

South Pole User Committee  
(SPUC)

ANNUAL MEETING  
19 May 2006

Raytheon Polar Services Company  
Centennial, Colorado

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**South Pole User Committee Meeting Report  
19 May 2006**

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## Action Items for SPUC 2006

RPSC - Identify Working Groups to analyze Power, Bandwidth, and EMI.

- o Designate a grantee POC from each sector.
- o Grantees will be solicited for advice.
- o The NSF will be informed of on-going developments.
- o Developments (briefings) of these Working Groups will be posted to the Web so everyone can access the on-going dialogue of each working group.

-- *Ongoing – Sullivan, Kaminski, SPUC*

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RPSC – Continue to work closely with Pat Smith and Kevin Culin on Bandwidth issues. PIs will be made aware of the total costs of bandwidth usage (including RPSC's support costs) for each project.

--*SCOARA Bandwidth Working Group – Darryn Schneider*

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RPSC – Re-establish EMI Working Group.  
Allan Weatherwax volunteered to be member.

-- *RPSC/Sullivan – recommendation from SPUC*

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SPUC/RPSC – Continue to work on solving population issues.

-- *Ongoing – Watson/Kaminski*

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RPSC - Revisit historic records of previous SPUC meetings and address unfinished action items.

-- *RPSC/Kaminski*

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RPSC – Investigate using reusable hard discs for data back-up.

-- *RPSC/Lea Martellaro – 11 External 500 GB hard-disks purchased.*

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NSF – Power budget breakdown spreadsheet for instrument power usage will be updated and distributed to the SPUC (Vladimir Papitashvili).

-- *Tiger Team: Dick Armstrong & John Carlstrom*

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SPUC – Follow-up on power usage needs for science projects and have figures available to the NSF within the next two - three months for input.

-- *Vladimir Papitashvili – done*

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Suggestion - Chris Martin asked if it would be possible to make estimates of resource usage peaks (such as population) available to grantees to see where peaks are before submitting SIPs so they can work with/around them.

-- *Limited resource-peak information could be available, however most are determined after SIP submittal and therefore only usable later in the planning season.*

## Recommendations of the 2006 South Pole Users Committee

**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).

**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.

**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.

**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).

## Attendees

Name	Representing	Institution
Stuart Jefferies	Committee Chair	University of Hawaii
Irfan Azeem	Space Sciences & Aeronomy	Embry-Riddle Aeronautical U.
Chris Martin	Radio Astronomy & Dark Sector	Oberlin College
Ben Reddall	Aeronomy & Astrophysics	SCOARA
Antony Stark	Past SPUC Chair	Harvard -Smithsonian
Allan Weatherwax	CUSP Science & Radio EMI	Sienna College
Andrew Seaman	Climate Monitoring & Clean Air	NOAA/ESRL/GMD
Dan Simon	Climate Monitoring & Clean Air	NOAA/ESRL/GMD
Don Neff	Climate Monitoring & Clean Air	NOAA/ESRL/GMD
Vladimir Papitashvili	A & A Program Manager	NSF/OPP
Sam Feola	Program Manager	RPSC
Steve Kottmeier	Director Science Support	RPSC
BK Grant	South Pole Area Directorate	RPSC
Paul Sullivan	South Pole Science Manager	RPSC
Al Baker	South Pole Science Coordinator	RPSC
Dave Nelson	Science Support Manager	RPSC
Charles Kaminski	Planning Support Manager	RPSC
Patricia Jackson	Planning Support Manager	RPSC
Doug Miller	Project Engineer	RPSC
Beth Watson	South Pole Station Support	RPSC
Barb Wood	Administrative Coordinator	RPSC
Dave Leger	Senior Manager, IT	RPSC
Kathy Hill	Meteorology	RPSC
Tracy Sheely	South Pole Communications	RPSC
Tracy Szela	Crary Lab Supervisor (acting)	RPSC
Floyd Dial	Project Electrical Engineer	RPSC
Jason Medley	South Pole Operations Mgr	RPSC
Martin Lewis	SP Technical Services Mgr	RPSC
Nick Powell	Satellite Comms Engineer	RPSC
Jack Corbin	South Pole Science Construction	RPSC
Paddy Douglas	South Pole Logistics Coordinator	RPSC

## 2006 SPUC Meeting Agenda May 19, 2006

### 7:30 – 8:00 CONTINENTAL BREAKFAST

### 8:00 – 8:30 Opening

- Welcome and introduction of attendees [NSF/RPSC]
- Overview of meeting and agenda [Jefferies]

### 8:30 – 8:45 Action Items

- Review 2005 SPUC Action Items [Kaminski]

### 8:45 – 9:00 SPUC Charter

- Current status - *Explain concept, responsibilities, and actions required* [Jackson/Kaminski]

### 9:00 – 9:45 South Pole Population

- Safety issues and concerns – *New rules affecting all participants in USAP* [BK Grant]
- Current status and projected 2007 season [Beth Watson]
- Grantee population – *Work on reducing population pressures by reducing deployments and leveling deployment numbers throughout the season. Explain deployment costs vs. program money available. Projects without external activities (i.e. vehicle use & construction) could deploy early/late season.* [NSF/Papitashvili]
- Options for the future with 154 cap [NSF/Marty]

### BREAK (15 min)

### 10:00 – 12:00 Working Groups Status and Future Strategy

- Cryogenics (½ hour) – *Identify the elements that have made this working group a success for use as a template for the other working groups. (we use this as an example of a mature working group that is standing on its own via the open communications)* [Baker]
- Bandwidth (½ hour) – *Identify priorities (needs vs. wants) and manage transferring daily data through the Working Group/SCOARA* [Leger]
- Power (1 hour) – *Current status. Pursue reductions. Formulate a formal working group to manage issues. Monitoring capabilities and FY06 FEMC effort.* [Dial/Sullivan]

### BREAK FOR LUNCH (1 hour)

### 1:00 – 1:30 Working Groups Status and Future Strategy (continued)

#### EMI

- Get updates from PIs for current data on the Palo radar 50% duty cycle [Anderson/Sullivan]
- Discuss light pollution around B2 [Sullivan]
- *RPSC has submitted two proposals for EMI monitoring/assessment in the out-years at South Pole to the NSF* [Powell]

### 1:30 – 2:30 Sector Management

- Review status of sector SOPs [Sullivan, Jensen]
- Review South Pole ASMA (Antarctic Specially Managed Area) [Shenk]
- Evolution of sectors (area and time limits) - *Management tied to discipline/funding cycles* [Sullivan]

**BREAK (15 min)**

**2:45 – 3:30 Large Scale Long Term Science Projects [NSF?]**

- *Scheduling challenges for FY07 – Limited resources on station*
- *Overall impacts for FY07 and the out-years FY08, FY09 – Informational*
- *Expiration of science experiments and facility demos*

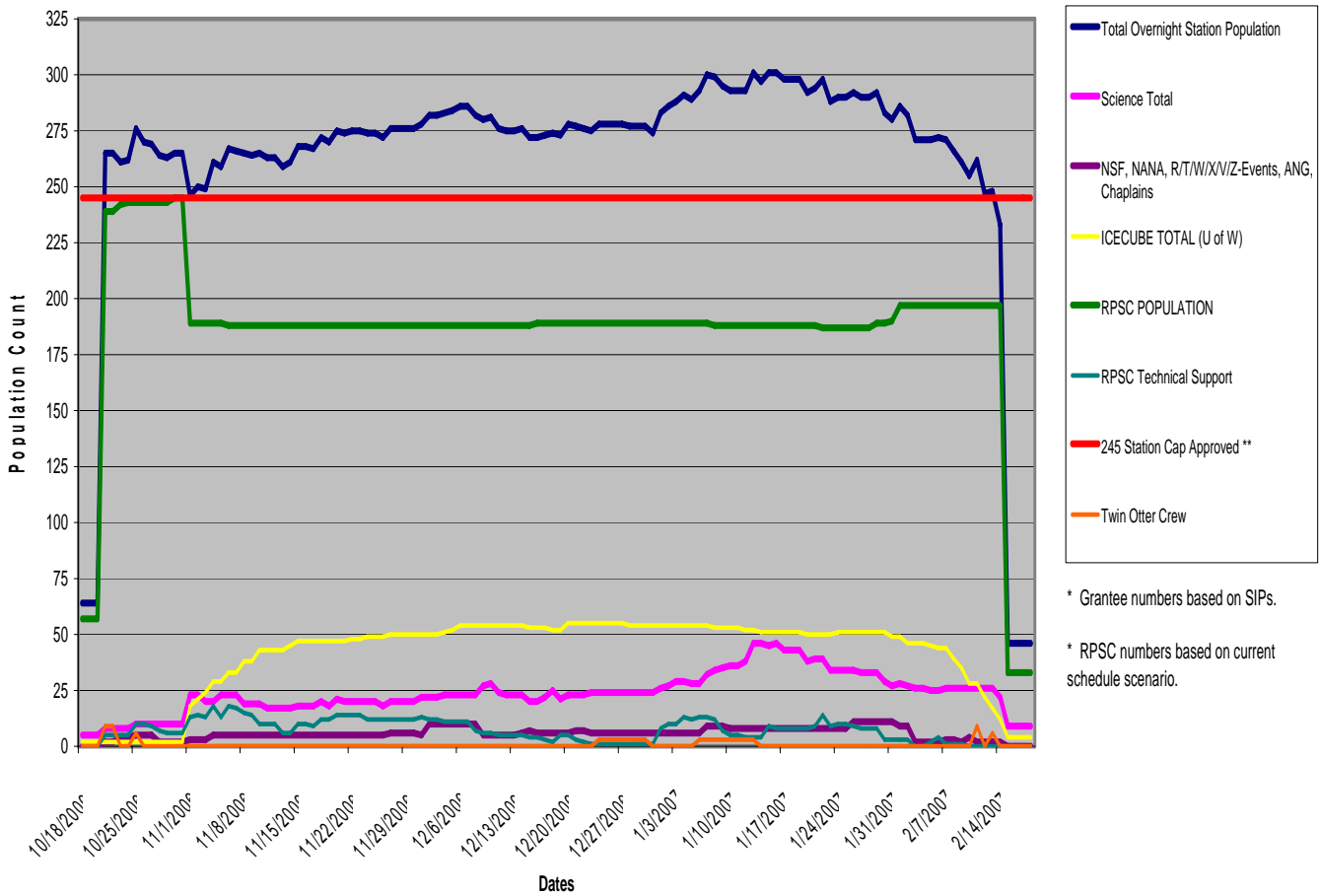
**3:30 – 4:00 Other Business**

- POLAR ICE futures [Kaminski]
- Topics not listed in the agenda - *Ideas welcome*

**4:00 – 5:00 Executive Session [Jefferies]**

# Population

Total Population - South Pole 2006/2007  
DRAFT



\* Grantee numbers based on SIPs.  
\* RPSC numbers based on current schedule scenario.