PROJECT INFORMATION

Lead Principal Investigator	Meredith Kelly
Institute	Dartmouth College, Earth Sciences
Project Title / Grant #	Collaborative Research: Sensitivity of local glaciers in central East Greenland to Holocene climate change (0909270)
NSF Program and Manager	NSF\OD\OPP\ARC\ANS, Dr. Henrietta Edmonds
PFS Project Manager	Robin Abbott

LOGISTICS SUMMARY

This project is a collaboration between 0909270 (Kelly, Dartmouth, LEAD), 0908081 (Hall, U of Maine) and 0909285 (Lowell, U of Cincinnati). The research teams will make summer 2010 and 2011 campaigns to east Greenland for geological mapping and sampling at a number of remote sites in the Ittoqqortoormiit (aka Scoresbysund) region. Up to 7 team members will travel each summer to Greenland where field work will be accomplished via helicopter using Constable Point (aka Nerlerit Inaait) as a base. Researchers will travel by commercial air through Iceland to Constable Point. They will move between 4 sites during 2010, and two sites further afield in 2011. A fuel cache will be required during their second field season.

Researchers will spend a few weeks in August and early September in Greenland both years exploring a transect from a low-elevation, coastal site to a high-elevation, interior site near the Greenland Ice Sheet margin to establish the influence (if any) of locally different temperature and precipitation conditions on overall glacier fluctuations.

In year 1, the team will work at three locations in Northern Liverpool Land and one location in eastern Milne Land. In year 2, they will work at locations in Milne Land, Renland and near the edge of the ice sheet. At these sites, they will collect sub-fossil vegetation from receding ice cap margins, sample boulders on moraines for exposure dating. (A GEUS collaborator will join the team in the field to interpret the vegetation samples in the first year) They also will collect sediment cores from appropriate lake sites to elucidate a continuous Holocene record of local glacial fluctuations. These samples will be collected by deploying coring devices from an inflatable raft at the lake sites. All samples and lake cores will be shipped to the United States for analyses to be conducted at the PIs' institutions as well as the LacCore Facility at the University of Minnesota.

CPS will provide support via POLOG logistics company for commercial travel and freight from Akureyri to Constable Point, lodging in Constable Point, aircraft fuel and fuel placement if necessary, and materials such as batteries and stove fuel. CPS will contract with Air GL for helicopter charters. An Iridium phone and a medical kit will be also be provided by CPS. All other logistics will be budgeted by the researchers within 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=0909270

OUTSTANDING ACTIONS AND NOTES

Issue	Responsibility	Date Due	Date Completed
Obtain all necessary permits for fieldwork	PI		8/13/2010
Visit all hyperlinks and review all documents referred to in the support plan	Entire Field Team		
Complete medical clearance process 6-8 weeks before desired deployment date	Entire field team		
Keep all receipts for any reimbursable expenses. For speedier reimbursement, turn them in to your project manager as soon as your fieldwork is complete.	Entire field team		
Complete Critical Success Factors	PI		8/13/2010

ALLOCATIONS AND SERVICES

Allocations from Inventory

Quant/Unit	Item
1 ea	Iridium Phone from Kangerlussuaq inventory (Meredith Kelly will also bring her personal sat phone.
1 ea	Remote Medical Kit from Kangerlussuaq inventory

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
Arrange excess baggage for 2 team members with Air GL	For flights from Kangerlussuaq > Nuuk > Reykjavik (Kelly, Levy)
Arrange helicopter charters with Air GL Bell 222 based in Constable Pynt	
Arrange logistics support with POLOG to include flight and freight bookings to/from Akureyri > Constable Pynt, coordination of helicopter charters, materials: fuel, oil, and battery purchases, bear protection items	Contact person at Constable Pynt is Aka Lynge
Assist with tracking/delivery of freight shipment	Contact person – Frissi Adolfsson in AEY
Assist with hotel booking arrangements	Contact person – Kibba Bjornsdottir in AEY

CARGO AND CUSTOMS

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	Weight/Cube
Food, Camping gear, Science Equipment sent by the PI to Akureyri via International DHL Ocean Freight Global Forwarding – Reference Number: NYC120407	1800 lbs
Freight from Univ of Cincinnati	
Excess baggage: 1ea black plastic ski case and duffel bag carried by Meredith Kelly and Laura Levy.	145 lbs total
Sediment and rock samples - additional cargo on return flights from Greenland to USA	~500 lbs

SUPPORT SCHEDULE

Approx Date	Location	Activity
12 Aug, 2010	AEY	Cargo arrives in Akureyri
16 Aug, 2010	AEY > CNP	Cargo flies via NordlandAir from Akureyri to Constable Pynt
16 Aug, 2010	RKV > AEY	Field team x 7 (Hall, Kelly, Lowell, Levy, Lusas, Honsaker, Bennike) arrive in Akureyri, Iceland. Hotel rooms (3 doubles/1 single) booked at Hótel Akureyri. (paid for by research team)
17 Aug, 2010	AEY > CNP > Istorvet	Flight from Iceland to Greenland; camp put-in a couple hours after arrival
23 Aug, 2010	Istorvet > Chain Lakes	Camp move for 7 team members
27 Aug, 2010	Chain Lakes > N Liverpool Land	Day trip for 7 team members; drop off in the morning, pick up and return to camp at the end of the day

30 Aug, 2010	Chain Lakes > Ice Cap Site	Camp move for 6 team members; Ole Bennike returns to Constable Pynt
1 Sept, 2010	Constable Pynt > Reykjavik	Ole Bennike departs Constable Pynt – Flight #: NY294 CNP-RKV DEP. 16:35 ARR. 18:25 Res: 1946879
6 Sept, 2010	Ice Cap Site > Constable Pynt	Final Camp Pull-out
7 Sept, 2010	CNP > AEY	Field team x 6 (Hall, Kelly, Lowell, Levy, Lusas, Honsaker) depart Constable Pynt and fly to Iceland ; 3 x double rooms at Hótel Akureyri

FIELD TEAM INFORMATION

Name	Location	Date In	Date Out	Email
Brenda Hall	Constable Point	08/17/10	09/07/10	brendah at maine.edu
	Istorvet	08/17/10	08/23/10	
	Chain Lakes	08/23/10	08/30/10	
	N Liverpool Land	08/27/10	08/27/10	
	Ice Cap Camp	08/30/10	09/06/10	
Meredith Kelly	Constable Point	08/17/10	09/07/10	Meredith.A.Kelly at Dartmouth.edu
	Istorvet	08/17/10	08/23/10	
	Chain Lakes	08/23/10	08/30/10	
	N Liverpool Land	08/27/10	08/27/10	
	Ice Cap Camp	08/27/10	09/06/10	
Thomas Lowell	Constable Point	08/17/10	09/07/10	Thomas.Lowell at uc.edu
	Istorvet	08/17/10	08/23/10	
	Chain Lakes	08/23/10	08/30/10	
	N Liverpool Land	08/27/10	08/27/10	
	Ice Cap Camp	08/27/10	09/06/10	
Laura Levy	Constable Point	08/17/10	09/07/10	
	Istorvet	08/17/10	08/23/10	
	Chain Lakes	08/23/10	08/30/10	
	N Liverpool Land	08/27/10	08/27/10	
	Ice Cap Camp	08/27/10	09/06/10	
Amanda Lusas	Constable Point	08/17/10	09/07/10	
	Istorvet	08/17/10	08/23/10	
	Chain Lakes	08/23/10	08/30/10	
	N Liverpool Land	08/27/10	08/27/10	
	Ice Cap Camp	08/27/10	09/06/10	
William Honsaker	Constable Point	08/17/10	09/07/10	
	Istorvet	08/17/10	08/23/10	
	Chain Lakes	08/23/10	08/30/10	
	N Liverpool Land	08/27/10	08/27/10	
	Ice Cap Camp	08/27/10	09/06/10	
Ole Bennike	Constable Point	08/17/10	09/01/10	
	Istorvet	08/17/10	08/23/10	
	Chain Lakes	08/23/10	08/30/10	
	N Liverpool Land	08/27/10	08/27/10	
	Ice Cap Camp	08/27/10	09/06/10	

PROJECT CONTACT INFORMATION

Research Team

Role	Name	Email	Phone / Fax
Principal Investigator	Meredith Kelly	Meredith.A.Kelly at Dartmouth.edu	603 646-9647 /603 646-3922
Collaborator	Brenda Hall	brendah at maine.edu	207 581.2190 /207 581.1203
Collaborator	Thomas Lowell	Thomas.Lowell at uc.edu	513 556.4165 /

CPS Team Members

Contact for	Name	Email	Primary Phone
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
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
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

Other

Organization	Internet	Phone
Medical Advisory Service (MAS) **(see below for Remote Telemed #)**	http://www.medaire.com/corp_medlink.html	Office: 480.333.3771
POLOG – Aka Lynge POC	polog at greennet.gl; pologsouth at skyfile.com	(299) 993803 sat #1 : 881 641 424 070 sat#2: 881 641 410 984

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. 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

Medical Clearance

Arctic Program participants traveling into the Greenland field generally must pass a National Science Foundation-mandated physical and dental exam. All field team members should plan to complete their Physical Qualification (medical and dental clearance) process 6-8 weeks prior to travelling to Greenland. For more information, refer to CPS' *Greenland Guide*, available at http://www.polar.ch2m.com/ under Greenland.

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
Pre-field season planning assistance
Shipping scientific equipment, food and camp gear to Constable Point. Timely arrival of this shipment at Constable Point is key to success of field season.
Ability to obtain necessary permits from Greenland Home Rule to conduct scientific expedition in the Scoresby Sund region and to collect geological samples.
Helicopter charters with enough time allocated for transportation to field sites and also for reconnaissance work.
Transportation for project personnel from Iceland to Greenland and return, and overnight stay while in Iceland.
Purchase and transportation of materials to Constable Point that PIs were not able to ship from the US (i.e., batteries, camping fuel, ammunition).
Satellite Iridium Phone in good working order.
Communication with Constable Point POLOG (Danish logistics company) coordinator and/or helo pilot in case of weather or schedule changes for helicopter flights.
After field season, efficient, timely shipping of core samples back to the LRC (Minnesota) and aid with customs procedures.
After field season, assistance with shipment of some scientific gear to institutions in the United States or help storing gear in Constable Point for next field season.

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
Bears	-Hire Native guides (Provide clear expectations/procedure) -Install bear fence. Designate a fence monitor to check daily. -Carry radios to alert others to bear in area. -Develop a plan for bear in or near camp -Keep a clean camp -Participate in bear safety training -Carry bear spray -Use bear Containers
Cold Weather	-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.
Firearm	-Participate in a gun safety training course -Use procedures for safe gun storage in camp
Hazardous Materials	-Haz Comm Safety Management Standard & AHA -Identify items for hazardous material transportation -Review MSDS (Material Safety Data Sheet)
Heavy lifting/body strains and sprains	-Use proper lifting techniques
Helicopter Travel and working around	-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
Medical fitness for remote work	-Follow NSF Physical Qualification process
Remote Camp	-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 -Keep a camp roster by each radio to be used in conjunction with the check-out/check-in plan -Develop a list of current camp member's training levels and certifications -Maintain back-up equipment and supplies in case of emergency (comms, generators, tents, food) -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	-Filtration system -Carry in