

PROJECT INFORMATION

Lead Principal Investigator	Jason Briner
Institute	University at Buffalo, Department of Geology
Project Title / Grant #	The sensitivity of the Greenland Ice Sheet to climate change: Reconstructing the response of the Jakobshavn Isbrae during the Little Ice Age and Holocene thermal maximum (0752848)
NSF Program and Manager	NSF\SBE\BCS, Dr. Kenneth Young
PFS Project Manager	Robin Abbott

LOGISTICS SUMMARY

To gather information on the Greenland ice sheet's sensitivity to temperature change, the PI will field a team in Greenland during 2008 and 2009. There, researchers will spend up to a month annually collecting data on Holocene-era ice sheet changes in the vicinity of Jakobshavn Glacier and the town of Ilulissat, in western Greenland.

A 4-person team began the research in late summer, 2008. Working from several helicopter-supported tent camp locations, they collected scoured bedrock samples, conducted 3D mapping activities and took lake surface cores at several research sites.

A 4-person team (including an REU student participant) will return in early July, 2009 for helicopter-based sampling, including lake sediment coring. They will be joined by co-PI Csatho later in the month during a camp move. After a 4 August pull-out three the team members will return to the US via an ANG109th flight, while two team members will continue fieldwork around Aasiaat. All logistics costs for this mid-season excursion are the responsibility of the team members and not part of NSF funding.

On 17 August, co-PI Axford plus assistance arrive in Greenland via ANG 109th flight. They will travel to Ilulissat and join the the team of two returning from their mid-season excursion. The team of four will establish a helicopter-supported camp nearby for one more week of field studies. After their Ilulissat work is done they will return to Kangerlussuaq. While they await their return to the US via ANG 109th flight, they plan a short camping expedition to the ice margin. The researchers will pay directly for transportation to and from the ice margin for this trip.

For a field team of up to six persons, CPS will provide ANG arrangements, travel within Greenland (commercial travel to/from Ilulissat and helicopter support); user days in Kangerlussuaq and lodging in Ilulissat; camping equipment; an inflatable boat; fuel; and communications and safety gear. The PI will arrange all other logistics and pay for them via his grant, including the forllong 2009 elements: the Aasiaat excursion, the ice margin camping trip, and the 7th field team member.

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=0752848

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 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	

Note: Passports are required for Air National Guard and international travel. It is a good idea to bring two IDs and to pack a copy of your passport in case the original is lost.	Entire field team	
--	-------------------	--

ALLOCATIONS AND SERVICES FOR ILULISSAT

Allocations from Inventory - to be picked up at AirGL Cargo in Ilulissat

Quant/Unit	Item
1ea	Boat (Inflatable Boat, Floor boards, 2 oars, Inflator
1ea	Motor (spare parts, plugs, prop)
1ea	Running tank, running line
4 ea	Gerry can for transporting fuel (5 gal size)
5ea	Life Jackets (5 Large and 1 Medium)
3ea	Ropes - 73m length, 10mm diameter
1ea	Rope - 10 m length
3ea	REI Mtn tent - 3 person
1ea	Deep cycle marine type battery
1ea	Kitchen box for 5 people
1ea	Coleman 2-burner stove
1ea	Whisperlite stove
1ea	Generator, 1 kw
2ea	Iridium phones (issued in Kangerlussuaq)
1 ea	Medical Kit
5ea	Crazy creek chairs
1 ea	PLB (personal locator beacon) (issued in Kangerlussuaq)

For more information on satellite phones, radios, manuals and other field communications support, please visit the CPS communications website at <http://vpr.sri.com>.

ALLOCATIONS AND SERVICES FOR KANGERLUSSUAQ

Allocations from Inventory

Quant/Unit	Item
1ea	Boat (Inflatable Boat, Floor boards, 2 oars, Inflator
1ea	Motor , Running tank
3 gal	Fuel for boat
1 ea	Gerry can for transporting fuel (5 gal size)
4 ea	Life Jackets
2ea	REI Mtn tent - 3 person
1ea	Kitchen box for 5 people
1ea	Coleman 2-burner stove

OTHER SERVICES

Project Allocations	Comments
NYANG airlift for team and cargo to/from Kangerlussuaq	
KISS user days	For up to 6 field team members. The project must cover all additional field costs for 7 th field team member.
Commercial tickets Kangerlussuaq to Ilulissat and return	For up to 6 field team members. The project must cover all additional field costs for 7 th field team member.

Helicopter support to move team into and out of field sites	8 July – 4 Aug; Put-in, pull-out, plus 4 camp moves 18 July – 24 Aug; Put-in and pull-out See map in appendix for specific sites
Hotel accommodations in Ilulissat when en-route to/from the field to Kangerlussuaq	For up to 6 field team members. The project must cover all additional field costs for 7 th field team member.
Fuel for boat and generator (to be purchased in Ilulissat before flying to camp)	Reimbursed via expense report
Field food	For 6 field team members – reimbursed via expense report
RMI 24/7 telemedicine service	
Arrange a truck rental in Kangerlussuaq from 25-27 August	The researchers must pay for the truck.
Shipment of equipment/gear to Ilulissat in time for field season	

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*

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:

Cargo List

Items	Weight/Cube
10-foot-long core pipes (can be cut and coupled if necessary)	
2 ea - aluminum frame pieces for our cataraft boat that are 9 feet long,	
1 ea - tripod that goes on the coring platform that is about 8 feet long (when collapsed)	
14-foot cataraft boat	
Misc boxes	Total = 21 pieces: 165 cu ft ; 1644 lbs

SUPPORT SCHEDULE

Date	Location	Activity
7 July	Scotia > Kanger	Four team members arrive in Greenland (Briner, Young, Loesse, Phillips)
8 July	Kanger > Ilulissat	Four team members (above) fly to Ilulissat on Air GL1582
9 July	Ilulissat > Camp 1	Camp Put-In for 4 team members

15 July	Camp 1 > Camp 2	Camp Move for 4 team members
21 July	Kanger > Ilulissat	Team member (Csatho) arrives from CPH, then onto Ilulissat
22 July	Camp 2 > Camp 3	Csatho joins field team while Camp Move
25 July	Camp 3 > Camp 4	Camp Move for 5 team members
28 July	Camp 4 > Camp 5	Camp Move for 5 team members
04 Aug	Camp 5 > Ilulissat	Camp Pull-out for 5 team members
05 Aug	Ilulissat > Kanger	Three team member (Csatho, Briner, Loesse) fly on Air GL1275
6 Aug	Kanger > Scotia	Three team members (above) fly to NY on 109 th Air Guard
6 -16 Aug	Ilulissat > Camp 8	Two team members depart Ilulissat (Young, Phillips) via boat to site still to be determined (Briner to cover costs)
17 Aug	Ilulissat	Two team member arrive Ilulissat (Young, Phillips)
17 Aug	Scotia > Kanger	Two team members arrive in Greenland (Axford, Kuzawa)
18 Aug	Kanger > Ilulissat	Two team members (above) fly to Ilulissat on Air GL502
18 Aug	Ilulissat > Camp 6	Four team member Camp Put In
24 Aug	Camp 6 > Ilulissat	Camp Pull Out
25 Aug	Ilulissat > Kanger	Four team members (Axford, Young, Phillips, Kuzawa) depart Ilulissat on AirGL501 to Kanger
25-27 Aug	Kanger > Ice margin Camp 9	Four team members camp at Ice margin to core lake. Will rent a car or be dropped off by CPS. (Briner to cover any additional costs)
28 Aug	Kanger > NY	Four team member depart Greenland via 109 th final flight of the season

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
Briner, Jason	Kangerlussuaq	7 July and 5 Aug	8 July and 6 Aug	jbriner@buffalo.edu
Briner, Jason	Ilulissat	8 July and 4 Aug	9 July and 5 Aug	
Briner, Jason	Jakobshavn Glacier sites	10 July	4 Aug	
Csatho, Beata	Kangerlussuaq	21 July and 5 Aug	21 July and 6 Aug	bcatho@buffalo.edu
Csatho, Beata	Ilulissat	21 July and 4 Aug	22 July and 5 Aug	
Csatho, Beata	Jakobshavn Glacier sites	22 July	4 Aug	
Young, Nicolas	Kangerlussuaq	7 July and 25 Aug	8 July and 28 Aug	nyoung2@buffalo.edu
Young, Nicolas	Ilulissat	8 July and 4 Aug; 17 Aug and 24 Aug	9 July and 5 Aug 18 Aug and 25 Aug	
Young, Nicolas	Jakobshavn Glacier sites	10 July and 18 Aug	4 Aug and 24 Aug	
Phillips, William	Kangerlussuaq	7 July and 25 Aug	8 July and 28 Aug	
Phillips, William	Ilulissat	8 July and 4 Aug; 17 Aug and 24 Aug	9 July and 5 Aug 18 Aug and 25 Aug	
Phillips, William	Jakobshavn Glacier sites	10 July and 18 Aug	4 Aug and 24 Aug	

Loesse, Shanna	Kangerlussuaq	7 July and 5 Aug	8 July and 6 Aug	
Loesse, Shanna	Ilulissat	8 July and 4 Aug	9 July and 5 Aug	
Loesse, Shanna	Jakobshavn Glacier sites	10 July	4 Aug	
Axford, Yarrow	Kangerlussuaq	17 Aug and 25 Aug	18 Aug and 28 Aug	Yarrow.Axford at colorado.edu
Axford, Yarrow	Ilulissat	18 Aug and 24 Aug	18 Aug and 25 Aug	
Axford, Yarrow	Jakobshavn Glacier sites	18 Aug	24 Aug	
Kuzawa, Chris	Kangerlussuaq	17 Aug and 25 Aug	18 Aug and 28 Aug	
Kuzawa, Chris	Ilulissat	18 Aug and 24 Aug	18 Aug and 25 Aug	
Kuzawa, Chris	Jakobshavn Glacier sites	18 Aug	24 Aug	

PROJECT CONTACT INFORMATION

Research Team

Role	Name	Email	Phone / Fax
Co-PI	Yarrow Axford	yarrow.axford@colorado.edu	
Principal Investigator	Jason Briner	jbriner@buffalo.edu	716.645.6800 / 716.645.3999
Co-PI	Beata Csatho	bcsatho@buffalo.edu	716.645.6800 / 716.645.3999

CPS Team Members

Contact for	Name	Email	Primary Phone(s)
Greenland planning and project support	Robin Abbott	Robin@polarfield.com	Denver: 303.748.8507
Greenland on-island support	Mark Begnaud	Mark@polarfield.com	Denver: 720.320.6160 Greenland: 011.299.524218
Greenland on-island support, Cargo	Ed Stockard	Ed@polarfield.com	Greenland: 011.299.524281
Scotia operations & customs	Earl Vaughn	EarlVaughn@gmail.com	Scotia: 518.331.3103
Sat phones & comms	Roy Stehle	RoyStehle@sri.com	Menlo Park: 650.859.2552
RMI	Kyli Olson	Kyli@polarfield.com	Denver: 303.489.2151
Denver operations	Jill Ferris	Jill@polarfield.com	Denver: 720.320.6155

CPS Offices

Denver	Kangerlussuaq	Scotia
CH2M HILL Polar Services Western Office 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
Remote Medical International (RMI) (see below for Remote Telemed #)	http://www.remotemedical.com/	Office: 800.597.4911

SAFETY, ENVIRONMENT, HEALTH and PERMITS

All science teams planning to conduct research in Greenland must complete an **annual application** in order to obtain approval from the Danish Polar Center (DPC). The application forms are available from the DPC at <http://www.dpc.dk/>. Applications are submitted directly through the DPC. For assistance with the application process, contact:

Poul Henrik Sorensen

E-mail: phs@dpcc.dk

Telephone: +45 3288 0100

Remote Medical International (RMI) Support

If you need medical advice/assistance, do not hesitate to contact Remote Medical International (RMI) 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 RMI service in the field. For further information on RMI, please visit our Web site <http://www.polar.ch2m.com/> and navigate to Medical>Remote Medical Services/Kits.

RMI 24/7 Telemed Service

Primary: 206.734.3430

Alternate: 360.754.9805

Member ID: CH2M HILL Polar Services

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
Helicopter flight scheduling
Coordinating cargo from NY > Kanger > Ilulissat and return
Timely reimbursement for expense reports
Communication / ease to work with CPS
Suitability / quality of equipment provided by CPS

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

Map of field sites

Here is the lat/long for our desired camp out of Kanger: N 67° 8.018' W 50° 8.161'



Camp 2009-6, airport lakes, old records

camp 2009-5, threshold lake 2

Camp 2009-1, fjord stade threshold lake

Camp 2009-4, threshold lake 1

Camp 2009-3, Proglacial Lake 2

Camp 2009-2, Proglacial Lake 1

Jakobsholm

Image © 2009 TerraMetrics
© 2009 Europa Technologies
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
© 2009 Google

Google

69°06'58.77" N 50°28'06.85" W

elev 4 m

Eye alt 119.28 km