John Wright, Project Manager, provided MAUC with the *South Pole Proof of Concept Traverse* presentation as given at the APC meeting earlier this year. Three positive objectives John and his staff will attempt to achieve are: no loss of life, no equipment loss, and no injury.

South Pole Proof of Concept Traverse

Introduction

- Execute a Proof of Concept Traverse - Establish a route from McMurdo to South Pole identified in the George Blaisdell (CRREL) and Dave Bresnahan (NSF) Traverse Analysis paper.
- Supported entirely from McMurdo
- Evaluate feasibility of creating a regular McMurdo to South Pole route
- Evaluate equipment for future traverse work
- Expand USAP traverse capability
- Expand USAP intra-continental cargo delivery capability

Denver Headquarters Summer 2002

On-Ice McMurdo 2002-2003

<ul style="list-style-type: none"> • Plan for FY03 on-ice activities and support requirements • Develop FY03 Annual Program Plan • Recruit field season staff and provide training • Procure support equipment: LGP D-8, 6 snowmobiles, ground penetrating radar equipment, crevasse hazard mitigation equipment • Identify future equipment requirements and design • Interact with CRREL and Science Community 	<ul style="list-style-type: none"> • Examine the recommended Shear Zone route (March 1996) • Establish field camp • Develop passage for heavy equipment through the Shear Zone • Return to McMurdo
--	--

Denver Headquarters Summer 2003

On-Ice McMurdo 2003-2004

<ul style="list-style-type: none"> • Plan for FY04 on-ice activities and support requirements • Develop FY04 Annual Program Plan • Recruit field season staff • Procure support equipment: tractors, trailers, living and workshop modules 	<ul style="list-style-type: none"> • Establish route beyond Shear Zone across Ross Ice Shelf • Mobile Camp • Progress to Leverett Glacier • Initiate route development and crevasse hazard mitigation in the Leverett Glacier region as far as possible • Return to McMurdo
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Denver Headquarters Summer 2004

On-Ice McMurdo 2004-2005

<ul style="list-style-type: none"> • Plan for FY05 on-ice activities and support requirements 	<ul style="list-style-type: none"> • Traverse established route beyond Shear Zone, across Ross Ice Shelf, up Leverett
--	--

<ul style="list-style-type: none"> • Develop FY05 Annual Program Plan • Recruit field season staff • Procure resupply materials, ancillary support items 	<ul style="list-style-type: none"> • Continue route development and crevasse mitigation in the Leverett Glacier region • Execute heavy equipment traverse from the base of the Leverett Glacier to South Pole Station, deliver cargo, return to McMurdo
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Status

- FY02 Funding is approved
- Project Manager is hired
- Recruitment of field season staff is in-progress
- Procurement activity for support equipment in-progress, including: LGP D-8, snowmobiles, Ground Penetrating Radar (GPR) equipment and ancillary support items
- Commissioning design work
- Scoping appropriate environmental coverage



Fleet Ice Concerns for McMurdo

Larry Cook detailed the fleet number (7 cab pickups with toppers and mac tracks, 16 casbro track vehicles to replace the Spryte fleet) and noted that the fleet crew is working to have all the vehicles operational by start of 2002-2003 season. Steve Dunbar encourages replacement of vehicles based on vehicle age/condition to avoid having to replace all at once. Kirk Salveson added that plans are to send down axles/spare parts to head off vehicle maintenance problems. MAUC members were advised that snowmobile requests have exceeded the number of snowmobiles available even taking into account the 13 new snowmobiles that arrived on the vessel. There are 105 machines, 101 have already been allocated, and 10 are scheduled to go to the South Pole.

Alternative (non-diesel/gas) Power

Tony Hansen discussed the McMurdo-area field camps Energy Usage Survey. His findings and conclusions follow.

Two Objectives:

- Examine electrical energy situation at field camps: supply and demand
- Determine potential for conversion to non-fuel-based systems (solar and wind)

Rationale:

- **Fuel deliveries:** helo hours, possibility of spill
- **Periodic maintenance:** person-hours, breakdowns
- **Power quality:** voltage fluctuation
- **Science Impact:** noise, vibration, power quality
- **Environmental Impact:** exhaust emissions, spills

Alternative Power Sources: Solar PV + Wind

Advantages:

- No fuel delivery, no spills
- No periodic maintenance
- Smooth power
- No emissions
- No noise

Disadvantages:

- Limited power capacity
- Higher capital cost
- Require backup to cover extended cloudiness and calm

Hypothesis:

Diesel generators can be replaced by renewable-resource power generating systems..

IF

we can make judicious selection of equipment to *preserve functionality* while using *less energy*.

Camps Surveyed:

Lake Hoare: showcase large solar installation

‘Penguin Ranch’: small-size solar

Marble Point: “Fuel to Burn”

Davis ‘Seal Camp’: traditional temporary camp: diesel

Lake Bonney: “Diesel-Electric Insanity”

Lake Hoare



- Showcase solar PV system
- No “feeling” of power limitation
- Stable voltage

Penguin Ranch



- Small solar PV system
- Very limited electrical demand
- Doesn't disturb penguins

Marble Point



- 150,000 gallons of fuel in the back yard, delivered by ship
- No science concerns
- Conservation seems irrelevant
- ‘All-electric Kitchen’

Davis Seal Camp



- Traditional Jamesway camp, diesel genset
- Vibration and noise are problems
- Desktop computers and monitors, 100-W bulbs
- Load could be reduced to <1000 W

Lake Bonney

...beautiful location, insane electrical situation

Electric heaters have to be plugged in and run outdoors to attempt to stabilize the generators



100-watt bulbs to add load



Spectrofluorometer: doesn't work well because of power fluctuations

Lake Bonney Findings:

- Solar is practical (Lake Hoare)
- Energy consumption can be reduced by judicious selection of equipment
- Existing diesel gensets are problematic

Improving Energy Efficiency:

- Largest electrical loads are *incubators* and *freezers*
- Replace *desktop computers/CRT monitors* with *laptops/LCD flat-screen monitors*
- Pay attention to constant load of *chargers, wall transformers, etc.*

Improving Energy Efficiency

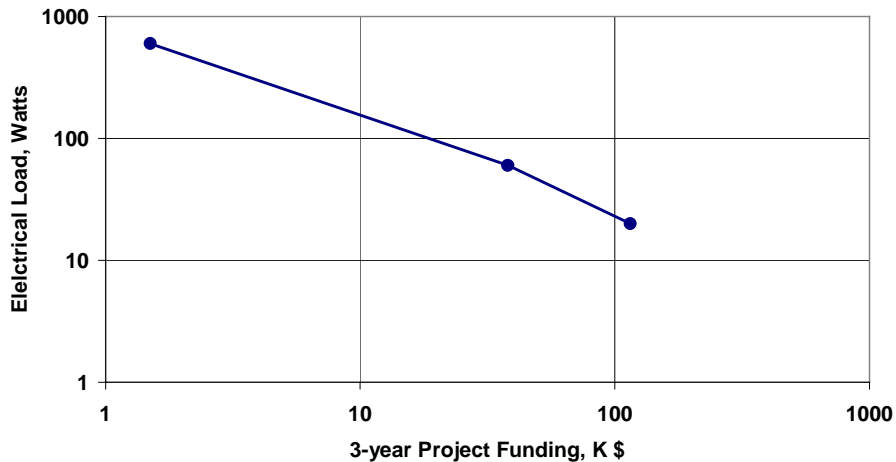
Davis Seal Camp Example

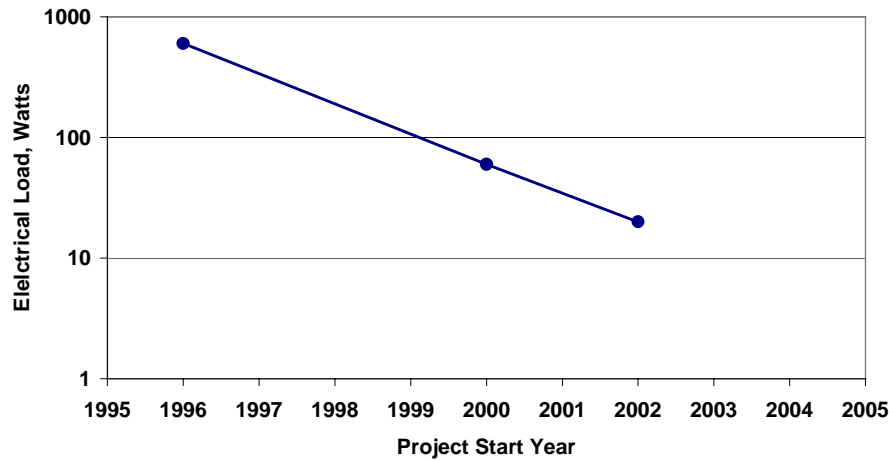
Electrical Load Items Tabulation :

Item	Present			Replacement	Replacement		
	#	W	Total		#	W	Total
Minitower	6	200	1200	Use laptop as CPU	6	30	180
CRT Monitor	4	250	1000	Flat panel monitors	2	20	40
Flat Panel Monitor	2	20	40	Keep, attach to laptop	2	20	40
Laptop	6	30	180	Keep	6	30	180
Video monitors	4	250	1000	Flat panel monitors	4	20	80
Small consumer electronics	12	25	300	Keep	12	25	300
Communications eqpt.	3	25	75	Keep	3	25	75
Electric-motor tools	2			Battery-operated tools (chargers plugged in)	2	5	10
Lab equipment	4			Keep	4		
100 watt bulbs	10	100	1000	Windows			
Total			4800				900

Estimated continuous load of upgraded station: <1000 Watts

Electrical Power Requirement for Equipment: Project OO-314-O





Improving Energy Efficiency: it is possible...but it takes *time* and *money*

Environmental Impact

- Diesel exhaust is a Listed Air Toxic
- We now have solar PV technology as a *proven replacement*



Diesel Gen Shed at Lake Bonney

Lake Hoare Example

	Solar PV System			Continuous Diesel		
	Time Fraction	ng	Relative Amount	Time Fraction	ng	Relative Amount
Background	85.7%	5.6	33%		5.6	4.2%
Other Local Sources	10.9%	5.5	32%		5.5	4.1%
Diesel Generator	2.1%	2.5	14%	100%	120	90%
Helicopter Landings	1.3%	3.8	21%		3.8	2.8%
TOTAL IMPACT		12			130	

Combustion emissions measurements at Lake Hoare, 2000/2001

CONCLUSIONS

“CHANGING THE CULTURE”:

- PI's must understand that non-polluting power is a *finite resource*.
- Projects may need 'electrical counseling' to make equipment substitutions or modifications.
- RPSC may need NSF authority to require changes.

Status of New Field Camps

Field Clothing Status

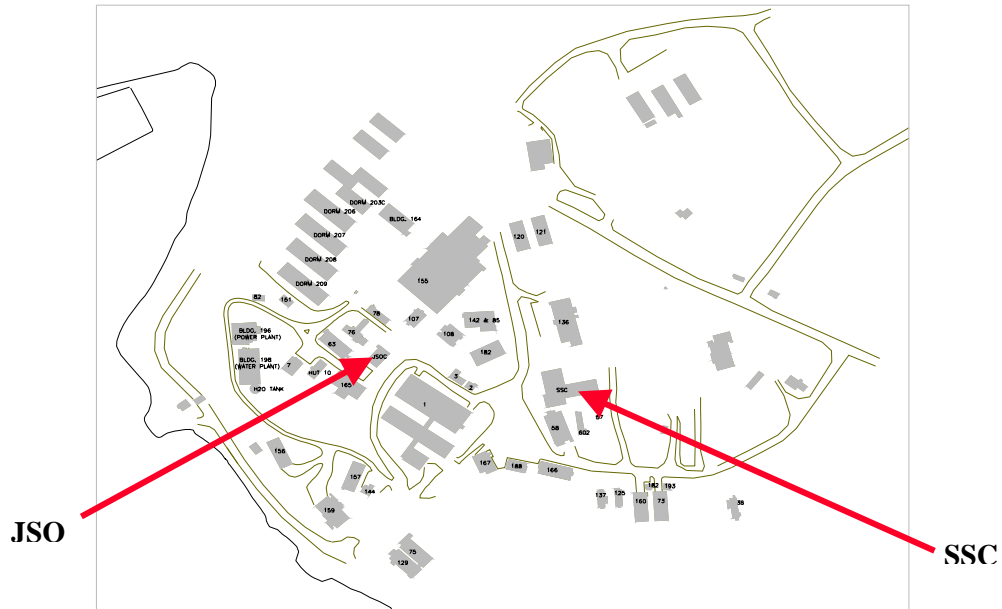
It was noted that there are no plans to make changes or increase field camps or field clothing status at this time due to NSF budget constraints.

Joint Space Operations Center and Science Support Center

Steve Meredith, Project Engineer, discussed floor plans and current construction for JSOC and SSC.

McMurdo Site Plan

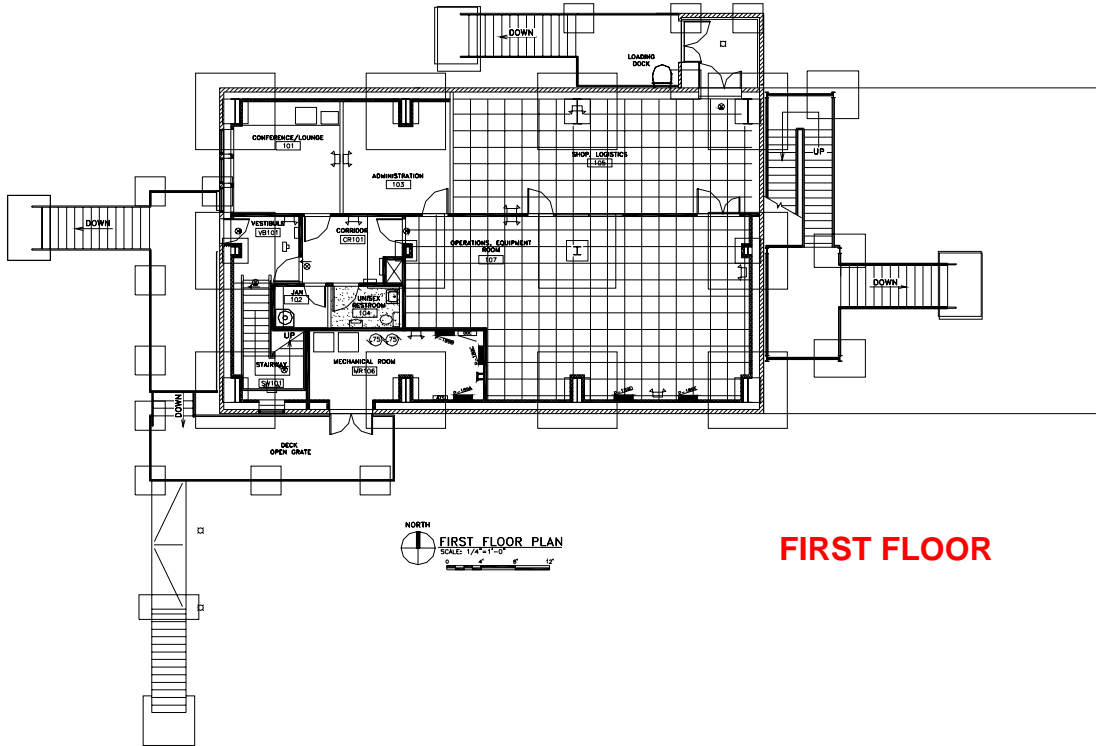
Joint Space Operations Center (JSOC) and Science Support Center (SSC)



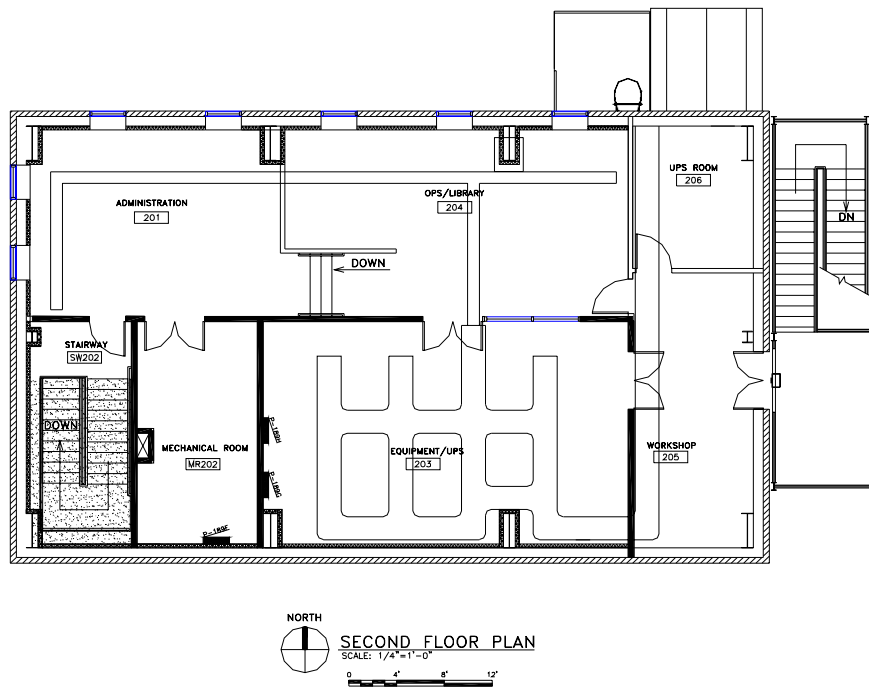
The Joint Space Operations Center



The Joint Space Operations Center Floor Plan



SECOND FLOOR



Joint Science Operations Construction



1st Floor

**1st Floor From
Rooms 105 to 107**



2nd Floor



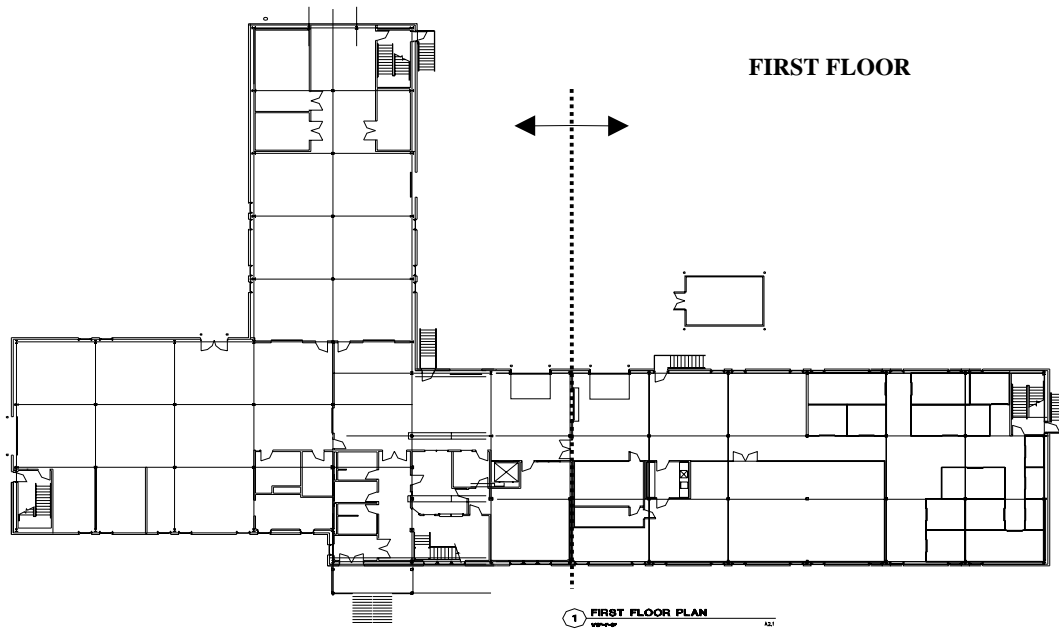
Joint Science Operations Center Construction

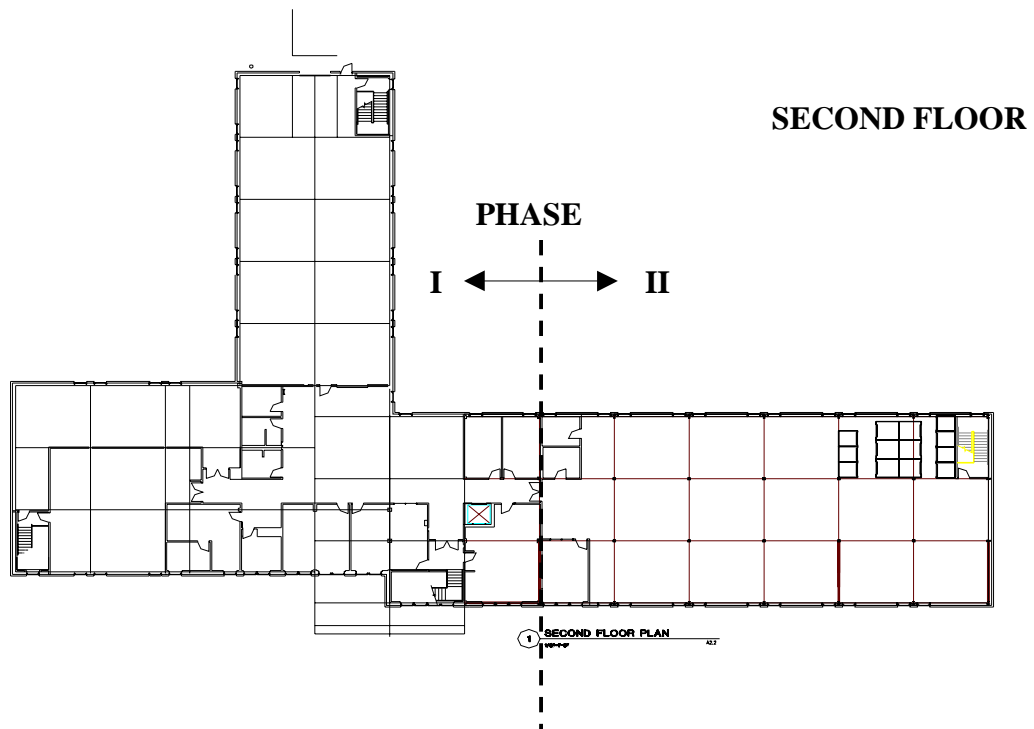
- Winter
 - Removed interior metal stairs and replaced with wood
 - Exterior 95% completed
 - Interior framing complete
- No other interior finish work completed as of this date
- MainBody
 - IT Conduit
 - South Pole Staff will complete facility (February 2003)

Science Support Center



Science Support Center Floor Plan





Current Science Support Center Construction

- Continued:
 - Painting walls, doors, and window frames on 1st floor
 - Insulating sewer lines under the building
- Completed:
- Building completion date September 9, 2002



Mechanical Room Storage

Code of Conduct

Robbie Score distributed the Code of Conduct for the Crary Laboratory.

CODE OF CONDUCT

FOR ALBERT P. CRARY SCIENCE AND ENGINEERING CENTER

Welcome to the Albert P. Crary Science and Engineering Center. In order to make your experience here both productive and safe, we would like to provide you with the following Laboratory Code of Conduct as approved by the NSF-OPP. Please keep in mind that certain health, safety and environmental considerations which apply to your work here may differ from those of your home institution. Your awareness of these considerations and cooperation in adhering to these important guidelines will help provide for a safe and productive laboratory environment in which to accomplish your research objectives.

Laboratory Safety

Each individual working in the laboratories is primarily responsible for his or her own safety. Additionally, individuals must consider the impact of their actions on all members of the community. The extraordinary circumstances under which we all work and live demand extraordinary caution in our activities in the laboratory and throughout the Station. *Please consider that dangerous behavior not only puts you at risk, but also risks the safety of those who have to treat or rescue you.*

USAP laboratory activities are guided by OSHA standards as per Code of Federal Regulations 29 CFR 1910 Section 1D, dated 31 January 1990. Adherence to these standards should be second nature to experienced laboratory workers. If you have any questions or concerns, please ask your Principal Investigator, field team leader, or the Laboratory Supervisor for advice or help in locating resources. For your own safety, the following standards deserve special emphasis;

The USAP expects you to be proactive in avoiding accidents and injuries from inadvertent exposure to harmful chemicals. Therefore, you must wear appropriate clothing, including long pants and closed-toe shoes, in all laboratory areas. You are not allowed to smoke in any laboratory area at any time. You may not consume nor store any food or beverages, whether opened or contained, in any laboratory area at any time. You must not use laboratory refrigerators and freezers to store anything other than laboratory materials.

If you work with hazardous materials, the USAP requires you to know and use the procedures for properly handling the materials you are using. You are also required to wear and use appropriate personal protective equipment.

Additionally, due to the unique conditions of working at McMurdo Station, due to the unique conditions of working at Palmer Station the following guidelines are presented.

You should only store in the laboratories the minimum amount of hazardous materials necessary to conduct the day-to-day activities of your research. Benchtop amounts should be restricted to less than 4 liters or 4 kg at any time. Use appropriate storage cabinets.

Laboratory procedures utilizing volatile chemicals must occur in a fume hood or with proper ventilation.

All experiments and procedures must be attended unless they are failsafe. Notify others of your work plans, especially if working after hours or alone.

All reagents, containers and samples in the laboratories' refrigerators, cold rooms and freezers must be properly dated and marked with their contents. Unmarked or mislabeled containers and samples represent an unacceptable hazard to others.

Laboratory procedures may only occur in laboratory areas, and are not allowed in common use areas such as the lounge and hallways. You also may not store or place laboratory and field equipment in these common use areas (except on a temporary basis).

Report any laboratory accident or incident to the Laboratory Supervisor.

Waste Handling

All USAP participants have a unique responsibility as stewards of the Antarctic environment.

You may not discharge down the drain or release into the Antarctic environment any laboratory wastes. (This applies to all facilities including the two aquaria).

Most wastes generated in the laboratory are considered Antarctic Hazardous waste. Please carefully review the "Proper Disposal of Hazardous and Radioactive Waste" protocols outlined in your Laboratory Orientation or Laboratory Users Manual. You will receive further instructions on hazardous and radioactive waste protocols from the Laboratory Supervisor as appropriate for your project. Please also consider ways to reduce wastes in your laboratory procedures.

Conservation

As with all of the station facilities, the conservation of water, electrical power, and general supplies is essential. When designing your research protocols, please make an effort to conserve these resources.

NOTE: These rules are not all-inclusive. They are meant to be guidelines for you to follow in order to operate in a safe manner. We expect you to use a conservative approach and common sense in your field and laboratory endeavors while you are in the Antarctic. Please do not hesitate to contact RPSC laboratory personnel or your NSF Program Manager should you have any questions about this "Code of Conduct".

Crary Library

Steve Alexander, Supervisor Lab Ops, led a discussion on the Crary library and solicited input from MAUC on how the Committee perceives the library, how they would improve the library, and what direction they would recommend for online journals and an expanded capability of literature searches on the ice.

To-date, RPSC has pooled resources and maintained subscriptions to some key journals, all at lowered cost per user by pooling resources between stations. Cara Sucher, the Palmer Sr. Assist Lab Supervisor, has researched and negotiated with Journals to achieve excellent rates and has combined McMurdo and Palmer subscriptions.

Present Subscriptions:-

Science 10 conc. Users + print copy / goes back 5 yr. (Jstor to 1880)

Nature Unlimited users + print copy / gb 5yrs, looking into going back frthr

Limnol Oceanog Online and print copies/ vols 1-43 on CD also

Antarctic Science Print copy / Not online yet

NISC/Antarctic Bibliography Online / 5 concurrent users up to date on [-www.coldregions.org/indexnet.html](http://www.coldregions.org/indexnet.html)

Library of Congress/NSF support to 1998 when it was recompeted. AGI (Amer. Geophys. Istitute) will not microfiche full text articles since 1998. Sets of Microfiche prior to this date are at the 3 stations. This is supposed to continue as a free service to US stations.

AGI have a doc deliv. Svce for the non covered journals – fee paying, not presently subscribed. *****Need to know if this is a useful option for grantees.

NSF Library - government-based subscripts – may be: comprehensive, lower cost, extendable to USAP portal sites. Need further discussion with NSF Librarian – Stephanie Bianchi.

Total cost at present is - \$7,600 split between Palmer and McM. Cara is presently looking into sharing with Pole and decreasing costs further.

Grantee responses included:

Some access their home institutions for Journal access, although this will not cover all basis and will be of limited use to Pole due to bandwidth.

JSTOR was also brought up, but the cost is around \$10,000 for McM.

AGU was also suggested and RPSC is looking into AGU.

Polar Biology was suggested.

Reference text with techniques that would be used on a regular basis.

Other responses:

New services and retro-digitization

The number of options is increasing, for e.g. Elsevier has an extensive retro-digitization investment in progress to cover it's entire journal list to volume 1, in some cases as far as the 19th century. This would be over 4M articles (already have 2M) In addition this would include peer-reviewed accepted articles which would otherwise take almost a year to be published.

Bill Fox and library expansion

Bill Fox, Author and Writer grantee, sent a comprehensive letter to Guy Guthridge – focused on expansion of present library titles and debated the merits of e-journals with printed matter. He rightly states that the codex form of printed matter facilitates browsing, more so than e journals, and that it also leads to new connections that are otherwise lost in e-searches. In short, thumbing through a stack of books will never be replaced by e-journals. RPSC concurs with Bill Fox's comments and will continue to provide print copies of most journals as long as is practically possible.

He also discusses an expansion of general Antarctic books, with an emphasis on humanities and exploration. These topics are heavily in demand and, although some are pertinent to the Crary lab, many would be better-or more fairly utilized-if stocked in the main McMurdo library. There is a fine line between Crary Library and McMurdo Library, one which has not been defined. Bill's comments were very constructive, and he also offered to donate some books from his personal collection.

At present RPSC is committed to maintain the present Journals, and are actively seeking detailed input on grantee requirements/preferences.

Action Item 5

Steve Alexander will prepare a questionnaire geared at understanding how researchers use the Crary library, including asking what types of reference books would be useful, if Antarctica-oriented "history of science" books would be used, and how much researchers feel that they might use on-line journals. This questionnaire will be distributed to the community by MAUC members. The results of this survey will be used to provide future direction for Crary Library acquisitions. Steve will also investigate the possibility of accessing on-line journals through NSF.

Capital Equipment

At previous MAUC meetings, RPSC solicited grantee input on Capital Equipment items they would like to see purchased for McMurdo Station. The success of this list was quite phenomenal and resulted in the procurement of capital equipment items totaling \$189,000 since 1986.

Examples of Capital Equipment purchases are:

LiCor Portable Photosynthesis System - \$27,000

Shimadzu spectrophotometer \$12,000

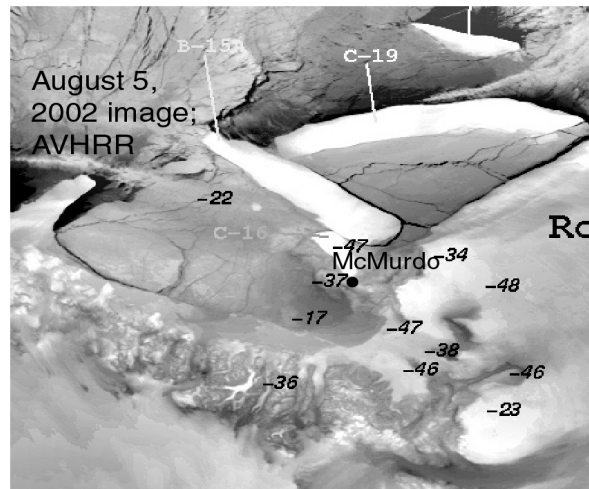
Digital video cams and Image analysis system for light microscopy - \$30,000

research projects conducted in the field alongside of the funded target study are often reported in the journal. It is an excellent vehicle for building the writing skills of student scientists, thus contributing to education. The past AJUS represent an important and unique data set, containing many facts and observations that would otherwise be lost. **Nelia Dunbar and Ted Scambos will take the lead in preparing this document.**

Fast Ice in McMurdo Sound

Following information provided by Ted Scambos for Committee/RPSC discussion.

Fast Ice in McMurdo Sound, 2002/2003 Season:



- Icebergs are still blocking sweeping winds/currents, as they did last year. This led to 2 - 4 meter thick fast ice in McMurdo Sound last year, and likely will again.
- Fast ice last year was removed by two 100year-scale events:
 - a December storm and January warmth
- We were lucky.....
- What's the plan?

Action Item 10

MAUC members are concerned about landfast ice conditions over the next few years due to climate/ocean effects of the large bergs in the region. In the past year, an extensive, thick fast ice shelf extending far north of Cape Byrd was largely removed by two record-breaking weather events: a December storm, and early January warmth. Current satellite images show the same fast ice situation setting up again in McMurdo Sound, with thick fast ice building north of Cape Byrd (Fig. 1). **MAUC recommends that RPSC prepare an outline strategy of how to manage McMurdo and South Pole if the station is not able to be re-supplied by ship in early 2003, or in some future year. This plan should include some capability to continue limited science activity and instrument monitoring.**

Sample Shipments

Mike Davis, Supervisor USAP Cargo, reported there are no significant changes to how sample shipments were handled from last year procedures. MAUC members may contact Mike with any questions or problems.

Mike Davis presented information, in part, from the Science Sample IPT Recommendations presentation of June 13, 2002. RPSC recognizes that the science community needs to know that steps are being taken to ensure the safe and timely transportation of scientific samples.

Causes of compromised samples:

- Faulty container identified as functional
- Poor communication of sample information
- NO communication of last minute sample transfer
- Inadequate labeling of freezer van
- Data transfer problem
- No check of empty reefer vans in Port Hueneme
- No one from vessel onload process present for offload

Precautions at Port Hueneme

- Prepare detailed shipping schedule pre-arrival
- Prepare for proper number of frozen sample vans Yard plan of where they will be placed
- Transfer of sample reefers overrides all other dock activity
- Offload only in daylight
- Back up reefer for each reefer, freezer facility, backup generators
- All empty reefers will be inspected upon offload
- Backup freezer trucks for ice core trucks
- Drivers given letter about importance of samples – includes phone numbers- Must call daily
- Lee Degalan will keep a call log with drivers. This will be quality record.
- Regular communications between Port Hueneme and grantees expecting samples

<ul style="list-style-type: none">• Faulty container identified as functional	<ul style="list-style-type: none">• Faulty containers will be prominently labeled with colored tape• Advisories of faulty vans will be referred to directly to verify proper identification• Faulty vans will be verified by a third party• Faulty van advisory will be sent to all terminals to ensure notification of all concerned parties• Whenever possible, malfunctioning vans will be removed from ship prior to reaching station
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<ul style="list-style-type: none"> • Poor communication of sample advisory • NO communication of last minute sample transfer 	<ul style="list-style-type: none"> • USAP Cargo Supervisor will provide timely cargo manifest to PTH/CHC clearly distinguishing all sensitive science samples. Receipt verification required. • Incident report will be filed and submitted to all terminals on any unusual activity regarding science samples. Receipt verification required.
<ul style="list-style-type: none"> • Inadequate labeling of freezer van 	<ul style="list-style-type: none"> • Vans containing sensitive science samples will be prominently labeled on all 4 sides using yellow tape with black lettering. This is visible from 100 meters. • Serialized, color coded container seals will be used to seal containers. • If labels are absolutely unavailable, van will be marked prominently with permanent marker and messages will be sent regarding the van's disposition.
<ul style="list-style-type: none"> • Data transfer problem 	<ul style="list-style-type: none"> • There will be a Frozen/Keep Chilled Samples Reports run out of CTS which will be sent to PTH for them to compare data before vessel arrives CONUS. • Frozen/Chill Report will be reconciled with PTH reports and results reported to all terminals. • IT will compare file sizes during vessel data transfers and reconcile as necessary. • USAP Cargo supervisor will airfreight hard copy shipping documents to PTH and PTH will use them to plan for vessel arrival. • PTH Manager will promptly confirm receipt of all critical e-mail and hard copy documents.
<ul style="list-style-type: none"> • No standard check of empty vans in PTH • No one from vessel onload process present for offload 	<ul style="list-style-type: none"> • USAP Cargo Supervisor, Science Manager, and PSMs, (or designees) will be in PTH to receive vessel cargo • All empty reefers inspected immediately when off-loaded in PTH • All non-reefer containers will be opened within 4 weeks of vessel off-load

Meteorology Program at McMurdo

Kathy Hill, Meteorology Coordinator RPSC, gave the following overview of the Meteorology Program. The purpose of the document is to provide a quick-hit reference detailing what Meteorological data is gathered at McMurdo, who gathers it, and how researchers can access it. It is not meant to be a comprehensive guide for all McMurdo weather data.

The following information is provided by Matthew Lazzara, POC, Antarctic Meteorological Research Center (AMRC), University of Wisconsin-Madison and recreated here by Kathie.

Data collection:

Several groups provide weather data in the McMurdo area. The observations performed in town, at the runways and skiways, and some selected automatic weather stations are done in support of operations by SPAWAR/ATS/Mac Weather. There are some other automatic weather stations operated in the area by the University of Wisconsin for both operational and research uses. Finally, there are miscellaneous observations being performed at field sites. AMRC hosts data from some more remote sites (out of town) with their AWS network.

Data availability:

Available weather data for McMurdo (in town) consists of two types of observations. Surface observations as performed every 6 hours (called Synoptic observations) and weather balloon or radiosonde observations every 12 hours. SPAWAR/ATS/Mac Weather's observers take both of these observations.

The synoptic observations are saved on station in a spreadsheet format (since SPAWAR began working in the USAP in late 1998) as well as posted to the Global Telecommunications System (GTS). The Antarctic Meteorological Research Center (AMRC) at the University of Wisconsin collect the synoptic observations from McMurdo in decoded form from the US domestic form of the GTS, NOAAPORT. The data are archived offline (some real-time data is posted on AMRC's web site <http://amrc.ssec.wisc.edu>). The AMRC also collects the spreadsheets from Mac Weather, and posts them on AMRC's ftp site (<ftp://amrc.ssec.wisc.edu> and <ftp://ice.ssec.wisc.edu>)

The raw radiosonde data are saved on station in ASCII text files. The data is also placed on the GTS. Like the synoptic data, the AMRC collects the data in both forms, raw and decoded, from the GTS/NOAAPORT. The data in decoded form is archived off-line, with some recent data posted on the web site, and the raw ASCII text files are collected from Mac Weather on a monthly basis and are posted to the AMRC FTP sites.

<ftp://amrc.ssec.wisc.edu/pub/antrdr/climate/mcmurdo>

<ftp://amrc.ssec.wisc.edu/pub/raob>

<ftp://amrc.ssec.wisc.edu/pub/raob/hires/mcmurdo>

The AMRC has from Mac Weather and other sources (NCAR) nearly all of McMurdo's weather balloon data since the station opened in 1956. As for the climatology/surface synoptic data - only the data since 1998 is available via AMRC, with decoded data from the 1996/7 to present also available. Other data centers have data from McMurdo, specifically the National Climatic Data Center (NCDC). However this dataset is reported to be in need of cleanup. The British Antarctic Survey, under a grant from SCAR (Scientific Committee on Antarctic Research), is working on

cleaning up the data as a part of its READER project. Status of the READER project is unknown at this time.

The AMRC also has the NCDC datasets (for McMurdo, South Pole and Palmer) but has not yet documented them or made them available as AMRC is awaiting the BAS's READER project results to determine what, if any, more cleanup and organization effort is needed.

Future efforts:

Initial meeting with Kathie Hill, RPSC, and Matthew Lazzaro, AMRC, to discuss the current status of Antarctic meteorological data, is scheduled for the first week of January in McMurdo.

Field camp observational data will be available from the AMRC by the end of the 03-summer season and will include summer 01, summer 02 and summer 03 data.

Future discussions concerning Antarctic Meteorology will be conducted and will include the following items:

McMurdo meteorological data should be managed and maintained as part of the larger effort to support Antarctic meteorological data as a whole.

The following activities should take place for all Antarctic stations:

- Review of available data to determine needed clean up and organization of data.
- Creation of accurate and thorough meteorological data catalogs.
- Implementation of consistent and comprehensive procedures for reporting data to the hosting parties.
- Survey of data users to determine desired data availability formats and organization of data.
- For those researchers gathering their own Meteorological data as part of their programs, and who want to share that data, a clearing house should be created to accept and disseminate information on what data is available and how it can be accessed.
- Determine required support for other data management groups (i.e. JCADM of SCAR or National Antarctic Data Centers) and implement procedures to facilitate it.
- Determine what DIF requirements are not being met for outside data organizations.

Contacts for McMurdo, South Pole and Palmer Meteorological data:

Matthew Lazzaro, Antarctic Meteorological Research Center,
Space Science and Engineering Center, University of Wisconsin-Madison,
E-mail: mattl@ssec.wisc.edu
Phone: 608.262.0436

Kathie Hill, Raytheon Polar Services Co.
Meteorology Coordinator
E-mail: kathie.hill@usap.gov
Phone: 1.800.688.8606 x32344

Art Cayette, SPAWAR/Mac Weather
E-mail: cayettea@spawar.navy.mil
Phone: 843.218.4345

Next MAUC Meeting Dates

Action Item 11

An informal MAUC meeting will be held in McMurdo Station in mid-November 2002. This meeting will be held in place of the MAUC Ad Hoc meeting held in prior years. Exact date to be determined later.

Action Item 12

The next MAUC meeting will be held on Tuesday July 15, 2003. Location, time, and other specifics will be provided at a later date.

MAUC Nominations/Elections

Nelia Dunbar and MAUC members will solicit nominations to replace committee members with expiring terms (*). Nelia Dunbar will conduct elections by email and advise RPSC and the NSF of the results.

MCMURDO AREA USERS' COMMITTEE 2001-2002		<i>Term Ends</i>	<i>Discipline</i>
NAME:	Dr. Sam Bowser	9/30/04	Biology
ADDRESS:	New Your State Department of Health Wadsworth Center P.O. Box 509 Albany, NY 12201-0509		
EMAIL:	bowser@wadsworth.org		
TELEPHONE:	(518) 473-3856		
FAX:	(518) 402-5381		
NAME:	Dr. Terry Deshler	9/30/02*	Aeronomy
ADDRESS:	University of Wyoming Department of Atmospheric Sciences Box 3038, University Station Laramie, WY 82071-3038		
EMAIL:	deshler@uwyo.edu		
TELEPHONE:	(307) 766-2006		
FAX:	(307) 766-2635		
NAME:	Dr. Nelia Dunbar ,Chair 10/01/00	9/30/02*	Geology
ADDRESS:	New Mexico Institute of Mining & Technology Department of Earth & Environmental Science Socorro, NM 87801		
EMAIL:	nelia@mailhost.nmt.edu		
TELEPHONE:	(505) 835-5783		
FAX:	(505) 835-6333		
NAME:	Dr. Tony Hansen	9/30/04	
ADDRESS:	Magee Scientific Company 1829 Francisco St. Berkeley, CA 94703-1312		
EMAIL:	tonyhansen@mageesci.com		
TELEPHONE:	(501) 845-2801		
FAX:	(501) 845-7137		

NAME:	Dr. Dave Marchant	9/30/04	Geology
ADDRESS:	Boston University Department of Earth Sciences 685 Commonwealth Ave. Boston, MA 02215		
EMAIL:	marchant@bu.edu		
TELEPHONE:	(617) 353-3236		
FAX:	(617) 353-3290		
NAME:	Dr. David Morse		Geophysics
ADDRESS:	University of Texas Austin Institute for Geophysics 4412 Spicewood Springs, Bldg. 600 Austin, TX 78759		
EMAIL:	morse@ig.utexas.edu		
TELEPHONE:	512-232-3241		
FAX:	512-471-8844		
NAME:	Dr. Ted Scambos	9/30/02*	Glaciology
ADDRESS:	National Snow and Ice Data Center University of Colorado CIRES Campus Box 449 1540 30 th St. Boulder, CO 80309-0449		
EMAIL:	teds@icehouse.colorado.edu		
TELEPHONE:	(303)492-1113		
FAX:	(303)492-2468		
Consultants			
NAME:	Dr. Robert Loewenstein	9/30/95	Astronomy
ADDRESS:	Yerkes Observatory 373 W. Geneva Street Williams Bay, WI 53191-0258		
EMAIL:	rfl@yerkes.uchicago.edu		
TELEPHONE:	(414) 245-5555		
FAX:	(414) 245-9805		
NAME:	Dr. John Priscu	9/30/97	Biology
ADDRESS:	Montana State University Department of Biological Sciences Bozeman, MT 59717		
EMAIL:	Ubijp@gemini.oscs.montana.edu		
TELEPHONE:	(406) 994-4548		
FAX:	(406) 994-3190		

Attendees
MAUC Members (addresses-see page XX)

Dr. David	Marchant	MAUC/Boston University	marchant@bu.edu
Dr. Tony	Hansen	MAUC/LBNL	tonyhansen@mageesci.com
Dr. Nelia	Dunbar	MAUC/New Mexico Tech	nelia@nmt.edu
Dr. Sam	Bowser	MAUC/NY State Dept. of Health	bowser@wadsworth.org
Dr. Ted	Scambos	MAUC/University of Colorado/NSIDC	teds@icehouse.colorado.edu
Dr. David	Morse	MAUC/University of TX	morse@ig.utexas.edu
Dr. Terry	Deshler	MAUC/University of Wyoming	deshler@uwyo.edu

NSF, 4201 Wilson Blvd., Arlington, VA 22230 703-292-8030

Dr. Deneb	Karentz	Biology & Medicine Assoc. Project Mgr.	dkarentz@nsf.gov
Dr. Julie	Palais	Polar Glaciology Program Manager	jpalais@nsf.gov
Mr. Brian	Stone	Science Projects Manager	bstone@nsf.gov
Dr. Bob	Wharton	Executive Officer/OPP	bwharton@nsf.gov

RAYTHEON POLAR SERVICES, 7400 S. Tucson Way, Centennial, CO 80112 303-790-8606

Dr. Steve	Alexander	Supervisor, Lab Operations	steve.alexander@usap.gov
Mr. Jon	Bensen	Population Manager	jon.bensen@usap.gov
Ms. Kelly	Brunt	Sr., Analyst	kelly.brunt@usap.gov
Mr. Cleve	Cleveland	Program Mgr, McMurdo	cleve.cleveland@uspa.gov
Mr. Mike	Davis	Supervisor, USAP Cargo	mike.davis@usap.gov
Mr. Steve	Dunbar	Director, Science	steve.dunbar@usap.gov
Ms. Joni	English	Haz Cargo Specialist	joni.english@usap.gov
Mr. Jim	Hamlin	Project Engineer	jim.hamlin@usap.gov
Mr. Joe	Harrigan	RPSC	joe.harrigan@usap.gov
Ms. Pam	Hill	PRSC	pam.hill@usap.gov
Ms. Kathie	Hill	South Pole Meteorologist	kathie.hill@usap.gov
Mr Scott	Holbrook	Sr. Software Architect	scott.holbrook@usap.gov
Mr. Tim	Howard	Information Security Manager	timothy.howard@usap.gov
Ms. Karen	Joyce	Project Manager	karen.joyce@usap.gov
Mr. Curt	La Bombard	Planning Manager	curt.labombard@usap.gov
Mr. David	Leger	Manager, SSSV	dave.leger@usap.gov
Mr. Mike	McClanahan	Helo Coordinator	mike.mcclanahan@usap.gov
Mr. Steve	Meredith	Project Engineer	steve.meredith@usap.gov
Mr. Rob	Mitalski	RPSC	rob.mitalski@usap.gov
Ms. Kelly	Nevins	Supervisor, Travel	kelly.nevins@usap.gov
Mr. Mitch	Perry	Project Engineer	mitch.perry@usap.gov
Mr. Jay	Ranson	Construction Engineer	jay.ranson@usap.gov
Ms. Melissa	Rider	Asst., Field Manager	melissa.rider@usap.gov
Mr. Kirk	Salveson	Supervisor, MEC	kirk.salveson@usap.gov
Ms. Dawn	Scarboro	Admin. Coordinator, Marine	dawn.scarboro@usap.gov
Ms. Robbie	Score	Manager, Lab Services	robbie.score@usap.gov
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MCMURDO AREA USERS' COMMITTEE CHARTER

The McMurdo Area Users Committee (MAUC) will provide advice and recommendations Raytheon Polar Services (RPSC), on the support of science projects utilizing McMurdo Station resources and facilities. Important functions of the Committee are to make recommendations on the acquisition, operation, and maintenance of equipment and instruments, allocations of equipment, instruments, and space, communications, hours of operation, staffing, and other matters, related to improving support for science projects. The RPSC Director, Science Support Division, will be responsible for responding to recommendations of the Committee.

Membership: Each of the scientific disciplines funded by NSF/OPP, and utilizing the resources and facilities of McMurdo Station, will have representation on the Committee. Membership will be for three years, with one-third of the membership rotating off each year. The terms shall begin on the first day of the Fiscal Year (1 October) and end on the last day of the Fiscal Year (30 September).

Chairperson: Members of the Committee will elect a Chairperson to administer the issues brought before the Committee and convene annual meetings of the Committee. The term of each Chairperson will be determined by agreement of the Chairperson nominated and the members of the Committee.

Meetings: The Committee will meet once a year in either Denver or Arlington, VA, prior to the USAP Post Season Planning Conference. At McMurdo Station, an AD HOC Users Committee Meeting will be scheduled periodically to include as many of those members on the Committee and principal investigators from the various NSF/OPP funded disciplines as possible. The Senior RPSC Science Support Division Representative will chair the meeting and appoint an RPSC Science Support Division employee to take the minutes of the meeting.

Working Committees: Periodically, special topics will need to be addressed that are of particular interest to several disciplines. When these topics arise, working committees will be formed to make recommendations or formulate a position in writing to the Chairperson.

Priority and Action Items from May 17-18 2001 MAUC Meeting

Priority Items:

1. For RPSC to plan and develop, with a view towards proof of concept, the overland traverse routes from McMurdo to South Pole. MAUC feels that the overland route to South Pole is important for a number of scientific reasons (see action item 7). We recommend that RPSC work with the science community to assess the safety and feasibility of the West Antarctic and Transantarctic Mountain overland routes to South Pole. We would like a report on safety and feasibility to be presented at the 2002 MAUC meeting.
2. For RPSC to implement, in conjunction with selected field party(s):
 - Transmission of data from the field to McMurdo using Iridium phone technology
 - Provide an internet connection from the field using Iridium phone technology

Action Item 1.

Sridhar Anandakrishnan and John Priscu will poll the science community to obtain a priority list for improvement to field camp structures. RPSC will use the information provided to plan future field camp upgrades, with NSF approval.

Action Item 2.

Andy Young, RPSC will investigate enhancement of alternative power sources for field camps. Available alternative power sources could be added to the SIP for increased visibility among the science community

Action Item 3.

Steve Dunbar will determine how many Iridium phones are required for the 2001-2002 field season, and will report this information to NSF.

Action Item 4.

Dave Leger will provide MAUC with a report on McMurdo communication capabilities and plans, including saturation information on the McMurdo to CONUS link by 22 June 2001.

Action Item 5.

MAUC members will review the two Code of Conduct documents for Crary Laboratory users and McMurdo-based field camps. Suggestions or changes will be communicated to Robbie Score by June 15, 2001.

Action Item 6.

RPSC will inform McMurdo-based scientists of the GPS/GIS capabilities available in McMurdo during field season inbriefs, in the Science Support Plan (SIP), and in the Research Support Plan (RSP).

Action Item 7.

Sridhar Anandakrishnan, working with the other MAUC and McMurdo science community members, will prepare a document detailing the science benefits associated with an overland traverse from McMurdo to South Pole. This document will be submitted to NSF by June 30, 2001.

Action Item 8.

Robbie Score will determine the best date for the MAUC Ad Hoc meeting for Fall 2001, and will coordinate that meeting.