

South Pole Area User Committee (SPUC)

Recommendations from the Annual Meeting 19 May 2006

The full meeting report is available online at
<http://www.usap.gov/conferencesCommitteesAndWorkshops/userCommittees>

Recommendations

Bandwidth

The primary conduit for connectivity to the Internet from South Pole is NASA's TDRS1 satellite. The committee is concerned that this represents a single point of failure and recommends a search for other options (i.e. other satellites) to provide a back up. The current bandwidth capability of 10 GB/day is significantly less than the total bandwidth requested by current and future experiments. The committee recommends setting up a working group to address the questions of how to manage the bandwidth and how to catch up with data transmission if there is an outage. The committee also recommends investigating the possibility of establishing a library of hard disks. These disks would be available for loan to investigators for back up and transfer of data that is not time sensitive. The availability of email is deemed to be very valuable, the committee recommends looking into the longevity of the current suite of satellites that provide email access (GOES3, MARISAT2, TDRS1 and Iridium).

NSF Response:

NSF disagrees with the concept of a library of hard disks. PIs should be responsible for backup of their data. RPSC should maintain a buffer in the station backup system(s) so that PIs don't have to resend their data in the queue.

Power

The demands on station power have reached the point where they often exceed the capability of the generators thus resulting in serious drops in line voltage and power outages that can adversely affect scientific instrumentation. Future large-scale experiments such as SPT will exacerbate the problem. The committee is concerned that a point will soon be reached where the science being conducted at South Pole will be compromised and recommends the following preemptive actions:

- 1) Perform power audit to discover if there are any power anomalies.
- 2) Continue to actively investigate alternative energy solutions (e.g., wind/solar).
- 3) Once accepted and finalized, implement the recommendations listed in Chapter 14 of "The Strategic Master Plan for South Pole Energy" as soon as possible.

NSF Response:

1. RPSC should distribute the power audit report to the SPUC.
2. NSF agrees and notes that photovoltaics are planned around the elevated station. Meridian has been subcontracted for this task at McMurdo and South Pole Stations.

3. NSF agrees and requests that RPSC provide the SPUC with the final copy of this plan.
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EMI

Radio Frequency Interference Between Transmitters and Receivers--- The committee recommends that science groups that transmit EM radiation and those that are sensitive to its reception maintain close communication and coordination with each other. As a starting point, transmitting groups should operate their experiments at a 50% duty cycle, no faster than one minute on and one minute off (synchronized and logged with a GPS clock signal). With sufficient communication between transmitting and receiving groups temporary deviations from this procedure may be approved. The committee also recommends that a standing working group be formed, consisting of experts from receiver and radio transmitter groups, to facilitate this communication.

The South Pole is one of the world's preeminent observatories for astronomy and ionospheric research. In particular, the South Pole has established world leadership in the measurement of the microwave background radiation, because the most sensitive radio receivers can be used to full advantage. All radio transmissions are a potential threat to these activities, and may have unanticipated consequences for other science operations. Thus the committee further recommends that transmitters be installed as far as possible from the Dark Sector.

NSF Response:

The SPUC should review the feasibility through a sub-committee. This committee should take into consideration science requirements. NSF concurs with Pat Smith's suggestion that the SPAWAR Spectrum Manager be involved and that the SPUC ensures their participation in the committee. NSF requests that RPSC provide the NSF with the charge to the committee.

Sector Management

Limitations on the distances within which field support can be provided, coupled with the growing number of experiments at South Pole, has resulted in a shortage of space for setting up experiments. Even currently funded experiments are having difficulty in finding a suitable field location. It is thus imperative that additional space is generated to accommodate both the immediate and future science requirements of South Pole. As an initial step the committee recommends a shortening of the radius of the Quiet Sector. As a second step the committee recommends investigating the possibility of moving the clean air detectors further into the clean air sector. This would generate a large amount of space around the "110" line. The committee also recommends developing a Standard Operating Procedure (SOP) for each sector (with appropriate input from the grantee community) and formally instructing Principal Investigators to read and understand the SOPs when writing their proposals (the SOPs to be made available on a web site).

NSF Response:

NSF concurs with the development of SOPs for specific Management Plans for each sector, which should be submitted to SPUC for review and comment. The plans should consider changes and placement of structures with respect to sector size.
