

South Pole User Committee
(*SPUC*)
Annual Meeting
12 July 2007
Raytheon Polar Services Company
Centennial, Colorado

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SPUC Recommendations 2007

To facilitate the processing of the SPUC recommendations this year, we have decided to break the recommendations into short- and long-term categories. Short-term recommendations are those that we feel should be handled in the next year or two, whereas long-term recommendations are provided for multiyear planning purposes. In the past, the SPUC has been surprised to discover how a small portion of a broad recommendation has been construed to constitute the entire recommendation, so this year we've made an attempt to keep our recommendations brief and focused. At times this may mean that the broader context surrounding a recommendation may be truncated, but please rest assured that we have taken all of the information at our disposal into consideration and greatly appreciate the work of everyone involved.

Power

- Short Term
 - We applaud everyone concerned with power at the Pole for the inclusiveness and superb communication amongst all stakeholders with regards to power planning at the Pole in the present and near future. The SPUC supports the continued efforts to ensure that all users work together to make best use of the power resources available.
- Long Term
 - In the long run, the SPUC believes that the unique properties of the polar plateau will continue to attract additional science projects of all kinds. While the SPUC obviously can't predict what those projects will be, we can predict that they will want power. We thus encourage and support efforts at long range planning to increase the available power for all groups at the Pole. We don't want to specify what form this power will take since it could include anything from increased conservation to generators or even solar and wind power, but we do know that the present limits on power at the Pole will place strong constraints on all future science.

IT

- Short Term
 - The SPUC is most concerned by how the current satellite system is vulnerable to a single point failure in the TDRS F1 system (or F3, once it is online). We recommend reviewing existing plans for handling a failure of TDRS F1 with a view toward how quickly bandwidth could be restored and then communicating those plans to the science community.
- Long Term
 - While plans are in place for a long term transition to TDRS F3, the SPUC again suggests a continued investigation of alternative systems (presumably other satellites, but not necessarily) both for increased bandwidth, but also for long term preparedness in case of an unexpected failure.

- The SPUC further recommends that a road map for communications upgrades be developed that leads to improved TCP/IP networking (potentially 24/7 broadband), and redundancy in bulk data transfer for the next 10 years.

Buildings

ARO

- Short Term
 - The SPUC is concerned by how the current ARO building is almost fully occupied and there is no available space for future clean air science. We recommend reviewing existing plans for handling growing science needs that require future access to the clean air sector (CAS).
 - We further recommend investigating a possible campaign science building that could be erected onto a platform with skis. This building could be dragged out to the vicinity of ARO for power and access to the CAS and provide much needed space for short duration summer science projects. Small structures like this can be easily purchased from companies such as Enviro Buildings stateside and then shipped to Pole for final assembly on a short timeline. Placing more projects into the ARO will only adversely affect the science community currently operating in the building.
 - The SPUC is concerned about the drifting snow around the ARO and lack of a plan to address this. We recommend a short term 2-3 year plan is developed to address the snow load around the building. As a result of the building being located in the CAS, special considerations to if/how the snow is managed on the upwind side of the building must be addressed.
- Long Term

Preliminary plans have been discussed to alleviate some of the space constraints of the ARO that would also benefit overall sector management. Two diverging plans have evolved.

 - One plan is to raise the ARO in its current location and then concurrently build a remote clean air building further into the clean air sector (CAS). This remote structure would serve as a satellite building to the ARO and house the true clean air instrumentation. The CAS boundary would then move to the location of the satellite building and thus leave the ARO no longer within the CAS.
 - The second option is to move the ARO further into the CAS and with it move the actual apex of the CAS to the new location of the ARO. This option would keep the ARO within the CAS. The SPUC recommends more work be done to determine the feasibility of each of these plans both logistically and scientifically. Over the long term one

of these two options must be chosen to ensure the continued success for the science community.

Balloon Inflation Facility (BIF)

- Short Term

The SPUC is very concerned by how the current BIF facility is now in a low area directly downwind of the newly built cryogenics facility. This is a major drifting concern. The large doors on BIF need to be opened multiple times daily and the drifting issues have been compounded exponentially with the construction of the cryogenics facility immediately adjacent and on top of a one-story berm of snow. The SPUC strongly recommends that the BIF is redesigned and a new structure erected in its place as soon as possible on the same elevation as the cryogenics facility. The BIF facility is co-shared between NOAA and the South Pole Meteorology department's balloon operation which is directly used to support flight operations. South Pole met is not the only critical mission compromised as NOAA is also poised for potential loss of scientific data regarding the Antarctic ozone hole (something they are mandated by Congress to monitor).

- Long Term

- With the construction of the cryogenics facility as stated above any long term plans for the BIF building have been immediately made into mission critical short term concerns. The SPUC recommends that the BIF is addressed as soon as logistically possible.
- Furthermore, the SPUC recommends that when a new structure (such as a new BIF) is brought online a long term strategy for snow loads/drifts should be developed so that the building does not become a lost investment after ten years of neglect.

MAPO

- Short Term

The users of the MAPO building have expressed concern that continued snow maintenance and HVAC repairs are undertaken to make the MAPO building a usable facility in the near term. The SPUC supports continued maintenance efforts to make this structural investment at the Pole usable for as long as feasible.

- Long Term

- A great realization at the SPUC meeting was that it is possible to consider the MAPO building as two separate parts, the main building and the old DASI tower. This realization resolved some possible conflicts between the current and possible future users of this facility, since if raising the building becomes necessary the two portions could be raised on different timescales.
- Separately, dark sector users have noted the need for winter snowmobile storage space somewhere in the dark sector. Given the

need for small scale movements of materials and personnel between the various dark sector buildings and the main station during the winter, the SPUC recommends that some suitable space be found.

EMI

- Short Term
 - The SPUC recommends tasking SPAWAR and SCOARA to work together to evaluate and monitor the current EMI/RFI environment at the Pole. Both groups have begun on this task and we encourage them to continue and coordinate their efforts
- Long Term
 - The long term EMI/RFI environment at the South Pole is one of the things that have caused the scientific community at the Pole a great deal of the concern over the past year. We're pleased to see the language inserted in the most recent NSF call for proposals, noting this issue and requiring proposers to comment on the impacts of their proposed experiments.
 - The members of the SPUC are also aware of numerous groups planning RFI/EMI sensitive proposals over the next few years, ranging from cosmic ray detectors to cosmic microwave background experiments. While we obviously can't comment on the proposals themselves, the SPUC would like to propose that the NSF and RPSC work toward providing, in addition to a dark sector, a radio-quiet sector. We realize that a fully radio quiet sector is impossibility, but we would like to encourage the minimum use of radios, and the operating of transmitters at the lowest possible power levels consistent with reliable communications, use of transmitters that produce clean, narrow signals without harmonics or sidebands. In short, we would like to encourage a culture of being radio-quiet, and SCOARA has already proposed to aid in monitoring the EM spectrum (complementing the work that SPAWAR already accomplishes), recording how the EM spectrum is being used, as to: frequencies, times, power-levels, types of emissions, etc.

Cryogenics

- Last year the supply of cryogenics at the Pole was tremendously successful, thus the SPUC recommends that we repeat the experience by reusing the same procedures (as has already been recommended by Al Baker).

Clothing

- In response to a direct request at the SPUC meeting for a recommendation regarding the stocking of clothing at the CDC, the SPUC makes the following recommendation: While we understand the desire on the part of RPSC to reduce the variety of clothing stocked at the CDC, the SPUC feels that the variety of workplaces, body shapes, and experience levels represented at the

Pole (especially when winter-overs are considered as well) is best served by having a wide variety of ECW styles available at the CDC. Given the impact on health and safety it seems unwise to restrict the choice of ECW options to ones that may not work for all participants.

- Additionally, while the SPUC is careful not to interfere in purely internal operations, we do note the opening within the clothing distribution system for improved efficiencies that would benefit all concerned. In particular, one could imagine participants selecting their clothing choices via a web based system before deployment which would minimize the unnecessary exchanges at the window in Christchurch and speed the checkout process. Similarly, the clothing check-in process could be computerized leading to better inventory and status control (as well as feeding back into next year's web based form for the participant).

SPUC 2007 Participants:

Chris Martin	<i>Oberlin College</i>	ACTING CHAIR
Kent Anderson	<i>United States Geological Survey- IRIS</i>	SPUC member
Amy Cox	<i>NOAA-Global Monitoring Division</i>	
John Kovac	<i>California Institute of Technology</i>	
Bob Morse	<i>University of Wisconsin - ICECUBE</i>	
Russ Schnell	<i>NOAA- Global Monitoring Division</i>	
Brian Vasel	<i>NOAA- Global Monitoring Division</i>	SPUC member
Allan Weatherwax	<i>Siena College</i>	SPUC member
Jerry Marty	<i>NSF</i>	
Steve Alexander	<i>RPSC</i>	
Al Baker	<i>RPSC</i>	
Katy Burke	<i>RPSC</i>	
Steve Clapp	<i>RPSC</i>	
Jack Corbin	<i>RPSC</i>	
Jessie Crain	<i>RPSC</i>	
Joe Crane	<i>RPSC</i>	
Brad Coutu	<i>RPSC</i>	
BK Grant	<i>RPSC</i>	
Kathie Hill	<i>RPSC</i>	
Patricia Jackson	<i>RPSC</i>	
Charlie Kaminski	<i>RPSC</i>	
Samina Khan	<i>RPSC</i>	
Steve Kottmeier	<i>RPSC</i>	
Dave Leger	<i>RPSC</i>	
Henry Malmgren	<i>RPSC</i>	
Dave Nelson	<i>RPSC</i>	
Melissa Rider	<i>RPSC</i>	
Liesl Scherthanner	<i>RSPC</i>	
Dave Scheuerman	<i>RPSC</i>	
Jim Scott	<i>RPSC</i>	
Brad Stefano	<i>RPSC</i>	
Paul Sullivan	<i>RPSC</i>	
Beth Watson	<i>RPSC</i>	

2007 SPUC Meeting Agenda

June 12, 2007

8:00 – 8:30 CONTINENTAL BREAKFAST

8:30 – 9:00 Opening

- Welcome and introduction of attendees [NSF/RPSC]
- Overview of meeting and agenda [Kaminski]
- St. Michaels Overview [NSF]

9:00 – 9:15 Action Items

- Review 2006 SPUC Action Items [Kaminski]

9:15 – 10:30 Updates

- Power – Current status [Scheuerman]
- Outlying buildings – MAPO, ARO, BIF [Coutu/Corbin]
- Snow maintenance [Schernthanner]
- Sector management [Sullivan]
 - Review status of sector SOPs
 - Review South Pole ASMA (Antarctic Specially Managed Area)
 - Evolution of sectors (area and time limits) - *Management tied to discipline/funding cycles*

BREAK (15 min)

10:45 – 12:00 Updates (continued)

- IT [Malmgren]
 - Satellite status and future plans
 - Bandwidth – *Identify priorities (needs vs. wants) and manage transferring daily data through the Working Group/SCOARA*
 - Replacing DOS computers – security issues

BREAK FOR LUNCH (1 hour)

1:00 – 2:00 Working Groups and Future Strategy

- Cryogenics [Baker]
- EMI [Martin]
 - SPAWAR survey
 - Interference detected by science receivers
 - Get updates from PIs for current data on the Palo radar 50% duty cycle
 - Discuss light pollution around B2

BREAK (15 min)**2:15 – 2:45 South Pole Population**

- Safety issues and concerns [Stefano]
- Current status and projected 2007-08 season [Beth Watson]

2:45 – 3:00 Other Business

- ECW gear – future plans [Rider]

3:00 – 4:00 Executive Session [Martin]