

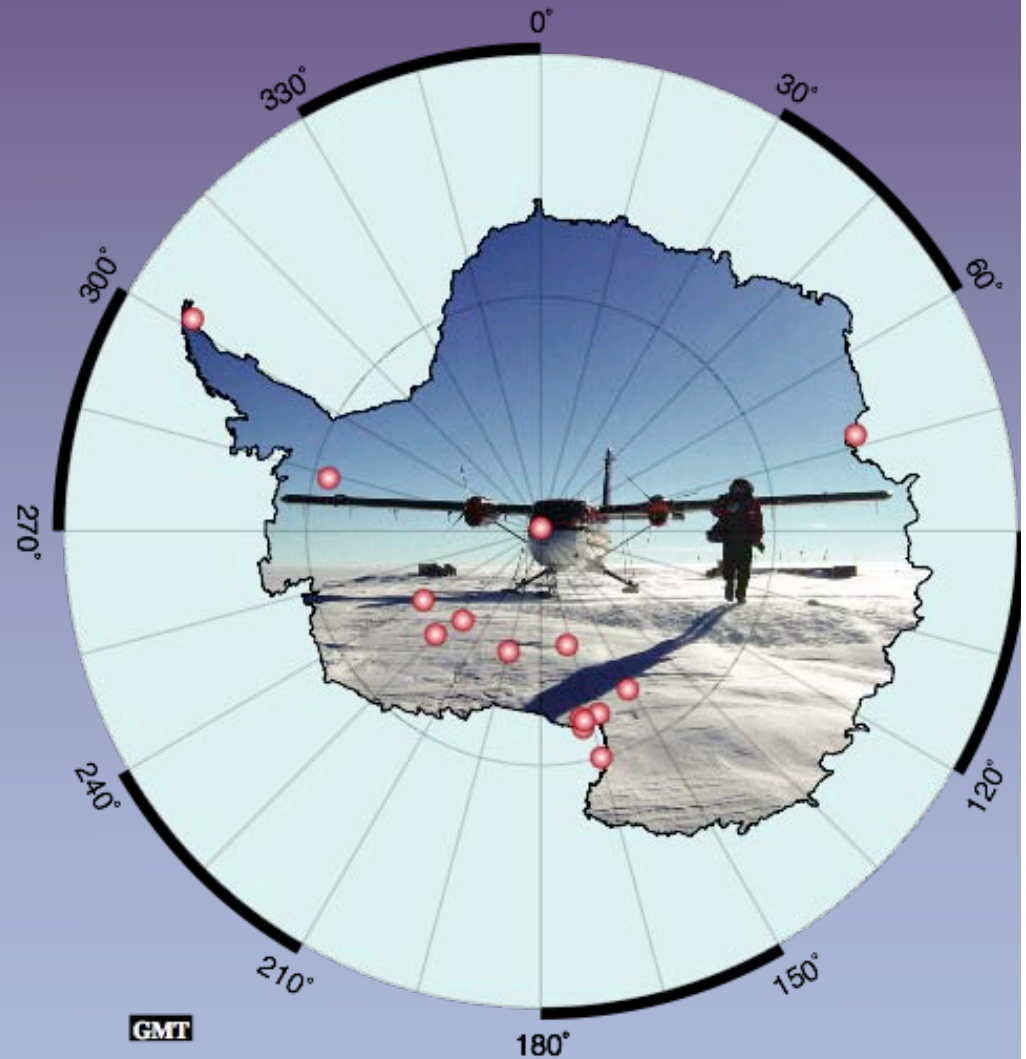


PASSCAL's Current Capabilities in Support of Polar Research

Polar Instrumentation Workshop,
Washington DC, Sept. 7 & 8, 2005

Experiment Support

- ~20 Experiments supported since 1990
- Most experiments are multi-year (e.g over-winter)
- 2005-2006 supporting 6 Antarctic experiments (62 stations + snow streamer)
- Broadband, active-source, glaciology



Available Inventory

Item	Current	Purchase 2005
RT130	330	150
Q330	270	
RT125 (Texan)	869*	100
Multi-channel	4	
Broadband Sensor	434	25
Short Period Sensor	247	
High Freq. Sensor	396	

*Includes UTEP's 443 RT125



Operating Specs

- Q330 - Fully spec'd to -40C
- RTI30 - -20C
- Baler - -40C (not media)
- Disk Drive - -20C
- Flash Media - -55C
- STS-2 0-40C
- 3T - -10C-65C, cabling -20C, power controller -20C



Power Consumption

	Watt
RT130	1
Q330	0.6
STS-2	0.55
3T	1
Wilan Freeway	4
	1.4
Iridium	4

Power Budget for a PASSCAL Style Station

Q330 40sps)	0.6W (3-ch
3T	1.0W
Balance <u>of system*</u>	<u>0.4W</u>
Total	2.0W

1 Day \approx 50 watt-hour

1 Month \approx 1500 watt-hour

0.5 Year \approx 9000 watt-hour

* Includes Iridium SOH



Data Volumes

3 channels @ 1 sps	11 MB/month
3 channels @ 40 sps	475 MB/month
3 channels @ 100 sps	1.2 GB/month

On-site data capacity

- RT130 - 4 GB of flash memory
(~8 months of 3-channel 40 sps)
- Q330 - 20 GB ATA disk drive
- Q330 - 9 GB ATA flash drive

Communication Options

WLAN - 8 Mbits/sec
Freewave - 153 Kbit/sec
Iridium - 2.4 Kbit/sec
Argos - SOH only



* Testing

Offload Time for 6 Months of 40 sps Data (~3GB)

	Rate	Time
DAS	10 Mbps	41 mins
Wlan	8 Mbps	50 mins
Baler	0.4 MBps	128 mins
Freewave	153 Kbps	46 hrs
Iridium	2.4 Kbps	2982 hrs

Realtime Data Rates

	Rate
40 sps	180 byte/s
40 sps w/OH	~360 byte/s
100 sps	450 byte/s
Iridium	300 byte/s
Freewave	153 Kb/s
Wlan	1 MB/s

Active Testing

- RTI30 - cold culling 10 to -50C
- L22 - cold culling to 10 to -50C
- Q330 w/ Iridium SOH download capability
- RTI30 Argos SOH testing
- Evaluating low-temp charge controllers (ProStar, Flex Charger)

Additional Resources

- Environmental Chamber - 27 cu. ft., -70C to 120C
- 60 - channel snow streamer
80' takeouts, 7 12-takeout cables, Geode adapters.
- Solid state disks - 4 9 GB
- Wind generators - 10