

PROJECT INFORMATION

Lead Principal Investigator	Sarah Das
Institute	Woods Hole Oceanographic Institution, Department of Geology & Geophysics
Project Title / Grant #	A study of supraglacial lakes on the Greenland Ice Sheet (NASALakes)
NSF Program and Manager	Other Agency - NASA, Dr. Thomas Wagner
PFS Project Manager	Robin Abbott

LOGISTICS SUMMARY

This NASA supported project is an extension of the work done previously by the PI with four seasons of NSF funding (see NSF grant 0520077). The researchers will continue investigating meltwater lakes that form on Greenland’s ice sheet during the summer.

In 2010, a four-person team will travel via commercial air from the US through Iceland and on to Ilulissat at the end of June (cargo will be sent via the Scotia>Kanger logistics chain, shipping on to Ilulissat via commercial freight). After preparing for the field effort, the researchers will travel via helicopter to two lake sites (previously studied under the NSF grant mentioned above). The team will establish a short-term field camp at the first site (South Lake), and conduct experiments and other observations before moving via the helicopter to the second site (North Lake) about midway through the 10-day field season. GPS, meteorologic, and seismic stations will be reset at both the North and South Lakes. When the work is completed, the researchers will take out of the field via helicopter, and return to Ilulissat for homeward travel.

CPS will provide Air National Guard freight coordination between Scotia and Kangerlussuaq and commercial freight transport between Kangerlussuaq and Ilulissat, camping/safety gear, air charters and Ilulissat lodging. NSF will recoup these costs via interagency funds transfer from NASA. The PI will use grant funds for all other logistics, including commercial flights for team members from their home institutes to Ilulissat, and food in Ilulissat.

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=NASALakes

OUTSTANDING ACTIONS AND NOTES

Issue	Responsibility	Date Due	Date Completed
Review support plan for accuracy and distribute to all field team members	PI		
Obtain all necessary permits for fieldwork	PI		
Visit all hyperlinks and review all documents referred to in the support plan	Entire Field Team		
Provide cost estimate for interagency transfer Provide end of season actual costs	CPS		
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		
Complete Critical Success Factors	PI		
After the camp put-In flight, determine whether one or two flights will be needed for camp move and pull-out. Notify Kangerlussuaq office.	PI		

ALLOCATIONS AND SERVICES

Quant/Unit	Item
<i>General Issue Gear:</i>	
3 ea	Kifaru (Mountainsmith) sled for moving equipment with tow ropes
2 ea	Generator, 1 kw
1 ea	Jiffy drill + 2ea 10" diameter augers (1 w/cutting head and 1 extender)
1 ea	Kovacs hand auger + 5 additional flight extensions
2 ea	Step ladder, 6' fiberglass
50 ea	ice screws 22cm
<i>Fuels for Camp:</i>	
7 gal	7 gal fuel – generator - located in CPS storage container
7 gal	7 gal fuel - cook stoves – Coleman fuel located in CPS storage container
1 gal	Fuel for Jiffy drill + oil for premix – fuel in storage container / oil sent from SFJ
<i>Camp and Safety Equipment:</i>	
2 ea	Sat phones
2 ea	Misc types Sat phone chargers
1 ea	ELT/PLB or something similar to satisfy Greenland permit requirement
4 ea	local walkie-talkies (motorola type) + extra batteries
4 ea	Tent – (REI GEO Mtn3) plus tent footprints
1 ea	Tent – camp (10x10 Arctic Oven)
1 ea	Tent – science (8x8 Arctic Oven)
1 ea	Toilet tent (8x8 Arctic Oven, no floor)
4 ea	long Thermarest sleeping pad
8 ea	Ridgerest long sleeping pad
2 ea	Coleman 2-burner white gas stove
1 ea	Whisperlite
1 ea	4 person kitchen box
1 ea	Shovels (spade type)
1 ea	toilet
10 ea	TP (10 rolls)
1 ea	Medical kit with remote telemedicine services
1 ea	Water Cooler, insulated, 5 gallon
3 ea	Extension cord for generator, 25 ft
3 ea	Power strip

2 ea	Duct tape
6 ea	Tarps misc
1 ea	Parachute cord, 100' / ¼"
10 ea	Bungee cords
4 ea	rolls Paper towels
10 ea	Trash bags , heavy duty 30-40 gallon size
4 ea	Crazy creek chairs
10 ea	Cam straps (10-20' lengths)
1 ea	5 gallon buckets

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
Coordinate cargo shipment on 109 th airplanes to / from Greenland	
Forward cargo from Kangerlussaq to Ilulissat via AirGL freight	
Schedule/arrange Air GL helicopter charters	
Booking made for rooms at Hotel Hvide Falk for 4 people	
Receive daily field safety check-ins while at camp	
Water samples from Bristol University are being collected for the Das project and will return on the August flight.	The samples will be in 3 coolers; no cooling requirements necessary. Estimated total weight is ~80 kg and the coolers are approx 30"x16"x12" each, and would be sent on to WHOI from Scotia.

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*, available electronically via our Web site's Greenland menu.

CARGO AND CUSTOMS

All cargo required for your project 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 the most current ANG flight schedule go to <http://www.polar.ch2m.com/> and navigate to Greenland > Calendars/Schedules.

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 sent on 02 June 109th flight:

Cargo List arriving via 109th

Items	Weight/Cube
Food	150 lbs
Personal gear (Sleeping bags, clothes, laptops, etc)	200 lbs
Tools	100 lbs
Conduit	100 lbs
Mountaineering equipment	50 lbs
Total	600 lbs

Cargo List delivered to KISS office in Kangerlussuaq

5 mL of concentrated HCL (34-37%), UN 1789.	
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SUPPORT SCHEDULE

Approx Date	Location	Activity
29 June	Arrive Ilulissat	Air Iceland flight #253 from Reykjavik, Iceland at 13:15
30 June	Ilulissat	Prepare loads for helicopter / shop for food for field work
1 July	Ilulissat > Lake A	Camp Put-In flight via helicopter to first study site
5 July	Lake A > Lake B	Camp Move flight via helicopter to second lake study site, return to Ilulissat with 1 passenger (Mark Behn)
7 July	Ilulissat > Reykjavik	1 team member departs Ilulissat (Mark Behn)
9 July	Lake B > Ilulissat	Camp Pull-Out flight via helicopter from Lake B back to Ilulissat
10 July	Ilulissat > Reykjavik	3 team members depart Ilulissat (Das, Poinar, Joughin)

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
Behn, Mark	Ilulissat	6/29	7/07	mbehn at whoi.edu
	South Lake	7/01	7/05	
Das, Sarah	Ilulissat	6/29	7/10	sdas at whoi.edu
	South Lake	7/01	7/05	
	North Lake	7/05	7/09	
Joughin, Ian	Ilulissat	6/29	7/10	ian at apl.washington.edu
	South Lake	7/01	7/05	
	North Lake	7/05	7/09	
Kristin Poinar	Ilulissat	6/29	7/10	kpoiner at u.washington.edu
	South Lake	7/01	7/05	
	North Lake	7/05	7/09	

PROJECT CONTACT INFORMATION

Research Team

Role	Name	Email	Phone / Fax
Principal Investigator	Sarah Das	sdas at whoi.edu	508.289.2464 /
Field team member	Ian Joughin		
Field team member	Mark Behn		
Field team member	Kristin Poinar		

Gear Shipping Address for equipment and communications gear:

CPS Polar Services Postboks 1015 KISS Building 3910- Kangerlussuaq

CPS Team Members

Contact for	Name	Email	Primary Phone
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
Remote Medical (kits & service) and Medical/Dental Clearance (PQ)	Robbie Score	Robbie at polarfield.com	Denver: 303.906.0093

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

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
Medical Advisory Service (MAS) (see below for Remote Telemed #)	http://www.medaire.com/corp_medlink.html	Office: 480.333.3771

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.nanog.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)

Medical Advisory Service (MAS) Support

If you need medical advice/assistance, do not hesitate to contact Medical Advisory Service (MAS) using the card included with the medical kit or the information below. Be sure that each team member knows where the kit is located and understands how to use the MAS service in the field. For further information on MAS, please visit our Web site <http://www.polar.ch2m.com/> and navigate to Medical>Remote Medical Services/Kits.

MAS 24/7 Telemed Service

Worldwide Phone: 1.480.333.3876
 Fax: 1.480.333.3821
 Member ID: CH2M HILL Polar Services

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
Quality of camp gear issued
Transportation of science team's gear from CONUS>> Ilulissat ahead of science team's arrival
Camp and science gear (including fuels) staged and accessible in Ilulissat prior to the arrival of the field team
Helo transport for the team to and from the field sites
Assistance with rescheduling helo charter if required due to weather/unforeseen circumstances, and assistance with rebooking commercial flights if required

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

RISK FACTORS and MITIGATION

Factor	Mitigation and Control
Cold Weather	<ul style="list-style-type: none"> -Team members attend a cold weather injury training course such as Wilderness First Aid or Wilderness First Responder -Proper clothing -Appropriate camping gear, insure sleeping bags are adequately rated -Check forecast before going out of camp/town.
Helicopter Travel and working around	<ul style="list-style-type: none"> -Participate in helicopter training -Have a SAR plan in place -AHA working around aircraft -Carry survival bags on the aircraft if doing day trips, or if multiple put in flights insure people travel with survival items from camp supplies
Remote Camp	<ul style="list-style-type: none"> -Have a remote medical call in service -Have a SAR plan in place -Have a First Aid kit available -Participate in First Aid training- be sure that someone or all field personnel have Basic First Aid training at a minimum -Have a communication/ check-out/check-in plan in place -Develop a list of current camp member's training levels and certifications -Maintian an emergency contact list, include all applicable agencies, field team members, provide camp location and description to local SAR groups -Develop a plan for general camp operations including camp hygiene and handling human waste -Participate in PLB training -Participate in GPS training
Water – Availability, Potability	<ul style="list-style-type: none"> -Filtration system -Carry in