

Please review all of the following information, including the gear allocations and field team information, to ensure accuracy. This plan is an agreement between CH2M HILL Polar Services (CPS) and your group, documenting the logistics support you will receive.

PROJECT INFORMATION

Lead Principal Investigator	H.A.J. Meijer
Institute	RuG University of Groningen, Netherlands
Project Title / Grant #	On-site isotope diffusion experiments conducted by Netherlands Arctic Research (NAP)/ALW-NAPSP/07-03 (NAP-ISO)
NSF Program and Manager	NL\Federal\NWO\NAP, Ms. Renee Crain
PFS Project Manager	Sandra Starkweather

LOGISTICS SUMMARY

For this isotope study funded by the Netherlands Arctic Program (NAP) of the Netherlands Organization for Scientific Research (NWO), researchers will conduct shallow ice-core sampling in Greenland.

From 2007-2011, project researchers will work each year at two sites in Greenland: Summit Station and site "S10" about 150 km east of Kangerlussuaq. At the latter, researchers laid down an isotopically enriched snow layer in 2005; with this project, they will continue studying the layer. They have established an enriched layer at Summit in 2007 for comparative analyses. This plan focuses on the work at Summit Station. The development of the isotope-labelled layer will give experimental validation to isotope diffusion models that are in use to correct ice core measurements. This resampling activity will be an annual event.

In August of 2007, 2 researchers spent several days at Summit Station producing ~6 x 6 meter isotopically enriched labeled layer in undisturbed snow using a snow maker that draws enriched water from a small inflatable swimming pool. In July of 2008, a team of two returned to Summit Station to obtain samples from 3 snow pits inside their field.

In 2009, researchers will return to the same study area at Summit Station. Rather than using a snow pit, they will obtain samples using a shallow depth hand corer. They will spend 2-3 days at Summit for this work.

CPS will support this project with cost-reimbursable transport to and from Summit Station, user days, access to the Summit infrastructure and science technical services, snowmachines, and field, safety and communications gear. All other expenses, including helicopter support for work east of Kangerlussuaq, will be arranged by the PI and paid with grant funds.

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=NAP-ISO

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	May 11, 2009

Obtain all necessary permits for fieldwork	PI	Summit field work is included in Summit permit
Visit all hyperlinks and review all documents referred to in the support plan	Entire field team	
Contact the GEOSummit Science Coordination Office (SCO) sco at summitcamp.org regarding your project's plans for the season	PI	May 2009
Complete medical clearance process 6-8 weeks before desired deployment date		Not required for short deployment 3/20/2009
Provide cost estimate for billable support	CPS	
Develop a purchase order with CPS prior to field work	PI	
Provide bill for actual support	CPS	
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	
Complete Critical Success Factors	PI	May 11, 2009

ALLOCATIONS AND SERVICES

Allocations from Inventory

Quant/Unit	Item
2ea	Arctic Oven Sleep Tents
4 ea	Sleep Pads
2 ea	Snowmachines
1 ea	Nansen Sled
1 ea	GPS
1 ea	VHF Hand Held Radio/Spare Batteries
1 ea	Survival Bag
4 ea	Long Bamboo stakes/poles for marking the snow field and tracking the annual snow fall

Other Services

Project Allocations	Comments
R/T flights SFJ><Summit	2 people
Summit user days	2 people x 2 days
Science Technical Services-Sampling	As described in the Summit Science protocols, the science techs will visit the CIO site each month to measure the accumulation. 1 hour/month
Site help Assistance	Science techs will assist each day with this project
Space	A space will be provided to work with the cores
Ice Core/Cargo Handling	Camp staff will help ready the cores and other cargo for transport

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 with the guidelines provided in the *Summit Users' Guide*. Both are available electronically via our Web site's Greenland menu.

CARGO AND CUSTOMS

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
Personal Items, and manual coring drill	≈ 30 kgs

SUPPORT SCHEDULE

Approx Date	Location	Activity
05/07/09	Kanger	Team travels to Kangerlussuaq via GL 781
05/08/09-05/11/09	Kanger	Team works at site near Kangerlussuaq
05/12/09	Summit Station	Obtain samples using a shallow depth hand corer.
05/14/09	Summit-Kanger	Pack and return to Kanger
05/15/09	Kanger	Team departs Kanger (Air Greenland flight to Copenhagen)

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
Van der Wel, Gerko	Kangerlussuaq	5/7/09	5/15/09	L.G.van.der.Wel at rug.nl
Van der Wel, Gerko	Summit	5/12/09	5/14/09	
Been, Henk	Kangerlussuaq	5/7/09	5/15/09	H.A.Been at rug.nl
Been, Henk	Summit	5/12/09	5/14/09	

PROJECT CONTACT INFORMATION

Research Team

Role	Name	Email	Phone / Fax
Principal Investigator	H.A.J. Meijer	H.A.J.Meijer at rug.nl	31 (0) 05 363.4739 /

CPS Team Members

Contact for	Name	Email	Primary Phone(s)
Summit operations	Sandy Starkweather	Sandy at polarfield.com	Denver: 303.518.8714
Greenland planning and project support	Robin Abbott	Robin at polarfield.com	Denver: 303.748.8507

Greenland on-island support	Mark Begnaud	Mark at polarfield.com	Denver: 720.320.6160 Greenland: 011.299.524218
Greenland on-island support, Cargo	Ed Stockard	Ed at polarfield.com	Greenland: 011.299.524281
Thule operations	Susan Zager	Susan at polarfield.com	Denver: 720.320.6159
Medical & RMI	Kyli Olson	Kyli at polarfield.com	Denver: 303.489.2151
Denver operations	Jill Ferris	Jill at polarfield.com	Denver: 720.320.6155
Purchase orders	Steve Heiman	Steve Heiman at ch2m.com	Tel: 720.286.2277 Fax: 720.286.9287

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

Summit Station

Winter	Summer
CH2M HILL Polar Services Western Office 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 th Aerial Port Bldg. 20 Stratton Air Base Scotia, NY 12302-9752 Tel: 518.344.2635 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
Summit Science Coordination Office (SCO)	http://www.geosummit.org/sco at summitcamp.org	John Burkhart +47 96 82 5011

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 at dpc.dk](mailto:phs@dpc.dk)
Telephone: +45 3288 0100

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
Maintenance of the CIO site, no traffic or disturbances inside the area marked by bamboo poles
Monthly numbers on relative snow height at the bamboo poles
Assistance with manual coring of shallow ($\approx 2m$) cores, or digging of pits
Covered space with temperature below freezing point for processing of the cores.

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.