

• Project Information •

Lead Principal Investigator	Roger Bales
Institution	University of California, Merced, School of Engineering
Project Title / Grant #	Development of a Multi-Axis Differential Optical Absorption Spectrometer for Measurements of Trace Gases in the Polar Troposphere (0421016)
NSF Program and Manager	NSF/OPP CS, Dr. Marie Bundy
VPR Project Manager	Sandy Starkweather

• Logistics Summary •

This project will develop, install, and operate a new generation of multi-axis differential optical absorption spectroscopy (MAX-DOAS) instruments that will measure atmospheric trace gas absorption as a supplement to ongoing observations at Summit Station.

The investigators plan to install MAX-DOAS at Summit in 2006. After installation and testing, the instrument will operate autonomously year-round with station science technician support. The researchers will return annually throughout the life of the grant for service and maintenance.

VPR will support the project via science technician services and access to the Summit Station infrastructure.

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=0421016

• Outstanding Issues •

Issue	Responsibility	Date Completed
Review support plan for accuracy and distribute to all field team members	PI	6/19/06
Obtain all necessary permits for fieldwork	PI	6/15/06 Research application submitted
Visit all hyperlinks and review all documents referred to in the support plan	Field Team Members	6/1/2006
Contact the GEOSummit Science Coordination Office (SCO) mailto:sco@geosummit.org regarding your project's plans for the season	PI	6/13/06
Medical Clearance completed 8-6 weeks before desired deployment date	Field Team Members	Hurlock: 3/22/06 Stutz: pending
Please note this important information for your field team: Bring 2 different forms of picture ID. Passports are now mandatory for entry into Greenland. Be sure to pack them!	Field Team Members	
Complete Critical Success Factors	PI	6/19/06

• Allocations & Services •

Allocations from Inventory

Quant/Unit	Item
2 ea	8x8 Arctic Oven sleep tents
4 ea	Thermal sleeping pads
2 ea	Wireless network cards

Other Services

Project Allocations	Comments
7 permanent IP addresses required	SRI has been contacted about this requirement.
Hand tools, hand power tools to be borrowed as required	
Undisturbed location in GH for instrument and control modules	The DOAS modules will be accommodated in the front GH lab along the S wall. If the space is not sufficient, some benches may need to be moved around. We also discussed the possibility of accommodating them in the GH main room where the couch used to be.
Small space in GH for storage of manuals and special tools for system maintenance.	PIs should provide a box for these items; space will be accommodated in the GH. There is some cabinet/file space available if PIs are not able to provide a box.
Internet access at KISS for checkout of Summit installation (8/15-8/19)	VPR will provide KISS user days for this work.
Storage location for MAX-DOAS spare components	Storage will be accommodated in the science storage vestibule, which is maintained above 0 C.
120 V power on GH Tower.	VPR will extend current power receptacle to GH Tower.
Assistance identifying installation points (electrical, network, etc.) and mounting the telescope on the tower.	VPR will provide a science tech to assist with the installation on an as-need basis. The mechanic and other members of the staff will also be available for trouble-shooting.

• 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.

Cargo List

Items	Weight/Cube
Control Module 48"H x 28.5"W x 36"D	< 100 kg
Instrument Module 36"H x 28.5"W x 36"D	< 100 kg
Telescope Module 36"H x 30"W x 12"D	<30 kg
Caster board package 6"H x 28.5"W x 36"D	<10 kg
Cargo box 1 16"H x 30"W x 22"D To remain at Summit for storage of spare components	<50 kg
Cargo box 2 16"H x 30"W x 22"D Disposition (remain or return) TBD	<50 kg
Cargo box 3 16"H x 30"W x 22"D To be returned to UCLA	<50 kg

Additional Cargo Information:

Cargo will arrive at Scotia on pallets. Instrument and control modules will be shipped in vertical positions and should remain this way throughout. Caster boards latchable to the modules will be included in the cargo for use inside GH. Boards without casters latchable to the modules are also available if needed for transport to GH.

• Support Schedule •

Date	Location	Activity
7/25	Albany, NY	Field team members arrive in Albany, NY
7/26	Kangerlussuaq	Field team members travel to Greenland via NYANG
7/27	Summit	Field team members travel to Summit via NYANG
7/27	Summit	Transport cargo to GH warm storage
7/27-31	Summit/GH	Set up/install modules in GH and on tower
8/1-15	Summit/GH	Checkout, align, troubleshoot MAX-DOAS
8/15-19	Summit/GH-KISS	Checkout/confirm remote operation of MAX-DOAS
8/15	Summit	Jochen Stutz departs Summit for Kangerlussuaq
8/18	Summit	Steve Hurlock departs Summit for Kangerlussuaq
8/19	Kangerlussuaq	Jochen Stutz departs Greenland via NYANG
8/19-9/4	KISS	Hurlock to store personal items while touring Greenland, if possible.

• Field Team Information •

Name	Location	Date In	Date Out	Email
Hurlock, Stephen	Kangerlussuaq	07/26/06	08/19/06	steveh@atmos.ucla.edu
Hurlock, Stephen	Summit	07/27/06	08/18/06	steveh@atmos.ucla.edu
Stutz, Jochen	Kangerlussuaq	07/26/06	08/19/06	jochen@atmos.ucla.edu
Stutz, Jochen	Summit	07/27/06	08/15/06	jochen@atmos.ucla.edu

• Project Contact Information •

Research Team

Role	Name	Email	Phone / Fax
Principal Investigator	Roger Bales	rbales@ucmerced.edu	209 724-4348 /209 724-4459
Co-PI	Jochen Stutz	jochen@atmos.ucla.edu	310 825-5364 /310 206-5219
Associate Investigator	Stephen Hurlock	steveh@atmos.ucla.edu	310 825 7169/310 206-5219

VPR Team Members

Contact for	Name	Email	Primary Phone(s)
Greenland operations	Robin Abbott	robin@polarfield.com	Denver: 303.748.8507 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	Jason Buening	jason@polarfield.com	Denver: 303.638.6669
Denver operations	Jill Ferris	jill@polarfield.com	Denver: 720.320.6155
Scotia Operations & Customs	Earl Vaughn	earl.vaughn@gmail.com vprscotia@hughes.net	Scotia: 518.331.3103

VPR Offices

Denver	Kangerlussuaq	Scotia	Summit
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 Fax: 518.884.2904	VECO Polar Resources Attn: Name of Employee/Researcher Postboks 1015 DK-3910 Tel: 321.953.9650 Fax: 321.953.9651

Other

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

• Safety, Environment, Health, and Permitting •

Permits

Please refer to VPR's *Greenland Guide*, available at <http://www.vecopolar.com> under Greenland, for information about permits required to conduct fieldwork in Greenland.

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.

Factors
Safe transport of cargo to Summit and installation of modules in GH and on tower
Availability of reliable electrical power and internet access
Maintenance of telescope windows free of snow and rime
Successful VPR/UCLA development and documentation of procedures for MAX-DOAS maintenance and checkout and VPR use of procedures throughout active deployment
Continued VPR team availability for and participation in correspondence with UCLA team for system evaluation and troubleshooting, as required. To include email, VPR forum, and telephone, as appropriate.

- 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.