

PROJECT INFORMATION

Lead Principal Investigator	Joseph McConnell
Institute	Desert Research Institute, Division of Hydrologic Sciences
Project Title / Grant #	Continued Core Atmospheric and Snow Measurements at the Summit, Greenland Environmental Observatory (0856845)
NSF Program and Manager	NSFOD\OPPV\ARCAON, Dr. Martin Jeffries
PFS Project Manager	Katrine Gorham

LOGISTICS SUMMARY

This grant continues measurements begun under 0336450 (Bales). The goal of the project is to continue and expand ongoing long-term measurements of the Arctic atmosphere, snow, and other Earth system components at the Summit Greenland Environmental Observatory (GEOSummit). The long-term measurements program at GEOSummit is a close partnership between the Desert Research Institute (DRI), University of California (UC-Merced, UC-Davis), NOAA's Global Monitoring Division (GMD), and others. GEOSummit will become one of six NOAA baseline observatories involving measurement of more than forty gases affecting climate change (funded separately).

The project, Long Term Observations (LTO), will conduct a suite of year-round core measurements from 2009 through 2014. In addition to core measurements, Summit Station technical staff will carry out measurements initiated by investigators under other grants, including a significant sampling campaign by NOAA (see NOASummit), and Baseline Surface Radiation Network and 50m tower experiments at Summit (CHAntennaKS).

During a one- to two-week campaign each summer, the research team will conduct field measurements and instrument maintenance. On-site science technicians will take over on year-round measurements when the research team is not on-site.

In 2010, PolarTREC teacher James Pottinger (0956825JP) will join the team for their fieldwork at Summit Station.

CPS support includes access to the Summit infrastructure and services, en-route transit costs between Scotia and Summit, science technician services including instrument operation and sampling, as well as assorted materials. The investigators will pay other costs through the grant.

For the complete CPS online project record for this grant, including science objectives, go to:
http://www.polar.ch2m.com/arlss_reports/arlss_projectsdetail.asp?cbPropNum=0856845

For up-to-date information on the project's schedule, please view the online Greenland calendar (<http://www.polar.ch2m.com> > Greenland > Calendars/Schedules).

OUTSTANDING ACTIONS AND NOTES

Issue	Responsibility	Date Due	Date Completed
Review support plan for accuracy and distribute to all field team members	PI	7/16/2010	In progress
Obtain all necessary insurance and permits for fieldwork	PI	7/16/2010	In progress
Visit all hyperlinks and review all documents referred to in the support plan	Entire Field Team	7/16/2010	In progress
Contact the GEOSummit Science Coordination Office (SCO) sco at summitcamp.org regarding your project's plans for the season	PI	7/16/2010	Completed
Note: Passports are required for Air National Guard and international travel. Also, please bring TWO copies of your passport to Greenland with you.	Entire field team	7/16/2010	Okay
Complete Critical Success Factors	PI	7/16/2010	In progress

ALLOCATIONS AND SERVICES

Allocations from Inventory

Quant/Unit	Item
2	4-stroke snowmobile. Note: The snowmobile will be available for the team to use for off-station travel. Summit promotes a pedestrian culture, and the snowmobile is not to be used for transportation around camp.
2	Nansen sleds
2	Shovels
1	Iridium phone
1	GPS
2	VHF radio
2	2-person survival bags
3	Arctic oven tents

For more information on satellite phones, radios, manuals and other field communications support, please visit the CPS communications Web site at <http://www.polar.ch2m.com/>.

Other Services

Service	Comments
User days Summit, including meals	<p>The researchers will sleep in tents provided by CPS. Researchers will provide their own sleeping bags and ECW gear.</p> <p>Personnel will use the Big House facilities for meals and observe regular meal times. They should notify the camp manager and chef if they plan to eat outside normal meal times. Any special diets or food allergies should be reported to the chef upon arrival at Summit. If possible, the science group can send an early email to manager at summitcamp.org to prep the cook for special diet requirements.</p>
ANG passenger travel: Kanger-Summit-Kanger	For all team members.
ANG passenger travel: NY-Kanger-NY	For Bayou and Pottinger.
Cargo services: NY-Kanger-Summit-Kanger-NY	
Off-Station Travel	<p>The researchers will travel off station during day trips to the AWS site.</p> <p>This work will be coordinated with the Camp Manager (Ken Jessen) to ensure that proper off-station check-in and check-out policies are followed. The researchers will adhere to all travel policies and clean air sector protocols, and will plan off-station travel accordingly.</p> <p>For travel to/from the site, the researchers will minimize snow disturbances by traveling in direct routes and using the same path whenever possible.</p>
Science Tech Time	The Summit Science Techs will provide year-round support and daily instrument maintenance.
Safety protocols	<p>The researchers will adhere to all safety protocols outlined in the Activity Hazard Analysis' (AHAs). This includes reading and signing off on appropriate AHAs prior to completing relevant tasks.</p> <p>Additionally, the researchers will adhere to the established clean air protocols and travel policies.</p>

LOCATION INFORMATION

Please visit <http://www.polar.ch2m.com/> and navigate to the Greenland menu for en route and location-specific Greenland information. Prior to deployment, your entire field team should be familiar with the content of the *Greenland Guide* and with the guidelines provided in the *Summit Users' Guide*. Both are available electronically via our Web site's Greenland menu.

CARGO AND CUSTOMS

All cargo shipped through the U.S. should arrive in Scotia, NY, **no later than 2 weeks prior** to the desired northbound Air National Guard (ANG) flight, must be entered into our online Cargo Tracking System, and must be properly registered with Customs. For cargo arriving in Kangerlussuaq via Europe with commercial carriers, it must arrive **at least one week** prior to the desired Kangerlussuaq to Summit Air National Guard flight.

For the most current ANG flight schedule go to <http://www.polar.ch2m.com/> and navigate to Greenland > Calendars/Schedules.

If you are a **new user** requiring access to the Cargo Tracking System, contact [Jason Buening](#).

(If you need **technical support** with the Cargo Tracking System, contact [Mike Dover](#) .

Customs instructions are available on our Web site at <http://www.polar.ch2m.com/> (go to Greenland > Customs). More information is available via the *Greenland Guide*, under Greenland on the CPS site.

The following is our current understanding of your overall cargo requirements:

Cargo List

Items	Details
6, aluminum poles	10 ft long, 3 inch diameter
1, aluminum AWS extension pole	10 ft long, 5 inch diameter
1, tool box	
2, large Edak boxes	9 cu ft (each)
2, medium Edak boxes	4.5 cu ft (each)
Total Weight	~300 lbs

SUPPORT SCHEDULE

Approx Date	Location	Activity
8/12/10	Kangerlussuaq	Pottinger and Bayou fly from NY to Kanger via ANG.
8/12/10	Kangerlussuaq	Hansjoerg/Schroff arrive in Kanger via commercial air.
8/13/10	Summit	Pottinger/Bayou/Steffen fly from Kanger to Summit via ANG.
8/20/10	Summit	Pottinger/Bayou/Steffen fly from Summit to Kanger via ANG.
8/22/10	Kangerlussuaq	Pottinger and Bayou depart Kanger via ANG.
8/21/10	Kangerlussuaq	Hansjoerg/Schroff depart Kanger via commercial air.

For the most up-to-date information on the project's schedule, please view the online Greenland calendar (<http://www.polar.ch2m.com/> > Greenland > Calendars/Schedules).

FIELD TEAM INFORMATION

Name	Location	Date In	Date Out	Email
Pottinger, James	Kangerlussuaq Summit	08/12/10 08/13/10	08/22/10 08/20/10	pottsoup at comcast.net

Hansjoerg, Frei	Kangerlussuaq Summit	08/12/10 08/13/10	08/21/10 08/20/10	
Schroff, Karl	Kangerlussuaq Summit	08/12/10 08/13/10	08/21/10 08/20/10	schroff at env.ethz.ch
Bayou, Nicolas	Kangerlussuaq Summit	08/12/10 08/13/10	08/22/10 08/20/10	nicolas.bayou at colorado.edu

PROJECT CONTACT INFORMATION

Research Team

Role	Name	Email	Phone / Fax
Co-PI	Roger Bales	rbales at ucmerced.edu	209 724.4348 /209 724.4459
Principal Investigator	Joseph McConnell	jmconn at dri.edu	775 673.7348 /775 673.7363

CPS Team Members

Contact for	Name	Email	Primary Phone
Summit science planning & support	Katrine Gorham	Katrine at polarfield.com	Denver: 303.349.2884
Greenland science planning & support	Susan Zager	Susan at polarfield.com	Denver: 720.320.6159
Greenland science planning & support	Robin Abbott	Robin at polarfield.com	Denver: 303.748.8507
Kangerlussuaq base operations	Kathy Young	Kathy at polarfield.com	Denver: 720.320.6160 Greenland: 011.299.524218
Scotia (Stratton Air Base) operations & customs	Earl Vaughn	Earl Vaughn at gmail.com	Scotia cell: 518.605.0979
Sat phones & comms	Roy Stehle	Roy.Stehle at sri.com	Menlo Park: 650.859.2552

CPS Offices

Denver	Kangerlussuaq	Scotia
Polar Field Services 8110 Shaffer Parkway Suite 150 Littleton, CO 80127 Tel: 303.984.1450/1439 Fax: 303.984.1445	CH2M HILL Polar Services Attn: Name of Employee/Researcher Postboks 1015 DK-3910 Kangerlussuaq, Greenland Tel: 011.299.841598 Fax: 011.299.841599	Earl Vaughn C/O 109 th Aerial Port Bldg. 20 Stratton Air Base Scotia, NY 12302-9752 Tel: 518.344.2635 Cell: 518.605.0979 Fax: 518.344.2537

Summit Station

Winter	Summer
Polar Field Services Attn: Name of Employee/Researcher 8110 Shaffer Parkway Suite 150 Littleton, CO 80127 Tel: 303.984.1450/1439 Fax: 303.984.1445	CH2M HILL Polar Services Attn: Name of Employee/Researcher - Summit Station C/O Earl Vaughn 109 th Aerial Port Bldg. 20 Stratton Air Base Scotia, NY 12302-9752 Tel: 518.344.2635 Fax: 518.344.2537

Other

Organization	Internet	Phone
Summit Science Coordination Office (SCO)	http://www.geosummit.org sco at summitcamp.org	John Burkhart +47 96 82 5011

SAFETY, ENVIRONMENT, HEALTH and PERMITS

Effective January 1, 2010 the Government of Greenland assumed responsibility for the permitting process for research in Greenland. All science teams planning to conduct research in Greenland must complete an **annual application** in order to obtain approval from the Government of Greenland. The application forms are available from the Department of Domestic Affairs, Nature and Environment at <http://www.nanoq.gl/expeditions> or by sending an email to [ekspeditioner at gh.gl](mailto:ekspeditioner@gh.gl). Applications are submitted directly through the Department of Domestic Affairs, Nature and Environment. Be advised that a new fee of 4000 DKK has been put in place for permits. For assistance with the application process, contact:

Martin Schiøtz
 Head of Section
 Section of Nature
 Department of Domestic Affairs, Nature and Environment P.O. Box 1614
 3900 Nuuk
 Greenland
 e-mail: [ekspeditioner at gh.gl](mailto:ekspeditioner@gh.gl)

RISK ASSESSMENT

See Appendix for Risk Factors and Mitigation.

CRITICAL SUCCESS FACTORS

Please list the factors that are most important for the success of your science. We track these factors in order to measure the success of CPS' support. Examples might be the availability of the helicopter or camp gear.

Factors
Logistics support in Kangerlussuaq prior to Summit deployment.
Logistics support in Summit during field maintenance trip.
Science tech support of daily instrument maintenance throughout the year at Summit.

GOVERNMENT AND PERFORMANCE REPORTING ACT OF 1993 (GPRA)

NSF/OPP requires your help in complying with the Government Performance and Reporting Act of 1993 (GPRA). One measure of CPS' performance is a "facility-performance metric" which counts the number of productive days your project has in the field while relying on CPS facilities or support. Please keep track of any "lost days" and report these to us at the end of the season.

APPENDIX

Risk factors and mitigation

Factor	Mitigation and Control
Heavy lifting/body strains and sprains	-Use proper lifting techniques
Snowmobile Travel	<ul style="list-style-type: none"> -Participate in a snowmobile training -Have SAR plan in place -Use appropriate Personal Protection Equipment/helmets -Carry Survival Gear on extended trips -Use radio communications between snowmachines -Carry a PLB (Personal Locator Beacon) -Carry a GPS (Global Positioning System) unit
Cold Related Injuries-weather	<ul style="list-style-type: none"> -Wear proper clothing -Appropriate camping gear, insure sleeping bags are adequately rated -Check the forecast before going out of camp/town -Watch the weather while out -Be mindful of hydration, carry sufficient food -Develop and share your travel plans -Have and share an emergency plan for bad weather
Emergency Plan	<ul style="list-style-type: none"> -Compile a list of emergency contacts for your field team and share it with critical participants including your home institution and CPS. -Share your satellite phone number as a means for others to contact you.
Communications	<ul style="list-style-type: none"> -Carry the appropriate communications system (satellite phone) -Assure your phone and/or radio is fully charged before going out and carry a spare battery.
High Altitude	<ul style="list-style-type: none"> -Participate in high altitude training -Have medical call in service available -Have SAR plan in place -Have oxygen available in high altitude camps -Develop plan to acclimatize -Consult with physician on use of medication for acclimatization