

## PROJECT INFORMATION

<b>Lead Principal Investigator</b>	Ian Howat
<b>Institute</b>	Ohio State University, Byrd Polar Research Center
<b>Project Title / Grant #</b>	Constraining the Causes, Mechanisms and Impacts of Rapid Changes in Greenland's Outlet Glaciers (NASAHowat)
<b>NSF Program and Manager</b>	Other Agency- NASA, Dr. Thomas Wagner
<b>PFS Project Manager</b>	Susan Zager

## LOGISTICS SUMMARY

For this NASA project, the PI and team will gather accurate ground control points on varying terrain types to register and validate high resolution (sub-meter) digital elevation models from the Worldview 1 satellite. The team will use GPS to survey control points on the ice and surrounding rock surface at Jakobshavn Isbrae, west Greenland. The survey will be conducted as close in time as possible to satellite acquisitions to minimize the effect of horizontal glacier movement.

In mid-July 2010, a team of three will travel via the ANG logistics chain from New York to Kangerlussuaq. From there, they will fly commercially to Ilulissat, where they will base. They will spend several days visiting off-ice survey points near Ilulissat on foot, and one day visiting survey points at Jakobshavn Isbrae by helicopter. When the work is finished at the end of July, they will return to Kangerlussuaq and travel homeward with the ANG to Scotia, New York.

CPS will provide ANG coordination, KISS user days, commercial tickets between Kangerlussuaq and Ilulissat, lodging in Ilulissat, helicopter day-support, and safety/communications/other gear as needed. Costs of this support will be recouped via interagency funds transfer from NASA to NSF. The PI will arrange/pay for all other costs 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=NASAHowat](http://www.polar.ch2m.com/arlss_reports/arlss_projectsdetail.asp?cbPropNum=NASAHowat)

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	Comment
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: Actuals may exceed estimate if PI requests, and is approved, a scope change; or if ANG schedule creates longer duration in the field than planned
<b>Note: Passports are required for Air National Guard and international travel. Also, please bring TWO copies of your passport to Greenland with you.</b>	Entire field team	
Complete Critical Success Factors	PI	Complete

## ALLOCATIONS AND SERVICES

### Allocations from Inventory

Quant/Unit	Item	Pickup Location
1	Kovacs auger with hand-crank	Ilulissat
1	Iridium phone	Kanger
1	Medical kit	Kanger
1	3-person survival kit	Ilulissat
3	Ice axes	Kanger

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
Helicopter charter	Processing. See flight plan in appendix
Lodging, KISS	
Lodging, JAV	Hotel Hvide Falk
Cargo and pax, 109 <sup>th</sup>	
Cargo, commair	JAV > SFJ > JAV
Travel, commair	JAV > SFJ > JAV
Truck, Kanger	CPS will arrange rental, researcher will pay for it

## 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.

The following is our current understanding of your overall cargo requirements:

### Cargo List

Items	Weight/Cube
Researchers will only have hand-carry items.	

## SUPPORT SCHEDULE

Date	Location	Activity
19 Jul 10	NY > SFJ	McFadden, Porter, Morin to SFJ via 109 <sup>th</sup> . Lodging at KISS.
20 Jul 10	SFJ	Team visits Russell Glacier (unsupported), lodging at KISS.
21 Jul 10	SFJ	Team visits Russell Glacier (unsupported), lodging at KISS.
22 Jul 10	SFJ > JAV	McFadden, Porter, Morin to JAV via AirGL, lodging at Hvide Falk.
28 Jul 10	JAV	Team visits field sites via AirGL helicopter, lodging at Hvide Falk.
29 Jul 10	JAV > SFJ	McFadden, Porter, Morin to SFJ via AirGL, lodging at KISS.
30 Jul 10	SFJ > NY	McFadden, Porter, Morin to NY via 109 <sup>th</sup> .

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	Email
Ellyn McFadden	<a href="mailto:ellyn.mcfadden@gmail.com">ellyn.mcfadden@gmail.com</a>
Claire Porter	<a href="mailto:claire.porter@gmail.com">claire.porter@gmail.com</a>
Paul Morin	<a href="mailto:lpaul@umn.edu">lpaul@umn.edu</a>

## PROJECT CONTACT INFORMATION

### Research Team

Role	Name	Email	Phone / Fax
Principal Investigator	Ian Howat	<a href="mailto:ihowat@gmail.com">ihowat@gmail.com</a>	614 292.6641 /
Co-PI	Ian Joughin	<a href="mailto:ian@apl.washington.edu">ian@apl.washington.edu</a>	206 221.3177 /
Co-PI	Benjamin Smith	<a href="mailto:bsmith@apl.washington.edu">bsmith@apl.washington.edu</a>	206 6169176 /

### CPS Team Members

Contact for	Name	Email	Primary Phone
Greenland science planning & support	Susan Zager	<a href="mailto:Susan@polarfield.com">Susan@polarfield.com</a>	Denver: 720.320.6159
Greenland science planning & support	Robin Abbott	<a href="mailto:Robin@polarfield.com">Robin@polarfield.com</a>	Denver: 303.748.8507
Kangerlussuaq base operations	Kathy Young	<a href="mailto:Kathy@polarfield.com">Kathy@polarfield.com</a>	Greenland: 011.299.524218
Scotia (Stratton Air Base) operations & customs	Earl Vaughn	<a href="mailto:EarlVaughn@gmail.com">EarlVaughn@gmail.com</a>	Scotia cell: 518.605.0979
Remote Medical	Robbie Score	<a href="mailto:Robbie@polarfield.com">Robbie@polarfield.com</a>	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 Postboks 1015 DK-3910 Kangerlussuaq, Greenland Tel: 011.299.841598 Fax: 011.299.841599	Earl Vaughn C/O 109 <sup>th</sup> Aerial Port Stratton Air Base Scotia, NY 12302-9752 Tel: 518.344.2635 Cell: 518.605.0979

### Other

Organization	Internet	Phone
Medical Advisory Service (MAS) (see below for Remote Telemed #)	<a href="http://www.medaire.com/corp_medlink.html">http://www.medaire.com/corp_medlink.html</a>	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@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.

<b>Factors</b>
Helicopter contract for access for GPS survey points
Commair travel and lodging in Kanger and Ilulissat

### **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.

**APPENDICES**

Risk Assessment and Mitigation  
Flight Plan and Coordinates

**RISK FACTORS and MITIGATION**

Factor	Mitigation and Control
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.
Helicopter Travel	-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.

**FLIGHT PLAN and COORDINATES**

**Flight date: 28 Jul 10**

**Waypoint Coordinates:**

GC1	69°12'8.37"N	50°25'14.62"W
GC2	69°17'4.88"N	49°43'9.61"W
GC3	69°18'39.43"N	49°10'24.19"W
GC4	69°12'3.25"N	49°29'49.34"W
GC5	69°13'16.75"N	49° 8'37.95"W
GC6	69° 7'6.18"N	49° 5'40.70"W
GC7	69° 6'34.62"N	49°29'12.32"W
GC8	69° 7'29.52"N	50°21'51.65"W
GC9	69° 6'49.95"N	50°50'28.87"W

**Flight Plan, 28 Jul 10**

Route	Stops
JAV > GC1	10 minute stop at GC1
GC1 > GC2	10 minute stop at GC2
GC2 > GC4	10 minute stop at GC4
GC4 > GC3	10 minute stop at GC3
GC3 > GC5	10 minute stop at GC5
GC5 > GC6	10 minute stop at GC6
GC6 > GC7	10 minute stop at GC7
GC7 > GC8	10 minute stop at GC8
GC8 > GC9	10 minute stop at GC9
GC9 > JAV	