

PROJECT INFORMATION

Lead Principal Investigator	Irina Overeem
Institute	University of Colorado, Boulder, Institute of Arctic and Alpine Research
Project Title / Grant #	River Plumes as Indicators for Greenland Ice Sheet Melt (0909349)
NSF Program and Manager	NSFOD\OPPARCVANS, Dr. Neil Swanberg
PFS Project Manager	Kim Derry

LOGISTICS SUMMARY

These researchers will investigate whether it is possible to relate melt on the Greenland ice sheet as measured by the local automated weather stations, remote sensing reconstructions or climate models, to river discharges and subsequently to river plume dimensions in the Greenlandic fjords. The main objective of the field data collection is to validate the relationship between remotely sensed reflectance data of the river plumes and the local river dynamics. The collected local data will then serve as proof-of-concept to extrapolate to other fjords along the Greenland margin.

Researchers will work at three key field sites in Western Greenland: Kangerlussuaq in Sondre Stromfjord, Nuuk, and Ilulissat. In addition, they will work with the Danish Polar Center, GEUS (Geological Survey of Denmark and Greenland) and the University of Copenhagen, Denmark, to use existing discharge records and suspended sediment load measurements at the Zackenberg Field Station in East Greenland, as another validation dataset.

In the spring/summers of 2010-2012, a team of up to 4 will establish multi-week camps outside Kangerlussuaq, Nuuk and Ilulissat. Using local guides and boat charters to reach the sampling sites, the researchers will collect surface suspended sediment load samples of the river plume in transects from the river mouth over a number of cloud-free days at the locations. They will repeat the sampling during the season and in subsequent years to establish greater support for the correlations and to account for natural variability in the river discharge and sediment load.

The samples will be filtered, dried and weighed in the KISS facility labs, prior to shipment to the home institute. Back at the INSTAAR Sediment Laboratory, researchers will analyze grain size representative samples.

CPS will provide ANG transport, on-island commercial tickets, Kangerlussuaq/Ilulissat/Nuuk lodging, freight, KISS lab space, as well as camping and safety gear. The PI will arrange all other logistics and budget for them 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=0909349

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	6/1/2010	5/25/2010
Obtain all necessary permits for fieldwork	PI		
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		
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		

ALLOCATIONS AND SERVICES

Allocations from Inventory

Quant/Unit	Item
2	Kitchen box
2	Cook tent – 10x10 Arctic Oven
6	Sleep tents
2	Iridium phone
2	Medical kit
2	KW generator
2	Water filter
2	Coleman cook stove
8	Life Jackets

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
KISS user days	4 people/5 days
Transport of cargo by C-130 Scotia, NY to/from Kangerlussuaq	Approx 1200#
Transport of people by C-130 Scotia, NY to/from Kangerlussuaq	4 passengers Northbound/ 3 passengers Southbound
Arrange all Air Greenland flights SFJ>NUUK>SFJ>JAV>SFJ	4 passengers
Arrange Air Greenland flights for freight SFJ>NUUK	
Arrange Air Greenland flights for freight SFJ>NUUK	
Arrange lodging in Nuuk and Ilulissat	

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.

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

(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:

Items	Weight/Cube
Asst cargo	1,200 #

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
Zettler Mann, Aaron	Kangerlussuaq	06/02/10	06/03/10	aaron.zettler-mann at colorado.edu
Zettler Mann, Aaron	Nuuk	06/03/10	06/14/10	
Zettler Mann, Aaron	Kangerlussuaq	06/14/10	06/21/10	
Zettler Mann, Aaron	Ilulissat	06/21/10	06/30/10	
Zettler Mann, Aaron	Kangerlussuaq	06/30/10	07/31/10	
Hudson, Benjamin	Kangerlussuaq	06/02/10	06/03/10	BDHudson at gmail.com
Hudson, Benjamin	Nuuk	06/03/10	06/14/10	
Hudson, Benjamin	Kangerlussuaq	06/14/10	06/21/10	
Hudson, Benjamin	Ilulissat	06/21/10	06/30/10	
Hudson, Benjamin	Kangerlussuaq	06/30/10	07/31/10	
Overeem, Irina	Kangerlussuaq	06/02/10	06/03/10	irina.overeem at colorado.edu
Overeem, Irina	Nuuk	06/03/10	06/14/10	
Overeem, Irina	Kangerlussuaq	06/14/10	06/21/10	
Overeem, Irina	Ilulisaat	06/21/10	06/30/10	
Overeem, Irina	Kangerlussuaq	06/30/10	07/31/10	
Rick, Ursula	Kangerlussuaq	06/02/10	06/03/10	Ursula.Rick at Colorado.EDU
Rick, Ursula	Nuuk	06/03/10	06/14/10	
Rick, Ursula	Kangerlussuaq	06/14/10	06/21/10	And then OUT to Copenhagen 6/22

PROJECT CONTACT INFORMATION

Research Team

Role	Name	Email	Phone / Fax
Principal Investigator	Irina Overeem	irina.overeem at colorado.edu	303 492.6631
Co-PI	James Syvitski	james.syvitski at colorado.edu	303 492.7909

CPS Team Members

Contact for	Name	Email	Primary Phone
Greenland science planning & support	Robin Abbott	Robin at polarfield.com	Denver: 303.748.8507
Thule science planning & support	Kim Derry	Kim at polarfield.com	Denver: 303.349.6382
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

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.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)

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

Arranging freight transport with Air Greenland for gauging sensors in Nuuk/Illu/ marine surveying equipment in Kanger
Availability of camping equipment
ANG flights to/from Greenland

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
2010 Risk Assessment	
Boat Travel (including raft, kayak, etc.)	Boat training Rescue plan
Cold Weather	Cold Weather injury training Proper clothing Appropriate camping gear Check forecast before going out of camp/town.
Heavy lifting/body strains and sprains	Team lifting/coordination
Medical fitness for remote work outside ANG flight period	Team is physically fit
Power Tools	Power Tools training/AHA
Remote Camp	MAS available SAR plan in place First Aid kit available Communication/ check-in plan in place Maintain back-up equipment and supplies in case of emergency (comms, generators, tents, food)
Sea/Lake Ice Travel	Training SAR plan in place Communication plan in place
River Crossing	Team Crossings Backup Ropes
Water – Availability, Potability	Filtration system Carry in