

PROJECT INFORMATION

Lead Principal Investigator	Raymond Bradley
Institute	University of Massachusetts, Amherst, Department of Geosciences
Project Title / Grant #	Collaborative research: Nonlinearities in the Arctic climate system during the Holocene (0909354)
NSF Program and Manager	NSFODVOPPARC\ARCSS, Dr. Neil Swanberg
PFS Project Manager	Robin Abbott

LOGISTICS SUMMARY

This is a 10-institute collaborative led by N. Arizona U (Kaufman 0909332), and including U at Buffalo (Briner 0909334), UAF (Wooller 0909523), Lehigh (Yu 0909362), Alaska Pacific (Loso 0909322), U Pittsburgh (Abbott 0908200), U. Illinois (Hu 0907986), CU Boulder (Miller/Axford/Lehman 0909347), U Mass (Bradley 0909354), Idaho State (Finney 0909310).

The twelve PIs will use lacustrine sediments to produce fourteen new high-resolution climate records of the past 8000 years. The pattern of climate changes recorded in the proxy records can be studied and compared with the output of climate models to gain an understanding of the non-linear processes involved in system change. Most research groups plan separate field campaigns. Hence, logistics details are found under each individual grant.

Bradley and d'Andrea (whose participation is funded by a NOAA postdoc) plan a single field season in April of 2010. A team of four will sample three lakes, recovering gravity and/or freeze cores to sample the last 100 years for calibration studies and overlapping long cores to provide sufficient material for the high-resolution sampling campaign.

The team will fly commercially via Iceland to eastern Greenland. They will visit three lake sites, **one** each located within a 40 mile radius of Tasiilaq, Kuummiut and Kulusuk. For each lake visit, the team, equipment, and gear will travel to the village by helicopter from which they will base for day trips to the coring site. Local contractors will then assist the researchers with overland travel (snowmobile or dog sled) to the lake, where they will collect cores. Coring activities are expected to take 4-5 days or so at each site. When the work is done at the lake site, the team will return to the nearby village, regroup, and travel on to the next village via helicopter to stage for overland put-in to the next field site. The local contractor will provide an additional person to provide safety watch at each lake.

After traveling to the last village base of Kulusuk and spending one day at the lake, the PI will leave ahead of the others, routing through Iceland to return to the United States. When their work is done several days later, the rest of the researchers will arrange their cargo shipments to the US and to Kangerlussuaq. They will then depart also will leave, following the same route home.

The sediment cores will be shipped to Kulusuk for onward transport to the home institute.

Note: CPS has arranged back-up logistics in the event that the team has cargo that will not fit in the helicopter. CPS will provide Kulusuk, Tasiilaq and Kuummiut lodging; payment for local tourism operator to deliver the team to the field site via skidoo and/or dog sled; helicopter charter to move passengers/equipment/gear to village sites; camping equipment for emergency use; freight shipment of any CPS gear from Kangerlussuaq; Iridium phone and remote medical kit. All other logistics not mentioned above will be paid by the investigators from 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=0909354

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

OUTSTANDING ACTIONS AND NOTES

Issue	Responsibility	Date Due
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	
Bring snowmobile helmets and sleeping bags for each team member	Entire Field Team	
Purchase of fuel for the drill and Coleman stove will be through Arctic Wonderland personnel	Entire Field Team	
Complete Critical Success Factors	PI	
Cancel Plan B commercial tickets if helicopter is able to carry long cargo	PI	Prior to flight date
Return communications gear to SRI after the field season; see address in contacts information	PI	
Return CPS gear to Kangerlussuaq via Air Greenland at end of season		

ALLOCATIONS AND SERVICES

Allocations from Inventory in Kangerlussuaq

Quant/Unit	Item
2 ea	REI Mtn Tents
1 ea	Banana Sled
1 ea	Coleman 2-burner Stove
2 ea	Coleman fuel bottles
1 ea	Cooking Pot for boiling water
4 ea	Mugs, bowls, spoons
4 ea	Thermos

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 subcontract with Arctic Wonderland Tours to provide snowmobile and/or dog sled transportation to/from lake sites as well as arrange accommodations at each village site.	Jesper Krogh is the POC in Kulusuk Mike Nicholiasson is the POC in Tasiilaq Sigurdur (Siggj) Pettursson is the POC in Kuummiut
Arrange 20 lit of fuel (Regular/Benzine) for each lake site	Arctic Wonderland will supply
Arrange subcontract with Air Greenland to provide helicopter support to move people/cargo from Tasiilaq > Kuummiut and from Kuummiut > Kulusuk.	
Commercial tickets purchased for flight from Kulusuk > Tasiilaq and from Tasiilaq > Kuummiut	TBD whether the Kuummiut tickets will need to be used.
Allocations from CPS warehouse shipped from Kangerlussuaq to Tasiilaq and return	37kg camping gear.
Payment of Air Greenland commercial freight for sediment cores to Kulusuk and for CPS gear return to Kangerlussuaq	Field team will arrange freight shipments on CPS account

LOCATION INFORMATION

Please visit <http://www.polar.ch2m.com/> and navigate to the Greenland menu pages 1-10 for Greenland information applicable for working on the southeast coast.

CARGO AND CUSTOMS

The following is our current understanding of your overall cargo requirements. The below items were shipped from Boston to Iceland.

#	Package	Contents	Weight (lbs)	Weight (kg)	Dimensions
1	Wrapped in tarp	Metal Tripod 1	40	18	8'6"x1'1"x3"
2	Wrapped in tarp	Metal Tripod 2	65	29	8'8"x6"x3"
3	Wrapped in tarp	Drive Rods	65	29	10'6"x6"x6"
4	Red wooden box	Cable spool & hammer	135	61	2'4"x1'9"x1'9"
5	Green plastic box	Cable spool	95	43	1'8"x2'2"x1'7"
6	Plastic Action Packer	Cable spool	90	41	1'9"x2'4"x1'5"
7	Plastic Action Packer	Misc. uwitec parts	100	45	1'9"x2'4"x1'5"
8	Metal box	Uwitec tools & misc.	100	45	2'x2'x1'6"
9	Metal box	Misc.	50	23	2'x2'x1'6"
10	Long black plastic box	Core tubes (8) & core barrel	60	27	7'6"x1'x2'
11	Long black plastic box	Core tubes (8)	40	18	7'6"x1'x2'
12	Long green plastic box	Misc.	80	36	5'3"x1'1"x1'1"
		Total weight	920	417	

SUPPORT SCHEDULE

BRADLEY Project Schedule - 2010		
Date	Location	Activity
Before 6 Apr	Boston > Iceland > Kulusuk > Tasiilaq	CARGO arrives in Tasiilaq
6-Apr	Boston > Reykjavik	Field team departs USA on Icelandair flight Flt-630 (Field Team: Ray Bradley, Billy D'Andrea, Nick Balascio, Lucien vonGuten)
7-Apr	Reykjavik > Kulusuk	Air Iceland Flt NY-293;
7-Apr	Kulusuk > Tasiilaq	Air GL commercial flt – GL691 departing at 14:30 Booking # G6K8HJ
8-13 April	Tasiilaq / Sermalikvejen Lakes	Field work with Arctic Wonderland / talk to pilots about their charter flight requirements. How to move long items?

13-Apr	BACK UP PLAN - Tasiilaq > Kuummiut - (flight booked if long cargo doesn't fit inside helicopter. <u>Need to cancel this if not needed.</u>	Air GL commercial flight – GL9505 at 11:55 - (Field team can do a recon to the lake for equipment coming on 14 April) Booking # VC3Z3X
14-Apr	Tasiilaq > Kuummiut - Tasiilaq - CHARTER OK	Air GL charter (depart 11:55 from AGM, arrives 12:10 in Kuummiut)
15-17 April	Kuummiut / Lake Nanersapik	Field work with Arctic Wonderland transportation
19-Apr	Tasiilaq > Kuummiut > Kulusuk > Tasiilaq - CHARTER OK	Air GL charter (1705 heli departs Tasiilaq, arrives 1725 in Kuummiut; depart 17:45, arrive 18:05 in Kulusuk)
19-Apr	BACK UP PLAN - Move long cargo via boat.	Siggy Petturson is POC for boat shipment
20 – 23 April	Kulusuk / Kulusuk Lake	Field work with Arctic Wonderland transportation
21-Apr	Kulusuk > Reykjavik	One team member departs via Air Iceland (Ray Bradley)
24-Apr	Kulusuk > Reykjavik	Three team members depart via Air Iceland

FIELD TEAM INFORMATION

Name	Location	Date In	Date Out	Email
Balascio, Nick	Kulusuk	04/07/10 and 4/19/10	04/07/10 and 04/24/10	nlb5 at dana.ucc.nau.edu
	Tasiilaq	04/07/10	04/14/10	
	Sermilikvejen Lakes	04/08/10	04/13/10	
	Kuummiut	04/14/10	04/19/10	
	Nanerersapik Lake	04/15/10	04/18/10	
Bradley, Raymond	Kulusuk Lake	04/20/10	04/23/10	rbradley at geo.umass.edu
	Kulusuk	04/07/10 and 4/19/10	04/07/10 and 04/21/10	
	Tasiilaq	04/07/10	04/14/10	
	Sermilikvejen Lakes	04/08/10	04/13/10	
	Kuummiut	04/14/10	04/19/10	
D'Andrea, William	Nanerersapik Lake	04/15/10	04/18/10	dandrea at geo.umass.edu
	Kulusuk Lake	04/20/10	04/20/10	
	Kulusuk	04/07/10 and 4/19/10	04/07/10 and 04/24/10	
	Tasiilaq	04/07/10	04/14/10	
	Sermilikvejen Lakes	04/08/10	04/13/10	
von Gunten, Lucien	Kuummiut	04/14/10	04/19/10	lucien at geo.umass.edu
	Nanerersapik Lake	04/15/10	04/18/10	
	Kulusuk Lake	04/20/10	04/23/10	
	Kulusuk	04/07/10 and 4/19/10	04/07/10 and 04/24/10	
	Tasiilaq	04/07/10	04/14/10	

PROJECT CONTACT INFORMATION
Research Team

Role	Name	Email	Phone / Fax
Collaborator	Mark Abbott	mabbott1 at pitt.edu	412 624.1408 /412 624.3914
Principal Investigator	Raymond Bradley	rbradley at geo.umass.edu	413 545.2120 /
Collaborator	Jason Briner	jbriner at buffalo.edu	716 645.6800 /716 645.3999
Field Coordinator	William D'Andrea	dandrea at geo.umass.edu	413 545-0659 /
Collaborator	Bruce Finney	finney at isu.edu	208 2824318 /208 2824570
Collaborator	Feng Sheng Hu	fshu at life.uiuc.edu	217 244.2982 /217 244.7246
Collaborator	Darrell Kaufman	darrell.kaufman at nau.edu	928 523.7192 /928 523.9220
Collaborator	Michael Loso	mloso at alaskapacific.edu	907 564.8263 /
Collaborator	Gifford Miller	gmiller at colorado.edu	303 492.6962 /303 492.6388
Collaborator	Matthew Wooller	mjwooller at alaska.edu	907 4746738 /907 474.7979
Collaborator	Zicheng Yu	ziy2 at lehigh.edu	610 758-6751 /610 758-3677

Gear Shipping Address for returning SRI communications equipment:

Roy Stehle - SRI Bldg G - HIBAY 333 Ravenswood Ave Menlo Park, CA 94025
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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)	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: 518.331.3103 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

MEDICAL

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

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 Mitigations.

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
Transportation of personnel and equipment to each of 3 sites using both air and ground transport
Adequate helicopter time to deliver equipment to each site
Access to guides, snowmobiles and/or dogsleds with sleds each coring day to transport personnel to field sites from hotel/lodge
Safe transport of the sediment cores to Kulusuk where they will be freighted back to the UMass Amherst.

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	<ul style="list-style-type: none"> • Local native guides have been hired. • Dog sleds will be used along with snowmobiles to get to the field sites
Cold Weather	<ul style="list-style-type: none"> • A couple team members have attended a cold weather injury training course such as Wilderness First Aid or Wilderness First Responder • Proper clothing will be brought by each team member • A tent/sleeping bag/stove will be carried to the lakes in case a need to warm up. • Local native guides will check forecast before going to the lakes.
Drills/augers	<ul style="list-style-type: none"> • Drill/auger operation and training will be given by the PI
Foot/ski travel	<ul style="list-style-type: none"> • VHF Radios available for communication if team is separated.
Heavy lifting/body strains and sprains	<ul style="list-style-type: none"> • Proper lifting techniques will be used
Helicopter Travel and working around	<ul style="list-style-type: none"> • Helicopter briefing from the pilots • Have a SAR plan in place • Carry survival bags on the aircraft
Sea/Lake Ice Travel	<ul style="list-style-type: none"> • Have a communication plan in place - VHF radios will be used • Local guides hired for ice safety expertise
Snowmobile Travel	<ul style="list-style-type: none"> • Participate in a snowmobile briefing/training by guides. • Advised to bring helmets / Personal Protection Equipment • Survival Gear will be carried on daily field trips • Use radio communications between snowmachines • Carry a Global Positioning System unit (GPS) • Have a SAR plan in place