

## PROJECT INFORMATION

<b>Lead Principal Investigator</b>	Winfried Hanka
<b>Institute</b>	GeoForschungsZentrum Potsdam, GEOFON Program
<b>Project Title / Grant #</b>	GEOFON (GEOForschungsNetz - Geo Research Network) (DESeismic)
<b>NSF Program and Manager</b>	Intl - GFZ Potsdam, Ms. Renee Crain
<b>PFS Project Manager</b>	Katrine Gorham

## LOGISTICS SUMMARY

<p>This project makes broadband seismological recordings of global earthquakes at Summit, Greenland. Formerly a part of the temporary GLATIS network, project responsibility has been turned over to GFZ Potsdam. Summit instruments have been included in that institute's GEOFON network.</p> <p>The PI and/or research team will visit Summit Station annually to service and maintain the project's seismological station. Over the years, in addition to the scheduled maintenance, project personnel have visited Summit for various other project needs: In 2002, they installed an upgraded datalogger for the seismological station and a "Seiscomp" box that connected the station to the Summit LAN for Internet real-time data transmission; in 2004, another major station upgrade overcame technical problems and minimized required local support; finally, in 2007, two technicians raised and relocated the seismometer bunker, routing power and communications connections out of the Temporary Atmospheric Watch Observatory.</p> <p>In 2010, a team of two researchers will return to Summit in July. The seismometer bunker will be raised and relocated to a new site so that power and communications can continue to be connected out of the Temporary Atmospheric Watch Observatory, which is also being relocated during this time. Station staff will assist the technicians as needed with excavation of the bunker and maintenance activities. Year-round, science technical staff will re-level the instrument and provide as-needed assistance.</p> <p>CPS will provide Kangerlussuaq user days, travel to/from Summit, Summit user days, and access to infrastructure and science technician support at Summit Station for the year-round experiment. The PI will pay CPS directly for costs associated with this support. All other logistics will be provided by the PI.</p>
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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=DESeismic](http://www.polar.ch2m.com/arlss_reports/arlss_projectsdetail.asp?cbPropNum=DESeismic)

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	7/1/2010	In progress
Obtain all necessary insurance and permits for fieldwork	PI	7/1/2010	Completed
Visit all hyperlinks and review all documents referred to in the support plan	Entire Field Team	7/1/2010	In progress
Contact the GEOSummit Science Coordination Office (SCO) <a href="http://sco.at.summitcamp.org">sco at summitcamp.org</a> regarding your project's plans for the season	PI	7/1/2010	Completed
Complete medical clearance process 6-8 weeks before desired deployment date	Entire field team	7/1/2010	N/A
Provide cost estimate for billable support	CPS	7/1/2010	In progress

Develop a purchase order with CPS prior to field work	PI	7/1/2010	In progress
Provide bill for actual support	CPS	TBD	
<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	7/1/2010	Okay
Complete Critical Success Factors	PI	7/1/2010	Completed

## ALLOCATIONS AND SERVICES

### Allocations from Inventory

Quant/Unit	Item
1	Electric Snowmobile
1	Nansen Sled
2	Shovels
1	VHF Radio
2	Arctic Oven Tents
	Note: The researchers will also need access to miscellaneous tools. Tools will be borrowed from and returned to the science tool chest located in the Science and Operations Barn.

### Other Services

Service	Comments
User days Kangerlussuaq	
User days Summit, including meals	<p>The researchers will sleep in tents provided by CPS. Researchers will provide their own sleeping bags and ECW gear.</p> <p>Personnel will use the Big House facilities for meals and observe regular meal times. They should notify the camp manager and chef if they plan to eat outside normal meal times. Any special diets or food allergies should be reported to the chef upon arrival at Summit. If possible, the science group can send an early email to <a href="mailto:manager@summitcamp.org">manager@summitcamp.org</a> to prep the cook for special diet requirements.</p>
ANG travel Kanger-Summit-Kanger	For all team members
Access to Undisturbed Snow Campaign Sector	<p>The researchers will be granted access to the undisturbed snow campaign sector. The seismometer bunker will be raised from its current location, as indicated on the map (Figure 1) in the appendices. The new seismometer bunker will be located within the undisturbed snow campaign sector wedge, as indicated by the shaded region on the map.</p> <p>Use of the electric snowmobile will be allowed within the undisturbed snow campaign sector for the movement of materials. However, use of the snowmobile will be minimized and the researchers agree to minimize snow disturbances by traveling in direct routes and using the same path whenever possible. Use of the electric snowmobile must be coordinated in advance with the camp manager (Ken Jessen).</p>
Access to Power	Power will be routed out of the new Temporary Atmospheric Watch Observatory (TAWO). The TAWO facility will be relocated

	during the month of July, as indicated on the map (Figure 1) in the appendices. Power will be available from the new TAWO facility starting between July 28 and August 9. The researchers acknowledge that the seismometer will not be reconnected to power by their departure on July 28 <sup>th</sup> . The CPS team will take the action of completing the final power connection once the TAWO power is in place.
Seismic Drill Test Notification	Another project that will be at Summit from June 28 to July 22 will be conducting a series of seismic drill tests using explosives. These detonations could potentially impact the Hanka team measurements. The Hanka team will be notified via email 24 hours in advance of any explosive detonation.
Science Tech Time	The Summit Science Techs will provide year-round support for the seismometer on an “as needed” basis. Due to the nature of the instrument, support will be minimal at less than 6hrs/month.  During the summer of 2010 the Summit Science Techs will assist the researchers will digging a new bunker for the seismometer relocation.
Cargo Services	
Safety protocols	The researchers will adhere to all safety protocols outlined in the AHAs. This includes reading and signing off on relevant Activity Hazard Analysis (AHAs) prior to completing relevant tasks. Additionally, the researchers will adhere to the established clean air protocols and travel policies.

## 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* and, if traveling to Summit, with the guidelines provided in the *Summit Users’ Guide*. Both are available electronically via our Web site’s Greenland menu.

## CARGO AND CUSTOMS

All cargo shipped through the U.S. is 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 cargo arriving in Kangerlussuaq via Europe with commercial carriers, it must arrive **at least one week** prior to the desired Kangerlussuaq to Summit Air National Guard flight.

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 Buening](#).

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:

### Cargo List

Items	Weight/Cube
2, boxes of cables and equipment	143 lbs / 8 cu ft

## SUPPORT SCHEDULE

Approx Date	Location	Activity
7/20/2010	Kangerlussuaq	Schütte and Münchow arrive in Kanger via commercial air
7/22/2010	Summit	Schütte and Münchow fly from Kanger to Summit
7/28/2010	Summit	Schütte and Münchow depart Summit for Kanger
7/30/2010	Kangerlussuaq	Schütte and Münchow depart Kanger via commercial air

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
Jürgen Schütte	Kangerlussuaq Summit	07/20/10 07/22/10	07/30/10 07/28/10	<a href="mailto:schue@gfz-potsdam.de">schue at gfz-potsdam.de</a>
Andreas Münchow	Kangerlussuaq Summit	07/20/10 07/22/10	07/30/10 07/28/10	<a href="mailto:andreas@gfz-potsdam.de">andreas at gfz-potsdam.de</a>

## PROJECT CONTACT INFORMATION

### Research Team

Role	Name	Email	Phone / Fax
Co-PI	Trine Dahl-Jensen	<a href="mailto:tdj@geus.dk">tdj at geus.dk</a>	814.2519 /814.2050
Principal Investigator	Winfried Hanka	<a href="mailto:hanka@gfz-potsdam.de">hanka at gfz-potsdam.de</a>	331 288.1213 /

### CPS Team Members

Contact for	Name	Email	Primary Phone
Summit science planning & support	Katrine Gorham	<a href="mailto:Katrine@polarfield.com">Katrine at polarfield.com</a>	Denver: 303.349.2884
Greenland science planning & support	Susan Zager	<a href="mailto:Susan@polarfield.com">Susan at polarfield.com</a>	Denver: 720.320.6159
Greenland science planning & support	Robin Abbott	<a href="mailto:Robin@polarfield.com">Robin at polarfield.com</a>	Denver: 303.748.8507
Kangerlussuaq base operations	Kathy Young	<a href="mailto:Kathy@polarfield.com">Kathy at polarfield.com</a>	Denver: 720.320.6160 Greenland: 011.299.524218
Scotia (Stratton Air Base) operations & customs	Earl Vaughn	<a href="mailto:Earl.Vaughn@gmail.com">Earl Vaughn at gmail.com</a>	Scotia cell: 518.605.0979
Sat phones & comms	Roy Stehle	<a href="mailto:Roy.Stehle@sri.com">Roy.Stehle at sri.com</a>	Menlo Park: 650.859.2552
Remote Medical (kits & service) and Medical/Dental Clearance (PQ)	Robbie Score	<a href="mailto:Robbie@polarfield.com">Robbie at polarfield.com</a>	Denver: 303.906.0093
Purchase orders	Karen Shaughnessy	<a href="mailto:Karen.Shaughnessy@ch2m.com">Karen Shaughnessy at ch2m.com</a>	Tel: 720.286.0413 Fax: 720.286.9165

## CPS Offices

<b>Denver</b>	<b>Kangerlussuaq</b>	<b>Scotia</b>
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 <sup>th</sup> Aerial Port Bldg. 20 Stratton Air Base Scotia, NY 12302-9752 Tel: 518.344.2635 Cell: 518.605.0979 Fax: 518.344.2537

## Summit Station

<b>Winter</b>	<b>Summer</b>
Polar Field Services Attn: Name of Employee/Researcher 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 - Summit Station C/O Earl Vaughn 109 <sup>th</sup> Aerial Port Bldg. 20 Stratton Air Base Scotia, NY 12302-9752 Tel: 518.344.2635 Fax: 518.344.2537

## Other

<b>Organization</b>	<b>Internet</b>	<b>Phone</b>
Summit Science Coordination Office (SCO)	<a href="http://www.geosummit.org">http://www.geosummit.org</a> <a href="mailto:sco@summitcamp.org">sco at summitcamp.org</a>	John Burkhart +47 96 82 5011

## 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)

## 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>
Access to the Undisturbed Snow Campaign Sector to relocate the seismometer trench.
Availability of power for the seismometer, in accordance with limitations outlined in the Other Services table.
Access to the LAN.

## 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

**Risk factors and mitigation.**

<b>Factor</b>	<b>Mitigation and Control</b>
Heavy lifting/body strains and sprains	-Use proper lifting techniques
Snowmobile Travel	-Participate in a snowmobile training -Use appropriate Personal Protection Equipment/helmets
Cold Related Injuries-weather	-Wear proper clothing -Appropriate camping gear, insure sleeping bags are adequately rated -Check the forecast before going out of camp/town -Watch the weather while out -Be mindful of hydration, carry sufficient food -Develop and share your travel plans -Have and share an emergency plan for bad weather
Emergency Plan	-Compile a list of emergency contacts for your field team and share it with critical participants including your home institution and CPS.
Communications	-Assure your phone and/or radio is fully charged before going out and carry a spare battery.
Foot/ski travel	-Have a communication plan in place (carry a radio) -Have a check out policy in place
High Altitude	-Have oxygen available in high altitude camps -Develop plan to acclimatize -Consult with physician on use of medication for acclimatization
Power Tools	-Participate in a power tools training -Review current AHA (Activity Hazard Analysis)
Trench/pit Work	-Use appropriate PPE (Personal Protection Equipment)