

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

• Project Information •

Lead Principal Investigator	Jack Dibb
Institute	University of New Hampshire, Glacier Research Group
Project Title / Grant #	Collaborative Research: Radical Chemistry over Sunlit Snow: Interactions between HOx and Halogen Chemistry at Summit, Greenland (0612075)
NSF Program and Manager	NSF/GEO/ATM, Ms. Anne-Marie Schmoltner
VPR Project Manager	Sandra Starkweather

• Logistics Summary •

This collaboration is composed of the following: 0612075 (Dibb, UNH, LEAD), 0612387 (Huey, Gatech), 0612136 (Lefer, U of Houston), 0612426 (Blake, UCI), 0612568 (Brooks, NOAA), and 0612279 (Stutz, UCLA), and Roland Von Glasow, University of E. Anglia, whose funding comes from different sources.

The researchers will study photochemical processes during intensive sampling seasons planned for the late-spring/early-summer of 2007 during rapid temperature changes, and mid-summer 2008 when sunlight is at a maximum. Original plans had the timing of the field campaigns reversed, and the change was made to better align with planned airborne campaigns that will be conducted by international groups in support of the IPY POLARCAT initiative. At those times, researchers will participate in a 6-8 week effort to install experiments, and then to collect data from and maintain the same.

During the 2007-2008 campaigns, the research will be conducted at the Satellite Camp location from early May until mid/late June, upwind of local pollution sources from the station. The research team may total about 15, to include one or two teacher participants and to accommodate some turnover between researchers.

In 2007, PolarTREC teacher Jo Dodds will work with the project (and with Mary Albert's firm researchers). While at Summit, PI Stutz will also conduct any work needed on his MAX-DOAS grant (0421016).

For this project,
 --VPR will provide ANG coordination for the field team and cargo transport between Scotia, NY, and Summit, Greenland, gases, and access to infrastructure and services at Summit Station during each year of field work.
 --All other logistics requirements will be paid by the investigators with grant funds.

For the complete VPR online project record for this grant, including science objectives, go to: http://www.vecopolar.com/arlss_reports/arlss_projectsdetail.asp?cbPropNum=0612075

For up-to-date information on the project's schedule, please view the online [Greenland calendar](http://www.vecopolar.com) (www.vecopolar.com > Greenland > Calendars/Schedules).

• Outstanding Issues •

Issue	Responsibility	Date Completed
Review support plan for accuracy and distribute to all field team members	PI	3/30/2007
Obtain all necessary permits for fieldwork	PI	Submitted 12/11/2006
Visit all hyperlinks and review all documents referred to in the support plan	Field Team Members	3/30/2007
Contact the GEOSummit Science Coordination Office (SCO) sco@summitcamp.org regarding your project's plans for the season.	PI	3/30/2007
Medical Clearance completed 8-6 weeks before desired deployment date. Ziembra, Cummings, Gorham, and Brooks have cleared as of 4/9/07.	Dibb, Beckman, Von Glasow, Piot, Tripathi, Stutz, Hurlock, Tanner, Reichardt, Juhan, Huey, Pastrik, Lefer, Lew, Dodds	In progress
Please note this important information for your field team: Bring 2 different forms of picture ID. Passports are mandatory for entry into Greenland.	Field Team Members	Notified
Complete Critical Success Factors	PI	03/22/2007
Communicate Cargo Priorities to Scotia staff	VPR	Completed

• Allocations & Services •

Allocations from Inventory

Quant/Unit	Item
1/ each person	Arctic Oven tent on platform, with sleep pads
3 cyl	Tech grade Helium CGA 580
3 cyl	UHP (99.99%) Argon
25 cyl	UHP ((99.99%) Nitrogen CGA 580
3 cyl	UHP (99.99%) Oxygen CGA 540
4 cyl	Ultra Zero Air (< 0.1 ppm HC) CGA 590
50 pounds	Eutectic (blue ice) Packs
2 ea	Sheets ½ plywood (possibly from scrap pile, don't need full 4 x 8)
8 ea	8 foot 2 x 4's
Use	Electric snow machine and sled at start and end (available after 05/14)
Use	4-stroke snow machine(s) and sled at start and end
3 ea	Banana sleds
2 ea	Wireless hubs/antenna (in Wxport and Bally)
1 ea	VHF base station (wxport)
As needed	Hand held radios
1 ea	Microwave, coffee maker, waste basket, 10 gallon water cooler
1 ea	OSHA first aid kit

Other Services

Project Allocations	Comments
2 or 3 AF pallets, 6 or 8 empty drums	To make cargo line at sat camp
Refer to http://www.vecopolar.com/Files/PDFs/SummitOM2007Plan.pdf	Details of Sat Camp requirements are outlined in this document

• Location Information •

Please visit <http://www.vecopolar.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 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.vecopolar.com> and navigate to Greenland > Calendars/Schedules.
- ✓ If you are a new user requiring access to the Cargo Tracking System, contact Robin Abbott (robin@polarfield.com).
- ✓ Customs instructions are available on our website at <http://www.vecopolar.com> (go to Greenland > Customs)
- ✓ For Customs requirements please refer to the *Greenland Guide*, also available at <http://www.vecopolar.com> under Greenland.

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

Cargo List

Items	Weight/Cube
See Appendix	

• Support Schedule •

For the most up-to-date information on the project's schedule, please view the online [Greenland calendar](http://www.vecopolar.com) (www.vecopolar.com > Greenland > Calendars/Schedules).

• Field Team Information •

Name	Affiliation	Location	Date In	Date Out	Email
Dibb, Jack	UNH	SFJ	5/6/2007	6/22/2007	jack.dibb@unh.edu
Dibb, Jack		Summit	5/7/2007	6/21/2007	
Ziemba, Luke	UNH	SFJ	5/6/2007	6/8/2007	lziemba@cisunix.unh.edu
Ziemba, Luke		Summit	5/7/2007	6/7/2007	
Beckman, Pieter	UNH	SFJ	6/3/2007	6/22/2007	pbeckman@gust.sr.unh.edu
Beckman, Pieter		Summit	6/4/2007	6/21/2007	
Von Glasow, Roland	U. East Anglia	SFJ (->CPH)	5/6/2007	5/19/2007	R.Von-Glasow@uea.ac.uk
Von Glasow, Roland		Summit	5/7/2007	5/17/2007	
Piot, Mathias	U. Heidelberg	SFJ (->CPH)	6/3/2007	6/22/2007	matthias.piot@iup.uni-heidelberg.de
Piot, Mathias		Summit	6/4/2007	6/21/2007	
Tripathi, Om	UCLA	SFJ	5/6/2007	6/8/2007	
Tripathi, Om		Summit	5/7/2007	6/7/2007	
Stutz, Jochen	UCLA	SFJ	5/6/2007	6/8/2007	jochen@atmos.ucla.edu
Stutz, Jochen		Summit	5/7/2007	6/7/2007	
Hurlock, Stephen	UCLA	SFJ	6/3/2007	6/22/2007	steveh@atmos.ucla.edu
Hurlock, Stephen		Summit	6/4/2007	6/21/2007	

Tanner, David	Georgia Tech	SFJ	5/6/2007	6/8/2007	
Tanner, David		Summit	5/7/2007	6/7/2007	
Reichardt Helen	Georgia Tech	SFJ	5/6/2007	6/8/2007	
Reichardt,Helen		Summit	5/7/2007	6/7/2007	
Juhan,Justin	Georgia Tech	SFJ	5/6/2007	6/22/2007	
Juhan,Justin		Summit	5/7/2007	6/21/2007	
Huey, Greg	Georgia Tech	SFJ	6/3/2007	6/22/2007	greg.huey@eas.gatech.edu
Huey, Greg		Summit	6/4/2007	6/21/2007	
Pastrik, Michael	Georgia Tech	SFJ	6/3/2007	6/22/2007	
Pastirik, Michael		Summit	6/4/2007	6/21/2007	
Cummings,Tony	Georgia Tech	SFJ	6/3/2007	6/22/2007	
Cummings,Tony		Summit	6/4/2007	6/21/2007	
Lefer, Barry	U. Houston	SFJ	5/6/2007	6/22/2007	blefer@uh.edu
Lefer, Barry		Summit	5/7/2007	6/21/2007	blefer@uh.edu
Gorham, Katrine	UC Irvine	SFJ	5/6/2007	6/22/2007	drblake@uci.edu
Gorham, Katrine		Summit	5/7/2007	6/21/2007	kgorham@uci.edu
Brooks, Steve	NOAA	SFJ	5/6/2007	5/19/2007	steve.brooks@noaa.gov
Brooks, Steve		Summit	5/7/2007	5/17/2007	
Lew, David	NOAA	SFJ	5/6/2007	6/22/2007	
Lew, David		Summit	5/7/2007	6/21/2007	
Dodds, Jo	O'Leary Jr. HS	SFJ			jdodds@polartrec.com
Dodds, Jo		Summit			

• Project Contact Information •

Research Team

Role	Name	Email	Phone / Fax
Collaborator	Donald Blake	drblake@uci.edu	949 824-4195 / 949 824-2905
Collaborator	Steven Brooks	steve.brooks@noaa.gov	865 576-1233 / 865 576-1327
Principal Investigator	Jack Dibb	jack.dibb@unh.edu	603 862-3063 / 603 862-2124
Collaborator	L. Greg Huey	greg.huey@eas.gatech.edu	404 894-5541 / 404 894-6285
Collaborator	Barry Lefer	blefer@uh.edu	713 743-3250 / 713 748-7906
Collaborator	Jochen Stutz	jochen@atmos.ucla.edu	310 825-5364 / 310 206-5219
Collaborator	Roland von Glasow	R.Von-Glasow@uea.ac.uk	+44 1603 593204/ +44 1603 591327

VPR Team Members

Contact for	Name	Email	Primary Phone(s)
Greenland operations	Jason Buenning	jason@polarfield.com	Denver: 303-638-6669 Greenland: 011.299.524218
Greenland operations	Mark Begnaud	mark@polarfield.com	Denver: 720.320.6160 Greenland: 011.299.524281
Summit operations	Sandy Starkweather	sandy@polarfield.com	Denver: 303.518.8714
Sat phones & comms	Roy Stehle	roy.stehle@sri.com	Menlo Park: 650.859.2552
Medical & MAS	Kyli Olson	kyli@polarfield.com	Denver 303.489.2151
Denver operations	Jill Ferris	jill@polarfield.com	Denver: 720.320.6155
Scotia Operations & Customs	Earl Vaughn	earl.vaughn@gmail.com	Scotia: 518.331.3103

VPR Offices

Denver	Kangerlussuaq	Scotia
VECO Polar Resources Western Office 8110 Shaffer Parkway Suite 150 Littleton, CO 80127 Tel: 303.984.1450/1439 Fax: 303.984.1445	VECO Polar Resources 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: 518.331.3103 Fax: 518.334.2537

Summit Station

Winter	Summer
VECO Polar Resources Western Office Attn: Name of Employee/Researcher 8110 Shaffer Parkway Suite 150 Littleton, CO 80127 Tel: 303.984.1450/1439 Fax: 303.984.1445	VECO Polar Resources 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: 518.331.3103 Fax: 518.334.2537

Other

Organization	Internet	Phone
Summit Science Coordination Office	http://www.geosummit.org sco@summitcamp.org	John Burkhart 209.658.7142

• Safety, Environment, Health, and Permitting •

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, rather than through the U.S. State Department. For assistance with the application process, contact:
 Poul Henrik Sorensen
 E-mail: phs@dpc.dk
 Telephone: +45 3288 0100

Medical Clearance

Arctic Program participants traveling into the Greenland field are generally required to pass a National Science Foundation (NSF) mandated physical exam. All field team members should plan to complete their medical clearance process 8-6 weeks prior to their travel to Greenland. For more information refer to VPR's *Greenland Guide*, available at <http://www.vecopolar.com> under Greenland.

• 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 VPR's support. Examples might be the availability of the helicopter or camp gear.

Factors
Sat Camp ready for occupancy
Cargo to Summit with team or before
Station personnel adhere to clean air operations protocol

• Government Performance and 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 VPR's performance is a "facility-performance metric" which counts the number of productive days your project has in the field while relying on VPR facilities or support. Please keep track of any "lost days" and report these to us at the end of the season.

• Appendix •

Cargo List -- Dibb Project

GIT (Huey)

Item	Value (\$)	Weight (lbs)	Cube (ft ³)	Special Handling Instructions
CIMS HOx Instrument	150000	1200	96	Fragile don't drift
CIMS halogen instrument	100000	500	80	Fragile don't drift
NO Instrument	50000	500	64	Fragile don't drift
Toolbox w/ tubing etc.	20000	1200	96	
NO Spares	10000	250	48	
CIMS Spares	10000	250	48	
Crate w/ general supplies	1000	100	25	
Cold Weather Gear	2000	250	48	
2 C3F6 Cylinders	3000	120	8	HAZMAT
5 Aluminum Gas Cylinders on pallet	3000	350	15	HAZMAT
Crate replacement parts	10000	200	20	Fragile don't drift
Crate w/ hardware, oversize tools	1000	200	10	
Box w/ last minute stuff	5000	100	10	
GT subtotals	365000	5,220	568	

UNH (Dibb)

Item	Value (\$)	Weight (lbs)	Cube (ft ³)	Special Handling Instructions
MC/IC system	30000	400	34	DO NOT FREEZE Fragile don't drift
Particle sizing system	15000	400	64	Fragile don't drift
Lab IC/water system/4 lap tops	15000	250	14	DO NOT FREEZE Fragile don't drift
Spare pump, aerosol filter supplies	5000	200	14	
Tools, Tubing, Hardware	2000	200	14	
Eluent and water jugs, labware	1000	200	16	
MC vacuum pump box	2000	200	9	
Aerosol vacuum pump box	5000	200	9	
Firn air sampling probe	1000	110	9	
Snow sample bottles	500	60	10	Will be KEEP FROZEN for RETRO
Snow sample bottles	500	60	10	Will be KEEP FROZEN for RETRO
Skis/boots/poles	500	50	2	
UNH subtotals	77500	2330	205	

UCI (Blake)

Item	Value (\$)	Weight	Cube	Special Handling Instructions
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		(lbs)	(ft ³)
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Sample canisters	1000	75	7.3
Pumps, tubing	4000	120	8.8
Pontoons	500	90	9.3
Pontoons	500	90	9.3
UCI subtotals	16000	1125	108

UCLA (Stutz)

Item	Value (\$)	Weight (lbs)	Cube (ft ³)	Special Handling Instructions
Telescope Upper Part, Feet, Insulation	5000	245	32	
Telescope Lower Part, Stepper Motor	5000	255	30	
Acton SpectraPro 500, detector, controller	80000	230	24	
Lamp housings, spares	20000	160	11	
Telescope Optics	10000	100	8	
Retroreflectors	25000	170	8	
Retroreflectors	25000	125	8	
Tools	5000	95	8	
Computers + Computer equipment	5000	90	8	
Mode-Mixer, electronic spares	2000	70	8	
Misc Equip/Max-DOAS parts	2000	90	8	
Acton 300 + Detector	50000	100	8	
Max-DOAS parts	2000	100	8	
UCLA subtotals	236000	1830	169	

U Houston (Lefer)

Item	Value (\$)	Weight (lbs)	Cube (ft ³)	Special Handling Instructions
Snow pack Spectroradiometer	40000	250	10	DO NOT FREEZE / FRAGILE
Atmosphere Spectroradiometer	40000	70	6	DO NOT FREEZE / FRAGILE
Spare Parts and laptop	15000	150	12	FRAGILE
Field Calibration system	5000	60	8	
Mounting Brackets	200	22	1	
Cloud Camera	12000	80	12	FRAGILE
CC DAQ + misc supplies	5000	120	12	DO NOT FREEZE / FRAGILE
Skis, poles, boots	400	20	1	
Snow sample bottles	200	75	10	

UH subtotals	117800	847	72
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NOAA (Brooks)

Item	Value (\$)	Weight (lbs)	Cube (ft ³)	Special Handling Instructions
Box 1			70	6
Box 2			70	6
Box 3			70	6
Box 4			70	6
Box 5			70	6
UH subtotals	0	350	30	