

**MCMURDO AREA USERS'
COMMITTEE
(MAUC)
MEETING**

**17-18 MAY 2001
ENGLEWOOD, COLORADO**

MCMURDO AREA USERS' COMMITTEE MEETING

Distribution List

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Executive Summary

This was the first meeting of McMurdo Area Users' Committee to use video conferencing. On 17-18 May 2001, the Committee Members and RPSC staff meet in Englewood Colorado while NSF staffers participated via teleconferencing from NSF Headquarters in Arlington, VA. This method of holding conferences saves money and time for the RPSC and NSF participants.

This meeting and, the attached proceedings, provide pertinent information concerning support for all science projects based from McMurdo Station. The Committee membership composition is established to provide discipline-specific user representation for all science projects utilizing the McMurdo support infrastructure for their research.

The topics covered at this meeting were broad in scope and a final, comprehensive plan for improvement is often complicated. Through the McMurdo Area Users' Committee meetings, RPSC attempts to acquire investigators' views and comments on suggested refinements. These comments and suggestions are then reviewed with the NSF/OPP for further direction.

A review of the minutes and associated appendices will reveal the scope of the meeting. Associated action items were developed to address specific topics discussed. Major areas of focus during the May 2001 meeting were 1) Dry Valley camp upgrade; 2) advanced telecommunications for a 200-mile McMurdo radius; 3) use of Iridium satellite communications; 4) laboratory safety; 5) general McMurdo issues such as housing; 6) upgrades and replacement of vehicle fleet.

The two items of priority selected by the Committee to be addressed by RPSC are:

1. For RPSC to plan and develop, with a view towards proof of concept, the overland traverse routes from McMurdo to South Pole. Committee members believe the overland route to South Pole is important for a number of scientific reasons. They 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. They requested a report on safety and feasibility 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; and provide an internet connection from the field using Iridium phone technology.

Agenda

McMurdo Area Users' Committee

17-18 May 2001

Raytheon Polar Services Company

Englewood, Colorado

[NSF/OPP via teleconferencing, Room 350 at NSF HQ]

16 MAY 2001 **Executive Committee Session**
7:00-11:00 p.m. (at the Holtz Executive Suites, Mountain View Room)

DAY ONE, 17 MAY 2001

*** 8:00-8:30** **COFFEE AND BAGELS**

8:30-10:00 **Opening**

Welcome and Introductions

State of NSF/OPP

RPSC welcome and informal remarks

- First year of contract

N. Dunbar, Score

Erb

Atwood

10:00-10:40 **UPDATE**

Year Round Access to McMurdo Region

Dry Valley Camp Upgrades

Priscu

LaBombard

10:40-10:55 **BREAK**

10:55-12:00 **COMMUNICATIONS**

Advanced Wireless Communication for McMurdo

Area (Within a 200 Mile Radius)

Macintosh support

GIS

Use of Iridium phones

Loewenstein, Priscu

Joyce

Brunt

Perry

12:00-12:45 **LUNCH**

12:45-1:30 **SAFETY**

Laboratory Safety & Crary Lab manual

Moyher, Mahar

1:30-3:10 **GENERAL ISSUES**

ESP Project status/feedback

Deployment Specialist Group

Housing Guidelines

McMurdo e-mail

Grantee Specified Capital Equipment

Kish

Dormand

Wright, Lisman

Joyce

Score

3:10-3:25 **BREAK**

3:25-3:50 **REVIEW OF PAST MEETINGS**

Review/approval of May 2000 Minutes

Review/approval of Ad Hoc meeting Minutes

Status of Recommendation

N. Dunbar

N. Dunbar

Score

3:50-4:30 OPEN FORUM
4:30 ADJOURN FOR THE DAY

* All times are Mountain Daylight Time

DAY TWO, 18 MAY 2001

*** 8:00-8:15 COFFEE AND BAGELS**

8:15-8:30 REVIEW

Review previous days discussion
Review Action Items so far

N. Dunbar
Score

8:30-9:15 FIELD SPECIFIC ISSUES

Plans for replacement of vehicles

- Deep field vehicle replacement/Tucker
- Sprytes
- Snowmobile fleet

S. Dunbar
Nugent
Young
Young

9:15-9:45 Update on situation surrounding SOAR

Borg

9:45-10:05 Supporting glaciological/geophysical work
near Palmer Station

S. Dunbar

10:05-10:20 BREAK

10:20-11:00 CONSTRUCTION REVIEW

Status of Science Support Center & JSOC
Status of SPSM

Meredith
Walker

11:00-11:45 COMMITTEE ISSUES

Selection of new members

N. Dunbar

11:45-12:45 LUNCH

12:45-1:00 REVIEW

Review of days discussion
Review Action Items

N. Dunbar
Score
All

1:00-2:00 OPEN FORUM

2:00 MEETING ADJOURNS

* All times are Mountain Daylight Time

Priority Items and Action Items May 17-18, 2001:

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. (Sridhar Anandakrishnan Traverse report – see page 25)
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(see page 12)

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. Currently, available alternative power sources will be 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 member 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. (see page 13)

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 (RPSC).

Action Item 7.

Sridhar Anandkrishnan, 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. (see page 25)

Action Item 8.

Robbie Score will determine the best date for the MAUC ad hoc meeting for Fall 2001, and will coordinate that meeting. (set for November 21, 2001, McMurdo Station)

Welcome and Introductions

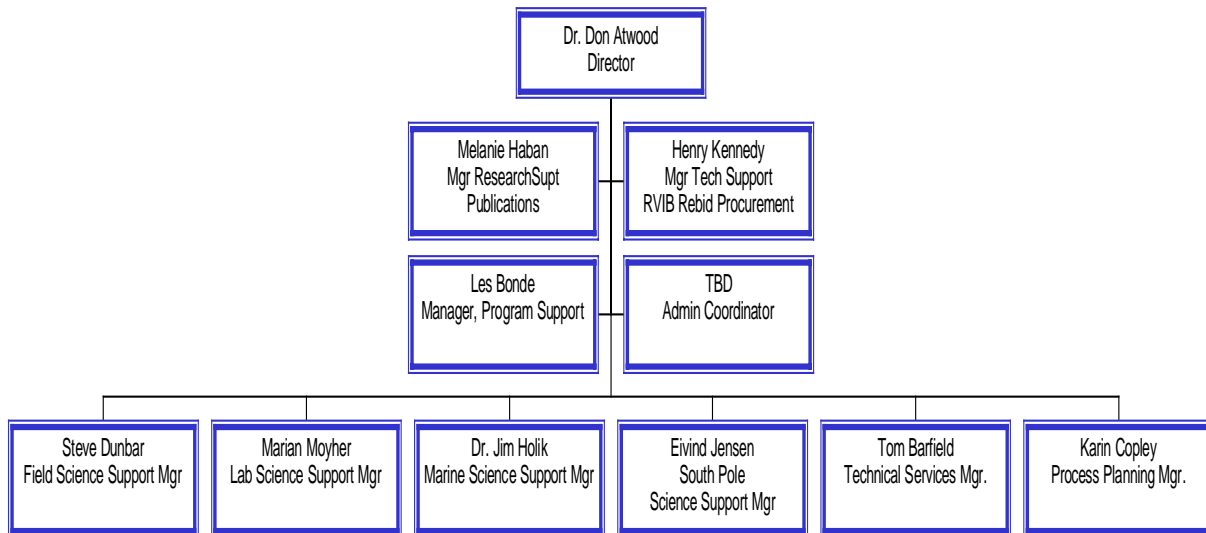
Nelia Dunbar welcomed MAUC members and RPSC staff in attendance in Englewood, as well as NSF representatives in Arlington, to the meeting and noted this is the first MAUC meeting to use video conferencing.

The agenda was reviewed and, following round table introductions, Dr. Erb, Director, OPP, spoke to the MAUC on the State of NSF.

State of NSF

Dr. Erb attended the first appropriations sub-committee meeting in Congress yesterday, May 16th and reported that both sides of the aisle indicate that more funding is needed for science. However, due to the \$5 million shortfall in FY01-02, caused partially by increased fuel costs, this year's budget (FY02-03) is proving difficult. One positive item being discussed for this next year is the partnership being developed in Frontiers in Polar Biology. Dr. Julie Palais will be working on this effort to research sub-glacial lakes and ice drills. Dr. Erb noted that Ice Cube is not in the current plans.

State of RPSC



Don Atwood provided the above Science Division Organization Chart for review and noted that, even though there were some first-year contract transition difficulties, the overall responses from grantees for 2000-2001 were favorable.

Don continued by noting the following changes and improvements within RPSC:

- A newly created Deployment Specialist Group (DSG) has been established and Lynn Dormand, DSG Manager, will be coordinating and combining the Medical and Travel Departments into one department. Plans are to hire additional staff and to become a more cohesive, service-oriented department. Grantees and RPSC employees will be able to contact the DSG for information on travel itineraries, medical pq status, hotel arrangements, etc.

- The Electronic Support Plan (ESP) continues to be developed and improved over time. This last year has seen changes to ESP that allow easier ESP submission from the Grantees' home institutions and the Operating Requirements Worksheets (ORW) and Science Information Packet (SIP) are now a part of the ESP.
- RPSC now has in place a Standard Operating Procedure (SOP) for the Points of Contact. This SOP is useful in allocating projects to specific POCs and is also a useful learning tool for new POCs.
- A Planning Analyst Manager, Karin Copley, was hired to research various allocation tools and to develop/improve the science planning process.
- The Research Support Plan (RSP) is being fine tuned with the intent that the RSP will be the contractual document between RPSC and the Principal Investigator. RPSC will have the RSP available to the Principal Investigators six weeks prior to the event's first participant's deployment date. The Principal Investigator/Grantees are asked to review the RSP closely and bring to the POCs' attention any discrepancies. The RSP may also be a useful tool during the on-ice out briefs – a comparison between what was requested and what was actual.
- Reorganization within the Science Division included moving the ESP Project Leader under the Planning Analyst Manager and creating a Manager, Technical Services position. Tom Barfield was hired into this new position and will oversee the cryogen, Automatic Geophysical Observatories (AGOs), Comprehensive Test Ban Treaty, and U/V monitoring activities.

Ted Scambos and John Priscu asked if there will be room for negotiations now that the RSP is being considered a contract. Don Atwood responded that the RSP will be as accurate as absolutely possible by the six weeks deadline but that RPSC also recognizes exceptions may need to be reviewed and changes made in some instances. Brian Stone iterated that it's believed any RSP issues will be the exception and that the Grantee can work with RPSC to resolve these. Erik Chaing also added, that with RSP completion and PI approval of the document, some of the ad hoc changes and problems experienced on the ice in previous years, should be alleviated.

It was suggested that the POC SOP be made available to MAUC members for review. Don Atwood also stated that, when POCs deploy, RPSC will strive to provide RSP continuity and support within headquarters.

Dennis Peacock asked MAUC to remind colleagues of the importance of timely submission when completing ORWs and SIPs. Also, committee members were asked to solicit ideas on how the NSF and RPSC might improve.

Don Atwood spoke of the changes planned for the out-briefs next season. A much more constructive intervention with more statistics available to add to the discussions and, to hopefully, improve future plans/SIPs. Brian Stone added that information from the out-briefs might also be used in SIP preparation for the next season and might be an addition to the ESP database.

Year Round Access to McMurdo Region

John Priscu reported on the NSF Workshop held September 8-10, 1999, in Arlington, Virginia. Twenty-nine scientists from five countries, key members of NSF's Office of Polar Programs,

representatives from NASA, PHI, and ASA were in attendance to discuss the potential for year-round research at McMurdo Station area.

The complete workshop report (*Year-Round Access to the McMurdo Region: Opportunities for Science and Education*) is available from Dr. John Priscu. Conclusions and Recommendations from the workshop- appendix 1.

John Priscu asked for direction from the NSF and if the workshop efforts are the logical way to pursue the year-round access opportunities at McMurdo. Some of the issues the NSF still needs more comprehensive studies on include:

Communications
Cost estimates
Safety, medical needs
Fuel
Helicopter use
Staffing

It was suggested by Dave Bresnahan and Sridhar Anandakrishnan that the MAUC meeting is not the best forum for this discussion. Year-round access involves many more issues than can be addressed at today's meeting.

Dry Valley Upgrades

Curt Labombard reported on the Dry Valley Upgrades.

- DRY VALLEYS AND LOWER EREBUS HUT
 - Install Regulated Propane Heaters at Lake Hoare
 - Replace endwalls at Lake Fryxell and Lake Bonney
 - Complete Interiors of F6 and Lower Erebus Hut
 - Work with MEC for Solar Power Options for F6
 - Continue to investigate passive solar construction and design solutions to a possible winter over in the Dry Valleys
- FISH HUTS
 - Demo and rebuild fish hut #9 utilizing a passive solar design
 - Replace old fuel tanks on all fish huts
 - Fabricate fish hut 15 (new) by modifying an old existing frame

Photo attachments (appendix 2) are:

#1 and #2 Old Genshack Camp and newly upgraded F6 Hut
#3 Removal of old jamesway- Lower Erebus Hut
#4 Installation of new hut Lower Erebus
#5 Possible winter over site- New Harbor, #6 New end walls- New Harbor, #7 Fuel system/outhouse- New Harbor
#8 Possible winter over site- Lake Bonney
#9 Possible winter over site- Lake Fryxell
#10 Old fish hut FH6, #11 New FH6
#12 Fuel tank upgrades – fish huts
#13 and #14 Removal of barrels, diversion of blocked water- Cape Crozier
#15 ITASE traverse, berthing module

Andy Young reported on the modifications and installation of solar panels to Hut 5. Maximum capacity is 4,000 watts with a sustained 300 watts. ITASE and the Ponganis group used the system and were satisfied with the results.

Action Item 1.

Sridhar Anandkrishnan 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. Currently, available alternative power sources will be the SIP for increased visibility among the science community.

Advanced Wireless Communications for McMurdo

Dr. Loewenstein reported on his and Dr. Priscu's Action Item from the May 25-26, 2000 meeting.

Action Item 4 read (May 25-26, 2000):

DRS. BOB LOEWENSTEIN AND JOHN PRISCU WILL PRIORITIZE FUNCTIONAL REQUIREMENTS FOR THE MCMURDO WIDE AREA NETWORK (WAN) AND REPORT THEIR FINDINGS TO BOB JUNGK (RPS ENGINEERING MANAGER – INFORMATION TECHNOLOGY), AND PAT SMITH (NSF/OPP TECHNOLOGY DEVELOPMENT MANAGER). THIS WILL ALLOW INTEGRATION OF THE PLANNED WIRELESS COMMUNICATIONS WITH THE CURRENT SYSTEM. DRS. LOEWENSTEIN AND PRISCU WILL CANVAS THE COMMUNITY TO DETERMINE WHAT SCIENCE CAN BE DONE REMOTELY, HOW THE SCIENCE WILL BE ENHANCED, AND MOST IMPORTANTLY, AT WHAT COST IMPLICATIONS. THESE REQUIREMENTS SHOULD INCLUDE WHICH INSTRUMENTS WILL BE CONNECTED TO THE WAN AND THE TIMEFRAMES THE INSTRUMENTS WILL BE BROUGHT ON LINE. ROBBIE SCORE (RPS) WILL ADD THIS ITEM TO THE NOVEMBER AD HOC MEETING AGENDA.

Dr. Loewenstein's survey to 32 scientist resulted in responses from six. In his opinion, there were no innovative ideas from the survey. Cover letter and responses of WAN Survey 4/13/01 follow.

Dear PI/Grantee,

The McMurdo Area Users Committee has delegated John Priscu and me to canvass the Dry Valley grantee community to get comments on a Wide Area Network (WAN) for the Dry Valleys. This network should give the Dry Valleys access to the Internet and thus allow remote operation of experiments. In order to implement a WAN to best benefit the science needs, you, the potential users of such a system, have the opportunity to help set the requirements of the WAN.

I understand that many of you have already responded in the past about the value of a WAN. Please respond to this new request because this is your chance to help shape the system.

There are a number of questions that we ask you to address. Please think how you do your science and how a WAN might enhance your work. Your input is critical to derive the scientific requirements for such a WAN. But don't feel bound by these guideline questions. Please feel free to pose your own questions and give us your thoughts. The more information you can give us the better the ultimate system will be for the science community.

PLEASE RESPOND by March 30.

Robert Loewenstein for MAUC

Responses:

1. Assuming this WAN exists, how would you use it? Consider everything from email to remote control of instrumentation (see the following questions before you answer this).

A. This would allow email access and better scheduling of helo and resupplies. We would also be able to maintain contact at home for better moral support for longer field seasons. We would also be able to download data from our data logging systems if the WAN were available in Beacon and upper Victoria Valley. This would not require having technicians to go the field to download data and would allow us to check on the health of the system. We would be able to get the data in near-real time.

A cost-saving benefit of this would be minimizing helo support time for downloading data.

B. We would be interested in using a WAN to transmit data back from the field and to control and monitor instruments. Currently we have to revisit sites to download data.

C. I would like to use these types of capabilities to collect data from areas away from base camps without having to be at the mercy of helo flights and weather conditions. Also, the most interesting aspects of microbial ecology in the Dry Valley system are going to be discovered during the winter months where the temperature and low to no sunlight will push the limits of any microorganism or system studied to date. A WAN system should be viewed as a evolving system with a long term goal of allowing researchers opportunities to remotely collect data from specific areas while at a field camp, McMurdo or even back in the US.

D. E-mail would be my primary use. Remote control of instrumentation is sexy but I'm not sure if *I* would use it, at least not at first. It always sounds good but the actual implementation takes a heck of a lot of shakedown.

E. First, it would allow rapid transfer of data and information between our home institutions and our field site. This would help of debug instruments, examine data, download satellite images to help guide further field work.

Second, we would like to have our meteorological stations and stream stations telemetered to a site that could upload it to a satellite and transfer it to our home institutions. This is more for instrument maintenance rather than a need for real-time data.

Even during the summer season, if we could occasionally check each instrument remotely, it would great help reduce gaps of missing data and schedule maintenance.

2. How, if at all, will your science be enhanced by the WAN?

A. - Direct access to data-loggers and real-time collection of data

- interactive communication in the field and support structure in McMurdo for helo scheduling and resupply

- feedback from colleagues at worldwide locations

B. Our instruments could be made more reliable, data would be obtained much quicker, and repair operations could be scheduled more efficiently.

C. ----

D. Not much, other than improved e-mail

E. I foresee a great advantage, particularly from the remote sensing angle for WAN to help guide our field projects.

3. How much data would you want to send over the WAN (estimate in bytes/day)?

A. This would vary. Email access would in 10s of KB per day (but could be on the order of 100s of KB to MB if large files, e.g. maps were transmitted while in the field), data download would be several hundred KB per week (or it might be done less often and require proportionately larger downloads),

B. For data return, we would need about 80 Mb/day. If that kind of bandwidth were not available, we would be interested in using ~ 1 Kb/day state of health information. We would need to send data year-around.

C. ---

D. Less than 50 K per week

E. On average perhaps a few Kbs, with peaks of several Mb when images are being transferred.

4. Given that there may be a substantial cost associated with the WAN, what priority would you give its creation and functions? Or, put another way, how would you rank the importance of the various functional uses of the WAN (data transmission, internet connectivity, IP Phone services, fax, remote sensing and operation, etc.)?

A. ---

B. Data transmission is most important for us.

C. I would put a relatively high priority on the development of a WAN in the Dry Valleys. In the base camps, being able to quickly and reliably connect and communicate with, not only McMurdo and other research groups in the area, but also sources of data and expertise back in the US would be a great resource. Also being able to place data logging systems that could be accessed via a true remote sensing system in real time would be an ideal. These types of systems may provide a way to collect a more comprehensive dataset during the winter months in the Dry Valleys.

D. I'd rank the WAN-per-se at a lower priority than improved dialup e-mail & web access

E. My first priority is to have a functioning WAN during the field season. My second priority is to have a WAN operational during winter, unattended for remote data transfer.

5. How many computers would you have connected? Include dedicated instrument computers as well as general purpose computers and laptops.

A. -Up to 5 dataloggers, depending on cost of setting up system
- up to two laptop computers

B. Roughly 10

C. I would like to see having connections for at least 2 laptop and 2 general purpose computers. In the base camps that have laboratory buildings, there should be connections that would allow the instrumentation (or researchers using these areas) placed in each building to collect and transfer the data to one of the two general purpose computers.

D. One

E. At Lake Hoare, I see about 4 (all of LTER at Lake Hoare) and shared us.

6. Would there be a value to connect PDAs such as Palm Pilots to the WAN?

A. This could be valuable instead of using laptop but I envision using laptops rather than Palm Pilots. The biggest advantage for Palm Pilots would be for field parties that are away from camp to have reliable communication with McMurdo and the main field camp.

B. Not for us.

C. Yes. This technology is continually advancing and represents an opportunity for researchers to carry a graphical interface for downloading data between computers and scientific equipment in a relatively small space.

D. Not for me, not immediately. that can get very tricky technically and it's not clear if the benefit would be worth the tech support that it would require. We can not expect to have a network tech out in the Dry Valleys just to support these issues.

E. Not now, but in the future probably yes.

7. How valuable would it be to connect from remote field locations rather than just your basecamp location?

A. See number 6, this could be very valuable as a backup or even primary communication system.

B. Just connecting from basecamp does not help us much.

C. Very valuable. During the summer months these types of connections would allow data collection without helo time. Also, unless NSF is going to fund deep winter research in the Dry Valleys, remote sensing is the next best option. Developing a network for remote sensing capabilities for current research efforts will provide the framework for the development of more sophisticated capabilities for winter data collections.

D. In future years - valuable, but not overwhelmingly essential

E. I don't see the need at the moment.

8. How many IP phones per camp do you think there should be?

A. This would depend on the camp size. Probably one for remote field camps and more, depending on the camp population for basecamps. In addition, if dataloggers are connected, they may each require an IP connection but I have not investigated this in detail.

B. We would want a data connection from each of about 8 remote instrument sites. It would be important to have year-around connections.

C. A minimum of 2

D. Three

E. Don't know

John Priscu will develop of list of justifications for improved communications to the Dry Valleys. Sridhar Anandakrishnan volunteered to be the pilot study group in further compiling the justifications list and in providing data on test band needs/uses.

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.

Use of Iridium Phones

Mitch Perry, IT Project Engineer, presented the following overviews to the MAUC members. Mitch's presentation was informational only and outlined the USAP plans for placing Iridium phones in the field. (See Action Items 3 and 4 above regarding Iridium phones and communications.)

(slide 1)

- **IRIDIUM SATELLITES, LLC**
 - **Acquired Assets of Iridium, LLC in December, 2000**
 - **Commenced Commercial Services in April, 2001**
 - **Launched voice services upon service startup**
 - **Project data service availability in 2001**
 - **2.4kbs service to begin June, 2001**
 - **10kbs service projected for October, 2001**
 - **Short burst (connectionless) data service late 2001**
 - **Partnered with Service and Equipment Providers**
 - **Boeing Aerospace will conduct satellite operations**
 - **Motorola will produce Iridium mobile equipment**
- Third-party vendors now developing Iridium product lines**

(slide 2)

- **U.S. DEPARTMENT OF DEFENSE - DISA**
 - **Enhanced Mobile Satellite Service**
 - **Under contract with Iridium Satellites, LLC to provide service to 20,00 U.S. Government subscribers**
 - **Provides Iridium voice and data services at 20% - 30% of standard commercial programs**
 - **EMSS "High Use" plan**
 - **Allows unlimited ISU - ISU calling**
 - **Provides 500 minutes of International Long Distance calling**

Additional LD minutes charged at \$.10/minute

(slide 3)

- **MOBILE HANDSETS**
 - **Model 9500 (legacy Motorola product)**
 - **Model 9505**
 - **Smaller package, ruggedized, enhanced battery life**
- **DESKTOP DOCK**
 - **Accepts 9500/9505 Handset**
 - **Fax/data Interface Port**
 - **External Antenna**
- **SOLAR CHARGER**

- **DATA ADAPTER**
- **L-BAND DATA TRANSCEIVER**
(slide 4)
- **PERFORMANCE ISSUES**
 - **Call Dropout Rate**
 - 30% - 35% at polar latitudes
 - 10% - 15% global
 - 5% - 10% global dropout goal
 - **Interoperability**
 - EMSS - Commercial sector partition
 - **Restricted Access**
 - EMSS has inbound PSTN access option
- **COST ISSUES**
 - **Estimate of Airtime Requirements**
 - Voice Applications
 - Data Applications

Laboratory Safety and Crary Laboratory manual

Marian Moyher discussed the importance of maintaining safe laboratory at all USAP venues. She presented a new approach towards safety that builds on grantee safety training received at their home institutions and codifies safe laboratory practices for USAP laboratories.

- NSF tasks contractors to maintain safe laboratory environment
- Program builds on participants' knowledge
- Three tiered effort to inform participants of appropriate conduct:
 - NSF tasking letter
 - Laboratory Code of Conduct
 - Users' Manual
- Short, two to three-page venue-specific document
- Details appropriate conduct to maintain safe lab environment
- Codes of Conduct (CoC) provided for each station, research vessel and camp environment
- Users' committees asked to review each CoC
- McMurdo area CoCs are ready for review
- Provide comments back to Robbie Score by 15 June 2001
- Provide greater detail regarding all aspects of laboratory usage, including chemical hygiene plan and other information.
- Are currently under revision for Palmer and McMurdo Stations
- Will be written for the vessels and South Pole
- Users' committees may comment on content and scope
- Please let Robbie Score know if you are interested in commenting on the Crary manual

Action Item 5.

MAUC members will review the two Code of Conduct (COC) documents for the Crary Laboratory users and for the McMurdo-based field camps. Suggestions or changes will be communicated to Robbie Score by June 15, 2001. (note: the following COCs incorporate MAUC members' suggestions as submitted by the June 15th deadline and these COCs will be in effect beginning with the 2001-2002 season.)

**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

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".

CODE OF CONDUCT FOR USAP FIELD CAMPS

In order to make your field experience 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 (including those based out of field camps) 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 you work and live demand extraordinary caution in your activities in the laboratory and throughout the field camps. 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.

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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 in the field, 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.

Do not use volatile chemicals in confined spaces without 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 marked and dated with their contents. Unmarked or mislabeled containers represent an unacceptable hazard to others.

Laboratory procedures may only occur in laboratory areas, and are not allowed in living areas.

Report any laboratory accident or incident to the Laboratory Supervisor at McMurdo Station.

Shipment of Hazardous Substances

When shipping radioactive isotopes and hazardous chemicals in and out of the field by helicopter or fixed wing aircraft, notify the pilot via manifest, and notify the recipient by phone or radio at the time of flight departure. All hazardous items must be clearly labeled with your SEN, delivery instructions, and all constituents (listed by common name). This is required in order to ensure the appropriate response in case of an accident.

For further information, please contact the Laboratory Supervisor or USAP Cargo at McMurdo Station.

Waste Handling

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

You may not release any laboratory wastes into the Antarctic environment.

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".

It was noted that, as the Users' Manuals, available for Palmer and McMurdo Stations, are written in more detail than the COCs, grantees are asked to be familiar with these manuals and, if there are any suggestions or recommendations to the Users' Manuals, grantees should advise Robbie Score.

Macintosh Support

Karen Joyce discussed the Macintosh support plans and the E-Mail procedure for the upcoming season.

(slide 1)

Mac Support in the Crary Lab

- Appletalk protocol will be turned on in the Crary Lab, allowing users to access networked devices on that subnet via the "Chooser". Grantee's Mac laptops should have Mac OS 8.5 or higher installed on them
- In the long term, Appletalk is being phased out in favor of the standard protocol, TCP/IP.

(slide 2)

McMurdo E-Mail

- No changes from last season: local accounts will be created only if requested. Local messages will be forwarded to home institution.
- Grantees should know the name of their e-mail server (i.e., mail.osu.edu) before deploying.

For the upcoming season, e-mail addresses will be the individual's
firstname(dot)lastname@mcmurdo.gov example: john.smith@mcmurdo.gov

Geographic Information Systems (GIS)

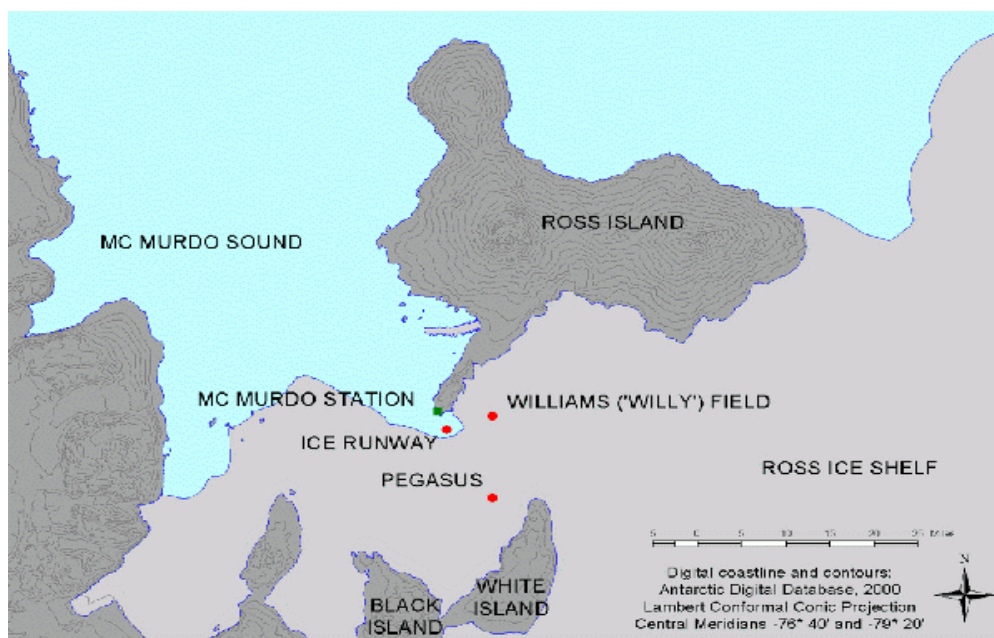
Kelly Brunt, Sr. Analyst, IT, informed the MAUC of the GIS options available next season at McMurdo and demonstrated the “waypoint” steps to generate Digital Raster Graphics (DRG). The USGS map data sets and imagery tools should be available at both McMurdo and the Dry Valleys. Aerial photography is available to grantees as well.

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).

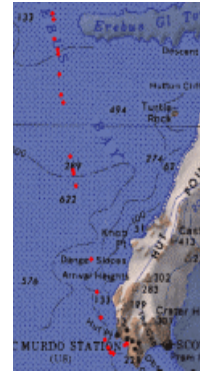
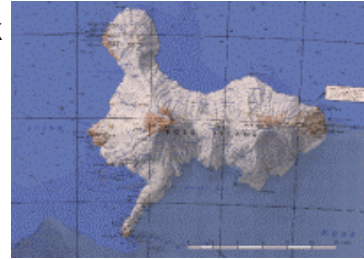
GIS at McMurdo

- **2000-2001 supported GIS projects**
 - **McMurdo Scientists** (~25 projects)
 - **NSF** (~5-10 projects)
 - **RPSC Operations** (~5-10 projects)
- **McMurdo Station base data**
 - **Antarctic Digital Database**
 - **Canadian Space Agency/AK SAR Facility RADARSAT**
(125 meter resolution)
 - **USGS Digital Raster Graphics**
(Scanned Topographic Sheets)



Typical GIS Requests

- Scientists request maps prior to doing field work
 - Window base data
 - Hardcopy of maps
- Scientists request maps with their GPS data
 - Add Garmin or Trimble GPS data to base data
 - Digital (JPG or BMP) and hardcopy of maps



Typical GIS Requests

ID	IDNT	LATITUDE	LONGITUDE	DESCRIPTION
W	EGT000	S7750.93213	E16639.65543	TOP OF RAMP
W	EGT005	S7750.98387	E16639.34161	SKIDOO PARK
W	EGT010	S7751.21120	E16637.57843	TURN
W	EGT015	S7751.18255	E16637.19832	TURN
W	EGT020	S7751.04898	E16636.78793	SLIGHT TURN
W	EGT025	S7750.84233	E16636.29193	TURN
W	EGT030	S7750.23466	E16635.71355	CRACK X
W	EGT035	S7749.51787	E16635.04761	
W	EGT040	S7748.64658	E16634.13770	PRESSURE RIDGE
W	EGT045	S7746.63556	E16631.73530	ICEBERG PULLOFF
W	EGT050	S7746.28183	E16631.38575	TURN TO PENGUIN RANCH
W	EGT055	S7746.19010	E16631.29177	TURN TO TURTLE ROCK
W	EGT065	S7745.81383	E16630.87108	TURN
W	EGT070	S7744.34613	E16629.82213	TURN
W	EGT075	S7744.14755	E16629.47580	PRESSURE RIDGE
W	EGT080	S7743.58815	E16629.20512	TURN TO CAVES
W	EGT085	S7743.02005	E16628.97370	TURN
W	EGT090	S7742.90643	E16628.87328	TURN
W	EGT095	S7742.60773	E16628.36505	PRESSURE RIDGE
W	EGT100	S7742.06508	E16628.23050	CRACK
W	EGT105	S7741.90737	E16628.12140	CRACK



~50 Clicks

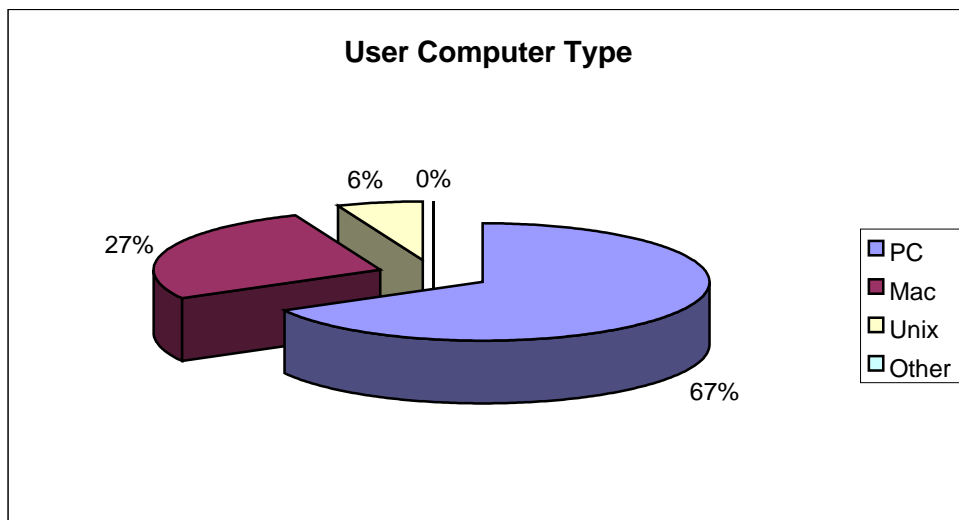


Electronic Support Plan (ESP)

Katie Kish, ESP Lead, discussed the Electronic Support Plan (ESP) and responded to MAUC questions. Katie noted that the ESP team has worked to resolve and answer questions as they arise, made improvements to the ESP system, and they are open to suggestions from the MAUC.

ESP Project Status

- **ESP is On-line!**
 - Supporting the 2001-2002 SIPs for all Stations/Vessels
 - Supporting the 2001 ORWs
 - Will support the 2001-2002 RSPs
- **ESP supports almost any User**
 - Only two individuals have not been able to complete ESP worksheets over the course of three years
- **ESP Worksheets Deployed in 2001**
 - 120 SIPs
 - 64 ORWs



- **Comments**
 - "... I must say that having downloaded the ESP today and filled it out electronically, I was amazed at how much easier it was than by pen on paper. The ESP effort has produced a remarkable improvement to the old method of providing logistics information." - *Robert Bindschadler*
 - "I love the way the "ESP" system... it is a very very good system, by the way." - *Doug MacAyeal*
 - "I just wanted to take a moment to congratulate you all on your work with ESP. To date the system has been hassle free for me. Once I moved passed the "learning curve" of getting started, I am finding the SIP's easy to locate, quick to navigate around, and simple to change and review ... I am very impressed with ESP's user-friendliness." - *RPSC POC*

Comments continued:

- "The difficulty lies really in the interface..... specifically the "dialog box" style input screens."
- "Another problem with this shell; there's no apparent way for the user to get either a hard copy or file version of their completed work"
- *Ralph Harvey*
- "When entering a new piece of cargo, you have a list in a scrolling window to enter a new piece, you click the "new" button. the list scrolls all the way to the top and you have to scroll all the way back down to get to the blank line that was just added at the bottom of the list."

- Possible features for Next Release

- Enhanced printing capabilities
- SIP to SIP copy functionality
- Additional text fields where necessary
- SIP Distribution
- Ad-hoc Reporting subsystem
- Web-based architecture?

Deployment Specialists Group (DSG)

Lynn Dormand, Manager, DSG, discussed briefly some of the travel department's experiences over the last season and provided the committee with the DSG Mission Statement. (see below) Lynn also noted that the new DSG has been created to provide improved customer service support for all deploying participants. The DSG telephone number is **1-800-688-8606** and questions regarding travel itineraries, medical PQ status, etc. should be directed to this group.

Overview of Previous Season

- **DIFFICULTY BLOCKING SEATS DUE TO OLYMPIC TRAVEL**
- **LAST MINUTE TICKETING**
- **SELF-TICKETED PARTICIPANTS DID NOT RELAY ITINERARIES TO RPSC TRAVEL**
- **PARTICIPANTS ARRIVED CHCH WITHOUT ENTRY INTO PTS AND/OR UPDATES NOT PROVIDED IN PTS**
 - **Hotel Accommodations Not Made Prior to ChCh Arrival**
 - **Clothing Not Pre-Staged for Participant**
- **TRAVEL AND MEDICAL OVERWHELMED BY PHONE CALLS**
- **EXPENSE REPORTS NOT SUBMITTED TIMELY FOR REPAYMENT TO PARTICIPANT**

MISSION STATEMENT

WE ARE THE CONTROLLERS OF THE DEPLOYMENT PROCESS TO ASSURE THAT PARTICIPANTS DEPLOY WHEN MANIFESTED, WHILE ADHERING TO FAR REGULATIONS AND DEPLOYMENT REQUIREMENTS, IN AN EFFICIENT AND COST-SAVING MANNER, WHILE PROVIDING EXCELLENT CUSTOMER SERVICE.

STRATEGY

- **CREATION AND PARTICIPATION IN DEPLOYMENT INTEGRATED PROCESS TEAM (IPT)**
 - **Creation Of the Deployment Specialists Group**
 - **Combination of Medical and Travel to Create Synergy**
 - **Identify Processes**
 - **Solve Ownership Disparities**
- **UTILIZE PTS AS SOLE TRACKING DATABASE**
- **IDENTIFY CHANGES IN THE PTS ENTRY SCREENS AND DISSEMINATE CHANGES TO USERS**
- **FORMS REVISED**
- **UTILIZE 1-800 CALL IN NUMBER FOR CUSTOMER POINT OF CONTACT TO THE DSG**
- **MEET WITH INDIVIDUAL DIVISIONS WITHIN RPSC TO IDENTIFY DSG/POC REQUIREMENTS**
 - **Point of Contact Within Divisions to Provide Primary Backup Tracking of Personnel Throughout the System**

Outline of DSG Responsibilities

- **CUSTOMER SERVICE CENTER FOR ALL DEPLOYING PERSONNEL**
- **ISSUE DEPLOYMENT PACKAGE (TRAVEL, HOUSING AND MEDICAL/DENTAL FORMS, GENERAL INFORMATION PACKET)**
- **MAINTAIN CONTACT WITH PARTICIPANTS IN REGARDS TO THEIR PQ STATUS, PSYCH SCREENING, ORIENTATION DATES, ON-ICE HOUSING, TRACK DEPLOYMENT FORMS, AND PROVIDE TRAVEL ITINERARIES (TICKETING AND HOTEL ACCOMMODATIONS)**
- **CREATE STATUS REPORTS**
 - **Department POC**
 - **Grantees/PIs**
- **PARTICIPATE IN REDEPLOYMENT**

Housing Guidelines

Debbie Lisman, Housing Coordinator, presented the MAUC guidelines for the 2001-2001 season and stated that no significant changes have been made to the MAUC Housing Guidelines. However, in an effort to better utilize bed space and to better support science, grantees should be aware of the following:

- Grantees and RPSC may be co-mingled and share dorms.
- Grantees must notify Housing or their Housing POC when leaving McMurdo *for any length of time*.
 - Beds will be “held” for absences of 15 days or less.
 - Check out and room inspection is required for absences of 16 days or more.
 - Secure storage will be available.

- Housing request forms and information needed by August 15:
 - Names of all grantees.
 - Gender.
 - Roommate requests.
 - Couples.
 - PIs roomed with grantee group or separate in 208 or 209.
- Grantees will stay in transient housing for stays of 15 days or less.

These are Housing Guidelines and Housing reserves the right to utilize vacant or available beds in case of emergencies or when McMurdo is at peak occupancy.

Synopsis of Housing Guidelines Housing Assignments: Grantees

If you are a Grantee, you should submit a **housing request form** or worksheet to the Deployment Specialist Group (DSG) **prior to deployment**. (This form was included in your medical packet and should already have been returned to RPSC. An additional copy is attached just in case it is needed.) This is particularly important for any roommate/couples requests. All housing, furniture and rooms are the property of the USAP. Requests for a specific room, floor or view may not be honored. Leaving personal property in a room is not justification for being assigned to a specific room.

You must notify the Housing Office when leaving McMurdo, even for one night. This is for emergency purposes and because the Housing Office needs a daily count of occupants and bed availability. Depending on the length of time you will be out of town, your room may either be "held" or need to be vacated and inspected. Even "held" beds may be assigned in case of emergency or during peak season occupancy. When your room needs to be vacated and you will be returning during the same season, secure storage will be made available through the Housing Office.

Principal Investigators and Co-principal investigators (only) will have priority for a room assignment in Dorms 208 and 209, regardless of length of stay in McMurdo. If other non-PI/co-PI field team members will be in McMurdo for 16 days or longer and your primary workstation is McMurdo, you will be assigned a bed in Dorms 210, 211 or 203ABC. Transient housing in Building 155 will be given to Grantees transiting to the South Pole or various field camps and who will reside in McMurdo for **15** days or less. PI's and Co-PI's may choose to reside with the other Grantees in their group in the Grantee designated dorms.

If there is a group in which field team members come and go from McMurdo throughout the season, arrangements can be made through the Housing Office for a room, if available, in Building 155 for use during your stay in Antarctica. **You must notify the Housing Office every time you leave and return to McMurdo, even if you will occupy the same room.** These rooms will be the responsibility of the full science group for cleaning at the time of your redeployment.

Many grantees move on to field camps, or the South Pole, for periods of two weeks or more throughout the season. At such time, if given a room in a permanent dorm, you will **be required to pack up and clean your room and store belongings in a secure, designated storage area.** Your bed will be assigned to another resident in your absence. Upon your return to McMurdo, provided you will be staying on station **30** days or more, you will be reassigned permanent housing. If you are returning to the field in less than 2 weeks, your housing may be in transient housing (Building 155).

You may room with RPSC employees in the RPSC/Grantee dorms. **If you are a PI/Co PI and wish to room with a Raytheon employee, you may forfeit your priority housing in Dorm 208 or 209.** If you are a Grantee (not PI/Co PI) and wish to room with a Raytheon employee, you will be assigned to dorms designated for Grantee housing.

Check Out Procedures

You are responsible for ensuring the cleanliness of your room. Housing personnel will inspect the room prior to your final redeployment. If your room is left in unsatisfactory condition, this will be noted and reported by the Housing Office to the NSF Representative, NSF Science Representative or NSF Station Manger. If you are still on Station at the time of reporting, the Housing Office will notify the POC, and you may be detained from your flight.

Open Forum

The MAUC open forum discussion focused on possible South Pole Traverse options. From this discussion, MAUC recommended the following priority and Action Item 7.

#1 Priority 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.

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.

18 May 2001

Nelia Dunbar recapped the previous day's session and reviewed the MAUC recommendations.

Update on situation surrounding SOAR

Scott Borg advised MAUC that SOAR (Support Office for Aerogeophysical Research) disbanded in March 2001. It was suggested that a workshop be held to determine if a replacement, "SOAR-like" group, can be organized to continue aerogeophysics studies in Antarctica. Scott Borg noted that the NSF would like to see a strong case made for a workshop (possibly in September 2001 or March 2002) and then follow-up with a solicitation for an aerogeophysical proposal.

Field Specific Issues

Deep Field Vehicle Replacement

Ron Nugent will be heading up the vehicle replacement efforts at McMurdo.

Presentation:

- The Fleet Management Plan (FMP) was drafted in 1997 to conduct a benefit-cost analysis of USAP rolling stock and recommend replacements
- The FMP has evolved into the Equipment Replacement Plan
- The top seven of twenty-three recommendations outlined in the FMP are as follows:
 - 1 Light Trucks
 - 2 Vans
 - 3 Sprytes
 - 4 Snowblowers
 - 5 Track Loaders 931-955
 - 6 Bulldozers D3/D4
 - 7 Tuckers

Procurements to Date:

- 1 Light Trucks
- 2 Vans
- 3 Sprytes
- 4 Snowblowers
- 5 Track Loaders 931-955
- 6 Bulldozers D3/D4
- 7 Tuckers
 - Items one through four have been purchased
 - Snowblowers are not performing well
 - Priorities have changed since 1997
 - Items 5,6,&7 are all used in the deep field
 - Tucker replacement or Loader most urgent priority now

Tuckers



Tucker Replacement

- Challenger 55 obvious replacement for the Tucker
- Proven performer on ITASE traverse and skiway grooming at South Pole
- Can be retro-fitted with forks and bucket, possibly eliminating the need for track loaders at field camps
- Recommended for FY02 procurement, but funds have not been identified



933 Track Loader

- New 933 Track Loaders will need to replace 931's if Challenger with forks and bucket scheme does not work
- This would imply the use of either the Challenger or Pisten Bully for skiway grooming at camps (following page)



General discussion followed presentation.
Andy Young presented information on the light snow vehicles.

Light Snow Vehicle Overview:

- No changes for 2001/2002 season; same fleet as 2000/2001.
- 13 new Skandic Super Wide Tracks arrive vessel 2002; available 2002/2003.
- Proposal submitted to NSF to replace Alpine I and II fleets with Skandics. 10 Alpine I 503s retained.

SKANDIC Issues

Traction (cleating)

- Longer studs fitted last season, tested on Mt. Erebus with excellent results.
- Will be installed for this season on all Skandics operating in traction-critical areas, and eventually to entire Skandic fleet.

On-Vehicle Storage

- Front racks will be installed.
- Steel rear "saddlebags" will be available.
- Special sleds tested in 2000/2001 with excellent results. More will be procured based on SIP requests. Boxes can be custom-made.



Low-speed operation

- New Super Wide Tracks have lower gearing than current Wide Tracks.
- Retrofitting of lower gearing to current fleet will be tested in 2001/2002.

Current Inventory

- **8 Skidoo Elan**
 - Light weight, single person, suitable for very light sleds
 - Average age ~16 years

- **6 Skidoo Tundra II**
 - Light weight, 1-2 person, suitable for light sleds
 - 3-4 years old

- **6 Skidoo Cheyenne**
 - Light duty, 1-2 person, suitable for light sleds
 - 11 years old
 - Limited storage on vehicle

- **13 Skidoo Skandic**
 - Heavy duty, 1-2 person, suitable for heavy sleds
 - Average age ~3 years
 - Limited storage on vehicle

- **23 Skidoo Alpine I (640 engine)**
 - Heavy duty, 1 person, suitable for heavy sleds
 - Average age ~23 years
 - Good storage on vehicle
 - Good blue ice performance
 - Points in ignition can be difficult in field
 - Parts availability is critical

- **23 Skidoo Alpine I (503 engine)**
 - Heavy duty, 1 person, suitable for for heavy sleds
 - Average age ~23 years
 - Good storage on vehicle
 - Good blue ice performance
 - Parts availability is marginal

- **36 Skidoo Alpine II**
 - Heavy duty, 1-2 person, suitable for heavy sleds
 - Average age ~9 years
 - Good storage on vehicle
 - Good blue ice performance
 - Parts availability is decreasing

TOTAL OF 115 LIGHT SNOW MACHINES

OUTSTANDING ISSUE

Alpine Skidoo Replacement

- 36 Alpine I machines need to be replaced in next five years due poor parts availability and increased maintenance costs

ACTION

- 10 Alpine I machines retained; remainder used for parts
- Funding has been requested for replacement of Alpine I and II machines with Skandics
- 36 Alpine II machines need to be replaced in longer time-frame; parts increasingly difficult to procure

SPRYTE Replacement overview

- No changes for 2001/2002 season; same fleet as 2000/2001.
- 16 new Kassborer Pisten Bully 100 tracked vehicles arrive vessel 2002; available 2002/2003.
- Seven new crewcab pickups with Mattracks, hydraulic lift gates, and caps arrive vessel 2002 .



PISTEN BULLY FEATURES

- Turbo diesel engine
- Hydrostatic drive
- Steering wheel direction control
- 13 hour fuel range
- Fits in LC-130 with no disassembly
- GPS antenna and receiver bracket
- Roof rack
- Dive tank/Jerry can rack
- 8 pax total (driver, co-driver, six pax in rear)
- Split folding rear seats

FLEET REPLACEMENT

Current Fleet

- 9 Pax Sprytes
- 10 Pickup Sprytes

Total 19

New Fleet

- 13 Pax Pisten Bullys
- 2 Pickup Pisten Bullys
- 7 Mattrack crewcab pickups

Total 22

Mattracks will replace Sprytes in much of local sea ice work

MATTRACK NOTES

- Liftgate will drop to within one foot of ground
- Axle reliability being addressed at factory
- Track life issues currently being discussed. May involve operation protocol changes

PISTEN BULLY NOTES

- Pax cabin door located on side
- Tracked trailers being investigated

Supporting Glaciological/geophysical work near Palmer Station

Steve Dunbar, Ted Scambos, Dave Bresnahan, and Polly Penhale discussed various options of support for the glaciological/geophysical work originating out of Palmer Station. Ted Scambos noted that there is a need to open up glaciology research in West Antarctica and that Palmer Station could be an entry point. Because there are no aviation fuel supplies, no landing pads, and possible weather limitations, deployment out of Palmer Station to West Antarctica is not practical, per Steve Dunbar. Alternative suggestions included helos flown from vessels or, a better suggestion, international collaboration. Dave Bresnahan and Brian Stone noted that, if Ted Scambos or other grantees proposed research in West Antarctica, the NSF would approach the foreign organizations to arrange flights.

Construction Review

Status of Science Support Center and JSOC and Status of SPSM

Steve Meredith and Carlton Walker presenters. (For the South Pole project presentation, contact Carlton Walker. Due to size of the text and pictures associated with the South Pole project, this information is not included within these minutes.)

McMurdo Science Support Center Schedule (Overview)

Phase I	Phase II
FY01	FY01
Complete installation of utilities to the site PRSC will procure miscellaneous materials and furniture Construction of shell started Feb 2001 and will continue through the winter season Design upgrade to fire water system Shipped materials Completed utility system design and installation is continuing	The AE completes contract documents Final estimate Construction will prepare schedule
FY02	FY02
Building shell completed, and interior finishes started Interior finishes completed at end of summer season Punch list Furniture installed and MEC will occupy	Materials will be procured and shipped to McMurdo on the FY03 vessel
FY03	FY03
Gravity Base Station, Building 57, and Building 602 will be demolished	Prep site demo Buildings 58 and 602 Materials arrive Phase II construction starts winter season 14,400 square feet
	FY04
	Interior construction completed Occupancy for BFC and USAP Cargo
	FY05
	Demo Buildings 73, 138, 162, 193 Project completed

SSC Feb 2001





Committee issues

Open Forum

Sridhar Anandkrishnan reported that the Thiel Gravity Base Station is now finished, the actual tie between the old and the new stations is in place, and that the USGS monument plaque will be arriving soon. The station looks great and is operational. Plans are to continue the tie-ins until all is completed in FY03.

Robbie Score will invite three new members to replace retiring Drs. Hunter Lenihan, Deneb Karentz, and Terry Wilson based on the following consensus. Dr. Dunbar will continue as Chair for one more year and then serve one year as ex-officio. Dr. Anandkrishnan will continue as MAUC consultant.

List of new members as of September 17, 2001:

Dr. Sam Bowser (Biology) to replace Hunter Lenihan

Dr. Dave Marchant (Geology) to replace Terry Wilson

Dr. Dave Morse (Geology/Geophysics) to replace Sridhar Anandkrishnan

Dr. Tony Hansen (Oceans & Climate) to replace Deneb Karentz)

The MAUC Charter was reviewed and will be presented at the next meeting.

Action Item 8.

Robbie Score will determine the best date for the MAUC ad hoc meeting for Fall 2001, and will coordinate that meeting. (set for November 21, 2001, McMurdo Station)

Meeting adjourned 2:00PM.

Attendees/Addresses

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Ms. Alana Jones
Ms. Karen Joyce
Mr. Matthew Kippenhan
Ms. Katie Kish
Mr. David Leger
Mr. Curt Labombard
Ms. Marian Moyher
Mr. Ron Nugent
Mr. Mitch Perry
Ms. Rhonda Rhodriguez
Ms. Melissa Rider
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