2008-2009 USAP Field Season

Event Numbering System: 2008-2009

Every project is assigned a unique event number.
The first letter indicates the USAP program funding a project:

Prefix	USAP Program
A	Aeronomy and Astrophysics
B	Organisms and Ecosystems
C	Integrated and System Sciences
G	Earth Sciences
I	Glaciology
O	Oceans and Atmospheric Sciences
W	Artists and Writers
Y	International Polar Year
T	Technical Event

The suffix represents the supporting station. If field work takes place at more than one location the event number carries more than one suffix separated by a slash.

Suffix	Supporting Station (link to index)
M	McMurdo Station
P	Palmer Station
S	South Pole Station
L	ARSV Laurence M. Gould
N	RV/IB Nathaniel B. Palmer
E	Special projects supported by the USAP. Examples include investigators working with other national Antarctic programs.
O	ODEN Icebreaker

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

Find more information about USAP projects by viewing individual project web sites.

2008-2009 Field Season

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Staffed Field Camps: 2008-2009

Five field camps will have resident staff to provide logistic and operational assistance to McMurdo-based researchers.

McMurdo Dry Valleys — 77.30 S, 162.00 E
50 nautical miles from McMurdo Station

Each year numerous groups conduct research throughout the Dry Valleys. Two resident staff will operate the main base camp at Lake Hoare primarily to support the Long Term Ecological Research (LTER) projects. The Dry Valley camp staff also have oversight of the Lake Bonney, Lake Fryxell, and F6 field camps. Other groups will operate from small tent camps throughout the region.

Siple Dome — 81.39 S, 149.04 W
507 nautical miles from McMurdo Station

Siple Dome with three resident staff will support two science projects: Slawek Tulaczyk (I-345-M), and Brenda Hall (I-196-M) will use Siple Dome as a staging area and travel to independent, tent camps. I-345-M will obtain GPS time series and geophysical data, while I-196-M will sample moraines along the Scott Glacier. Anne Nobel (W-469) and Lisa Blatt (W-467-M) will take photographs at the camp, focusing on light.

WAIS Divide Field Camp — 79.46 S, 112.08 W
924 nautical miles from McMurdo Station

The West Antarctic Ice Sheet (WAIS) Divide field camp will have an approximate population of 60 people. Eleven resident staff support ten projects: Kendrick Taylor (I-477-M) will continue collecting a 3,400 m deep ice core in West Antarctica. Ice Core Drilling Services (ICDC, T-350-M/Charles Bentley) will complete the setup and operate the DISC Drill System at WAIS Divide. This year the project will work through brittle ice using the Deep Ice Sheet Core (DISC) drill. The National Ice Core Laboratory (NICL, I-478-M/Schumann) will provide quality assurance and oversight for the DISC operations. Richard Alley (I-168-M) will provide records of visible stratigraphy, depth evolution of ice grain size and orientation, bubble sizes, size distributions and characteristics of the Deep Ice Sheet Core. The automatic weather station (AWS) project team (O-283-M, Charles Stearns) will service various stations from the camp. The Polar Experiment Network for Geospace Upper atmosphere Investigations (PENGUIn) (Lessard, A-105-M) will conduct ground based observations coinciding with satellite missions. Their ARRO instrument will monitor substorms, polar cap physics, cusp phenomena, and radiation belt particle precipitation. Prasad Gogineni-Center for Remote Sensing of Ice Sheets (CReSIS, I-188-M) and Sridhar Anandakrishnan (I-205-M) will traverse from WAIS Divide to the Thwaites glacier, conducting reflection seismic experiments to study flow dynamics and the glacier subsurface. Markus Frey (I-151-M) will study the chemical record of atmospheric gases recorded in snow, firn, and ice. The team will make atmospheric, snow and firn core measurements of selected gas, meteorological, and snow physical property measurements and model snow/atmosphere

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exchange. Anne Nobel (W-469) will take photographs at the camp, focusing on light.

AGAP South Field Camp — 84.29 S, 77.14 E
805 nautical miles from McMurdo Station

This high elevation camp (11,700 feet with pressure altitudes commonly at 12,500 feet), with an approximate population of 40 people (10 RPSC camp staff at AGAP South), will mainly support seismic and aerial geophysical surveys of the Gamburtsev Mountain range in East Antarctica. GAMSEIS (Nyblade, G-055) will continue their passive seismic experiment, installing an array of seismometers. GAMBIT (Bell, I-160-M) will conduct an aerogeophysical survey using a USAP Twin Otter with support from G-066 (Ferraccioli) and the British Antarctic Survey Twin Otter. PENGUIn (Lessard, A-106-M) will continue installing autonomous low-power magnetometer platforms in the region.

AGO 1 Field Camp — 83.83 S, 129.56 E
487 nautical miles from McMurdo Station

Two camp staff will maintain the skiway and assist in Twin Otter refueling operations for GAMSEIS (G-055-M) and GAMBIT (I-160-M, G-066-M) work. PENGUIn (Lessard, A-112-M) will service the Automatic Geophysical Observatory installed at the camp.

Air Operations: 2008-2009

McMurdo Station

McMurdo-based aircraft (Helicopters, Twin Otter, Basler and LC-130 fixed-wing aircraft) will continue to support USAP researchers and program logistical functions.

Petroleum Helicopters, Inc. (PHI)

Petroleum Helicopters, Inc. (PHI) will provide helicopter support with four helicopters (two AS-350-B2 "A-Stars" and two Bell 212s) based out of McMurdo Station. They will support research in the McMurdo Dry Valleys, Royal Society Range and on Ross Island.
http://www.phihelico.com/

New York Air National Guard (ANG)

The New York Air National Guard will provide re-supply and research support to South Pole Station. They will support research activities at deep field locations including Siple Dome, WAIS Divide, AGO 1 and AGAP South.
http://www-105aw.ang.af.mil/

Kenn Borek Air

Twin Otter and Basler aircraft, operated by Kenn Borek Air, will be used by a number of projects throughout the USAP area of operations.
http://www.borekair.com/

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Station Schedules: 2008-2009

The United States Antarctic Program operates three permanent research stations on the continent and two research vessels.

Station	Austral Summer Season Openings		Austral Winter Season Openings
	Operational	Science	
McMurdo	Sept. 4, 2008 (SpringFly*)	Sept. 30, 2008 (Mainbody)	Feb. 23, 2009
South Pole	Oct. 23, 2008	Nov. 5, 2008	Feb. 14, 2009
Palmer	Sept. 19, 2008	Oct. 21, 2008	Apr. 1, 2009
Research Vessels	Year-round Operations Vessel schedules on the Internet: http://www.usap.gov/vesselScienceAndOperations/		

*A limited number of science projects deploy at Winfly

	Estimated Population	
	Austral Summer	Austral Winter
McMurdo	642 (weekly average) 2,071 (total)	125 (total)
South Pole	250 (weekly average) 820 (total)	50 (total)
Palmer	30-40 (weekly average) 98 (total)	30-40 (weekly average) 48 (total)
RV/IB NBP*	39 science and staff / 25 crew	
ARSV LMG**	38 science and staff / 25 crew	

*RV/IB, Research Vessel/Icebreaker

**ARSV, Antarctic Research Support Vessel

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Principal Investigator	Event No.	Project Title
Hallman, Jr, Walter	T-983-M	Deployment and Test of 8 Bladed Propeller for the LC-130
Johns, Bjorn	T-295-M	UNAVCO GPS survey support
Morin, Paul	T-434-M	The Antarctic Geospatial Information Center: Collecting, creating, delivering and archiving for the community
Parker, Timothy	T-299-M	IRIS/PASSCAL seismic support
Szuberla, Curt	T-396-M	Operation and maintenance of a CTBT class infrasound array at Windless Bight

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- USAP Program Indexes
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    Dr. Vladimir Papitashvili, program manager
  - Organisms and Ecosystems
    Dr. Roberta Marinelli, program manager
  - Earth Sciences
    Dr. Thomas Wagner, program manager
  - Glaciology
    Dr. Julie Palais, program manager
  - Ocean and Atmospheric Sciences
    Dr. Peter Milne, program manager (acting)
  - Artists and Writers
    Ms. Kim Silverman, program manager
  - International Polar Year (IPY) Education and Outreach
    Renee D. Crain, program manager
    Valentine Kass, program manager
    Sandra Welch, program manager
  - Integrated System Science
    Dr. Kelly Falkner, program manager
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Principal Investigator	Event No.	Project Title
Ainley, David	B-031-M	Adelie Penguin response to climate change at the individual, colony and metapopulation levels
Albert, Mary	I-155-M	Norwegian-United States IPY Scientific Traverse: Climate variability and glaciology in East Antarctica
Ashworth, Allan	G-294-M	Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains
Barbeau, David L.	G-432-E	COLLABORATIVE RESEARCH: Testing the Polar Gateway Glaciation Hypothesis: the Kinematic, Sedimentary, Water-Mass, and Ice-Volume Record of Drake Passage Opening
Bell, Robin E	G-065-M	Collaborative Research: GAMBIT: Gamburtsev aerogeophysical mapping of bedrock and ice targets
Bieber, John	A-120-M	Cosmic ray observations at McMurdo Station
Blankenship, Donald	G-098-M	IPY Research: Investigating the cryospheric evolution of the central Antarctic plate (ICECAP)
Bowser, Samuel	G-093-M	Collaborative Research: Linking modern benthic communities and taphonomic processes to the stratigraphic record of Antarctic cores
Carlstrom, John	A-370-S	Science Coordination Office for Astrophysical Research in Antarctica (SCOARA-II)
Carlstrom, John	A-379-S	Cosmological Research with the

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		10-meter South Pole Telescope
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Domack, Eugene	C-515-L	Collaborative Research in IPY: Abrupt Environmental Change in the Larsen Ice Shelf System, a Multidisciplinary Approach - Marine and Quaternary Geosciences
Doran, Peter	B-426-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Emslie, Steven D	B-034-E	Stable isotope analyses of pygoscelid penguin remains from active and abandoned colonies in Antarctica
Evenson, Paul	A-333-S	IceCube operations and maintenance
Fountain, Andrew	B-425-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valleys LTER program
Fraser, Bill	B-013-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, apex predator component
Garrott, Robert	B-009-M	The demographic consequences of environmental variability and individual heterogeneity in life-history tactics of a long-lived Antarctic marine predator
Gogineni, Prasad	I-189-M	Center for Remote Sensing of Ice Sheets (CReSIS) - Basler airborne radar survey
Gogineni, Prasad	I-188-M	Center for Remote Sensing of Ice Sheets (CReSIS) - ground radar and seismic operations

Gorham, Peter W	A-142-M	Antarctic Impulsive Transient Antenna (ANITA)
Hernandez, Gonzalo	A-110-M/S	Austral high-latitude atmospheric dynamics
Inan, Umran	A-108-S	A VLF beacon transmitter at South Pole
Inan, Umran	A-327-N	ELF/VLF observation in the southern Pacific Ocean
Inan, Umran	A-336-P	ELF/VLF observation of whistler-mode waves, lightning discharge, and gamma-ray events from Palmer Station
Johns, Bjorn	G-296-M/S	Collaborative research: Development of a power and communication system for remote autonomous GPS and seismic stations in Antarctica
Johns, Bjorn	T-295-M	UNAVCO GPS survey support
Kemerait, Robert	G-078-M	Dry Valley seismic project
Kennicutt, Mahlon	B-518-M	Temporal variability in natural and anthropogenic disturbance of McMurdo Station
Kim, Stacy	B-174-M	Development of a remotely operated vehicle for under-ice research in polar environments
Kovac, John	A-039-S	Collaborative Research: BICEP2 and SPUD - A search for inflation with degree-scale polarimetry from the South Pole
Kyle, Phillip	G-081-M	Mount Erebus Volcano Observatory II (MEVO II): Surveillance, models, impacts and outreach
Lazzara, Matt	O-283-M	Collaborative research: Antarctic Automatic Weather Station Program (AWS), 2007-2010
Lazzara, Matt	O-202-M	Antarctic Meteorological Research Center (AMRC)
Lessard, Marc	A-112-M	Polar Experiment Network for Geospace Upper-atmosphere Investigations: PENGUIn

Lessard, Marc	A-106-M	Collaberative Research: Polar Experiment Network for Geospace Upper-Atmosphere Investigations: PENGUIn - Advancing the Vision for Global Studies
Lewis, Adam	G-294-M	Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains
Martinson, Doug	B-021-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, physical oceanography component
Mende, Stephen	A-104-S	Antarctic auroral imaging
Miller, Mary K	Y-607-M	Ice Stories: A Public Educational Resource for IPY
Miller, Molly	G-093-M	Collaborative Research: Linking modern benthic communities and taphonomic processes to the stratigraphic record of Antarctic cores
Morin, Paul	T-434-M	The Antarctic Geospatial Information Center: Collecting, creating, delivering and archiving for the community
Nowacek, Douglas P	B-249-L	Collaborative research: The ecological role of a poorly studied Antarctic krill predator, the humpback whale (Megaptera novaeangliae)
Nyblade, Andy	G-055-M	Collaborative Research: A broadband seismic experiment to image the lithosphere beneath the Gamburtsev Mountains, East Antarctica
Parker, Timothy	T-299-M	IRIS/PASSCAL seismic support
Pekar, Stephen	G-049-M	ANDRILL: Investigating Antarctica's role in Cenozoic global environmental change
Priscu, John	B-422-M	The Role of Resource Legacy on

		Contemporary Linkages Between Biodiversity and Ecosystem Processes in a Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program
Pryke, Clement	**A-039-S**	Collaborative Research: BICEP2 and SPUD - A search for inflation with degree-scale polarimetry from the South Pole
Seo, Eun-Suk	**A-137-M**	Cosmic Ray Energetics And Mass (CREAM)
Sivjee, Gulamabas	**A-129-S**	Observation of upper-atmospheric energetics, dynamics, and long-term variations over South Pole Station
Sletten, Ronald	**G-121-M**	Ground ice dynamics in hyperarid soils of the McMurdo Dry Valleys, Antarctica
Smith, Craig	**B-212-L/N**	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Sprintall, Janet	**O-260-L**	The Drake Passage high-density XBT/XCTD program
Staudigel, Hubert	**G-439-M**	Collaborative research: Microbially mediated alteration of volcanic glass using McMurdo extreme environments as natural laboratories
Steffen, Konrad	**I-077-E**	IPY: Stability of Larsen C Ice Shelf in a warming climate
Steinberg, Deborah	**B-020-L**	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, zooplankton component
Stepp, Bill	**A-145-M**	NASA Long Duration Balloon (LDB) support program
Sweeney, Colm	**O-214-N**	Processes driving spatial and temporal variability of surface pCO2 in the Drake Passage
Szuberla, Curt	**T-396-M**	Operation and maintenance of a

		CTBT class infrasound array at Windless Bight
Taylor, Kendrick	I-477-M	Investigation of climate, ice dynamics, and biology using a deep ice core from the West Antarctic Ice Sheet
Taylor, Michael	A-119-S	Investigating wave-driven mesospheric dynamics over South Pole using an advanced mesospheric temperature mapper
Virginia, Ross	B-423-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Wall, Diana	B-424-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Yuan, Xiaojun	O-261-N	Collaborative Research: Sampling the ocean - sea ice interaction in the Pacific center of the Antarctic Dipole

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Bieber, John	A-120-M	Cosmic ray observations at McMurdo Station
Carlstrom, John	A-370-S	Science Coordination Office for Astrophysical Research in Antarctica (SCOARA-II)
Carlstrom, John	A-379-S	Cosmological Research with the 10-meter South Pole Telescope
Deshler, Terry	A-131-M	Measurements addressing the initial stages of ozone recovery, the nucleation of, index of refraction of, and existence of large PSC particles
Evenson, Paul	A-333-S	IceCube operations and maintenance
Fraser-Smith, Antony	A-100-M	Operation of an ELF/VLF radiometer at Arrival Heights
Gorham, Peter	A-142-M	Antarctic Impulsive Transient Antenna (ANITA)
Hernandez, Gonzalo	A-110-M/S	Austral high-latitude atmospheric dynamics
Inan, Umran	A-108-S	A VLF beacon transmitter at South Pole
Inan, Umran	A-327-N	ELF/VLF observation in the southern Pacific Ocean
Inan, Umran	A-336-P	ELF/VLF observation of whistler-mode waves, lightning discharge, and gamma-ray events from Palmer Station
Kovac, John	A-039-S	Collaborative Research: BICEP2 and SPUD - A search for inflation with degree-scale polarimetry from the South Pole
Lessard, Marc	A-105-M	Collaborative Research: Polar Experiment Network for Geospace

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		Upper atmosphere Investigations (PENGUIn) - Advancing the vision for global studies
Lessard, Marc	A-112-M	Polar Experiment Network for Geospace Upper-atmosphere Investigations: PENGUIn
Lessard, Marc	A-106-M	Collaberative Research: Polar Experiment Network for Geospace Upper-Atmosphere Investigations: PENGUIn - Advancing the Vision for Global Studies
Mende, Stephen	A-104-S	Antarctic auroral imaging
Palo, Scott	A-284-S	Collaborative study of the Antarctic mesosphere and lower thermosphere
Pryke, Clement	A-039-S	Collaborative Research: BICEP2 and SPUD - A search for inflation with degree-scale polarimetry from the South Pole
Seo, Eun-Suk	A-137-M	Cosmic Ray Energetics And Mass (CREAM)
Sivjee, Gulamabas	A-129-S	Observation of upper-atmospheric energetics, dynamics, and long-term variations over South Pole Station
Stepp, Bill	A-145-M	NASA Long Duration Balloon (LDB) support program
Taylor, Michael	A-119-S	Investigating wave-driven mesospheric dynamics over South Pole using an advanced mesospheric temperature mapper

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Ainley, David	B-031-M	Adelie Penguin response to climate change at the individual, colony and metapopulation levels
Alderkamp, Anne-Carlijn	B-244-N	Shedding dynamic light on iron limitation: The interplay of iron limitation and dynamic irradiance conditions in governing the phytoplankton distribution in the Ross Sea
Arrigo, Kevin	B-244-N	Shedding dynamic light on iron limitation: The interplay of iron limitation and dynamic irradiance conditions in governing the phytoplankton distribution in the Ross Sea
Carpenter, Edward	B-305-M	Collaborative Research: Biogeochemistry of cyanobacterial mats and hyporheic zone microbes in McMurdo Dry Valley glacial meltwater streams
Davis, Randall	B-017-M	Collaborative Research: Hunting in darkness: Behavioral and energetic strategies of Weddell seals in winter
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Doran, Peter	B-426-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem

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		processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Emslie, Steven	B-034-E	Stable isotope analyses of pygoscelid penguin remains from active and abandoned colonies in Antarctica
Fountain, Andrew	B-425-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valleys LTER program
Fraser, Bill	B-013-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, apex predator component
Garrott, Robert	B-009-M	The demographic consequences of environmental variability and individual heterogeneity in life-history tactics of a long-lived Antarctic marine predator
Joye, Samantha	B-332-M	Collaborative Research: Microbially-Mediated Anaerobic Carbon Cycling in Limnologically Contrasting Perennially Ice-Covered Antarctic Lakes
Kennicutt, Mahlon	B-518-M	Temporal variability in natural and anthropogenic disturbance of McMurdo Station
Kim, Stacy	B-174-M	Development of a remotely operated vehicle for under-ice research in polar environments
Martinson, Doug	B-021-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, physical oceanography component
Nowacek, Douglas	B-249-L	Collaborative research: The ecological role of a poorly studied Antarctic krill predator, the humpback whale (Megaptera novaeangliae)
Priscu, John	B-422-M	The Role of Resource Legacy on Contemporary Linkages Between Biodiversity and Ecosystem

		Processes in a Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program
Shank, Timothy	B-331-E	Biogeography and Evolution of Chemosynthetic Ecosystems in the Southern Ocean
Shaw, Tim	B-387-N	Free-drifting icebergs as proliferating dispersion sites of iron enrichment, organic carbon production and export in the Southern Ocean
Smith, Craig	B-212-L/N	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Smith, Craig	B-212-L/N	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Smith, Kenneth	B-050-N	Free drifting icebergs: Influence of floating islands on pelagic ecosystems in the Weddell Sea
Steinberg, Deborah	B-020-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, zooplankton component
Trivelpiece, Wayne	B-040-E	Penguins as monitors of the krill-centric Southern Ocean marine ecosystem
Virginia, Ross	B-423-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Wall, Diana	B-424-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program

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Principal Investigator	Event No.	Project Title
Domack, Eugene	C-515-L	Collaborative Research in IPY: Abrupt Environmental Change in the Larsen Ice Shelf System, a Multidisciplinary Approach - Marine and Quaternary Geosciences
Ingall, Ellery	C-384-O	SGER Collaborative Research: Mechanisms behind non-Redfieldian P cycling in water masses of the Southern Ocean, new insights from x-ray spectromicroscopy and electrodialysis
Sambrotto, Raymond	C-457-O	Bio-physical variability in regions of the Southern Ocean with contrasting climatic response: The eastern Amundsen and Ross Seas

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Ashworth, Allan	G-294-M	Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains
Barbeau, David	G-432-E	COLLABORATIVE RESEARCH: Testing the Polar Gateway Glaciation Hypothesis: the Kinematic, Sedimentary, Water-Mass, and Ice-Volume Record of Drake Passage Opening
Bell, Robin	G-065-M	Collaborative Research: GAMBIT: Gamburtsev aerogeophysical mapping of bedrock and ice targets
Bender, Michael	G-070-M	Collaborative Research: Dating and paleoenvironmental studies on ancient ice in the Dry Valleys, Antarctica
Blankenship, Donald	G-098-M	IPY Research: Investigating the cryospheric evolution of the central Antarctic plate (ICECAP)
Bowser, Samuel	G-093-M	Collaborative Research: Linking modern benthic communities and taphonomic processes to the stratigraphic record of Antarctic cores
Gillies, John	G-167-M	Dynamics of aeolian processes in the McMurdo Dry Valleys, Antarctica
Huerta, Audrey	G-437-M	Byrd Glacier: Evidence for plateau collapse
Johns, Bjorn	G-296-M/S	Collaborative research: Development of a power and communication system for remote autonomous GPS and seismic stations in Antarctica
Kemerait, Robert	G-078-M	Dry Valley seismic project

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Kirschvink, Joseph	G-436-E	Collaborative Research: Upper Cretaceous-lower Paleocene strata from the James Ross Island region: Chemo-, Magneto-, and biomarker tests of intercontinental correlation and extinction hypotheses
Kyle, Phillip	G-081-M	Mount Erebus Volcano Observatory II (MEVO II): Surveillance, models, impacts and outreach
Lewis, Adam	G-294-M	Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains
MacPhee, Ross	G-170-E	Vertebrate paleontology of Livingston Island, South Shetlands, Antarctica
Miller, Molly	G-093-M	Collaborative Research: Linking modern benthic communities and taphonomic processes to the stratigraphic record of Antarctic cores
Mukhopadhyay, Sujoy	G-438-M	Project Summary: Landform Evolution in the Dry Valleys and its implications for Miocene-Pliocene climate change in Antarctica
Nyblade, Andy	G-055-M	Collaborative Research: A broadband seismic experiment to image the lithosphere beneath the Gamburtsev Mountains, East Antarctica
Pekar, Stephen	G-049-M	ANDRILL: Investigating Antarctica's role in Cenozoic global environmental change
Sletten, Ronald	G-121-M	Ground ice dynamics in hyperarid soils of the McMurdo Dry Valleys, Antarctica
Staudigel, Hubert	G-439-M	Collaborative research: Microbially mediated alteration of volcanic glass using McMurdo extreme environments as natural laboratories

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USAP Program Index:

Glaciology

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Principal Investigator	Event No.	Project Title
Albert, Mary	I-155-M	Norwegian-United States IPY Scientific Traverse: Climate variability and glaciology in East Antarctica
Alley, Richard	I-168-M	Collaborative research: Physical properties of the WAIS Divide deep core
Anandakrishnan, Sridhar	I-205-M	IPY, Flow dynamics of two Amundsen Sea glaciers: Thwaites and Pine Island
Aydin, Murat	I-344-S	Collaborative Research: The time evolution of trace gases in South Pole firn air
Conway, Howard	I-196-M	Grounding-line retreat in the southern Ross Sea and constraints from Scott Glacier
Frey, Markus	I-151-M	Atmospheric, snow and firn chemistry studies for interpretation of WAIS-divide cores
Gogineni, Prasad	I-189-M	Center for Remote Sensing of Ice Sheets (CReSIS) - Basler airborne radar survey
Gogineni, Prasad	I-188-M	Center for Remote Sensing of Ice Sheets (CReSIS) - ground radar and seismic operations
Hall, Brenda	I-196-M	Grounding-line retreat in the southern Ross Sea and constraints from Scott Glacier
Hargreaves, Geoffrey	I-478-M	National Ice Core Laboratory (NICL) core-handling and data recording
Schumann, Randy	I-478-M	National Ice Core Laboratory (NICL) core-handling and data recording
Steffen, Konrad	I-077-E	IPY: Stability of Larsen C Ice Shelf

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		in a warming climate
Taylor, Kendrick	I-477-M	Investigation of climate, ice dynamics, and biology using a deep ice core from the West Antarctic Ice Sheet

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Science Program Indexes: 2008-2009

USAP Program Index:

Ocean and Atmospheric Sciences

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Principal Investigator	Event No.	Project Title
Cassano, John	O-400-M	Collaborative Research: Atmosphere-Ocean-Ice Interaction in a Coastal Polynya
Jacobs, Stanley	O-274-N	IPY/ASEP - Collaborative international research: Amundsen Sea Influence on West Antarctic Ice Sheet stability and sea level rise
Lawson, R.	O-226-S	Continuation of Ice Crystal Observations at South Pole Station and Collection of Cloud Microphysical Data on Ross Island in Support of ANTCI and RIME
Lazzara, Matt	O-283-M	Collaborative research: Antarctic Automatic Weather Station Program (AWS), 2007-2010
Lazzara, Matt	O-202-M	Antarctic Meteorological Research Center (AMRC)
Martinson, Doug	O-241-L	SASSI Mooring Array in the Western Antarctic Peninsula
Orsi, Alejandro	O-401-E	SGER: Direct Cross-Slope Ventilation of the ACC at the Western Scotia Ridge
Padman, Laurence	O-265-E	SGER: Direct Cross-Slope Ventilation of the ACC at the Western Scotia Ridge
Sprintall, Janet	O-260-L	The Drake Passage high-density XBT/XCTD program
Sweeney, Colm	O-214-N	Processes driving spatial and temporal variability of surface pCO2 in the Drake Passage
Yuan, Xiaojun	O-261-N	Collaborative Research: Sampling the ocean - sea ice interaction in the Pacific center of the Antarctic Dipole

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Artists and Writers

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Principal Investigator	Event No.	Project Title
Bartalos Von Nagymad, Michael	W-481-M	The Art of Recycling in Antarctica: The Long View
Blatt, Lisa	W-467-M	Antarctica : Exquisite Light and Dark
Hersko, Judit	W-479-M	Shifting Baselines: Antarctica
Leonard, Cheryl	W-482-P	Antarctica: Hidden Musical Worlds
Noble, Anne	W-468-M	White Lantern
Panek, Richard	W-483-S	"Seeing" Dark Energy From the South Pole
Stern, Oona	W-480-P	ice fractures; a study of ice shelves and ice sheets
Sternbach, Scott	W-484-P	Antarctica In Black And White

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(IPY) Education and Outreach

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Principal Investigator	Event No.	Project Title
Miller, Mary	Y-607-M	Ice Stories: A Public Educational Resource for IPY
Wu, Norbert	Y-608-M/P	IPY: Poles Apart: Visual Documentation of the Marine Ecosystems of the Polar Regions

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Principal Investigator	Event No.	Project Title
Hallman, Jr, Walter	T-983-M	Deployment and Test of 8 Bladed Propeller for the LC-130
Johns, Bjorn	T-295-M	UNAVCO GPS survey support
Morin, Paul	T-434-M	The Antarctic Geospatial Information Center: Collecting, creating, delivering and archiving for the community
Parker, Timothy	T-299-M	IRIS/PASSCAL seismic support
Szuberla, Curt	T-396-M	Operation and maintenance of a CTBT class infrasound array at Windless Bight

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Principal Investigator	Event No.	Project Title
Ainley, David	B-031-M	Adelie Penguin response to climate change at the individual, colony and metapopulation levels
Albert, Mary	I-155-M	Norwegian-United States IPY Scientific Traverse: Climate variability and glaciology in East Antarctica
Alley, Richard	I-168-M	Collaborative research: Physical properties of the WAIS Divide deep core
Anandakrishnan, Sridhar	I-205-M	IPY, Flow dynamics of two Amundsen Sea glaciers: Thwaites and Pine Island
Ashworth, Allan	G-294-M	Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains
Bartalos Von Nagymad, Michael	W-481-M	The Art of Recycling in Antarctica: The Long View
Bell, Robin	G-065-M	Collaborative Research: GAMBIT: Gamburtsev aerogeophysical mapping of bedrock and ice targets
Bender, Michael	G-070-M	Collaborative Research: Dating and paleoenvironmental studies on ancient ice in the Dry Valleys, Antarctica
Bieber, John	A-120-M	Cosmic ray observations at McMurdo Station
Blankenship, Donald	G-098-M	IPY Research: Investigating the cryospheric evolution of the central Antarctic plate (ICECAP)
Blatt, Lisa	W-467-M	Antarctica : Exquisite Light and Dark
Bowser, Samuel	G-093-M	Collaborative Research: Linking modern benthic communities and

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		taphonomic processes to the stratigraphic record of Antarctic cores
Carpenter, Edward	B-305-M	Collaborative Research: Biogeochemistry of cyanobacterial mats and hyporheic zone microbes in McMurdo Dry Valley glacial meltwater streams
Cassano, John	O-400-M	Collaborative Research: Atmosphere-Ocean-Ice Interaction in a Coastal Polynya
Conway, Howard	I-196-M	Grounding-line retreat in the southern Ross Sea and constraints from Scott Glacier
Davis, Randall	B-017-M	Collaborative Research: Hunting in darkness: Behavioral and energetic strategies of Weddell seals in winter
Deshler, Terry	A-131-M	Measurements addressing the initial stages of ozone recovery, the nucleation of, index of refraction of, and existence of large PSC particles
Doran, Peter	B-426-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Fountain, Andrew	B-425-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valleys LTER program
Fraser-Smith, Antony	A-100-M	Operation of an ELF/VLF radiometer at Arrival Heights
Frey, Markus	I-151-M	Atmospheric, snow and firn chemistry studies for interpretation of WAIS-divide cores
Garrott, Robert	B-009-M	The demographic consequences of environmental variability and individual heterogeneity in life-history tactics of a long-lived Antarctic marine predator
Gillies, John	G-167-M	Dynamics of aeolian processes in the McMurdo Dry Valleys, Antarctica
Gogineni, Prasad	I-189-M	Center for Remote Sensing of Ice

		Sheets (CReSIS) - Basler airborne radar survey
Gogineni, Prasad	I-188-M	Center for Remote Sensing of Ice Sheets (CReSIS) - ground radar and seismic operations
Gorham, Peter	A-142-M	Antarctic Impulsive Transient Antenna (ANITA)
Hall, Brenda	I-196-M	Grounding-line retreat in the southern Ross Sea and constraints from Scott Glacier
Hallman, Jr, Walter	T-983-M	Deployment and Test of 8 Bladed Propeller for the LC-130
Hargreaves, Geoffrey	I-478-M	National Ice Core Laboratory (NICL) core-handling and data recording
Hernandez, Gonzalo	A-110-M/S	Austral high-latitude atmospheric dynamics
Hersko, Judit	W-479-M	Shifting Baselines: Antarctica
Huerta, Audrey	G-437-M	Byrd Glacier: Evidence for plateau collapse
Johns, Bjorn	G-296-M/S	Collaborative research: Development of a power and communication system for remote autonomous GPS and seismic stations in Antarctica
Johns, Bjorn	T-295-M	UNAVCO GPS survey support
Joye, Samantha	B-332-M	Collaborative Research: Microbially-Mediated Anaerobic Carbon Cycling in Limnologically Contrasting Perennially Ice-Covered Antarctic Lakes
Kemerait, Robert	G-078-M	Dry Valley seismic project
Kennicutt, Mahlon	B-518-M	Temporal variability in natural and anthropogenic disturbance of McMurdo Station
Kim, Stacy	B-174-M	Development of a remotely operated vehicle for under-ice research in polar environments
Kyle, Phillip	G-081-M	Mount Erebus Volcano Observatory II (MEVO II): Surveillance, models, impacts and outreach
Lazzara, Matt	O-283-M	Collaborative research: Antarctic Automatic Weather Station Program (AWS), 2007-2010

Lazzara, Matt	O-202-M	Antarctic Meteorological Research Center (AMRC)
Lessard, Marc	A-105-M	Collaborative Research: Polar Experiment Network for Geospace Upper atmosphere Investigations (PENGUIn) - Advancing the vision for global studies
Lessard, Marc	A-112-M	Polar Experiment Network for Geospace Upper-atmosphere Investigations: PENGUIn
Lessard, Marc	A-106-M	Collaberative Research: Polar Experiment Network for Geospace Upper-Atmosphere Investigations: PENGUIn - Advancing the Vision for Global Studies
Lewis, Adam	G-294-M	Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains
Miller, Mary	Y-607-M	Ice Stories: A Public Educational Resource for IPY
Miller, Molly	G-093-M	Collaborative Research: Linking modern benthic communities and taphonomic processes to the stratigraphic record of Antarctic cores
Morin, Paul	T-434-M	The Antarctic Geospatial Information Center: Collecting, creating, delivering and archiving for the community
Mukhopadhyay, Sujoy	G-438-M	Project Summary: Landform Evolution in the Dry Valleys and its implications for Miocene-Pliocene climate change in Antarctica
Noble, Anne	W-468-M	White Lantern
Nyblade, Andy	G-055-M	Collaborative Research: A broadband seismic experiment to image the lithosphere beneath the Gamburtsev Mountains, East Antarctica
Parker, Timothy	T-299-M	IRIS/PASSCAL seismic support
Pekar, Stephen	G-049-M	ANDRILL: Investigating Antarctica's role in Cenozoic global environmental change

Priscu, John	B-422-M	The Role of Resource Legacy on Contemporary Linkages Between Biodiversity and Ecosystem Processes in a Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program
Schumann, Randy	I-478-M	National Ice Core Laboratory (NICL) core-handling and data recording
Seo, Eun-Suk	A-137-M	Cosmic Ray Energetics And Mass (CREAM)
Sletten, Ronald	G-121-M	Ground ice dynamics in hyperarid soils of the McMurdo Dry Valleys, Antarctica
Staudigel, Hubert	G-439-M	Collaborative research: Microbially mediated alteration of volcanic glass using McMurdo extreme environments as natural laboratories
Stepp, Bill	A-145-M	NASA Long Duration Balloon (LDB) support program
Szuberla, Curt	T-396-M	Operation and maintenance of a CTBT class infrasound array at Windless Bight
Taylor, Kendrick	I-477-M	Investigation of climate, ice dynamics, and biology using a deep ice core from the West Antarctic Ice Sheet
Virginia, Ross	B-423-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Wall, Diana	B-424-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Wu, Norbert	Y-608-M/P	IPY: Poles Apart: Visual Documentation of the Marine Ecosystems of the Polar Regions

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Principal Investigator	Event No.	Project Title
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Fraser, Bill	B-013-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, apex predator component
Inan, Umran	A-336-P	ELF/VLF observation of whistler-mode waves, lightning discharge, and gamma-ray events from Palmer Station
Leonard, Cheryl	W-482-P	Antarctica: Hidden Musical Worlds
Stern, Oona	W-480-P	ice fractures; a study of ice shelves and ice sheets
Sternbach, Scott	W-484-P	Antarctica In Black And White
Wu, Norbert	Y-608-M/P	IPY: Poles Apart: Visual Documentation of the Marine Ecosystems of the Polar Regions

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Amundsen-Scott South Pole Station

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Principal Investigator	Event No.	Project Title
Aydin, Murat	I-344-S	Collaborative Research: The time evolution of trace gases in South Pole firn air
Carlstrom, John	A-370-S	Science Coordination Office for Astrophysical Research in Antarctica (SCOARA-II)
Carlstrom, John	A-379-S	Cosmological Research with the 10-meter South Pole Telescope
Evenson, Paul	A-333-S	IceCube operations and maintenance
Hernandez, Gonzalo	A-110-M/S	Austral high-latitude atmospheric dynamics
Inan, Umran	A-108-S	A VLF beacon transmitter at South Pole
Johns, Bjorn	G-296-M/S	Collaborative research: Development of a power and communication system for remote autonomous GPS and seismic stations in Antarctica
Kovac, John	A-039-S	Collaborative Research: BICEP2 and SPUD - A search for inflation with degree-scale polarimetry from the South Pole
Lawson, R.	O-226-S	Continuation of Ice Crystal Observations at South Pole Station and Collection of Cloud Microphysical Data on Ross Island in Support of ANTCI and RIME
Mende, Stephen	A-104-S	Antarctic auroral imaging
Palo, Scott	A-284-S	Collaborative study of the Antarctic mesosphere and lower thermosphere
Panek, Richard	W-483-S	"Seeing" Dark Energy From the South Pole
Pryke, Clement	A-039-S	Collaborative Research: BICEP2 and SPUD - A search for inflation with

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		degree-scale polarimetry from the South Pole
Sivjee, Gulamabas	A-129-S	Observation of upper-atmospheric energetics, dynamics, and long-term variations over South Pole Station
Taylor, Michael	A-119-S	Investigating wave-driven mesospheric dynamics over South Pole using an advanced mesospheric temperature mapper

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ARSV Laurence M. Gould

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Principal Investigator	Event No.	Project Title
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Domack, Eugene	C-515-L	Collaborative Research in IPY: Abrupt Environmental Change in the Larsen Ice Shelf System, a Multidisciplinary Approach - Marine and Quaternary Geosciences
Fraser, Bill	B-013-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, apex predator component
Martinson, Doug	O-241-L	SASSI Mooring Array in the Western Antarctic Peninsula
Martinson, Doug	B-021-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, physical oceanography component
Nowacek, Douglas	B-249-L	Collaborative research: The ecological role of a poorly studied Antarctic krill predator, the humpback whale (Megaptera novaeangliae)
Smith, Craig	B-212-L/N	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Smith, Craig	B-212-L/N	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling

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Sprintall, Janet	O-260-L	The Drake Passage high-density XBT/XCTD program
Steinberg, Deborah	B-020-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, zooplankton component

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RVIB Nathaniel B. Palmer

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Principal Investigator	Event No.	Project Title
Alderkamp, Anne-Carlijn	B-244-N	Shedding dynamic light on iron limitation: The interplay of iron limitation and dynamic irradiance conditions in governing the phytoplankton distribution in the Ross Sea
Arrigo, Kevin	B-244-N	Shedding dynamic light on iron limitation: The interplay of iron limitation and dynamic irradiance conditions in governing the phytoplankton distribution in the Ross Sea
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Inan, Umran	A-327-N	ELF/VLF observation in the southern Pacific Ocean
Jacobs, Stanley	O-274-N	IPY/ASEP - Collaborative international research: Amundsen Sea Influence on West Antarctic Ice Sheet stability and sea level rise
Shaw, Tim	B-387-N	Free-drifting icebergs as proliferating dispersion sites of iron enrichment, organic carbon production and export in the Southern Ocean
Smith, Craig	B-212-L/N	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Smith, Craig	B-212-L/N	Collaborative research: Benthic faunal

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		feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Smith, Kenneth	B-050-N	Free drifting icebergs: Influence of floating islands on pelagic ecosystems in the Weddell Sea
Sweeney, Colm	O-214-N	Processes driving spatial and temporal variability of surface pCO2 in the Drake Passage
Yuan, Xiaojun	O-261-N	Collaborative Research: Sampling the ocean - sea ice interaction in the Pacific center of the Antarctic Dipole

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Principal Investigator	Event No.	Project Title
Barbeau, David	G-432-E	COLLABORATIVE RESEARCH: Testing the Polar Gateway Glaciation Hypothesis: the Kinematic, Sedimentary, Water-Mass, and Ice-Volume Record of Drake Passage Opening
Emslie, Steven	B-034-E	Stable isotope analyses of pygoscelid penguin remains from active and abandoned colonies in Antarctica
Kirschvink, Joseph	G-436-E	Collaborative Research: Upper Cretaceous-lower Paleocene strata from the James Ross Island region: Chemo-, Magneto-, and biomarker tests of intercontinental correlation and extinction hypotheses
MacPhee, Ross	G-170-E	Vertebrate paleontology of Livingston Island, South Shetlands, Antarctica
Orsi, Alejandro	O-401-E	SGER: Direct Cross-Slope Ventilation of the ACC at the Western Scotia Ridge
Padman, Laurence	O-265-E	SGER: Direct Cross-Slope Ventilation of the ACC at the Western Scotia Ridge
Shank, Timothy	B-331-E	Biogeography and Evolution of Chemosynthetic Ecosystems in the Southern Ocean
Steffen, Konrad	I-077-E	IPY: Stability of Larsen C Ice Shelf in a warming climate
Trivelpiece, Wayne	B-040-E	Penguins as monitors of the krill-centric Southern Ocean marine ecosystem

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Principal Investigator	Event No.	Project Title
Ingall, Ellery	C-384-O	SGER Collaborative Research: Mechanisms behind non-Redfieldian P cycling in water masses of the Southern Ocean, new insights from x-ray spectromicroscopy and electrodialysis
Sambrotto, Raymond	C-457-O	Bio-physical variability in regions of the Southern Ocean with contrasting climatic response: The eastern Amundsen and Ross Seas

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Science Project Details: 2008-2009

Deployment And Test Of 8 Bladed Propeller For The LC-130

Program Manager:
Mr. Mike Scheuermann

Event Number: T-983-M

ASC POC/Implementer:
John Rand

Mr. Walter Paul Hallman, Jr (Principal Investigator)
walter.hallman.ctr@ANG.AF.MIL

National Science Foundation
Office of Polar Programs
Arlington, Virginia

Supporting Stations: McMurdo Station
Research Locations:

Project Description:
Deployment and test of an 8 bladed propeller on the LC-130

Field Season Overview:
Flights to various locations to determine the operational capabilites of the NP2000 propellers and compare the performance of the 4 bladed propellers on the LC-130. I

Deploying Team Members:

- Charles DeGeorge
- Mike Fisher
- Forrest Shealy

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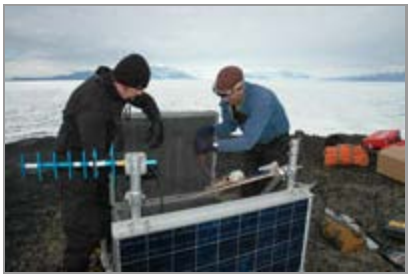
Science Project Details: 2008-2009

UNAVCO GPS Survey Support



RPSC Research Associate Jason Bryenton and UNAVCO field engineer Thomas Nylen set up a remotely operated GPS base station in the Dailey Islands in support of the ANDRILL project. Photo by Bjorn Johns

Program Manager:
Dr. Alexandra Isern

Event Number: T-295-M
NSF/EAR Award 1261833

ASC POC/Implementer:
Chad Naughton

Mr. Bjorn Johns (Principal Investigator)
johns@unavco.org
http://facility.unavco.org/project_support/polar/

UNAVCO
Wellington, Undefined

Supporting Stations: McMurdo Station
Research Locations:

Project Description:
UNAVCO provides technical support and equipment for precision geodetic observations using GPS and terrestrial LiDAR technologies. Survey grade GPS receivers, terrestrial laser scanners and supporting power and communications systems for both high-precision campaign surveying and continuous data collection are available to project researchers. Infrastructure for this support includes a Real Time Kinematic (RTK) differential GPS broadcasting station covering McMurdo Sound, a repeater on Mt Erebus for GPS data retrieval from the Transantarctic Mountains and an Iridium satellite communications hub in Colorado. Technical support is provided for the Palmer Station GPS surveying system. Operation and maintenance is provided as needed for the NASA IGS stations MCM4 and PALM, the POLENET (ANET) remote GPS stations and GPS reference stations at WAIS Divide and South Pole Station.

Field Season Overview:
T-295 will have 2-4 personnel on the ice throughout the 2008-2009 field season to provide technical support and manage the equipment pool. Field

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team members will occasionally travel to field locations as support requirements dictate. Such work is TBD pending support discussions with the individual science events. More detailed logistical support is typically arranged by the science project receiving the UNAVCO support.

The UNAVCO equipment is shipped COMAIR to Christchurch, and both COMAIR and VESSELfor the retrograde shipment. A majority of the cargo needs to be at McMurdo by mid-October when the field engineers arrive. A modest amount of field equipment is required from the BFC, and occasional use of a pool truck and Mat Track are required from the MEC. Space is required in CSEC for a dedicated office, equipment staging, and equipment testing/repair.

Deploying Team Members:

- Charles Meertens
- Marianne Okal
- Joe Pettit

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Science Project Details: 2008-2009

The Antarctic Geospatial Information Center: Collecting, Creating, Delivering And Archiving For The Community

Program Manager:
Dr. Alexandra Isern

Event Number: T-434-M

ASC POC/Implementer:
Chad Naughton

Mr. Paul Morin (Principal Investigator)
lpaul@umn.edu
http://www.agic.umn.edu

University of Minnesota
Geology & Geophysics
St. Paul, Minnesota

Supporting Stations: McMurdo Station
Research Locations: Crary Lab / Bull Pass / Mt Erebus / Victoria Valley / Wright Valley

Project Description:

The Antarctic Geospatial Information Center (AGIC) team will collect high-resolution GPS points for use in georeferencing existing air photography in the McMurdo Dry Valleys. The resulting photos will be used to create a mosaic and support science and operations activities.

Field Season Overview:

The GIS Analyst will arrive in early to mid-December to begin GIS support work.

The rest of the team arrives in McMurdo in early January. The team will spend about 2 weeks camping in the Dry Valleys. We will be aquiring high-resolution GPS points to aid in georeferencing USGS air photos. Each team will spend from 30 minutes to a day surveying a cluster of locations. The ultimate goal is to create a series of 60 cm resolution air photos mosaics that stretch back to the 1960s.

We are collaborating with Colin Harris for part of this project. It would be ideal if G-434 can coordinate with Colin's environmental assessment group so that we can collect complementary GPS points.

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Deploying Team Members:

- Karen Campbell (Co-PI)
- Brian Davis (Co-PI)
- Patrick Hamilton
- Harry Jol
- Michelle LaRue
- Ziggy Malolepszy

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Science Project Details: 2008-2009

IRIS/PASSCAL Seismic Support

Program Manager:
Dr. Alexandra Isern

Event Number: T-299-M
NSF/EAR Award 1261681

ASC POC/Implementer:
Chad Naughton

Undefined Timothy Parker (Principal Investigator)
tparker@passcal.nmt.edu
http://www.passcal.nmt.edu/content/polar

Socorro, New Mexico

Supporting Stations: McMurdo Station
Research Locations:

Project Description:

The IRIS Program for Array Seismic Studies of the Continental Lithosphere (PASSCAL) Instrument Center and EarthScope USArray Array Operations Facility (AOF) at New Mexico Institute of Mining and Technology support cutting-edge seismological research into Earth's fundamental geological structure and processes. The facility provides instrumentation to NSF-funded seismological projects in Antarctica and elsewhere. Antarctic and arctic projects comprise five to ten percent of all the projects PASSCAL supports worldwide.

Field Season Overview:

Support will be provided to: G-296, G-081, G-055, G-079, G-049, I-188

Deploying Team Members:

- Bruce Beaudoin

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Science Project Details: 2008-2009

Operation And Maintenance Of A CTBT Class Infrasound Array At Windless Bight

Program Manager:
Mr. Pat Smith

Event Number: T-396-M

ASC POC/Implementer:
John Rand

Dr. Curt Szuberla (Principal Investigator)
cas@gi.alaska.edu
http://www.gi.alaska.edu/infrasound/

University of Alaska Fairbanks
Geophysical Institute
Fairbanks, Alaska

Supporting Stations: McMurdo Station
Research Locations: Windless Bight, McMurdo Station

Project Description:

This project operates, maintains, upgrades, calibrates, and services the joint U.S. Comprehensive Nuclear Test Ban Treaty (CTBT) station at Windless Bight. Windless Bight's location on the Ross Ice Shelf is unique for its very low wind levels, which makes infrasound detection possible. Infrasound can detect volcano eruptions, winds over distant mountain ranges, large storms at sea, auroral and meteor events, earthquakes, avalanches, and human-caused events, such as very large explosions.

Field Season Overview:

The project's cargo requirements will remain the same as last year. The six-member group will be equipped with standard remote field equipment (including snow machines, Pisten Bully and MATTRACK) to stay at Windless Bight. The team will not remain continuously in the field and one or two members may be left behind at McMurdo Station to coordinate data acquisition in the CTBT hub room. The team will require science construction to set up two, heated tents and an outhouse. The project requires 500 gallons of JP8 to refuel the power supply for the array and will use the mini-MilVan to store supplies and cargo. The project requires a dedicated MATTRACK and snow machines. The winter-over research assistant should travel to Fairbanks for infrasound training prior to deployment.

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Deploying Team Members:

- Don Byrd
- Jay Helmericks (Co-PI)
- Kathleen Lawson

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Albert, Mary	I-155-M	Norwegian-United States IPY Scientific Traverse: Climate variability and glaciology in East Antarctica
Alderkamp, Anne-Carlijn	B-244-N	Shedding dynamic light on iron limitation: The interplay of iron limitation and dynamic irradiance conditions in governing the phytoplankton distribution in the Ross Sea
Alley, Richard	I-168-M	Collaborative research: Physical properties of the WAIS Divide deep core
Anandakrishnan, Sridhar	I-205-M	IPY, Flow dynamics of two Amundsen Sea glaciers: Thwaites and Pine Island
Arrigo, Kevin	B-244-N	Shedding dynamic light on iron limitation: The interplay of iron limitation and dynamic irradiance conditions in governing the phytoplankton distribution in the Ross Sea
Ashworth, Allan	G-294-M	Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains
Aydin, Murat	I-344-S	Collaborative Research: The time evolution of trace gases in South Pole firn air
Barbeau, David L.	G-432-E	COLLABORATIVE RESEARCH: Testing the Polar Gateway

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		Glaciation Hypothesis: the Kinematic, Sedimentary, Water-Mass, and Ice-Volume Record of Drake Passage Opening
Bartalos Von Nagymad, Michael Arpad	W-481-M	The Art of Recycling in Antarctica: The Long View
Bell, Robin E	G-065-M	Collaborative Research: GAMBIT: Gamburtsev aerogeophysical mapping of bedrock and ice targets
Bender, Michael	G-070-M	Collaborative Research: Dating and paleoenvironmental studies on ancient ice in the Dry Valleys, Antarctica
Bieber, John	A-120-M	Cosmic ray observations at McMurdo Station
Blankenship, Donald	G-098-M	IPY Research: Investigating the cryospheric evolution of the central Antarctic plate (ICECAP)
Blatt, Lisa Kaye	W-467-M	Antarctica : Exquisite Light and Dark
Bowser, Samuel	G-093-M	Collaborative Research: Linking modern benthic communities and taphonomic processes to the stratigraphic record of Antarctic cores
Carlstrom, John	A-370-S	Science Coordination Office for Astrophysical Research in Antarctica (SCOARA-II)
Carlstrom, John	A-379-S	Cosmological Research with the 10-meter South Pole Telescope
Carpenter, Edward	B-305-M	Collaborative Research: Biogeochemistry of cyanobacterial mats and hyporheic zone microbes in McMurdo Dry Valley glacial meltwater streams
Cassano, John	O-400-M	Collaborative Research: Atmosphere-Ocean-Ice Interaction in a Coastal Polynya
Conway, Howard	I-196-M	Grounding-line retreat in the southern Ross Sea and constraints from Scott Glacier
Davis, Randall	B-017-M	Collaborative Research: Hunting in darkness: Behavioral and energetic

		strategies of Weddell seals in winter
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
DeMaster, David	B-237-L/N/P	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Deshler, Terry	A-131-M	Measurements addressing the initial stages of ozone recovery, the nucleation of, index of refraction of, and existence of large PSC particles
Domack, Eugene	C-515-L	Collaborative Research in IPY: Abrupt Environmental Change in the Larsen Ice Shelf System, a Multidisciplinary Approach - Marine and Quaternary Geosciences
Doran, Peter	B-426-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Emslie, Steven D	B-034-E	Stable isotope analyses of pygoscelid penguin remains from active and abandoned colonies in Antarctica
Evenson, Paul	A-333-S	IceCube operations and maintenance
Fountain, Andrew	B-425-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valleys LTER program
Fraser, Bill	B-013-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, apex predator component
Fraser-Smith, Antony	A-100-M	Operation of an ELF/VLF

		radiometer at Arrival Heights
Frey, Markus M.	I-151-M	Atmospheric, snow and firn chemistry studies for interpretation of WAIS-divide cores
Garrott, Robert	B-009-M	The demographic consequences of environmental variability and individual heterogeneity in life-history tactics of a long-lived Antarctic marine predator
Gillies, John	G-167-M	Dynamics of aeolian processes in the McMurdo Dry Valleys, Antarctica
Gogineni, Prasad	I-189-M	Center for Remote Sensing of Ice Sheets (CReSIS) - Basler airborne radar survey
Gogineni, Prasad	I-188-M	Center for Remote Sensing of Ice Sheets (CReSIS) - ground radar and seismic operations
Gorham, Peter W	A-142-M	Antarctic Impulsive Transient Antenna (ANITA)
Hall, Brenda	I-196-M	Grounding-line retreat in the southern Ross Sea and constraints from Scott Glacier
Hallman, Jr, Walter Paul	T-983-M	Deployment and Test of 8 Bladed Propeller for the LC-130
Hargreaves, Geoffrey	I-478-M	National Ice Core Laboratory (NICL) core-handling and data recording
Hernandez, Gonzalo	A-110-M/S	Austral high-latitude atmospheric dynamics
Hersko, Judit	W-479-M	Shifting Baselines: Antarctica
Huerta, Audrey	G-437-M	Byrd Glacier: Evidence for plateau collapse
Inan, Umran	A-108-S	A VLF beacon transmitter at South Pole
Inan, Umran	A-327-N	ELF/VLF observation in the southern Pacific Ocean
Inan, Umran	A-336-P	ELF/VLF observation of whistler-mode waves, lightning discharge, and gamma-ray events from Palmer Station

Ingall, Ellery	C-384-O	SGER Collaborative Research: Mechanisms behind non-Redfieldian P cycling in water masses of the Southern Ocean, new insights from x-ray spectromicroscopy and electrodialysis
Jacobs, Stanley S	O-274-N	IPY/ASEP - Collaborative international research: Amundsen Sea Influence on West Antarctic Ice Sheet stability and sea level rise
Johns, Bjorn	G-296-M/S	Collaborative research: Development of a power and communication system for remote autonomous GPS and seismic stations in Antarctica
Johns, Bjorn	T-295-M	UNAVCO GPS survey support
Joye, Samantha	B-332-M	Collaborative Research: Microbially-Mediated Anaerobic Carbon Cycling in Limnologically Contrasting Perennially Ice-Covered Antarctic Lakes
Kemerait, Robert	G-078-M	Dry Valley seismic project
Kennicutt, Mahlon	B-518-M	Temporal variability in natural and anthropogenic disturbance of McMurdo Station
Kim, Stacy	B-174-M	Development of a remotely operated vehicle for under-ice research in polar environments
Kirschvink, Joseph	G-436-E	Collaborative Research: Upper Cretaceous-lower Paleocene strata from the James Ross Island region: Chemo-, Magneto-, and biomarker tests of intercontinental correlation and extinction hypotheses
Kovac, John	A-039-S	Collaborative Research: BICEP2 and SPUD - A search for inflation with degree-scale polarimetry from the South Pole
Kyle, Phillip	G-081-M	Mount Erebus Volcano Observatory II (MEVO II): Surveillance, models, impacts and outreach
Lawson, R. Paul	O-226-S	Continuation of Ice Crystal Observations at South Pole Station

		and Collection of Cloud Microphysical Data on Ross Island in Support of ANTCI and RIME
Lazzara, Matt	O-283-M	Collaborative research: Antarctic Automatic Weather Station Program (AWS), 2007-2010
Lazzara, Matt	O-202-M	Antarctic Meteorological Research Center (AMRC)
Leonard, Cheryl Elizabeth	W-482-P	Antarctica: Hidden Musical Worlds
Lessard, Marc	A-105-M	Collaborative Research: Polar Experiment Network for Geospace Upper atmosphere Investigations (PENGUIn) - Advancing the vision for global studies
Lessard, Marc	A-112-M	Polar Experiment Network for Geospace Upper-atmosphere Investigations: PENGUIn
Lessard, Marc	A-106-M	Collaberative Research: Polar Experiment Network for Geospace Upper-Atmosphere Investigations: PENGUIn - Advancing the Vision for Global Studies
Lewis, Adam	G-294-M	Collaborative Research: Integrating geomorphological and paleoecological studies to reconstruct Neogene environments of the Transantarctic Mountains
MacPhee, Ross	G-170-E	Vertebrate paleontology of Livingston Island, South Shetlands, Antarctica
Martinson, Doug	O-241-L	SASSI Mooring Array in the Western Antarctic Peninsula
Martinson, Doug	B-021-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, physical oceanography component
Mende, Stephen	A-104-S	Antarctic auroral imaging
Miller, Mary K	Y-607-M	Ice Stories: A Public Educational Resource for IPY
Miller, Molly	G-093-M	Collaborative Research: Linking modern benthic communities and taphonomic processes to the

		stratigraphic record of Antarctic cores
Morin, Paul	T-434-M	The Antarctic Geospatial Information Center: Collecting, creating, delivering and archiving for the community
Mukhopadhyay, Sujoy	G-438-M	Project Summary: Landform Evolution in the Dry Valleys and its implications for Miocene-Pliocene climate change in Antarctica
Noble, Anne Lysbeth	W-468-M	White Lantern
Nowacek, Douglas P	B-249-L	Collaborative research: The ecological role of a poorly studied Antarctic krill predator, the humpback whale (Megaptera novaeangliae)
Nyblade, Andy	G-055-M	Collaborative Research: A broadband seismic experiment to image the lithosphere beneath the Gamburtsev Mountains, East Antarctica
Orsi, Alejandro H	O-401-E	SGER: Direct Cross-Slope Ventilation of the ACC at the Western Scotia Ridge
Padman, Laurence	O-265-E	SGER: Direct Cross-Slope Ventilation of the ACC at the Western Scotia Ridge
Palo, Scott	A-284-S	Collaborative study of the Antarctic mesosphere and lower thermosphere
Panek, Richard J	W-483-S	"Seeing" Dark Energy From the South Pole
Parker, Timothy	T-299-M	IRIS/PASSCAL seismic support
Pekar, Stephen	G-049-M	ANDRILL: Investigating Antarctica's role in Cenozoic global environmental change
Priscu, John	B-422-M	The Role of Resource Legacy on Contemporary Linkages Between Biodiversity and Ecosystem Processes in a Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program

Pryke, Clement	A-039-S	Collaborative Research: BICEP2 and SPUD - A search for inflation with degree-scale polarimetry from the South Pole
Sambrotto, Raymond	C-457-O	Bio-physical variability in regions of the Southern Ocean with contrasting climatic response: The eastern Amundsen and Ross Seas
Schumann, Randy	I-478-M	National Ice Core Laboratory (NICL) core-handling and data recording
Seo, Eun-Suk	A-137-M	Cosmic Ray Energetics And Mass (CREAM)
Shank, Timothy M.	B-331-E	Biogeography and Evolution of Chemosynthetic Ecosystems in the Southern Ocean
Shaw, Tim	B-387-N	Free-drifting icebergs as proliferating dispersion sites of iron enrichment, organic carbon production and export in the Southern Ocean
Sivjee, Gulamabas	A-129-S	Observation of upper-atmospheric energetics, dynamics, and long-term variations over South Pole Station
Sletten, Ronald	G-121-M	Ground ice dynamics in hyperarid soils of the McMurdo Dry Valleys, Antarctica
Smith, Craig	B-212-L/N	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Smith, Craig	B-212-L/N	Collaborative research: Benthic faunal feeding dynamics on the Antarctic shelf and the effects of global climate change on bentho-pelagic coupling
Smith, Kenneth	B-050-N	Free drifting icebergs: Influence of floating islands on pelagic ecosystems in the Weddell Sea
Sprintall, Janet	O-260-L	The Drake Passage high-density XBT/XCTD program

Staudigel, Hubert	G-439-M	Collaborative research: Microbially mediated alteration of volcanic glass using McMurdo extreme environments as natural laboratories
Steffen, Konrad	I-077-E	IPY: Stability of Larsen C Ice Shelf in a warming climate
Steinberg, Deborah	B-020-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, zooplankton component
Stepp, Bill	A-145-M	NASA Long Duration Balloon (LDB) support program
Stern, Oona	W-480-P	ice fractures; a study of ice shelves and ice sheets
Sternbach, Scott	W-484-P	Antarctica In Black And White
Sweeney, Colm	O-214-N	Processes driving spatial and temporal variability of surface pCO2 in the Drake Passage
Szuberla, Curt	T-396-M	Operation and maintenance of a CTBT class infrasound array at Windless Bight
Taylor, Kendrick	I-477-M	Investigation of climate, ice dynamics, and biology using a deep ice core from the West Antarctic Ice Sheet
Taylor, Michael	A-119-S	Investigating wave-driven mesospheric dynamics over South Pole using an advanced mesospheric temperature mapper
Trivelpiece, Wayne	B-040-E	Penguins as monitors of the krill-centric Southern Ocean marine ecosystem
Virginia, Ross	B-423-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert ecosystem: The McMurdo Dry Valley LTER program
Wall, Diana	B-424-M	Role of resource legacy on contemporary linkages between biodiversity and ecosystem processes in a cold desert

		ecosystem: The McMurdo Dry Valley LTER program
Wu, Norbert	Y-608-M/P	IPY: Poles Apart: Visual Documentation of the Marine Ecosystems of the Polar Regions
Yuan, Xiaojun	O-261-N	Collaborative Research: Sampling the ocean - sea ice interaction in the Pacific center of the Antarctic Dipole

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070	G-070-M	Bender, Michael
077	I-077-E	Steffen, Konrad
078	G-078-M	Kemerait, Robert
081	G-081-M	Kyle, Phillip
093	G-093-M	Bowser, Samuel
093	G-093-M	Miller, Molly
098	G-098-M	Blankenship, Donald
100	A-100-M	Fraser-Smith, Antony
104	A-104-S	Mende, Stephen
105	A-105-M	Lessard, Marc

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106	A-106-M	Lessard, Marc
108	A-108-S	Inan, Umran
110	A-110-M/S	Hernandez, Gonzalo
112	A-112-M	Lessard, Marc
119	A-119-S	Taylor, Michael
120	A-120-M	Bieber, John
121	G-121-M	Sletten, Ronald
129	A-129-S	Sivjee, Gulamabas
131	A-131-M	Deshler, Terry
137	A-137-M	Seo, Eun-Suk
142	A-142-M	Gorham, Peter
145	A-145-M	Stepp, Bill
151	I-151-M	Frey, Markus
155	I-155-M	Albert, Mary
167	G-167-M	Gillies, John
168	I-168-M	Alley, Richard
170	G-170-E	MacPhee, Ross
174	B-174-M	Kim, Stacy
188	I-188-M	Gogineni, Prasad
189	I-189-M	Gogineni, Prasad
196	I-196-M	Conway, Howard
196	I-196-M	Hall, Brenda
202	O-202-M	Lazzara, Matt
205	I-205-M	Anandakrishnan, Sridhar
212	B-212-L/N	Smith, Craig
212	B-212-L/N	Smith, Craig
214	O-214-N	Sweeney, Colm
226	O-226-S	Lawson, R.
237	B-237-L/N/P	DeMaster, David
237	B-237-L/N/P	DeMaster, David
241	O-241-L	Martinson, Doug

244	B-244-N	Alderkamp, Anne-Carlijn
244	B-244-N	Arrigo, Kevin
249	B-249-L	Nowacek, Douglas
260	O-260-L	Sprintall, Janet
261	O-261-N	Yuan, Xiaojun
265	O-265-E	Padman, Laurence
274	O-274-N	Jacobs, Stanley
283	O-283-M	Lazzara, Matt
284	A-284-S	Palo, Scott
294	G-294-M	Ashworth, Allan
294	G-294-M	Lewis, Adam
295	T-295-M	Johns, Bjorn
296	G-296-M/S	Johns, Bjorn
299	T-299-M	Parker, Timothy
305	B-305-M	Carpenter, Edward
327	A-327-N	Inan, Umran
331	B-331-E	Shank, Timothy
332	B-332-M	Joye, Samantha
333	A-333-S	Evenson, Paul
336	A-336-P	Inan, Umran
344	I-344-S	Aydin, Murat
370	A-370-S	Carlstrom, John
379	A-379-S	Carlstrom, John
384	C-384-O	Ingall, Ellery
387	B-387-N	Shaw, Tim
396	T-396-M	Szuberla, Curt
400	O-400-M	Cassano, John
401	O-401-E	Orsi, Alejandro
422	B-422-M	Priscu, John
423	B-423-M	Virginia, Ross
424	B-424-M	Wall, Diana

425	B-425-M	Fountain, Andrew
426	B-426-M	Doran, Peter
432	G-432-E	Barbeau, David
434	T-434-M	Morin, Paul
436	G-436-E	Kirschvink, Joseph
437	G-437-M	Huerta, Audrey
438	G-438-M	Mukhopadhyay, Sujoy
439	G-439-M	Staudigel, Hubert
457	C-457-O	Sambrotto, Raymond
467	W-467-M	Blatt, Lisa
468	W-468-M	Noble, Anne
477	I-477-M	Taylor, Kendrick
478	I-478-M	Hargreaves, Geoffrey
478	I-478-M	Schumann, Randy
479	W-479-M	Hersko, Judit
480	W-480-P	Stern, Oona
481	W-481-M	Bartalos Von Nagymad, Michael
482	W-482-P	Leonard, Cheryl
483	W-483-S	Panek, Richard
484	W-484-P	Sternbach, Scott
515	C-515-L	Domack, Eugene
518	B-518-M	Kennicutt, Mahlon
607	Y-607-M	Miller, Mary
608	Y-608-M/P	Wu, Norbert
983	T-983-M	Hallman, Jr, Walter

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Deploying Team Members Index

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Team Members	Event No.	Principal Investigator
Aboltins, Derek	A-370-S	John Carlstrom
Abraham, Jared	G-065-M	Robin E Bell
Ackert, Robert	G-438-M	Sujoy Mukhopadhyay
Adams, Byron	B-424-M	Diana Wall
Aikin, Randol	A-039-S	John Kovac
Aird, Ken	A-379-S	John Carlstrom
Albershardt, Lou	I-155-M	Mary Albert
Allan, Douglas	Y-608-M/P	Norbert Wu
Allison, Patrick	A-142-M	Peter W Gorham
Amandusson, Sarah	A-333-S	Paul Evenson
Anandakrishnan, Sridhar	I-188-M	Prasad Gogineni
Andeen, Karen	A-333-S	Paul Evenson
Anderson, Tyler	A-137-M	Eun-Suk Seo
Arezzo, Roy	B-212-L/N	Craig Smith
Argall, Matthew	A-105-M	Marc Lessard
Assman, Karen	O-261-N	Xiaojun Yuan
Aydin, Murat	I-344-S	Murat Aydin
Azeem, S.	A-129-S	Gulamabas Sivjee
Bagshaw, Elizabeth	B-425-M	Andrew Fountain
Bakkland, Kjetil	I-155-M	Mary Albert
Balbas, Andrea	G-049-M	Stephen Pekar
Ball, Rebecca	B-423-M	Ross Virginia
Balsom, Arianne	B-237-L/N/P	David DeMaster
Banks, Forest	A-333-S	Paul Evenson

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Baran, Leslie A	A-131-M	Terry Deshler
Barbeau, David	G-432-E	David L. Barbeau
Barlow, Stephen	A-110-M/S	Gonzalo Hernandez
Bartalos , Michael	W-481-M	Michael Arpad Bartalos Von Nagymad
Bartholomaus, Timothy Chester	I-477-M	Kendrick Taylor
Basagic, Hassan	B-425-M	Andrew Fountain
Bay, Ryan	A-333-S	Paul Evenson
Beaudoin, Bruce	T-299-M	Timothy Parker
Beck, Robin	G-170-E	Ross MacPhee
Bell, Robin E	G-065-M	Robin E Bell
Belov, Konstantin	A-142-M	Peter W Gorham
Bencivengo, Brian	I-478-M	Randy Schumann
Benson, Bradford	A-379-S	John Carlstrom
Berdermann, Jens	A-333-S	Paul Evenson
Bernardino, Angelo	B-212-L/N	Craig Smith
Beynon, Claire	G-093-M	Samuel Bowser
Bhoyar, Prashant	A-137-M	Eun-Suk Seo
Blatt, Lisa	W-467-M	Lisa Kaye Blatt
Bleem, Lindsey	A-379-S	John Carlstrom
Bliss, Andrew	G-078-M	Robert Kemerait
Blum, Jennifer	B-013-L/P	Bill Fraser
Blythe, Ann	G-437-M	Audrey Huerta
Boris, Mark	G-078-M	Robert Kemerait
Bowles, Marshall Wayne	B-332-M	Samantha Joye
Bowman-Kamaha'o, Meilani	G-437-M	Audrey Huerta
Braaten, David A	G-065-M	Robin E Bell
Brasfield, Paul	A-145-M	Bill Stepp
Braun, Dana L	A-142-M	Peter W Gorham
Brenner, Timothy	A-333-S	Paul Evenson
Brevik, Justus	A-039-S	John Kovac

Bromley, Gordon	I-196-M	Brenda Hall
Brown, Shakira	G-049-M	Stephen Pekar
Buchardt, Susanne Lilja	I-477-M	Kendrick Taylor
Buchinger, Nicholas	A-333-S	Paul Evenson
Buenerd, Michel	A-137-M	Eun-Suk Seo
Bunt, Don	A-145-M	Bill Stepp
Burton, Timothy	G-081-M	Phillip Kyle
Bush, Stephanie L.	B-050-N	Kenneth Smith
Byrd, Don	T-396-M	Curt Szuberla
Byrd, Don	G-078-M	Robert Kemerait
Campbell, Karen	T-434-M	Paul Morin
Capone, Doug	B-305-M	Edward Carpenter
Carpenter, Chad	A-333-S	Paul Evenson
Carpenter, Tom	G-121-M	Ronald Sletten
Carrithers, Michael Alan	O-226-S	R. Paul Lawson
Cassano, John	O-283-M	Matt Lazzara
Castle, Robert P	O-214-N	Colm Sweeney
Cathey, Jr., Henry	A-145-M	Bill Stepp
Cazenave, Francois	B-174-M	Stacy Kim
Cefarelli, Adrian Oscar	B-050-N	Kenneth Smith
Chakos, Diane E	B-050-N	Kenneth Smith
Chang, Jeff	A-112-M	Marc Lessard
Cherwinka, Jeff	A-333-S	Paul Evenson
Chiuchiolo, Amy	B-422-M	John Priscu
Clabuesch, Stephen	G-093-M	Samuel Bowser
Clark, Christian Evan	B-212-L/N	Craig Smith
Clem, John	A-142-M	Peter W Gorham
Coats, Larry	B-034-E	Steven D Emslie
Cole, Kelly	O-401-E	Alejandro H Orsi
Colls, Steffan	G-049-M	Stephen Pekar
Conger, Lisa	B-249-L	Douglas P Nowacek

Connell, Laurie	G-439-M	Hubert Staudigel
Conway, Maurice	I-196-M	Brenda Hall
Courville, Zoe	I-155-M	Mary Albert
Crawford, Thomas	A-379-S	John Carlstrom
Crites, Abigail	A-379-S	John Carlstrom
Cyprys, Joanna	G-049-M	Stephen Pekar
Damaske, Detlef	G-065-M	Robin E Bell
Davis, Brian	T-434-M	Paul Morin
Davis, Ian	B-017-M	Randall Davis
Davis, Randall	B-017-M	Randall Davis
Dawe, Thomas	B-174-M	Stacy Kim
De Leo, Fabio	B-212-L/N	Craig Smith
DeGeorge, Charles Lewis	T-983-M	Walter Paul Hallman, Jr
Delgrego, Marie	I-477-M	Kendrick Taylor
DeMaster, David	B-237-L/N/P	David DeMaster
DeMaster, David	B-212-L/N	Craig Smith
Descamps, Freija	A-333-S	Paul Evenson
Di Liberto, Luca	A-131-M	Terry Deshler
Diaz, Julia	C-384-O	Ellery Ingall
Dickinson, Benjamin	G-081-M	Phillip Kyle
Domack, Eugene	C-515-L	Eugene Domack
Dorland, Ryan	B-249-L	Douglas P Nowacek
Dowell, Charles	A-039-S	John Kovac
Dugger, Katie	B-031-M	David Ainley
Duling, Dennis	A-333-S	Paul Evenson
Dumm, Jonathan Paul	A-333-S	Paul Evenson
Dutrieux, Pierre	O-274-N	Stanley S Jacobs
Echeverry, Gonzalo	G-098-M	Donald Blankenship
Elcheikh, Alan	A-333-S	Paul Evenson
Ellena, Jacob	B-050-N	Kenneth Smith

Ellwood, Robin	B-426-M	Peter Doran
Enander, Jonas	A-333-S	Paul Evenson
Engdegård, Olof	A-333-S	Paul Evenson
Etchemendy, Steve	B-050-N	Kenneth Smith
Farry, Shawn	B-009-M	Robert Garrott
Faulkner, Steven	A-333-S	Paul Evenson
Fegyveresi, John	I-168-M	Richard Alley
Field, Chris	A-145-M	Bill Stepp
Filimonov, Kirill	A-333-S	Paul Evenson
Fink, Traci	B-017-M	Randall Davis
Fisher, Mike	T-983-M	Walter Paul Hallman, Jr
Flagg, Marco	B-174-M	Stacy Kim
Flemming, Clare	G-170-E	Ross MacPhee
Fragoso, Glaucia	B-020-L	Deborah Steinberg
Franckowiak, Anna Christina	A-333-S	Paul Evenson
Fraser, Bill	B-013-L/P	Bill Fraser
Frazier, Curtis	A-145-M	Bill Stepp
Frearson, Nicholas Paul	G-065-M	Robin E Bell
Fried, Mason	C-515-L	Eugene Domack
Friedlaender, Ari	B-249-L	Douglas P Nowacek
Fusco, Audrey	I-189-M	Prasad Gogineni
Gacke, Terrance	G-081-M	Phillip Kyle
Gaisser, Thomas	A-333-S	Paul Evenson
Galley, Elizabeth	B-212-L/N	Craig Smith
Garcia, Danielle Nicole	B-050-N	Kenneth Smith
German, Chris	B-331-E	Timothy M. Shank
Gibson, Dar	A-333-S	Paul Evenson
Gillies, John	G-167-M	John Gillies
Gleiber, Miram	B-020-L	Deborah Steinberg
Glowacki, David	A-333-S	Paul Evenson
Goldin, Daniel	A-336-P	Umran Inan

Goldmann, Felix	G-065-M	Robin E Bell
Golwala, Sunil	A-039-S	John Kovac
Goodhue, Abigail	A-142-M	Peter W Gorham
Gorham, Peter	A-142-M	Peter W Gorham
Gorman, Kristin	B-013-L/P	Bill Fraser
Green, James	G-070-M	Michael Bender
Green, Kristen	B-040-E	Wayne Trivelpiece
Greenbaum, Jamin	G-098-M	Donald Blankenship
Griesel, Timo	A-333-S	Paul Evenson
Gross, Andreas	A-333-S	Paul Evenson
Guerrero, Raul	O-274-N	Stanley S Jacobs
Guldahl, John	I-155-M	Mary Albert
Gunton, Michael De La Roche	Y-608-M/P	Norbert Wu
Güth, Arthur Ziggiatti	B-212-L/N	Craig Smith
Ha, Chang Hyon	A-333-S	Paul Evenson
Hagedorn, Birgit	G-121-M	Ronald Sletten
Hallman, Jr, Walter Paul	T-983-M	Walter Paul Hallman, Jr
Halpin, Patrick	B-249-L	Douglas P Nowacek
Ham, Tom	A-333-S	Paul Evenson
Hamilton, Darrell	A-333-S	Paul Evenson
Hamilton, Patrick	T-434-M	Paul Morin
Hams, Jackie	G-070-M	Michael Bender
Hams, Jacquelyn	I-189-M	Prasad Gogineni
Hannaford, Terry	A-333-S	Paul Evenson
Hanson, Kael	A-333-S	Paul Evenson
Harper, Shawn	G-093-M	Samuel Bowser
Harris, Albert	I-189-M	Prasad Gogineni
Haugen, James	A-333-S	Paul Evenson
Hazen, Elliott	B-249-L	Douglas P Nowacek
Heeschen, Scott	B-174-M	Stacy Kim

Heeszel, David	G-055-M	Andy Nyblade
Helly, John	B-050-N	Kenneth Smith
Helmericks, Jay	T-396-M	Curt Szuberla
Henriksen, Svien	I-155-M	Mary Albert
Hernandez, Gonzalo	A-110-M/S	Gonzalo Hernandez
Hersko, Judit	W-479-M	Judit Hersko
Hester, Michelle	B-031-M	David Ainley
Hexel, Cole	B-050-N	Kenneth Smith
Hexel, Cole	B-387-N	Tim Shaw
Hickford, Stephanie Virginia	A-333-S	Paul Evenson
Hilburn, Isaac	G-436-E	Joseph Kirschvink
Hill, Brian	A-142-M	Peter W Gorham
Hill, Gary	A-333-S	Paul Evenson
Hines, Barry	A-379-S	John Carlstrom
Hinke, Jefferson	B-040-E	Wayne Trivelpiece
Hipschman, Ron	Y-607-M	Mary K Miller
Hoch, Anthony Michael	I-188-M	Prasad Gogineni
Hockersmith, Lyndell	A-106-M	Marc Lessard
Holt, John	G-098-M	Donald Blankenship
Holzapfel, Bill	A-379-S	John Carlstrom
Hopkins, Alyssa	B-237-L/N/P	David DeMaster
Horgan, Huw	I-205-M	Sridhar Anandakrishnan
Hudson, Hilary	I-477-M	Kendrick Taylor
Huerta, Audrey	G-437-M	Audrey Huerta
Hughes, Michael	G-065-M	Robin E Bell
Hulth, Per Olof	A-333-S	Paul Evenson
Humphrey, Jim	A-145-M	Bill Stepp
Hutchings, Thomas	A-333-S	Paul Evenson
Hyrenbach, David	B-031-M	David Ainley
Ingall, Ellery	C-384-O	Ellery Ingall

Jacobs, Louis	G-170-E	Ross MacPhee
Jacobs, Stan	O-274-N	Stanley S Jacobs
Janches, Diego	A-284-S	Scott Palo
Jayred, Michael	I-188-M	Prasad Gogineni
Jenkins, Adrian	O-274-N	Stanley S Jacobs
Jennifer, Middleton	G-438-M	Sujoy Mukhopadhyay
Johansen, Einar	I-155-M	Mary Albert
Johns, Bjorn	G-296-M/S	Bjorn Johns
Johns, Bjorn	C-515-L	Eugene Domack
Johnson, Phillip	A-333-S	Paul Evenson
Jol, Harry	T-434-M	Paul Morin
Juneau, Jill	A-145-M	Bill Stepp
Kahn, Amanda	B-050-N	Kenneth Smith
Kaip, Galen	G-081-M	Phillip Kyle
Kaiser, Henry	G-093-M	Samuel Bowser
Karlsson, Kalle	A-333-S	Paul Evenson
Kaufmann, Ronald	B-050-N	Kenneth Smith
Kay, Stephanie	G-437-M	Audrey Huerta
Kehrwald, Natalie Marie	I-477-M	Kendrick Taylor
Keisler, Ryan	A-379-S	John Carlstrom
Kempf, Scott	G-098-M	Donald Blankenship
Khazendar, Ala	I-077-E	Konrad Steffen
Kiehl, David	G-121-M	Ronald Sletten
Kim, Hyomin	A-105-M	Marc Lessard
Kim, Stacy	B-174-M	Stacy Kim
Kim, Yong	O-401-E	Alejandro H Orsi
Kimura, Satoshi	O-265-E	Laurence Padman
Kingan, Glen	G-121-M	Ronald Sletten
Kiryluk, Joanna	A-333-S	Paul Evenson
Klein, Andrew	B-518-M	Mahlon Kennicutt
Kleist, Michael	A-333-S	Paul Evenson

Knott, Andrew	G-294-M	Allan Ashworth
Knuth, Shelly	O-202-M	Matt Lazzara
Knuth, Shelly	O-283-M	Matt Lazzara
Koffman, Bess	I-477-M	Kendrick Taylor
Kolanoski, Hermann	A-333-S	Paul Evenson
Kono, Shoko	B-212-L/N	Craig Smith
Korolev, Alexei	O-226-S	R. Paul Lawson
Koss, Howard	G-049-M	Stephen Pekar
Kovac, John	A-039-S	John Kovac
Kovilakam, Mahesh	A-131-M	Terry Deshler
Krasberg, Mark	A-333-S	Paul Evenson
Laan, Patrick	B-244-N	Kevin Arrigo
Labare, Mathieu Luc	A-333-S	Paul Evenson
Laihem, Karim	A-333-S	Paul Evenson
Lanciki, Alyson Leigh	I-477-M	Kendrick Taylor
Lang, Patricia	O-214-N	Colm Sweeney
Lange, Andrew	A-039-S	John Kovac
Langley, Kirsty	I-155-M	Mary Albert
LaRue, Michelle	T-434-M	Paul Morin
Latshaw, James	A-333-S	Paul Evenson
Lau, Elias	A-284-S	Scott Palo
Laundrie, Andrew	A-333-S	Paul Evenson
Lawson, Kathleen	T-396-M	Curt Szuberla
Lawson, R. Paul	O-226-S	R. Paul Lawson
Lech, Christopher Brian Henry Jacques	A-129-S	Gulamabas Sivjee
Lee, Moo Hyun	A-137-M	Eun-Suk Seo
Lee, Sang Eun	A-137-M	Eun-Suk Seo
Leitch, Erik	A-379-S	John Carlstrom
Lele, Subhash Ramkrishna	B-009-M	Robert Garrott
Leonard, Cheryl	W-482-P	Cheryl Elizabeth Leonard

Leonard, Katherine	O-274-N	Stanley S Jacobs
Lin, Hai	B-050-N	Kenneth Smith
Lin, Hai	B-387-N	Tim Shaw
Lindquist, Kirsten	B-031-M	David Ainley
Lindsay, Joe	G-078-M	Robert Kemerait
Lindsley, Amy	B-040-E	Wayne Trivelpiece
Liston, Glen	I-155-M	Mary Albert
Little, Chris	O-274-N	Stanley S Jacobs
Liu, XiaoDong	B-034-E	Steven D Emslie
Logan, Nickolas	O-400-M	John Cassano
Loomis, David	B-040-E	Wayne Trivelpiece
Lovell, Lawrence L.	B-050-N	Kenneth Smith
Lucas, Neil	Y-608-M/P	Norbert Wu
Lueker, Martin	A-379-S	John Carlstrom
Lunemann, Jan	A-333-S	Paul Evenson
Lytle, Victoria	I-189-M	Prasad Gogineni
Madigan, Michael	B-332-M	Samantha Joye
Maksym, Ted	O-274-N	Stanley S Jacobs
Malinine, Alexandre	A-137-M	Eun-Suk Seo
Malolepszy, Ziggy	T-434-M	Paul Morin
Mannas, Jen	B-009-M	Robert Garrott
Marchant, Gary	A-145-M	Bill Stepp
Marcillo, Omar	G-081-M	Phillip Kyle
Martinson, Douglas G	B-021-L	Doug Martinson
Masclin, Sylvain	I-151-M	Markus M. Frey
Maslanik, James	O-400-M	John Cassano
Masters, Otto	A-145-M	Bill Stepp
Mathiason, Matthew	A-333-S	Paul Evenson
Matt, Terry	A-333-S	Paul Evenson
McBrearty, Rob	G-438-M	Sujoy Mukhopadhyay
McCabe, Nathan	A-145-M	Bill Stepp

McCarthy, Forrest	G-437-M	Audrey Huerta
McCarthy, Michael	A-110-M/S	Gonzalo Hernandez
McGill, Paul	B-050-N	Kenneth Smith
McGrath, Daniel	I-077-E	Konrad Steffen
McLane, Marie Lauren	I-477-M	Kendrick Taylor
McMahon, Jeffrey	A-379-S	John Carlstrom
McMinn, Michael	I-189-M	Prasad Gogineni
McPhail, Steve	O-274-N	Stanley S Jacobs
Meertens, Charles Mangelaar	T-295-M	Bjorn Johns
Melville, Bob	A-112-M	Marc Lessard
Melville, Bob	A-105-M	Marc Lessard
Miki, Christian	A-142-M	Peter W Gorham
Miknaitis, Kathryn	A-379-S	John Carlstrom
Miller, Hugh	Y-608-M/P	Norbert Wu
Miller, Mary	Y-607-M	Mary K Miller
Mills, Matthew	B-244-N	Kevin Arrigo
Mitchell, Logan	I-477-M	Kendrick Taylor
Moerlein, Katie Jean	B-423-M	Ross Virginia
Morgan, Benjamin	O-401-E	Alejandro H Orsi
Morgan, Gareth	G-070-M	Michael Bender
Morgan, Tawna	B-013-L/P	Bill Fraser
Mottram, Matthew	A-142-M	Peter W Gorham
Mullenax, Robert	A-145-M	Bill Stepp
Murray, Timothy	A-333-S	Paul Evenson
Nahnhauer, Rolf	A-333-S	Paul Evenson
Neilsen, Uffe	B-424-M	Diana Wall
Neumann, Tom	I-155-M	Mary Albert
Newberger, Tim	O-261-N	Xiaojun Yuan
Newberger, Tim	O-214-N	Colm Sweeney
Newcomb, Matthew	A-333-S	Paul Evenson

Nguyen, Hien	A-039-S	John Kovac
Nichol, Ryan	A-142-M	Peter W Gorham
Nickling, William	G-167-M	John Gillies
Niederberger, Thomas	B-305-M	Edward Carpenter
Nilsson, Anders	A-333-S	Paul Evenson
Nitsche, Frank	O-274-N	Stanley S Jacobs
Noble, Anne Lysbeth	W-468-M	Anne Lysbeth Noble
Nowacek, Doug	B-249-L	Douglas P Nowacek
Null, Kimberly	B-237-L/N/P	David DeMaster
Nyblade, Andy	G-055-M	Andy Nyblade
O'Connor, Darren	O-226-S	R. Paul Lawson
O'Reilly, Megan	B-009-M	Robert Garrott
O'Sullivan, James	B-174-M	Stacy Kim
Obryk, Maciej	B-426-M	Peter Doran
Ogburn, Walter	A-039-S	John Kovac
Okal, Marianne	T-295-M	Bjorn Johns
Olivero, Eduardo	G-436-E	Joseph Kirschvink
Oppenheimer, Clive	G-081-M	Phillip Kyle
Orr, Dwayne	A-145-M	Bill Stepp
Orsi, Alejandro	O-401-E	Alejandro H Orsi
Padin, Stephen	A-379-S	John Carlstrom
Padman, Laurence	O-265-E	Laurence Padman
Padman, Laurence	O-265-E	Laurence Padman
Palladino, Kimberly	A-142-M	Peter W Gorham
Palmer, Terence	B-518-M	Mahlon Kennicutt
Pandolfi, Luci	G-049-M	Stephen Pekar
Panek, Richard J	W-483-S	Richard J Panek
Parisel, Camille Marie	A-333-S	Paul Evenson
Parmer, William	G-078-M	Robert Kemerait
Paschal, Evans	A-108-S	Umran Inan

Patterson, Michael	A-333-S	Paul Evenson
Paulos, Robert	A-333-S	Paul Evenson
Pekar, Steve	G-049-M	Stephen Pekar
Pennycook, Jean	B-031-M	David Ainley
Perrett, James	O-274-N	Stanley S Jacobs
Peters, Leo	I-205-M	Sridhar Anandakrishnan
Pettersen, Claire	A-333-S	Paul Evenson
Pettit, Joe	T-295-M	Bjorn Johns
Pierce, David	A-145-M	Bill Stepp
Pirtle-Levy, Rebecca	B-237-L/N/P	David DeMaster
Plagge, Tom	A-379-S	John Carlstrom
Plutte, Chris	G-049-M	Stephen Pekar
Pointer, Brian	B-237-L/N/P	David DeMaster
Polito, Michael	B-034-E	Steven D Emslie
Pollack, Jennifer	B-518-M	Mahlon Kennicutt
Pope, Allan	G-438-M	Sujoy Mukhopadhyay
Powell, Je'iame	I-189-M	Prasad Gogineni
Price, Lori	B-020-L	Deborah Steinberg
Price, Mary Lynn	Y-608-M/P	Norbert Wu
Putze, Antje	A-137-M	Eun-Suk Seo
Rachelson, William	A-104-S	Stephen Mende
Read, Andrew	B-249-L	Douglas P Nowacek
Redl, Peter	A-333-S	Paul Evenson
Reguero, Marcelo	G-170-E	Ross MacPhee
Reineman, Daniel Roy	B-212-L/N	Craig Smith
Reisenbichler, Kim	B-050-N	Kenneth Smith
Resconi, Elisa	A-333-S	Paul Evenson
Richards, John	A-333-S	Paul Evenson
Richards, Melissa	O-283-M	Matt Lazzara
Richter, Steffen	A-039-S	John Kovac

Rickert, Brian	G-078-M	Robert Kemerait
Roberts, Michael	G-437-M	Audrey Huerta
Robison, Bruce	B-050-N	Kenneth Smith
Rodriguez-Morales, Fernando	I-189-M	Prasad Gogineni
Rogge, Wolfgang	I-151-M	Markus M. Frey
Romero-Wolf, Andrew	A-142-M	Peter W Gorham
Rotella, Jay	B-009-M	Robert Garrott
Roth, James	A-333-S	Paul Evenson
Ruck, Kate	B-020-L	Deborah Steinberg
Ruhl, John	A-379-S	John Carlstrom
Russell, Robbie L	I-189-M	Prasad Gogineni
Salmon, Spencer	G-294-M	Allan Ashworth
Saltzberg, David	A-142-M	Peter W Gorham
Samarkin, Vladimir	B-332-M	Samantha Joye
Sambrotto, Ray	C-457-O	Raymond Sambrotto
Sandstrom, Perry	A-333-S	Paul Evenson
Savrda, Amanda	G-432-E	David L. Barbeau
Scambos, Ted	I-155-M	Mary Albert
Schneider, Darryn	A-333-S	Paul Evenson
Schoenemann, Spruce William	I-477-M	Kendrick Taylor
Schroeder, Dustin	G-098-M	Donald Blankenship
Schutte, Charles	B-332-M	Samantha Joye
Sears, James	A-379-S	John Carlstrom
Seo, Eun-Suk	A-137-M	Eun-Suk Seo
Shank, Tim	B-331-E	Timothy M. Shank
Shaw, Tim	B-387-N	Tim Shaw
Shaw, Tim	B-050-N	Kenneth Smith
Shealy, Forrest Kimberly	T-983-M	Walter Paul Hallman, Jr
Sheehy, Chris	A-039-S	John Kovac
Sherlock, Robert	B-050-N	Kenneth Smith

Sherman, Alana	B-050-N	Kenneth Smith
Shin, Cecilia	G-093-M	Samuel Bowser
Shirokoff, Erik	A-379-S	John Carlstrom
Shulman, Leonard	A-333-S	Paul Evenson
Siegert, Martin J	G-098-M	Donald Blankenship
Simmons, Breana	B-424-M	Diana Wall
Sinasalo, Anna	I-155-M	Mary Albert
Sines, Karie	B-050-N	Kenneth Smith
Slaybaugh, Cameo	B-174-M	Stacy Kim
Slovak, Mark	O-214-N	Colm Sweeney
Smaniotto, Rick	B-013-L/P	Bill Fraser
Smith, Craig	B-212-L/N	Craig Smith
Smith, David	G-436-E	Joseph Kirschvink
Smith, Ken	B-050-N	Kenneth Smith
Smith, Michael Scott	A-145-M	Bill Stepp
Smith, Scott	A-333-S	Paul Evenson
Smykla, Jerzy	B-034-E	Steven D Emslie
Söderberg, Johan	A-333-S	Paul Evenson
Sohm, Jill	B-305-M	Edward Carpenter
Sonntag, John G	I-189-M	Prasad Gogineni
Sorbal, Alvar	G-436-E	Joseph Kirschvink
Sörqvist, Fredrik	A-333-S	Paul Evenson
Soundarapandian, Karthik	A-333-S	Paul Evenson
Sowers, Todd	I-344-S	Murat Aydin
Speece, Marvin	G-049-M	Stephen Pekar
Srsen, Pavica	B-212-L/N	Craig Smith
Stammerjohn, Sharon	O-214-N	Colm Sweeney
Stammerjohn, Sharon	O-274-N	Stanley S Jacobs
Stapf, Fritz	A-145-M	Bill Stepp
Stauffer, Glenn	B-009-M	Robert Garrott
Steig, Eric	G-436-E	Joseph Kirschvink

Stern, Oona	W-480-P	Oona Stern
Sternbach, Scott	W-484-P	Scott Sternbach
Stezelberger, Thorsten	A-333-S	Paul Evenson
Stilwell, Bryan	A-145-M	Bill Stepp
Stracener, Bill	A-145-M	Bill Stepp
Strong-Aufhauser, Lisa	Y-607-M	Mary K Miller
Strycker, Noah	B-031-M	David Ainley
Stuchlik, David William	A-145-M	Bill Stepp
Studinger, Michael	G-065-M	Robin E Bell
Sturm, Eric	G-049-M	Stephen Pekar
Sudiwala, Rashmi	A-039-S	John Kovac
Sullivan, Greg	A-333-S	Paul Evenson
Sumida, Paulo Yukio Gomes	B-212-L/N	Craig Smith
Sunwall, David	G-049-M	Stephen Pekar
Svendsen, Rune	I-155-M	Mary Albert
Sweeney, Colm	O-214-N	Colm Sweeney
Sweet, Stephen	B-518-M	Mahlon Kennicutt
Swenson, Kris	C-457-O	Raymond Sambrotto
Szuberla, Curt	T-396-M	Curt Szuberla
Taylor, Annika	B-426-M	Peter Doran
Taylor, Michael	A-119-S	Michael Taylor
Tejedor, Marcelo	G-170-E	Ross MacPhee
Thom, Jonathan	O-283-M	Matt Lazzara
Thoma, Mark	A-333-S	Paul Evenson
Thurozcy, Charles-Edouard	B-244-N	Kevin Arrigo
Tilbury, Graham	A-333-S	Paul Evenson
Tilson, Michael Norman Robert	G-167-M	John Gillies
Tinto, Kirsteen	G-049-M	Stephen Pekar
Tirindelli, Joelle	B-305-M	Edward Carpenter
Tobin, Thomas	G-436-E	Joseph Kirschvink
Tollefsen, Andreas	I-155-M	Mary Albert

Tranter, Martyn	B-425-M	Andrew Fountain
Traver, Elizabeth	B-423-M	Ross Virginia
Tripoli, Gregory	O-283-M	Matt Lazzara
Trivelpiece, Susan	B-040-E	Wayne Trivelpiece
Trivelpiece, Wayne	B-040-E	Wayne Trivelpiece
Tronstad, Stein	I-155-M	Mary Albert
Tveiten, Ole	I-155-M	Mary Albert
Twining, Benjamin	B-050-N	Kenneth Smith
Twining, Benjamin	B-387-N	Tim Shaw
Tyson, Reny	B-249-L	Douglas P Nowacek
Van Dijken, Gerrit	B-244-N	Kevin Arrigo
Vanderlinde, Keith	A-379-S	John Carlstrom
Varner, Gary	A-142-M	Peter W Gorham
Vaudrin, Cody	A-284-S	Scott Palo
Vaughn, Bruce	I-477-M	Kendrick Taylor
Venema, Bryan	A-110-M/S	Gonzalo Hernandez
Verhagen, Erik	A-333-S	Paul Evenson
Vernet, Maria	B-050-N	Kenneth Smith
Vieira, Joaquin	A-379-S	John Carlstrom
Vinbladh, Jimmy	A-333-S	Paul Evenson
Vinson, Amanda H	B-212-L/N	Craig Smith
Voigt, Don	I-188-M	Prasad Gogineni
Voigt, Don	G-437-M	Audrey Huerta
Wagner, Luke	G-049-M	Stephen Pekar
Waldenmaier, Tilo	A-333-S	Paul Evenson
Walker, Kenneth	A-333-S	Paul Evenson
Walker, Sally	G-093-M	Samuel Bowser
Waller, Rhian	B-212-L/N	Craig Smith
Ward, Peter	G-436-E	Joseph Kirschvink
Ware, Colin	B-249-L	Douglas P Nowacek

Waters-Lindqvist, Linda Gwen	B-237-L/N/P	David DeMaster
Webb, Andy	O-274-N	Stanley S Jacobs
Webster, Kyle	G-049-M	Stephen Pekar
Weekley, Jeff	B-174-M	Stacy Kim
Weidner, George	O-283-M	Matt Lazzara
Weller, John	B-031-M	David Ainley
Weller, John	Y-607-M	Mary K Miller
Wheatly, Kathryn	B-017-M	Randall Davis
White, Dave	O-274-N	Stanley S Jacobs
White, Seth	G-296-M/S	Bjorn Johns
Whiteside, Robin	A-145-M	Bill Stepp
Wiederwohl, Christina	O-401-E	Alejandro H Orsi
Wiens, Doug	G-055-M	Andy Nyblade
Wilder, Frederick Durand	A-106-M	Marc Lessard
Willenbring, Jane	G-294-M	Allan Ashworth
Williams, Bifford	A-284-S	Scott Palo
Williams, Brian	G-049-M	Stephen Pekar
Williams, Terrie	B-017-M	Randall Davis
Wisniewski, Paul	A-333-S	Paul Evenson
Wolter, Sonja	O-214-N	Colm Sweeney
Wong, Gifford	I-477-M	Kendrick Taylor
Wood, John	Y-608-M/P	Norbert Wu
Wood, John	G-081-M	Phillip Kyle
Woods, Susan	B-040-E	Wayne Trivelpiece
Woschnagg, Kurt	A-333-S	Paul Evenson
Wray, Donald	A-333-S	Paul Evenson
Wright, Andrew	G-098-M	Donald Blankenship
Wright, Traver	B-017-M	Randall Davis
Wu, Di	B-249-L	Douglas P Nowacek
Wu, Norb	Y-608-M/P	Norbert Wu

Yeager, Kirstie	B-009-M	Robert Garrott
Young, Duncan	G-098-M	Donald Blankenship
Yuan, Xiaojun	C-457-O	Raymond Sambrotto
Zandomeneghi, Daria	G-081-M	Phillip Kyle
Zernick, Michael	A-333-S	Paul Evenson
Zhou, Meng	B-249-L	Douglas P Nowacek
Zhu, Yiwu	B-249-L	Douglas P Nowacek
Zimmerer, Matthew	G-081-M	Phillip Kyle
Zmarzly, Patrick M	O-226-S	R. Paul Lawson
Zook, Bob	B-174-M	Stacy Kim

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Principal Investigator	Event No.	Project Title
Cassano, John	O-400-M	Collaborative Research: Atmosphere-Ocean-Ice Interaction in a Coastal Polynya
Jacobs, Stanley	O-274-N	IPY/ASEP - Collaborative international research: Amundsen Sea Influence on West Antarctic Ice Sheet stability and sea level rise
Lawson, R.	O-226-S	Continuation of Ice Crystal Observations at South Pole Station and Collection of Cloud Microphysical Data on Ross Island in Support of ANTCI and RIME
Lazzara, Matt	O-283-M	Collaborative research: Antarctic Automatic Weather Station Program (AWS), 2007-2010
Lazzara, Matt	O-202-M	Antarctic Meteorological Research Center (AMRC)
Martinson, Doug	O-241-L	SASSI Mooring Array in the Western Antarctic Peninsula
Orsi, Alejandro	O-401-E	SGER: Direct Cross-Slope Ventilation of the ACC at the Western Scotia Ridge
Padman, Laurence	O-265-E	SGER: Direct Cross-Slope Ventilation of the ACC at the Western Scotia Ridge
Sprintall, Janet	O-260-L	The Drake Passage high-density XBT/XCTD program
Sweeney, Colm	O-214-N	Processes driving spatial and temporal variability of surface pCO2 in the Drake Passage
Yuan, Xiaojun	O-261-N	Collaborative Research: Sampling the ocean - sea ice interaction in the Pacific center of the Antarctic Dipole

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Science Project Details: 2008-2009

Adelie Penguin Response To Climate Change At The Individual, Colony And Metapopulation Levels

Researcher adjusts the ID band worn by a penguin around its wing. Photo by Dena Rosenberger

Program Manager:
Dr. Charles Amsler

Event Number: B-031-M

ASC POC/Implementer:
Chad Naughton

Dr. David Ainley (Principal Investigator)
dainley@penguinscience.com
http://www.penguinscience.com

H.T. Harvey & Associates
Los Gatos, California

Supporting Stations: McMurdo Station
Research Locations: Beaufort Island, Cape Bird, Cape Crozier, Cape Royds, Franklin Island, Inexpressible Island

Project Description:
Since 1996, this study has involved novel technology and experimentation including natural experiments and long hours finding banded birds at three colonies of widely disparate sizes occurring in a metapopulation. While changes in populations typically are tracked to gauge response to climate or habitat change, the process actually involves the response of individuals as each copes with an altered environment. During this study spanning 15 breeding seasons, researchers have found that 20 percent of individuals within a colony successfully raise offspring, and that they do so because of exemplary foraging proficiency. Moreover, foraging requires more effort at the largest colony, where intra-specific competition is higher than at small colonies, and requires more proficiency during periods of environmental stress (e.g., anomalous sea-ice conditions). Not only is breeding success and eventual recruitment involved in this species' response to environmental change, but, when conditions are particularly daunting, so is emigration as it dramatically increases, countering the long-standing assumption that Adélie penguins are highly philopatric. This project is a collaboration of six co-PIs from the US, New Zealand and France and will continue the outreach and

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education program, including webisodes and PenguinScience.com.

Field Season Overview:

This project continues an effort that started in 1996. Based out of McMurdo Station, the project will deploy camps to Cape Crozier, Cape Bird and Cape Royds, along with several day trips to Beaufort Island. Otherwise, the research team will largely remain at the field camps, with two-to-three team members located at each camp. The project will collaborate with biologists from New Zealand (mostly at Cape Bird) and Italy (at Terra Nova Bay). The field season operates from the first week of November through the first week of February, which is the Adelie penguin nesting season. The team will search for penguins previously banded as chicks and log their breeding status. To investigate foraging, as it affects breeding, researchers will deploy instruments from each site, such as time-depth recorders and satellite tags. The project will continue its operation of computerized weighbridges to log trip duration and food loads. This species of penguin does not mature until 3 to 8 years old. Even after a decade, researchers are just beginning to see breeders among the birds banded each year as chicks.

Researchers anticipate the retrieval and replacement of a current meter deployed by Crary Lab personnel off Cape Royds last season. The data will assist in understanding the polynya that formed in 2004 and became important to the penguin breeding effort.

Given that the iceberg C16 has now moved out of the study area and the current meter was deployed before it moved, the data should provide insight as to how the large icebergs affect McMurdo Sound.

Project personnel hope to visit Beaufort Island, at the least via icebreaker on 25 January, or earlier in the season if opportunities exist. The researchers also plan to take weekly helicopter flights to census cetaceans (and penguins) along the fast-ice edge and in the channel. Work in past seasons revealed that cetacean foraging can greatly affect the variation in penguin foraging effort.

Work on the educational Penguin Science webisodes and website will continue. The educational program as developed last season will continue. The project may also wish its education liaison to deploy a remote camera at Cape Royds immediately before the first penguins arrive, allowing students to follow a complete breeding effort.

Deploying Team Members:

- Katie Dugger (Co-PI)
- Michelle Hester (Team Leader)
- David Hyrenbach
- Kirsten Lindquist
- Jean Pennycook
- Noah Strycker
- John Weller

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Science Project Details: 2008-2009

Norwegian-United States IPY Scientific Traverse: Climate Variability And Glaciology In East Antarctica

Program Manager:
Dr. Julie Palais

Event Number: I-155-M

ASC POC/Implementer:
Melissa Rider

Dr. Mary Albert (Principal Investigator)
mary.r.albert@dartmouth.edu
http://traverse.npolar.no

Dartmouth College
Thayer School of Engineering
Hanover, New Hampshire

Supporting Stations: McMurdo Station
Research Locations: East Antarctica - Traverse from South Pole Station to Troll Station

Project Description:

This international, collaborative project involving the United States and Norway includes an overland traverse to the Norwegian Troll Station from Amundsen-Scott South Pole Station. The project seeks to investigate climate variability in Queen Maude Land on time scales of years to centuries; establish spatial and temporal variability in snow accumulation over this area of Antarctica to understand its impact on sea level; investigate the impact of atmospheric and oceanic variability on the chemical composition of firn and ice in this region; and revisit areas and sites first explored during 1960s-era traverses to look for changes and establish benchmark data sets.

Field Season Overview:

This field project constitutes an international, collaborative effort, with logistics that are not standard to the USAP. Norway provides the ground traverse platform. The exit from Antarctica, through the Norwegian Troll Station, is also not standard.

To prepare for the traverse, the USAP will ship scientific gear, ice-core drilling apparatus, and USAP-provided gear and equipment, including the requests on this form, from the United States to Christchurch in fall 2008 and

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onward via McMurdo Station to South Pole Station. The Norwegian cargo will arrive in Christchurch and will be shipped by the USAP through McMurdo Station to South Pole Station.

Field deployments are divided into two phases. The first phase will include repairing the traverse vehicles at Camp Winter, drilling ice core samples, conducting surface measurements, and deploying a temperature array. This team will drive vehicles from Camp Winter to South Pole Station. The second phase constitutes the remaining traverse team members travelling from McMurdo to South Pole Station to join the first phase. Finally, thirteen team members will leave South Pole Station and travel to Troll Station.

Between 31 October and 03 November 2008, the USAP will fly nine team members to McMurdo Station, where they will spend five days readying equipment. The team will continue on to South Pole Station on 08 November to acclimate and prepare field cargo. The team will arrive at Camp Winter by 15 November and will remain self-sufficient for approximately two weeks. The group will traverse to South Pole Station, arriving approximately 05 December. Three team members will fly from South Pole Station to Christchurch via McMurdo Station. The USAP will transport the Camp Winter ice core samples to the US via the USAP cargo system.

The USAP will transport the second-phase team from Christchurch to McMurdo Station on 21 November to test equipment and ready cargo. The team will continue to South Pole Station on 05 December.

The 13-member traverse team will depart South Pole Station no later than 15 December to traverse across East Antarctica via Recovery Lakes, arriving at the Norwegian Troll Station by 15 February 2009. The USAP will fly the four, U.S. participants from Capetown, South Africa, back to the United States during the last week in February. The USAP will transport ice cores from Cape Town, South Africa, to the United States during spring 2009.

Deploying Team Members:

- Lou Albershardt
- Kjetil Bakkland
- Zoe Courville
- John Guldahl
- Svien Henriksen
- Einar Johansen
- Kirsty Langley
- Glen Liston
- Tom Neumann (Co-PI)
- Ted Scambos (Co-PI)
- Anna Sinasalo
- Rune Svendsen
- Andreas Tollefsen

- Stein Tronstad
- Ole Tveiten

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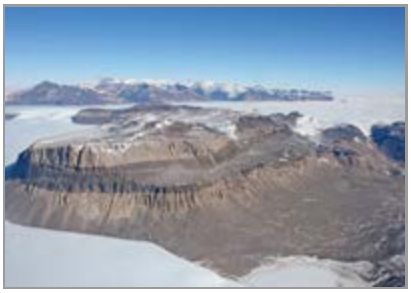
Science Project Details: 2008-2009

Collaborative Research: Integrating Geomorphological And Paleoecological Studies To Reconstruct Neogene Environments Of The Transantarctic Mountains



G-294 and W-218 camp in the western Olympus Range. View is looking down McKelvey Valley towards the Ross Sea. Photo by Allan Ashworth

Program Manager:
Dr. Alexandra Isern

Event Number: G-294-M

ASC POC/Implementer:
Chad Naughton

Dr. Allan Ashworth (Principal Investigator)
allan.ashworth@ndsu.edu
http://people.bu.edu/marchant/research/lacdeposits.html

Geosciences, Stevens Hall
Fargo, North Dakota

Supporting Stations: McMurdo Station
Research Locations: Rhone Gl / Taylor Valley

Project Description:
Ancient lake sediments deposited on the margins of former outlet and alpine glaciers in the Dry Valleys region are proving to be an invaluable archive for studies of past climatic and ecological changes. Using a numerical chronology based on analyses of interbedded volcanic ashfall, lake sediments greater than 13 million years ago contain fossils of exceptionally well-preserved mosses, diatoms, ostracods, Nothofagus leaves, wood, and insect remains. Lake sediments from less than 13 million years ago appear to lack all such organic matter. Researcher objectives include: 1. Developing a better characterization of the areal distribution of ancient lakes; 2. Securing a more refined lake chronology; 3. Developing a better characterization of the flora and fauna within each lake system; 4. Producing a geochemical signature for tephra within ice-marginal lakes; and 5. Providing a comparison for terrestrial vegetation mapped previously in the central Transantarctic Mountains.

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We plan to place a six-person field team in upland regions of southwestern Dry Valleys during the 08-09 season. The season will begin with a four-person camp at Table Mountain adjacent to the Ferrar Glacier. This camp will then move to the Friis Hills and David Marchant (who will begin the season working on a separate project) and a student will join. They will later form a separate camp at the Rhone Platform in Taylor Valley. The Rhone camp will consist of two Scott tents; the other of one Endurance tent and two Scott tents. Both camps will require only one small generator and a single 5-gallon can of mo-gas. One to two helo flights each week will allow new fossil-rich sites to be located and assessed. Depending on the discovery of new fossil sites, each of these camps could relocate once more during the season, most likely within the western sector of the Dry Valleys. Sampling is expected to produce 100 to 400 pounds of delicate fossil-rich material that will require frozen northward shipment and a further 800 to 1200 pounds of sediment/rock for northward shipment.

Deploying Team Members:

- Andrew Knott
- Spencer Salmon
- Jane Willenbring

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Science Project Details: 2008-2009

COLLABORATIVE RESEARCH: Testing The Polar Gateway Glaciation Hypothesis: The Kinematic, Sedimentary, Water-Mass, And Ice-Volume Record Of Drake Passage Opening

Program Manager:
Dr. Vladimir Papitashvili (acting)

Event Number: G-432-E

ASC POC/Implementer:
John Evans

Dr. David L. Barbeau (Principal Investigator)
dbarbeau@geol.sc.edu
http://www.geol.sc.edu/barbeau/ipy/index.asp

University of South Carolina
Columbia, South Carolina

Supporting Stations: Special Project
Research Locations: Various Peninsula Area

Project Description:

Researchers are studying the sedimentary record to gain a better understanding of the evolution of tectonic plates, mountain belts, climate and biogeography. To that end, they will conduct thermochronometry sampling from source metasedimentary rocks and granitoids in the southern Antarctic Peninsula (Palmer Land), and on Rothera & Alexander Islands. They will also conduct some reconnaissance geology of the southern Antarctic Peninsula for future research.

Field Season Overview:

With the collaboration of the British Antarctic Survey (BAS), reasearchers will travel by DASH-7 and Twin Otter aircraft to various points on the southern Antarctic Peninsula to collect samples. The science party will be accompanied by BAS field assistants and mountaineers. Collected samples will be packaged in rock boxes or equivalent and returned to the United States via a combination of BAS and USAP facilities.

Deploying Team Members:

- Amanda Savrda

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Science Project Details: 2008-2009

Collaborative Research: GAMBIT: Gamburtsev Aerogeophysical Mapping Of Bedrock And Ice Targets

Program Manager:
Dr. Thomas Wagner

Event Number: G-065-M

ASC POC/Implementer:
Douglas Miller

Dr. Robin E Bell (Principal Investigator)
robinb@ldeo.columbia.edu
http://www.ldeo.columbia.edu/gambit

Columbia University
Palisades, New York

Supporting Stations: McMurdo Station
Research Locations: (McMurdo Other site - not listed) / Williams Field

Project Description:

The AGAP project is a major IPY program resulting from a major partnership between 6 nations targeted at the first systematic exploration of the Gamburtsev Mountain Province of East Antarctica. This mountain range, the size of the European Alps rises 14,000 feet above the surrounding terrain but is completely hidden by the East Antarctic Ice Sheet. The tectonic mechanisms responsible for this major uplifted region are virtually unknown. The Gamburtsev Province was the nucleation point for the modern East Antarctic ice sheet and likely contains some of the oldest ice remaining on the planet, an important target for future ice cores. On the flanks of the Gamburtsev Mountains rest the largest subglacial lakes – lakes that in some cases appear to be triggering the onset of fast flowing ice streams. The objectives of the AGAP-GAMBIT program are to acquire key data sets for understanding the origin of the Gamburtsev Mountains, define the history of the East Antarctic ice sheet, identify the oldest ice containing the longest climatic record of atmospheric gases and examine the role of subglacial lakes in ice sheet stability. The aerogeophysical observation of ice thickness, ice sheet structure, gravity and magnetics will provide crucial new insights into the Antarctic ice sheet, and when integrated with the results of the GAMSEIS results be offer the first insights into the origin of the Gamburtsev Mountains.

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Field Season Overview:

The AGAP-GAMBIT project is the USAP supported component of AGAP program that will use an aerogeophysically instrumented Twin Otter aircraft to survey the Southern flanks of the Gamburtsev Mountains. The goal will be to fly 70 geophysical flights primarily between AGAP-S and Dome A. The approximately 360 hours of USAP Twin Otter flying will compliment the 60 BAS Twin Otter flights primarily on the northern flank of the Gamburtsev Mountains between Dome A and AGAP-N. The program will require use of the instrumented Twin Otter from November 5 – through January 19. The geophysical instrumentation will be installed in McMurdo while the primary base of flight operations will be the AGAP-S camp. A total of 12 GAMBIT scientists will be supported through this project.

Deploying Team Members:

- Jared Abraham
- David Braaten
- Detlef Damaske
- Nicholas Frearson
- Felix Goldmann
- Michael Hughes
- Michael Studinger (Team Leader)

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Science Project Details: 2008-2009

Cosmic Ray Observations At McMurdo Station

Solar and heliospheric studies with antarctic cosmic rays.

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-120-M

ASC POC/Implementer:
Charles Kaminski

Dr. John Bieber (Principal Investigator)
jwbieber@bartol.udel.edu
http://neutronm.bartol.udel.edu

University of Delaware
Bartol Research Institute
Newark, Delaware

Supporting Stations: McMurdo Station
Research Locations: McMurdo Station

Project Description:

Installed during the 1959-60 field season, the Cosray lab is the longest continuous-running experiment in the US Antarctic Program. This 52-year data set plays a crucial role in understanding the nature and cause of cosmic ray and solar terrestrial variations occurring over the 11-year sunspot cycle, 22-year Hale cycle, and longer time scales. Neutron-monitoring provides a three-dimensional perspective of the anisotropic flux of cosmic rays that continuously bombard Earth. The data acquired by this research project will advance the understanding of fundamental plasma processes that occur on the Sun and in interplanetary space. Researchers will analyze data acquired on station in concert with data from the "Spaceship Earth" neutron monitor network to understand variations associated with solar energetic particles that occur on time scales of minutes to hours. In a new application made possible by real-time data availability, the observations will also assist space weather forecasting and specification.

Field Season Overview:

The project is working to relocate the Neutron Monitor Observatory from Building 84 to Arrival Heights. Consider current construction dates as place holders, pending confirmation with Raytheon. Following advance planning and engineering, the actual installation will likely occur during the 2009-2010

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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season. One deployment will be requested to supervise the move of the monitor to Arrival Heights. If the neutron monitor is not moved this season, the project requests station support for Building 84 during the 2008-2009 season.

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Science Project Details: 2008-2009

IPY Research: Investigating The Cryospheric Evolution Of The Central Antarctic Plate (ICECAP)

Program Manager:
Dr. Alexandra Isern

Event Number: G-098-M

ASC POC/Implementer:
Charles Kaminski

Dr. Donald Blankenship (Principal Investigator)
blank@ig.utexas.edu
http://www.ig.utexas.edu/research/projects/icecap

University of Texas Austin
Institute for Geophysics
Austin, Texas

Supporting Stations: McMurdo Station
Research Locations: McMurdo Station, Casey Station

Project Description:

The goal of this collaborative International Polar Year (IPY) project is to improve the fundamental understanding of the major subglacial basins of east Antarctica and the boundary conditions of the ice stream catchments that overlie these basins. To that end, researchers will modify and instrument a long range Basler BT-67 aircraft to conduct aerogeophysical surveys over the Wilkes Subglacial Basin and the Aurora Subglacial Basin with the goal of acquiring coherent gravity, magnetic, laser altimetry, and ice-penetrating radar data.

Field Season Overview:

From mid-December to early January, researchers will use McMurdo Station facilities at Williams Field to set up and test the Basler BT-67 aircraft. They will then transit to Casey Station (Australia), from which the majority of the aerial surveys will be staged. In early February, the Basler will return to McMurdo to deconfigure and unload cargo.

Deploying Team Members:

- Gonzalo Echeverry
- Jamin Greenbaum

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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- John Holt (Co-PI)
- Scott Kempf
- Dustin Schroeder
- Martin Siegert
- Andrew Wright
- Duncan Young

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Science Project Details: 2008-2009

Collaborative Research: Linking Modern Benthic Communities And Taphonomic Processes To The Stratigraphic Record Of Antarctic Cores

Program Manager:
Dr. Alexandra Isern

Event Number: G-093-M

ASC POC/Implementer:
John Rand

Dr. Samuel Bowser (Principal Investigator)
bowser@wadsworth.org
http://www.bowserlab.org

New York State Department of Health
Wadsworth Center
Albany, New York

Supporting Stations: McMurdo Station
Research Locations: Explorers Cove/Butter Point/Spike Cape

Project Description:

This research project centers on characterizing taphonomic (fossilization) processes, contrasting various high-sedimentation subhabitats in Explorers Cove with ice-covered and presumably low sedimentation (Bay of Sails/Spike Cape; Butter Point/Herbertson Glacier) near-shore settings on the western side of McMurdo Sound. As part of this work, researchers will document the mode and tempo of physical and biological disturbance events. The research team will use this information to help interpret sediment profiles obtained from drilling operations in McMurdo Sound and thus help distinguish ice-free from ice-covered intervals in the geological past.

Field Season Overview:

Two field seasons are proposed: One to launch our studies (Oct. - Dec. 2008) and one to follow-up and retrieve the deployed experimental arrays (Oct. - Dec. 2010). A field team of eight at Explorers Cove will include three scuba divers, PI Miller, co-PI Bowser, co-PI Walker, and two other scientists. Two students/scientists will exchange with Miller and Walker for a total of ten deployed during a given field season.

Logistically, our work will be dive-intensive. Divers will collect marine

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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invertebrates for lab-based experiments and deploy experimental arrays. Most of our work will be based from Explorers Cove field camp, with access to nearby locations via snowmobile. Trips to more remote locations (Herbertson Glacier and Spike Cape) will be made by helo. Comms requirements at Explorers Cove will include internet and voice, per previous seasons. Besides the use of Explorers Cove shore camp, our group will require the construction of a Jamesway on the sea ice to support dive operations. Dive holes will be fabricated using Hotsie melters and blasting. All of the planned activities have been executed by Bowser's team since 1990.

Deploying Team Members:

- Claire Beynon
- Stephen Clabuesch
- Shawn Harper
- Henry Kaiser
- Cecilia Shin
- Sally Walker (Co-PI)

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Science Project Details: 2008-2009

Science Coordination Office For Astrophysical Research In Antarctica (SCOARA-II)

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-370-S
NSF/PLR Award 0750083

ASC POC/Implementer:
Charles Kaminski

Dr. John Carlstrom (Principal Investigator)
jc@kicp.uchicago.edu
http://astro.uchicago.edu/scoara/

University of Chicago
Astronomy and Astrophysics
Chicago, Illinois

Supporting Stations: South Pole Station
Research Locations: Dark Sector

Project Description:

Antarctica's tremendous potential for cosmology and astrophysics can be realized best if the scientists involved understand and participate in the management, planning and oversight of the shared resources and logistical support necessary to conduct research. The Science Coordination Office for Astrophysical Research in Antarctica (SCOARA) is an intellectual partnership composed of and directed by these scientists to ensure that the highest quality astrophysical research is conducted at the South Pole.

Field Season Overview:

Lifting medium-weight equipment packages between the ground and first level is a difficult manhandling process as related to both South Pole Telescope (SPT) (walkway) and ICL. To resolve the issue, the project requests that two, small- or medium-sized cranes are located on the DSL/SPT and ICL/IceCube buildings, with a preference to relocate the existing, winterized small-equipment cranes from the AST/RO building given the team's familiarity with the operation and lifting capability of the cranes. The team is confident the cranes will operate through the winter. The scenario saves cost by reusing existing equipment at South Pole Station. AST/RO deck crane (move to SPT) • Capacity: 2,000 pounds • Hook reach: 94.5 inches • Hook height: 112 inches AST/RO roof crane (move to ICL) •

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Capacity: 1,500 pounds • Hook reach: 74.5 inches • Hook height: 102 inches

Moving the telescope equipment in the Dark Sector is currently difficult and hazardous, especially during the winter. Any medical or equipment-failure emergencies that require a snowmobile typically incur at a minimum 30-minute delay as transport from the other side of the skiway is arranged. Given such risks, project personnel request that a snow mobile is based in the Dark Sector for year-round, 24-hour availability. The team suggests converting the existing, unused Viper control-room to house a snow mobile and sled. Given the increased power consumption required to heat the facility, it is necessary only to heat to a temperature sufficient to prevent the tracks from freezing. Using the IceCube model, block heaters would prevent the engine from freezing at the low storage temperatures. The project also requests that the SCOARA machinist maintain the snowmobile, serving in a quality-control capacity to loan the machine only to those personnel who are suitably trained.

The project requests that the LN2 plant is not moved until the MAPO HVAC problems are resolved. Cycling the LN2 plant this year saves power, but highlights MAPO HVAC deficiencies during the week-off period. Project personnel urgently request that the structural steel members that penetrate the sub-floor crawl space are insulated, preferably this winter. One-half of the furnace heat is lost outside via the crawl space. Insulating the structural members would gain >7kW of heat from the existing MAPO furnace with no additional fuel burn.

The DSL crane hook is an odd size. For safety reasons, the project requests that a new hook matching the crane's lifting ability is installed.

The existing, Alcatel leak checkers have received approximately 15 years of service at South Pole Station. Due to age and reliability factors, the project returns two of the units to CONUS each summer for repair and maintenance at a cost of approximately $8,000 pa. A new, He3 leak checker would significant reduce the cost to approximately $500 pa. The replacement cost for a new He3 leak checker is $25,000, posing a significant saving benefit over a three-year period. The project requests that a new He3/4 leak checker is purchased and the legacy Alcatel units are retired from service.

Many items on last year’s SIP did not arrive (see attached list). The project requests a report listing the items and an approximate arrival date. To assist in tracking, project personnel request that all items purchased for A-370S are delivered to MAPO and signed for by Bob Spotz (no exceptions). For these and future purchases, the project requests that TCNs are included with the purchasing reports, allowing the team to communicate directly with Cargo for updates.

To assist in tracking work orders, email a copy of current and future work orders from A370-S to scoara@gmail.com.

In association with MAPO HVAC issues and ICL/DSL equipment temperature-control, the project requests the four-week hire of a thermal-imaging camera from mid-January 2009 until station close. The product should be similar to: http://us.fluke.com/usen/products/Fluke+Ti10.htm?

catalog_name=FlukeUnitedStates

The project requests that the items listed in the project files SIP2008.pdf and SIP2008-tools.pdf are delivered to Bob Spotz at MAPO by December 2008. Please email scoara@gmail.com for a link to a saved McMaster inventory list.

Deploying Team Members:

- Derek Aboltins

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Science Project Details: 2008-2009

Cosmological Research With The 10-Meter South Pole Telescope

The 10m South Pole Telescope, with the moon rising behind it. Photo by: Keith Vanderlinde

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-379-S
NSF/PLR Award 1248097

ASC POC/Implementer:
Charles Kaminski

Dr. John Carlstrom (Principal Investigator)
jc@kicp.uchicago.edu
http://pole.uchicago.edu

University of Chicago
Astronomy and Astrophysics
Chicago, Illinois

Supporting Stations: South Pole Station
Research Locations: Dark Sector Lab

Project Description:

The South Pole Telescope (SPT) project conducts cosmological research by measuring the intensity and polarization anisotropy of the Cosmic Microwave Background (CMB). By surveying 4,000 square degrees of the sky with high sensitivity in three wavelength bands, the telescope can detect galaxy clusters through the spectral distortion they impart on the CMB. Researchers will use the resulting catalog of galaxy clusters to set constraints on the mysterious dark energy that dominates the mass-energy density of the universe and is causing the expansion of the universe to accelerate.

Field Season Overview:

Project goals for the 2008-090 austral season at South Pole Station include the following:

• Inspect the telescope backing structure and cover plates (two man-lift shifts required). • Perform the precision measurement of the far-side lobes of the telescope. • Perform end-of-season calibrations. • Upgrade the SPT bolometer receiver. • Upgrade the large, secondary mirror. • Service and maintain the telescope components and computer systems. • Perform vertex inspection and maintenance of telescope. • Improve the optical pointing

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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telescopes (two person-lift shifts required). • Fully integrate and test the telescope, receiver and observating software.

At the time of submittal, the project was not aware of the detail regarding RPCS deployment of the large, SPT ground shield. Ground-shield deployment requirements are not included in this SIP. However, the project anticipates RPSC will perform substantial work on the ground-shield deployment during the season at South Pole Station.

Deploying Team Members:

- Ken Aird
- Bradford Benson
- Lindsey Bleem
- Thomas Crawford
- Abigail Crites
- Barry Hines
- Bill Holzapfel (Co-PI)
- Ryan Keisler
- Erik Leitch
- Martin Lueker
- Jeffrey McMahon
- Kathryn Miknaitis
- Stephen Padin (Co-PI)
- Tom Plagge
- John Ruhl (Co-PI)
- James Sears
- Erik Shirokoff
- Keith Vanderlinde
- Joaquin Vieira

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Science Project Details: 2008-2009

Collaborative Research: Benthic Faunal Feeding Dynamics On The Antarctic Shelf And The Effects Of Global Climate Change On Bentho-Pelagic Coupling

Program Manager:
Dr. Roberta Marinelli

Event Number: B-237-L/N/P

ASC POC/Implementer:
Adam Jenkins

Dr. David DeMaster (Principal Investigator)
dave_demaster@ncsu.edu

North Carolina State University
Department of MEAS
Raleigh, North Carolina

Supporting Stations: ARSV Laurence M. Gould, RV/IB Nathaniel B. Palmer, Palmer Station

Research Locations: Palmer Station Laboratories, Marguerite Bay (LMG)

Project Description:

Climate warming along the Antarctic Peninsula will reduce the duration of winter sea-ice cover, altering both the pelagic ecosystem and pelagic-benthic coupling. This project will test the hypothesis that benthic shelf ecosystems are highly suitable for tracking climate change because they act as “low-pass” filters, removing high-frequency seasonal noise and responding to longer-term trends in pelagic ecosystem structure and export production. Researchers will study bentho-pelagic coupling along a latitudinal climate gradient on the Antarctic Peninsula to explore the impacts of climate change and sea-ice reduction on Antarctic shelf ecosystems.

Field Season Overview:

The project plans to have five stations between Smith Island (63 deg. S) and Marguerite Bay (68 deg. S). Researchers will sample the stations using coring techniques (megacorer, box corer, and kasten corer), bottom trawls (Blake trawls and Otter trawls), CTD profiles, and bottom-camera studies. The project team will occupy each of the sites for approximately three days during the July 2008 research cruise aboard the RVIB Nathaniel B. Palmer.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Deploying Team Members:

- Arianne Balsom
- Alyssa Hopkins
- Kimberly Null
- Rebecca Pirtle-Levy
- Brian Pointer
- Linda Waters-Lindqvist

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Science Project Details: 2008-2009

Collaborative Research In IPY: Abrupt Environmental Change In The Larsen Ice Shelf System, A Multidisciplinary Approach - Marine And Quaternary Geosciences

View of the calving front of the remnant Larsen B Ice Shelf in SCAR inlet, with view of the Bruce Plateau in background. Photo taken February, 2005 during cruise 2005-02 of the USAP Laurence M. Gould. Water depth here is over 850 feet deep. Photo by Eugene Domack

Program Manager:
Dr. Alexandra Isern

Event Number: C-515-L

ASC POC/Implementer:
Karl Newyear

Dr. Eugene Domack (Principal Investigator)
edomack@hamilton.edu
http://www.hamilton.edu/news/exp/LARISSA/index.html

Hamilton College
Geology
Clinton, New York

Supporting Stations: ARSV Laurence M. Gould

Research Locations:

Project Description:

The LARsen Ice Shelf System, Antarctica (LARISSA) Project will bring together an international, interdisciplinary team of researchers to address the abrupt environmental change in Antarctica's Larsen Ice Shelf System. Ice core scientists, glaciologists, oceanographers, marine geologists and biologists are collaborating to characterize the affects of the 2002 ice shelf collapse on the marine ecosystem as well as on glacial dynamics and interactions between the ocean, ice, geology and biology. The project also aims to place these changes in the context of past changes in the region occurring on timescales ranging from decadal to the penultimate interglacial (125,000 years before present) when it is thought to have been warmer, and the sea level higher than today.

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Field Season Overview:

The 2008 field season will involve the deployment of three GPS (POLNET type) stations on bedrock at three localaties on the western side of the Antarctic Peninsula, along the Graham and Danco Coasts and offshore islands. This will be done off small boats (zodiacs) launced from the LM Gould.

Deploying Team Members:

- Mason Fried
- Bjorn Johns

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Science Project Details: 2008-2009

Role Of Resource Legacy On Contemporary Linkages Between Biodiversity And Ecosystem Processes In A Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program

Program Manager:
Dr. Roberta Marinelli

Event Number: B-426-M

ASC POC/Implementer:
Rob Edwards

Dr. Peter Doran (Principal Investigator)
pdoran@uic.edu
http://tigger.uic.edu/~pdoran/home.htm

University of Illinois Chicago
Dept of Earth and Environmental Sciences
Chicago, Illinois

Supporting Stations: McMurdo Station
Research Locations: McMurdo Dry Valleys

Project Description:

This project addresses the central hypothesis that biodiversity and ecosystem structure and function in the McMurdo Dry Valleys are dictated by the interactions of climatic legacies with contemporary biotic and physical processes. Researchers will upgrade and maintain long-term, automated, lake-monitoring equipment in the Dry Valleys; carry out manual hydrologic balance measurements; collect data from a number of long-term environmental sensors in and on the lakes; measure lake-ice movements; collect sediment samples; and survey the bed contact between Lake Hoare and the Canada Glacier to determine the role of glacier movement in Lake Hoare lake-level history.

Field Season Overview:

This project requires helicopter support for day trips and returning samples to McMurdo Station, as well as cargo support, and allocation of space in Crary Lab Phase II and its freezer and environmental rooms. The team will work from the established field camps Fryxell, Bonney, and Hoare; with planned day trips via helicopter to the Wright and Victoria valleys. Project researchers will survey ablation stakes on the ice surface at lakes Hoare, Fryxell and Bonney. Such activities include the assistance of UNAVCO. The

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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team will SCUBA dive in lakes Hoare and Vanda to conduct benthic studies in collaboration with New Zealand colleagues. The project will set up a new benthic experiment on Lake Hoare that will require building a new blue box.

Deploying Team Members:

- Robin Ellwood
- Maciej Obryk (Team Leader)
- Annika Taylor

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Science Project Details: 2008-2009

Stable Isotope Analyses Of Pygoscelid Penguin Remains From Active And Abandoned Colonies In Antarctica

An abandoned penguin colony exposed by a retreating ice sheet on Beaufort Island, Ross Sea, in 2005 was excavated to recover organic remains (bone, feathers, eggshell) for radiocarbon and stable isotope analyses. These data help to provide information on past occupation history and diet of Adelie Penguins in this region. Photo by Steven Emslie

Program Manager:
Dr. Peter Milne (acting)

Event Number: B-034-E

ASC POC/Implementer:
Melissa Rider

Dr. Steven D Emslie (Principal Investigator)
emslies@uncw.edu
http://www.uncw.edu/penguins

Department of Biological Sciences
Wilmington, North Carolina

Supporting Stations: Special Project
Research Locations: Livingston Island & M/V National Geographic Endeavour

Project Description:

This project involves an international collaboration with Chinese, Spanish, and Polish scientists to investigate the stable isotope record of abandoned and active penguin colonies in Antarctica. The researchers will be working in two major regions of the Antarctic: The Antarctic Peninsula and the Ross Sea. During four field seasons, researchers will collect samples of penguin tissue, e.g., bone, eggshell, feathers; guano from sediments; and prey remains for radiocarbon and stable-isotope analyses. Researchers will use the data to test hypotheses on occupation history, population movements, and diet of Adélie Penguins in relation to climate change over the past

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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45,000 years in Antarctica.

Field Season Overview:

In 2008/09, the research in the Antarctic Peninsula will be split into two separate parts. In December, Co-PI Mike Polito will deploy to the Antarctic Peninsula to complete research in collaboration with Ron Naveen on the M/V National Geographic Endeavor. NSF support for this portion of the season will be limited to transportation of M. Polito and research supplies to and from Ushuaia, Argentina, where he will join the M/V National Geographic Endeavor . M. Polito will visit sites and collect samples from this ship. At the conclusion of this research, samples will be shipped from Punta Arenas, Chile, to UNCW. In addition, through exisiting collaborations, samples will collected in 08-09 at Palmer Station, Copacabana Field Station, and NOAA's Cape Sherriff field station. NSF support for these collaborations will be limited to the shipping of samples back from Palmer Station and/or PA to UNCW.

The second part of the season will be from mid January to mid February when S. Emslie will join a Spanish International Polar Year camp on Byers Peninsula as an invitated participant. USAP support for this portion of the research will be limited to transportation of S. Emslie to and from Punta Arenas and/or Ushuaia, where he will meet the Spanish ship, the issue of ECW in Punta Arenas, and shipping of field gear and samples back to the U.S. from Punta Arenas, or possibly from Spain if samples must remain on the Spanish ship at the conclusion of the field season.

Deploying Team Members:

-
- Larry Coats
- XiaoDong Liu
- Michael Polito (Co-PI)
- Jerzy Smykla

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Science Project Details: 2008-2009

IceCube Operations And Maintenance

Steam from the heating unit on a windless day. Photo by: Jim Haugen

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-333-S

ASC POC/Implementer:
Charles Kaminski

Dr. Paul Evenson (Principal Investigator)
evenson@udel.edu
http://icecube.wisc.edu

University of Delaware
Physics and Astronomy
Newark, Delaware

Supporting Stations: South Pole Station
Research Locations: Dark Sector, IceCube Lab

Project Description:

The IceCube neutrino telescope transforms a cubic kilometer of ice into a Cherenkov detector. This long-term project is an international collaboration and the University of Wisconsin-Madison serves as the host institution, providing oversight and staffing. IceCube opens unexplored wavelength bands for astronomy using neutrinos as cosmic messengers.

Field Season Overview:

The project will install 16 to 20 strings, and trench and install 19 IceTop stations at South Pole Station. The project proposes shipping refurbished and replacement components for the Enhanced Hot Water Drill (EHWD) system to South Pole Station. The total weight of material shipped to South Pole Station is approximately 625K pounds, with approximately 500K pounds shipped via the re-supply vessel to McMurdo Station.

At South Pole Station, the project will continue inspection and modification of the MDS units from last season. The project will also continue to perform sub-system tests on electrical and plumbing systems. Most tests can be performed by ICECUBE personnel deployed to South Pole Station. However, many of the operations require RPSC personnel – including crane operators,

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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riggers, and general assistants – in addition to specifically trained ICECUBE personnel. The reel and tower operations require using cranes, sleds, and forklifts.

ICECUBE and RPSC planners met March 11 to 13, 2008, in Denver, Colo., and will continue to coordinate to provide a blueprint for the FY08-09 season. The intent is a resource-loaded schedule that details the scheduling of heavy equipment and associated operators, general assistants and ICECUBE personnel.

The planning session also identified several long-term issues to address during the FY08-09 season, including: drift unloading cargo, delivery and storage of surface cables, surface to DOM cables, DOMS, and IceTop tanks at McMurdo and/or South Pole stations. Details not highlighted in the SIP components are being documented and integrated into the season plan through the University of Wisconsin-Madison and RPSC planning teams.

Deploying Team Members:

- Sarah Amandusson
- Karen Andeen
- Forest Banks
- Ryan Bay
- Jens Berdermann
- Timothy Brenner
- Nicholas Buchinger
- Chad Carpenter
- Jeff Cherwinka
- Freija Descamps
- Dennis Duling
- Jonathan Dumm
- Alan Elcheikh
- Jonas Enander
- Olof Engdegård
- Steven Faulkner
- Kirill Filimonov
- Anna Franckowiak
- Thomas Gaisser (Co-PI)
- Dar Gibson
- David Glowacki
- Timo Griesel
- Andreas Gross
- Chang Hyon Ha
-

Tom Ham

- Darrell Hamilton
- Terry Hannaford
- Kael Hanson
- James Haugen
- Stephanie Hickford
- Gary Hill
- Per Olof Hulth
- Thomas Hutchings
- Phillip Johnson
- Kalle Karlsson
- Joanna Kiryluk
- Michael Kleist
- Hermann Kolanoski
- Mark Krasberg
- Mathieu Labare
- Karim Laihem
- James Latshaw
- Andrew Laundrie
- Jan Lunemann
- Matthew Mathiason

- Terry Matt
- Timothy Murray
- Rolf Nahnhauer
- Matthew Newcomb
- Anders Nilsson
- Camille Parisel
- Michael Patterson
- Robert Paulos
- Claire Pettersen
- Peter Redl
- Elisa Resconi
- John Richards
- James Roth
- Perry Sandstrom
- Darryn Schneider
- Leonard Shulman

- Scott Smith
- Johan Söderberg
- Fredrik Sörqvist
- Karthik Soundarapandian
- Thorsten Stezelberger
- Greg Sullivan
- Mark Thoma
- Graham Tilbury
- Erik Verhagen
- Jimmy Vinbladh
- Tilo Waldenmaier
- Kenneth Walker
- Paul Wisniewski
- Kurt Woschnagg
- Donald Wray
- Michael Zernick

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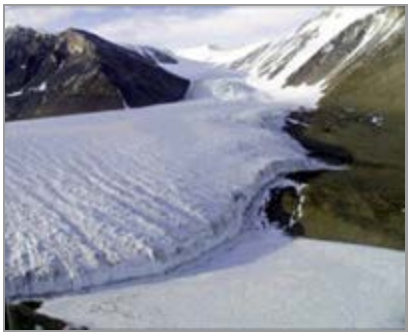
Science Project Details: 2008-2009

Role Of Resource Legacy On Contemporary Linkages Between Biodiversity And Ecosystem Processes In A Cold Desert Ecosystem: The McMurdo Dry Valleys LTER Program



Program Manager:
Dr. Roberta Marinelli

Event Number: B-425-M

ASC POC/Implementer:
Rob Edwards

Dr. Andrew Fountain (Principal Investigator)
andrew@pdx.edu
http://www.mcmlter.org/

Portland State University
Geology
Portland, Oregon

Supporting Stations: McMurdo Station
Research Locations: McMurdo Dry Valleys

Project Description:

The McMurdo Long Term Ecological Research (LTER) projects will continue to investigate the McMurdo Dry Valleys as an end-member ecosystem and focus on the relative roles of legacy and extant processes on current biodiversity and ecosystem structure and function. This project measures Dry Valley meteorological parameters and the physical properties of Dry Valley glaciers, with special emphasis on LTER core research areas.

Field Season Overview:

This project's support requirements are similar to previous seasons. Researchers will occupy the Lake Hoare camp from 31 October to 15 December; and from 19 December to 28 January. Project personnel will conduct day trips to the Commonwealth, Howard, Canada, Taylor and Hughes glaciers to conduct mass balance measurements. Day trips will also occur to various meteorological stations in Taylor, Beacon, Wright, Victoria, and Garwood valleys. As in previous seasons, several sensors and data loggers on the meteorological stations must be swapped and returned to the manufacturer for recalibration. Replacement meteorological sensors and

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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data loggers will remain in the field for two to five years.

The project will conduct cryo-lake experiments that include the collection of ice, water, and sediment samples from Canada Glacier.

Project researchers will remove a meteorological station from Hjorth Hill and are considering relocating the station to Miers or McKelvey valley. The project team will coordinate with the New Zealand Antarctic Program to determine a suitable location.

Deploying Team Members:

- Elizabeth Bagshaw
- Hassan Basagic (Team Leader)
- Martyn Tranter

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Science Project Details: 2008-2009

Palmer Long Term Ecological Research (LTER): Looking Back In Time Through Marine Ecosystem Space, Apex Predator Component

Seabird component of the Palmer Station LTER.

Program Manager:
Dr. Lisa Clough

Event Number: B-013-L/P
NSF/PLR Award 0823101

ASC POC/Implementer:
Adam Jenkins / Rob Edwards

Dr. Bill Fraser (Principal Investigator)
bfraser@3rivers.net
http://pal.lternet.edu/

Polar Oceans Research Group
Sheridan, Montana

Supporting Stations: ARSV Laurence M. Gould, Palmer Station
Research Locations: Western Antarctic Peninsula Pal-LTER large-scale grid, Palmer local boating area

Project Description:

The core, long-term data associated with these Long Term Ecological Research (LTER) studies are derived primarily from local populations distributed over approximately 50 square kilometers near Palmer Station. At-sea surveys of abundance and distribution of seabirds over an area of approximately 80,000 square kilometers provide a larger-scale context for these studies. Spanning three decades, this data collection allows researchers to address a broad suite of ecological issues, including interactions between climate migration and community structure, the effects of landscape geomorphology on biological populations, the mechanics of source-sink population dynamics and the establishing of basic conceptual and empirical links between marine and terrestrial ecology.

Field Season Overview:

Our field research includes work in the vicinity of Palmer Station and aboard the R/V Laurence M. Gould as part of the annual January LTER cruise. Aboard the research vessel, personnel will focus on seabird and marine mammal censuses to determine how oceanographic conditions, including sea ice and prey availability, influence their abundance and distribution. Part

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

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2008-2009 Field Season

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of this effort will also involve day excursions via Zodiac to Renaud and nearby islands to census and diet sample penguins and other seabirds, and a field camp of several days duration on Avian Island to census and map Adélie Penguin colonies, obtain diet samples and instrument birds with satellite transmitters and dive-depth recorders. Work in the Palmer vicinity will complement that aboard the research vessel, but the focus will be on the larger seabird community, especially the three breeding species of Pygoscelid penguins, and is timed to coincide with the entire October-March breeding season. Although most of our work will be accomplished by using Zodiacs for daily travel to nearby seabird colonies, personnel will also establish multi-day field camps at more remote locations to meet some program objectives. Team members will concentrate on censusing and mapping seabird colonies, obtaining indices of reproductive success, determining diets and foraging ranges, and examining chick growth and energetics. Palmer Station's laboratory facilities will be used to house and process GIS and telemetry data, and to analyze diet samples.

Deploying Team Members:

- Jennifer Blum
- Kristin Gorman
- Tawna Morgan
- Rick Smaniotto

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Science Project Details: 2008-2009

The Demographic Consequences Of Environmental Variability And Individual Heterogeneity In Life-History Tactics Of A Long-Lived Antarctic Marine Predator

Weddell seal mother and pup at the Big Razorback colony. Photo by Jennifer Mannas

Program Manager:
Dr. Diana Nemergut

Event Number: B-009-M

ASC POC/Implementer:
John Rand

Dr. Robert Garrott (Principal Investigator)
rgarrott@montana.edu
http://www.montana.edu/rgarrott/antarctica/index.htm

Montana State University Bozeman
Ecology
Bozeman, Montana

Supporting Stations: McMurdo Station
Research Locations: Big Razorback Island

Project Description:

Since 1968 this group of researchers has studied a breeding population of Weddell seals (a prominent Antarctic apex predator associated with fast ice) in Erebus Bay. Using data synthesis and modeling techniques researchers can evaluate a variety of hypotheses regarding effects of environmental variation on life-history evolution and population dynamics. Researchers are also interested in the influence of physical drivers on ecosystem dynamics from the bottom-up, so their field studies include collecting data on seal body mass – a surrogate for annual variation in marine food resources. The study's broad objective is to evaluate how temporal variation in the marine environment affects a long-lived mammal's population dynamics.

Field Season Overview:

The project requests the same field camp at Big Razorback Island as it used in recent field seasons. The camp includes fish huts 11, 5, 18, and a bunk hut, along with all associated shelving, bunks, a single outhouse, a single Grill Master 4000 liquid-propane barbeque, and propane/diesel for the entire camp. The solar panels used last season should be installed on Hut 5 and the huts daisy-chained to allow power to Hut 11. The project requires two,

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48-inch holes drilled in the sea ice near the camp for the outhouse and wastewater. Periodic camp refueling is required. Project personnel request the same space in Crary Lab (305).

The project requests helicopter time for surveys from October through December to conduct reconnaissance flights over the study area, and to search for tagged seals outside the study area. The team requests its group of seven personnel is allotted one room at McMurdo Station to share during the field season and for use during town trips and unexpected stopovers.

Deploying Team Members:

- Shawn Farry
- Subhash Lele
- Jen Mannas
- Megan O'Reilly
- Jay Rotella (Co-PI)
- Glenn Stauffer
- Kirstie Yeager

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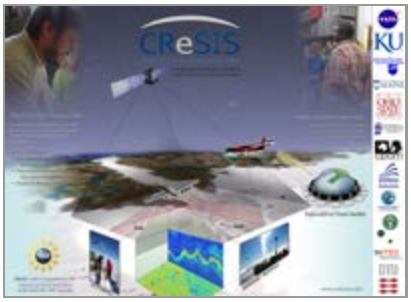
Science Project Details: 2008-2009

Center For Remote Sensing Of Ice Sheets (CReSIS) - Basler Airborne Radar Survey



CReSIS is a National Science Foundation Science and Technology Center headquartered at the University of Kansas. Work focuses to potential contribution of the Greenland and Antarctic ice sheets to sea level rise. The Center attempts to integrate in situ, airborne, and space-based sensors to generate a complete 3D characterization of the ice sheets. The graphic was developed by CReSIS to describe the breadth and focus of the project.

Program Manager:
Dr. Julie Palais

Event Number: I-189-M

ASC POC/Implementer:
Michael McClanahan

Dr. Prasad Gogineni (Principal Investigator)
gogineni@cresis.ku.edu
https://www.cresis.ku.edu/

University of Kansas Lawrence
Lawrence, Kansas

Supporting Stations: McMurdo Station
Research Locations: WAIS Divide

Project Description:

The Center for Remote Sensing of Ice Sheets (CReSIS) will focus the 2013-14 airborne-radar survey mission on Whillans (B) and Bindschadler (D) ice streams on the Siple Coast of West Antarctica. By flying new lines that cross historical survey lines, the reliability of the historical data can be improved and the effective survey area can therefore be expanded by combining both datasets. Researchers also plan to collect survey data over ice-core drilling sites and sites sounded by their surface-based accumulation radar being used this season by the I-188-M (Gogineni) team, so that internal layers

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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mapped by the different radars can be cross-correlated and validated.

Field Season Overview:

The aerial-survey (radar) and data-processing teams will arrive at McMurdo Station in mid-November to begin outfitting a Twin Otter science platform. This effort will require approximately two weeks and result in further deployment to WAIS Divide Camp in late November. Twin Otter aerial survey work will commence from WAIS Divide Camp almost immediately and is integrated with survey work proposed separately by project I-157. The team anticipates 150 to 160 hours of Twin Otter support (approximately 20 flying days for both projects). Survey work will end around 21 January 21. The project teams will redeploy via McMurdo Station. The aerial survey team will pause at McMurdo Station for four to five days to dekit the Twin Otter aircraft before further redeployment.

Deploying Team Members:

- Audrey Fusco
- Jacquelyn Hams
- Albert Harris
- Victoria Lytle (Team Leader)
- Michael McMinn
- Je'iame Powell
- Fernando Rodriguez-Morales
- Robbie Russell
- John Sonntag

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Science Project Details: 2008-2009

Center For Remote Sensing Of Ice Sheets (CReSIS) - Ground Radar And Seismic Operations

Program Manager:
Dr. Julie Palais

Event Number: I-188-M

ASC POC/Implementer:
Michael McClanahan

Dr. Prasad Gogineni (Principal Investigator)
gogineni@cresis.ku.edu
https://www.cresis.ku.edu/

University of Kansas Lawrence
Lawrence, Kansas

Supporting Stations: McMurdo Station
Research Locations: Thwaites Glacier

Project Description:

The Center for Remote Sensing of Ice Sheets (CReSIS) researchers will measure the melt rate beneath the Ross Ice Shelf at a number of locations using a phase-sensitive ground-based radar system. By accurately measuring the change in thickness of the ice shelf at two or more times (separated by a few weeks), researchers can estimate the basal melt rate, which is important for glacier-flow modeling, ice-sheet stability, and ocean-water circulation beneath ice shelves. In the time between flight periods, researchers will conduct ground-based seismic and radar measurements on and around the main CReSIS camp.

Field Season Overview:

The combined I-188/I-205 team (approx 9 pax) will travel by LC-130 to WAIS Divide camp in approximately late November, where we will organize our traverse as well as deploy an array of GPS stations by Twin Otter (I-205). The oversnow traverse along Thwaites Glacier will be made by snowmobiles which are towing sleds carrying camp and science equipment, and Tucker Snocats towing sleds with a shothole drill and fuel. Fuel will be cached or air-dropped at the site in advance. The field site is approximately 200km from WAIS Divide camp (exact location to be determined based on Twin Otter reconnaisance). At the field site, all our work will be conducted using snowmobiles and Tuckers. When finished (approx mid Jan) we will pull back

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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to WAIS Divide and return to McMurdo.

Deploying Team Members:

- Sridhar Anandakrishnan (Team Leader)
- Anthony Hoch
- Michael Jayred
- Don Voigt (Team Leader)

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Science Project Details: 2008-2009

Antarctic Impulsive Transient Antenna (ANITA)

The Antarctic Impulsive Transient Antenna (ANITA) Balloon Payload hangs from the Columbia Scientific Balloon Facility launch vehicle at Williams field near McMurdo as it is readied for flight. ANITA searches for bursts of radioemission associated with high energy neutrino interactions within the Antarctic ice sheets. Photo by: Jeff Kowalski

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-142-M

ASC POC/Implementer:
Charles Kaminski

Dr. Peter W Gorham (Principal Investigator)
gorham3690@gmail.com
http://www.phys.hawaii.edu/~anita

University of Hawaii
Division of High Energy Physics
Honolulu, Hawaii

Supporting Stations: McMurdo Station
Research Locations:

Project Description:
Neutrinos are of great interest to astrophysicists because they are the only particle that can reach earth unattenuated at all energies. Ultra-high-energy neutrinos are particularly interesting since interactions with the photons of the cosmic microwave background prevent other cosmic particles from propagating over long astrophysical distances. The ANITA instrument is a radio telescope designed to detect these ultra-high-energy cosmic ray neutrinos from a scientific balloon floating over Antarctica. ANITA will look for radio impulses that are expected to originate from high-energy neutrino interactions in the ice. The ANITA instrument detects these ultra-high-energy neutrinos by use of the Askaryan effect, which predicts the production of a coherent radio emission from the cascade of particles produced in a high-energy particle interaction. In other words, ANITA will detect a 'snap' in the radio frequencies caused by the interaction of an ultra-high energy neutrino.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

Find more information about USAP projects by viewing individual project web sites.

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In order to detect these rare and faint Askaryan pulses, a large, radio-transparent medium (such as ice) in a radio-quiet area (such as Antarctica) is required.

Field Season Overview:

A forerunner team will arrive in early November and begin setup and initial mechanical integration at the Williams field Balloon facility. Required support at this stage will mainly be help with finding and unloading shipped equipment, and setting up power and network distribution. The integration team will grow to about 12 by mid November and payload integration and testing will continue until the system is flight ready by December 1, awaiting the OK for launch by the NASA Balloon support team. Some ANITA members will be rotated out near the end of November just prior to this, with the team strength remaining at about 12 members, now including a subgroup whose mission will be to deploy several ground calibration systems (one at Taylod DOme and one at WAIS divide) that will help validate the payload just after it reaches float altitude the day of the launch. Once the launch-ready state is attained, the system continues to be exercised continuously, gathering engineering and calibration data until a successful launch is achieved. At that point, the team goes into a highly intensive 24-36 hour period where the payload is exercised via line-of-sight telemetry and all of the flight systems are tuned for the flight duration. At the end of the line-of-sight period the team then decreases by about half initially, and if the flight continues in good order, the team can be decreased down to about 3-4 members who await the landing and recovery, and are tasked to do the final packing and retrieval of the data vaults. Support required for the final recovery is dependent on the circumstances of the landing.

Deploying Team Members:

- Patrick Allison
- Konstantin Belov
- Dana Braun
- John Clem
- Abigail Goodhue
- Brian Hill
- Christian Miki
- Matthew Mottram
- Ryan Nichol
- Kimberly Palladino
- Andrew Romero-Wolf
- David Saltzberg (Team Leader)
- Gary Varner

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Science Project Details: 2008-2009

Austral High-Latitude Atmospheric Dynamics

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-110-M/S

ASC POC/Implementer:
Charles Kaminski

Dr. Gonzalo Hernandez (Principal Investigator)
hernandez@uw.edu
http://cedarweb.hao.ucar.edu/

University of Washington
Earth and Space Sciences
Seattle, Washington

Supporting Stations: McMurdo Station, South Pole Station
Research Locations: Arrival Heights (ASPA 122), Atmospheric Research Observatory

Project Description:

This project continues long-term observation, characterization, and understanding of high-latitude atmospheric motions, in particular mesospheric motions and thermospheric persistent vertical winds near Arrival Heights and simultaneously with those at South Pole and Mount John, NZ. Wintertime mesospheric kinetic temperature observations have shown the presence of dynamical coupling between the stratosphere and the upper regions of the atmosphere in the Southern Hemisphere. Results indicate that the dynamical processes leading to the stratospheric warming or cooling are already in place during the austral winter and the early mesospheric signals lead to the potential capability to estimate the springtime ozone hole.

Field Season Overview:

SOUTH POLE The experiment is housed on the second floor of Atmospheric Research Observatory (ARO). Observations occur during austral winter and calibration during the rest of the year. Year-round, the project requires technical support 2 hours per day. A Continental United States (CONUS) party performs maintenance, repair and calibration each austral summer.

McMURDO STATION The experiment is housed at Arrival Heights.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Observations occur during the austral winter and calibration during the rest of the year. Year-round, the project requires technical support 3 hours per day. A CONUS party performs maintenance, repair and calibration each austral summer.

SINGLE TEAM, TWO STATIONS As the same team calibrates and maintains the experiments at South Pole Station and Arrival Heights during the austral summer, site visits occur serially and in parallel: first to Arrival Heights, then South Pole Station, and back to Arrival Heights, if necessary. If no additional maintenance is necessary at Arrival Heights, the team will depart Antarctica upon return from South Pole Station. Dates listed are estimates and like to change upon close of the observation season in October. The single-team, two-station approach requires coordination between McMurdo and South Pole station planners.

Deploying Team Members:

- Stephen Barlow
- Michael McCarthy (Co-PI)
- Bryan Venema

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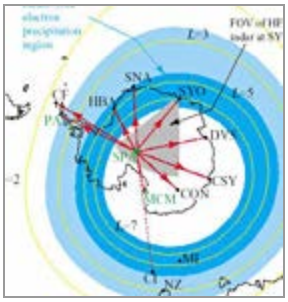
Science Project Details: 2008-2009

A VLF Beacon Transmitter At South Pole



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-108-S

ASC POC/Implementer:
Charles Kaminski

Dr. Umran Inan (Principal Investigator)
inan@nova.stanford.edu
http://www-star.stanford.edu/~vlf/south_pole/south%20pole.htm

Stanford University
Department of Electrical Engineering
Stanford, California

Supporting Stations: South Pole Station
Research Locations: B2 and MAPO

Project Description:

This project addresses questions concerning upper atmospheric effects of solar proton pvents and magnetosphere/ionosphere coupling. Researchers plan to continue their measurements of both steady and burst precipitation of relativistic (greater than 300 Kiloelectronvolts (KeV)) electrons from Earth's magnetosphere using a very-low-frequency (VLF) beacon transmitter. In addition, the research team will measure the extent of relativistic electron precipitation by means of associated amplitude and phase variations on various Antarctic stations. The availability of the South Pole VLF beacon transmitter will synergistically enhance other Antarctic Upper Atmospheric research efforts, such as the Automatic Geophysical Observatory (AGO) program.

Field Season Overview:

This season, researchers will re-install the VLF transmitter hardware and software. They will do some restructuring and construction of the equipment at McMurdo Station before traveling to South Pole to install the hardware, perform system tests, and make comprehensive diagnostic measurements.

Deploying Team Members:

- Evans Paschal

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Science Project Details: 2008-2009

ELF/VLF Observation In The Southern Pacific Ocean

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-327-N

ASC POC/Implementer:
Andrew Nunn / Bruce Felix

Dr. Umran Inan (Principal Investigator)
inan@nova.stanford.edu
http://www-star.stanford.edu/~vlf/pars/pars.htm

Stanford University
Department of Electrical Engineering
Stanford, California

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: RVIB Nathaniel B. Palmer/Science of opportunity

Project Description:

This research program addresses the need for very-low frequency (VLF) measurements at the geomagnetic conjugate point of the High-Frequency Active Auroral Research Program (HAARP) HF heating facility in Gakona, AK. Observations on the NBP contribute to current on-going studies of magnetospheric wave-injection, wave growth and amplification, and particle-loss mechanisms in the Earth's radiation belts. More specifically, the VLF receiver allows researchers to observe conjugate, ducted, whistler mode signals excited by HAARP and related triggered emissions and particle precipitation. In addition, the regularly scheduled cruises of the NBP provide access to the geomagnetic conjugate point for the central United States, a region of intense lightning activity and lightning-related phenomena.

Field Season Overview:

The project will continue to collect science data as the RVIB Nathaniel B. Palmer (NBP) cruises. The receiver system will require the part-time attention of an operator to schedule data acquisition and archive data to external hard drives, which will be shipped to Stanford University at the end of the cruise for data retrieval. Empty hard drives will be returned to the NBP to use as spares for the next cruise.

Project Indexes

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Science Project Details: 2008-2009

ELF/VLF Observation Of Whistler-Mode Waves, Lightning Discharge, And Gamma-Ray Events From Palmer Station

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-336-P

ASC POC/Implementer:
Rob Edwards

ELF/VLF observations of lightning discharges, whistler-mode waves and electron precipitation at Palmer Station.

Dr. Umran Inan (Principal Investigator)
inan@nova.stanford.edu
http://vlf.stanford.edu/research/whistler-mode-wave-studies-palmer-station-antarctica

Stanford University
Department of Electrical Engineering
Stanford, California

Supporting Stations: Palmer Station
Research Locations: Terra Lab/glacier antenna

Project Description:

Whistler-mode waves play a major role in controlling the dynamic evolution of relativistic electron populations in the Earth's radiation belts. They regularly penetrate the ionosphere and can be detected at ground-based stations. Because of its remoteness from anthropogenic electromagnetic noise sources, Palmer Station remains one of the most electromagnetically quiet ELF/VLF receiving sites in the world, allowing researchers to take full advantage of this extremely sensitive receiver system. The system records broadband data (full waveform data sampled at 100 kHz) as well as narrowband data (the demodulated amplitude and phase of narrowband VLF transmitter signals) 24 hours a day, 365 days a year. The scientific investigations involving these data are focused on magnetospherically generated whistler-mode waves; global lightning and thunderstorm activity; the characteristics of lightning discharges associated with terrestrial gamma ray flashes; and the ionospheric effects of gamma ray

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Field Season Overview:

The project experiment requires maintaining the VLF antenna and receiver in working condition. The antenna requires yearly maintenance and calibration and occasional inspection. The electronics are maintained by the science technician in the IMS building at Palmer Station.

Deploying Team Members:

- Daniel Goldin

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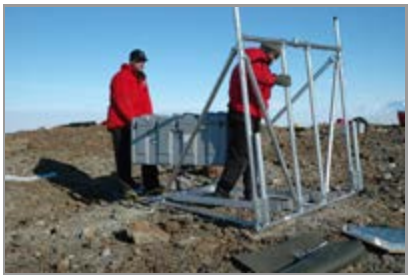
Science Project Details: 2008-2009

Collaborative Research: Development Of A Power And Communication System For Remote Autonomous GPS And Seismic Stations In Antarctica



IRIS and UNAVCO staff install a prototype GPS system on Minna Bluff. The system is designed to withstand the severe wind conditions at this location while testing new technologies including Iridium communications and wind turbines. Photo by Bjorn Johns

Program Manager:
Dr. Thomas Wagner

Event Number: G-296-M/S

ASC POC/Implementer:
Chad Naughton

Mr. Bjorn Johns (Principal Investigator)
johns@unavco.org
http://facility.unavco.org/polar

UNAVCO
Wellington, Undefined

Supporting Stations: McMurdo Station, South Pole Station
Research Locations: McMurdo and South Pole stations, Transantarctic Mountains

Project Description:

This project is a collaborative effort between the geoscience community, IRIS, and UNAVCO (G-295) to develop next-generation power and communication systems for GPS and seismic observatories in Antarctica. New systems will enable the polar science community to obtain critical, new data sets to address fundamental questions about the nature and behavior of the crust and upper mantle beneath Antarctica and their relationship to ice sheet dynamics and climate. It has long been recognized that addressing such questions requires continuous, autonomous recording of GPS and seismic data for a period of two or more years. This project will design, integrate, and test power and communication systems optimized for ease of deployment and reliable multi-year operation in severe polar environments. The systems will be made available to the science community as part of the IRIS and UNAVCO equipment pools once they are deemed field-worthy.

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Field Season Overview:

McMURDO STATION The project will relocate the Minna Bluff seismic station to a new location on Minna Bluff, and perform maintenance and upgrades on the Minna Bluff GPS station. The project team will also perform maintenance and upgrades on the GPS prototype station at Iggy Ridge in the Miller Range, including an early-season reconnaissance flight that may be performed by other science groups in the area. Project personnel will also reconfigure and upgrade the GPS, seismic, and GPS/seismic integrated test bed systems at Observation Hill.

SOUTH POLE The project team will upgrade the existing GPS and seismic test facilities near South Pole Station, located near the V-8 vault between ARO and the elevated station. Project personnel will also perform minimal maintenance to the seismic test facility at SPRESSO.

Deploying Team Members:

- Seth White

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Science Project Details: 2008-2009

Dry Valley Seismic Project

Program Manager:
Dr. Mark Kurz

Event Number: G-078-M
NSF/PLR-DoD MOA

ASC POC/Implementer:
John Rand

Dr. Robert Kemerait (Principal Investigator)
kemerait@tt.aftac.gov
http://www.afisr.af.mil/units/aftac/index.asp

United States Air Force
AFTAC
Patrick AFB, Florida

Supporting Stations: McMurdo Station
Research Locations: Dry Valleys

Project Description:

The Dry Valleys seismic project monitors regional and global seismicity. The Dry Valleys stations are part of the Air Force Technical Applications Center's (AFTAC) southern network, which accumulates near-real-time data from nine locations in the southern hemisphere. The data is telemetered to the National Data Center in Florida and made available to the international scientific community.

Field Season Overview:

The team will be traveling to Bull Pass and Mount Newall to refuel the diesel generators and perform battery maintenance checks. They will also perform repairs of the Bull Pass system, as required, and will replace the batteries at Bull Pass at the beginning of the season to ensure optimal conditions for winter operation.

Deploying Team Members:

- Andrew Bliss (Team Leader)
- Mark Boris
- Don Byrd
- Joe Lindsay

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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- William Parmer
- Brian Rickert (Team Leader)

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Science Project Details: 2008-2009

Temporal Variability In Natural And Anthropogenic Disturbance Of McMurdo Station

The photo is from our terrestrial sampling, from left to right the individuals in the picture are: Terry Palmer, Steve Sweet, Andrew Klein, and April Gossman. Photo by Ann Linsley

Program Manager:
Dr. Polly Penhale

Event Number: B-518-M

ASC POC/Implementer:
Chad Naughton

Dr. Mahlon Kennicutt (Principal Investigator)
m-kennicutt@tamu.edu
http://antarctica.geog.tamu.edu

Texas A & M University
Oceanography
College Station, Texas

Supporting Stations: McMurdo Station
Research Locations: McMurdo Station

Project Description:

Antarctica represents perhaps one of the most carefully tended and strictly monitored habitats on Earth. Aside from the manifest desire to protect the flora, fauna and the atmosphere of a relatively pristine environment, there is the value the extreme southern latitudes provide as a virtual baseline barometer of global pollution. The Antarctic Treaty's Protocol on Environmental Protection, supplemented by the policies and practices of the nations who work and do science there, have combined to focus scrutiny on any anthropogenic impacts that can be foreseen or detected. This project collects a system of observations that should enable scientists to be more aware of any such impacts on both marine and terrestrial habitats in and around McMurdo Station. The observations are located precisely and tracked over time. Researchers use geographic information systems (GIS) techniques and geostatistical methods to organize these diverse data sets into a coherent, coordinated framework. The results should provide additional fundamental scientific information for developing a long-term strategy to

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document and minimize the impacts of future science and support operations on Antarctic resources and values.

Field Season Overview:

The project requires the same GPS support as last season, with dedicated use of a backpack GPS unit. The marine portion of the project will require diving support, the services of the Reed Drill, a dive hut, and use of a pooled Pisten Bully. The terrestrial portion of the project will require several days use of a pooled pick up to collect samples. The research team requires laboratory space to perform toxicity tests, as well as a staging area and office space.

Deploying Team Members:

- Andrew Klein (Co-PI)
- Terence Palmer
- Jennifer Pollack
- Stephen Sweet

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Science Project Details: 2008-2009

Development Of A Remotely Operated Vehicle For Under-Ice Research In Polar Environments

Launching the remotely operated vehicle SCINI through a Jiffy drill hole in the sea ice. The Scott tent is a portable control room where the pilot, navigator and scientist for each mission work. Photo by Stacy Kim, Moss Landing Marine Labs

Program Manager:
Dr. Roberta Marinelli

Event Number: B-174-M

ASC POC/Implementer:
Chad Naughton

Dr. Stacy Kim (Principal Investigator)
skim@mlml.calstate.edu
http://scini.mlml.calstate.edu/

San Jose State University
Moss Landing Marine Laboratories
Moss Landing, California

Supporting Stations: McMurdo Station
Research Locations: Crary Lab, McMurdo Other site, Explorers Cove, Hut Point, Sea Ice, Turtle Rock

Project Description:

In marine habitats worldwide, the zone between scuba-diving depths (to 40 meters) and surge-free depths (below 200 meters) is poorly studied. Remotely Operated Vehicles (ROVs) are often limited to deeper depths by wave surge that hampers the ability to maintain a fixed station. Under ice-covered seas, wave motion ranges from minimal to nonexistent. Sea ice also provides a stable platform from which to deploy and operate the ROV. ROVs previously needed a one-meter-diameter ice hole, requiring substantial logistical support. This project will deploy a ROV that fits through a 15-centimeter hole drilled with a hand-held power head, providing access to sites previously inaccessible to divers or standard ROVs. Using the ROV, researchers hope to map and measure historical, submerged structures; survey and photograph two deep, benthic communities; and to conduct

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general sonar mapping.

Field Season Overview:

This project will operate out of McMurdo Station, Antarctica, between the start of Main Body and the sea ice closure (approximately 01 October to 15 December). Researchers will deploy an ROV that is purpose built for under-ice research. The seven-member project team (including a PolarTREC teacher) will deploy for two weeks to the sea ice near Heald Island, contingent on a safety assessment by PHI for helicopter operations. The project will conduct three, one-day helicopter deployments to the Bay of Sails. Other field sites include Cape Armitage (south and north sides, and offshore); the jetty; areas directly in front of the station, including the sewer outfall, Hut Point, Cinder Cones, Cape Evans, and Turtle Rock. The team will dive with scuba and surface supply to test and observe the performance of the ROV. The project requests that holes are drilled and a hut transported for locations near McMurdo Station. The team requires a dedicated Pisten Bully and shared-use snowmobiles to access locations from Cape Armitage to Turtle Rock, as well as a towable dive “tomato” for use at Cape Armitage and Hut Point. The project requests one Hotsy for recovering equipment, as needed. Researchers will use Crary Lab facilities, including the aquarium, refrigerators, freezers, hoods, tool and staging areas to assemble, test and modify the ROV and process science payloads. The educational component of this project will utilize local computer facilities. The project will require carpentry and Heavy Shop resources to assist in modifying the ROV, as necessary.

Deploying Team Members:

- Francois Cazenave
- Thomas Dawe
- Marco Flagg
- Scott Heeschen
- James O'Sullivan
- Cameo Slaybaugh
- Jeff Weekley
- Bob Zook (Co-PI)

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Science Project Details: 2008-2009

Collaborative Research: BICEP2 And SPUD - A Search For Inflation With Degree-Scale Polarimetry From The South Pole

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-039-S

ASC POC/Implementer:
Charles Kaminski

Dr. John Kovac (Principal Investigator)
jmkovac@cfa.harvard.edu
http://www.cfa.harvard.edu/CMB/bicep2/

Harvard University
Cambridge, Massachusetts

Supporting Stations: South Pole Station
Research Locations: DSL and MAPO

Project Description:

The Cosmic Gravitational-wave Background (CGB) imprints a signature in the polarization of the Cosmic Microwave Background (CMB). Detecting that signature is arguably the most important goal in cosmology today. BICEP is the first CMB polarimeter specifically designed to search for the signature of the CGB. Since 2006, BICEP has mapped about 2% of the sky that is uniquely free of galactic confusion. SPUD (Pryke A-149-S, aka "The Keck Array") is an array of receivers similar to BICEP2 and together they provide a further increase in mapping speed and the possibility of multiple frequencies. These receivers are more compact, use pulse tube cryogenic refrigerators rather than liquid helium, and share the former DASI mount near MAPO. This work comprises two projects: Clem Pryke's SPUD/Keck Array component (A-149), and John Kovac's BICEP2 component (A-039).

Field Season Overview:

BICEP2 is essentially an upgrade for the BICEP1 (A-033-S) receiver and is intended to replace it on the BICEP telescope mount with as little change as possible to the BICEP operational procedures, infrastructure, and support requirements as they have been established over the past three years.

Shortly after station opening the BICEP1 (A-033-S) summer team will arrive

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to relieve winterover Steffen Richter and to conduct season-end calibrations and observations, assuming adequate remaining LHe supply in the month of November. BICEP1 will then be packed up and returned to the United States in December.

In late January a team will look at the support structures in MAPO in preparation of installing SPUD the following year.

Deploying Team Members:

- Randol Aikin
- Justus Brevik
- Charles Dowell (Co-PI)
- Sunil Golwala (Co-PI)
- Andrew Lange (Co-PI)
- Hien Nguyen (Co-PI)
- Walter Ogburn
- Steffen Richter
- Chris Sheehy
- Rashmi Sudiwala

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Science Project Details: 2008-2009

Mount Erebus Volcano Observatory II (MEVO II): Surveillance, Models, Impacts And Outreach

Program Manager:
Dr. Thomas Wagner

Event Number: G-081-M

ASC POC/Implementer:
John Rand

Dr. Phillip Kyle (Principal Investigator)
kyle@nmt.edu
http://erebus.nmt.edu/

New Mexico Institute of Mining and Technology
Department of Earth & Environmental Science
Socorro, New Mexico

Supporting Stations: McMurdo Station
Research Locations: Mount Erebus

Project Description:

Mount Erebus on Ross Island is the most active volcano in Antarctica. Its persistent convecting lava lake of anorthoclase phonolite magma is unique among volcanos. The lake and underlying magmatic system emit volcanic gases into the pristine Antarctic atmosphere. Because of the access researchers have to the mountain and the nature of its small strombolian eruptions, Mount Erebus has become a model volcano for study. This project is a continuation of research conducted over the past seven field seasons, during which the team installed six integrated geophysical/geodetic surveillance observatories, monitored other seismometers, made measurements of gas emissions, and took GPS measurements to observe deformation of the volcano. The seismic networks allow an understanding of the eruptive behavior and dynamics of Mount Erebus, and inversion of the seismic data will allow topographic imaging of the magma chamber and plumbing inside the volcano.

Field Season Overview:

From late October through early November, the project team will use helicopter support to service an array of 23 seismometers installed around the flanks and summit of Mount Erebus During early to mid-November, the team will use helicopter support to deploy 20 seismometers along a line

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between Cape Royds and Cape Crozier. These 20 seismometers will be recovered in early January.

The project team will occupy the Lower Erebus Hut (LEH) for about six weeks starting in late November and use the site as a base of operation for work on Mount Erebus and the surrounding area. The Berg Field Center will establish a tent camp to accommodate six individuals for acclimatization purposes at Fang Glacier. In late November, a large team will occupy LEH. The field team will deploy up to 180 seismometers in the summit area of Erebus for a three- to four-week deployment. To image the interior of the volcano, the project will detonate 15 explosive charges. Five of these shots will be in the vicinity of capes Royds and Crozier, Windless Bight and the Mount Bird saddle. The detonation will require day helicopter trips to drill the ice holes, and to transport and detonate the explosives. Another 10 shots will occur in the summit area. The ice core drill team and blasters will work from LEH in late December.

The project will continue to use Building 71 at Arrival Heights for the radio receivers for the seismic stations and video signal from the camera on the Erebus crater rim. A science technician from Crary Lab will provide year-round maintenance of video recording equipment and seismic-data acquisition systems at McMurdo Station.

This season will see considerable project interaction with colleagues from UNAVCO and IRIS/PASSCAL. Those projects will provide peripheral support, such as maintaining a GPS station at MACZ and installation of a seismic station at ICEZ.

Deploying Team Members:

- Timothy Burton
- Benjamin Dickinson
- Terrance Gacke
- Galen Kaip
- Omar Marcillo
- Clive Oppenheimer
- John Wood
- Daria Zandomeneghi
- Matthew Zimmerer

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Science Project Details: 2008-2009

Collaborative Research: Antarctic Automatic Weather Station Program (AWS), 2007-2010

Program Manager:
Dr. Peter Milne

Event Number: O-283-M

ASC POC/Implementer:
John Rand

Dr. Matt Lazzara (Principal Investigator)
mattl@ssec.wisc.edu
http://amrc.ssec.wisc.edu/aws.html

University of Wisconsin Madison
Space Science and Engineering Center/AMRC
Madison, Wisconsin

Supporting Stations: McMurdo Station
Research Locations: McMurdo Station, South Pole Station, WSD, South Pole Other

Project Description:

This continuing project has established a network of automatic weather stations (AWS) on the antarctic continent and several surrounding islands. These facilities measure surface wind, pressure, temperature, and humidity. Some also track other atmospheric variables, such as snow accumulation and incident solar radiation. The data are transmitted by satellite to a number of ground stations and used for weather forecasting, climatology, general research, and support of the USAP, especially the Long Term Ecological Research programs at McMurdo and Palmer stations. The AWS network has grown from a small-scale program in 1980 into a significant and reliable data collection and retrieval system that is now indispensable for forecasting and research.

Field Season Overview:

General Overview: The field work for this project will concentrate project resources at the Ross Ice Shelf, West Antarctica, near McMurdo Station and possibly South Pole Station. The project typically requires 20 hours of helicopter support from McMurdo Station; four to five days of Twin Otter support from McMurdo Station; three to four days of Twin Otter support from West Antarctica; and possible one day of Twin Otter support from South Pole Station. The project team will continue collaborative programs with other international Antarctic programs as logistical support capabilities allow.

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The project will conduct the following activities during the 2008-2009 field season: 1. Install three new AWS on the Ross Ice Shelf in support of Ross Ice Shelf Air Stream (RAS) research objectives, expanding the project's network of stations on the Ross Ice Shelf to the eastern half. 2. Work with RPSC to develop a plan to deploy a "tall tower" of up to 32 meters at a location near McMurdo Station. 3. Repair as many of the non-transmitting stations as possible. 4. Project collaboration requires that AWS equipment may be shipped to locations outside direct RSPC support. There are circumstances where using the RPSC/USAP logistical support system may be desirable. For example, delivery of AWS items for deployment by Italian or French personnel may be requested via McMurdo Station to Terra Nova Bay or Dome Concordia. Also, there is a possibility the project would provide an AWS to the United States-Norwegian traverse in 2008-2009. The project will largely work directly with the logistics systems of the other countries. Locations include, but are not limited to: IPEV and JARE at Hobart and Freemantle, Australia; JARE at Cape Town, South Africa; and the British Antarctic Survey, UK.

Tall Tower Site: The site will be located approximately twice the distance from McMurdo Station as is the Ferrell Site. The exact location will be determined at the AWS meeting in June. Logistical support will depend on an exact location. The estimated cargo weight is 2,000 pounds (four to five times a typical AWS station). Cargo will be assembled at McMurdo Station, with most cargo already staged at McMurdo Station. On-site work will require a field team of up to three riggers and two O-283 personnel for two days. Cargo, including camp and survival gear, is estimated at 3,500 pounds. Transportation via Twin Otter during the period before Thanksgiving is preferred, but not required.

Ross Ice Shelf Installations at Roosevelt Island and South Ross Ice Shelf 1. Roosevelt Island may require a fuel and refueling depot, depending on the selected AWS location relative to Roosevelt Island. 2. The South Ross Ice Shelf site may be located at the refueling site used to reach the POLENET sites last season. The AWS could be deployed via a ship of opportunity with a flight to the refueling site by another program. An AWS is also proposed for the southern part of the Ross Ice Shelf: • 85.00 deg S, 150 deg W • 84.25 deg S, 170 deg W (this site could be located where the South Pole Traverse route crosses 170 W, making it accessible from the traverse for future servicing)

Megadunes AWS Servicing Requirements 1. The project will retrieve a non-working AWS 2516 from the Megadunes site, a recording AWS located between AWS 2516 and 2769, and service 2769, as necessary. 2. Two team members (possibly one O-283 and one mountaineer) 3. Weight out (cargo) approximately 250 pounds 4. Weight return (cargo) approximately 500 pounds (two stations for return) 5. This is a lower priority relative to other AWS work.

South Pole 1. There may be some AWS servicing from South Pole Station if AWS experience problems during the austral winter. Cargo to South Pole Station would weigh approximately 500 pounds.

West Antarctic AWS Requirements 1. Byrd Surface Camp AWS will be replaced with a new AWS antenna tower, requiring a two-member field team, 400 pounds of cargo and estimated ground time of four hours. 2. The Siple Dome AWS will be serviced with a tower extension, requiring a two-member field team with approximately 400 pounds of cargo and ground time of four hours. 3. The WAIS AWS will be raised and serviced while project personnel are at WAIS divide, requiring no flight time. 4. The Erin AWS site will be serviced either from WAIS Divide Camp or South Pole station, if there is other AWS tasking from South Pole Station. A one- or two-member field team will require two to four hours ground time and 250 pounds of cargo. 5. AWS deployments will occur to the east of WAIS Divide Camp. The sites may be collocated with POLENET sites to leverage logistical support of POLENET for additional AWS deployments. The project may propose other stand-alone AWS sites. 6. The project may service other AWS sites in West Antarctica, as necessary. 7. If all activities above occur, the project will request four to five flying days from WAIS Divide or another location. 8. Total cargo from McMurdo Station to WAIS Divide Camp is approximately five AWS at 2,000 pounds.

Ross Island Helicopter Support Sites 1. The project requests 20 helicopter hours to service the expanded AWS network now located within helicopter range from McMurdo Station. The field season is planned as early (before Christmas) and late (after Christmas). At this time, a 10-hour allotment for each is sufficient.

Deploying Team Members:

- John Cassano (Co-PI)
- Shelly Knuth
- Melissa Richards
- Jonathan Thom (Team Leader)
- Gregory Tripoli (Co-PI)
- George Weidner (Co-PI)

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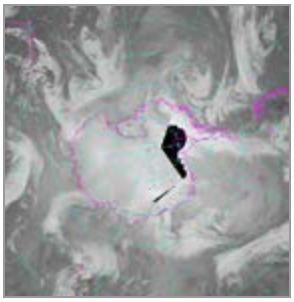
Science Project Details: 2008-2009

Antarctic Meteorological Research Center (AMRC)



Program Manager:
Dr. Peter Milne

Event Number: O-202-M

ASC POC/Implementer:
John Rand

Dr. Matt Lazzara (Principal Investigator)
mattl@ssec.wisc.edu
http://amrc.ssec.wisc.edu

University of Wisconsin Madison
Space Science and Engineering Center/AMRC
Madison, Wisconsin

Supporting Stations: McMurdo Station
Research Locations: On station

Project Description:

The Antarctic Meteorological Research Center (AMRC) collects a variety of Antarctic and southern hemisphere meteorological data and provides it to the Antarctic community in support of research, education, and operations. At McMurdo Station, AMRC researchers meet with sources and users of this data in a continual effort to refine the process. AMRC receives meteorological and climatological data from Palmer and South Pole stations for distribution on its Internet site. Project team members have developed a system to better capture data from Antarctic automatic weather stations (O-283) and acquire key satellite imagery for inclusion in AMRC's Antarctic composite imagery. The goal is to improve the availability and flow of meteorological data for the benefit of researchers everywhere.

Field Season Overview:

The AMRC project will complete the third phase of a computer-modernization project at McMurdo Station. During the field season, the AMRC aims to accomplish the following:

1. The final phase of the computer modernization is to install a backup server system for the primary AMRC systems at McMurdo Station. This system must be installed at the Joint Space Operating Center (JSOC), given heat issues in the Mac Weather server room. If this system cannot be installed at

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the JSOC, or another agreeable location on station, AMRC will not purchase this system and will not deploy it. The project also requests IP address and name set up for this system. The team prefers to coordinate with RPSC IT to arrange the set up in advance of shipment.

2. AMRC will complete its migration to more robust data-transmission methods and update software processing on station. The team will also verify all operating system and application software as featuring the latest patches.

3. The project team will work with personnel on station to continue the web page and ftp service AMRC provides, easing Internet downloads from off station. The team will coordinate with RPSC, Mac Weather and SPAWAR on any similar, complimentary, or overlapping activities.

4. Project personnel will coordinate with RPSC to acquire weather observations from various sites including South Pole, Palmer and McMurdo stations, and AFTAC sites, and Arrivals Heights. The team will work directly with other agencies to acquire weather observations, including NASA (JSOC, McMurdo Station buildings 69 and 71) and SPAWAR (Mac Weather's observational database). The AMRC requests to receive daily situation reports for archive of weather information from the USAP research vessels. As the Lamont Doherty Earth Observatory (LDEO) may not be able to provide higher-resolution USAP research vessel data, the AMRC, LDEO, and RPSC should discuss alternatives, including providing the data to AMRC via CD or DVD.

5. The team will present a Wednesday Science Lecture during the deployment.

6. The AMRC project requires an assigned POC at McMurdo Station to assist in monitoring the system and change tapes each month. The project will train any RPSC-assigned staff regarding caretaker duties. This includes introducing the McMurdo Research Associate to the AMRC activities and operations.

7. The team will possibly update and replace the AMRC Crary Lab weather display, with specifics coordinated with the Crary Lab manager.

8. Two project team personnel deployed in conjunction with the AWS project will require PUSH training.

9. The project requests the satellite acquisition schedule from the X-/L-/S-band satellite reception system at McMurdo Station prioritize the Aqua and Terra satellites first, and DMSP next. The project requests the secondary L-/S-band-only system primarily capture NOAA satellites, with emphasis on the KLMN satellite series.

10. The AMRC will coordinate with the South Pole Meteorology Office and Palmer Station research associate to receive meteorological data from both locations. The team will coordinate on an ad hoc basis regarding the satellite and AWS ingest system(s) at Palmer Station.

11. The project continues to recommend that the USAP follow the World Meteorological Organization Resolution Number 17; the spirit of which

includes research and supply vessels as well as aircraft. Resolution language follows.

"THE EXECUTIVE COUNCIL,

NOTING:

(1) That supply ships operation in the Antarctic have adequate communication facilities and may carry meteorological staff,

(2) That aircraft are extensively used for the supplying of bases in the Antarctic,

CONSIDERING:

(1) That supply ships do not at present always make and transmit meteorological observations,

(2) That most supply ships are also suitable for the carrying out of upper-air observations,

(3) That aircraft reports are of particular importance in the area south of 60°S to supplement data from radiosonde/radiowind stations,

URGES MEMBERS to ensure that:

(1) All supply vessels operating in the Antarctic make regular surface synoptic observations at main synoptic hours, and transmit these data to appropriate radio or coastal ground stations in accordance with procedures presented in the Manual on the Global Telecommunications System (GTS), Volume I, Part I, Attachment I-1 and WMO Publication No.9 TP:4, Volume D,

(2) Supply vessels, whenever practicable, also make upper-air observations and transmit these reports on a real-time basis,

(3) Aircraft operating south of 60°S make observations as a matter of routine and transmit them to the appropriate radio stations or satellites for further distribution on the GTS on an agreed format,

REQUEST the Secretary-General to invite Members, in particular Parties to the Antarctic Treaty, to obtain the maximum collaboration from operators of ships and aircraft in implementing this resolution."

Deploying Team Members:

- Shelly Knuth

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Science Project Details: 2008-2009

Polar Experiment Network For Geospace Upper-Atmosphere Investigations: PENGUIn

The Automatic Geophysical Observatories (AGOs) consist of a suite of nearly identical instruments (optical and radio wave auroral imagers, magnetometers, and narrow and wide band radio receivers) placed at locations on the Antarctic polar plateau. They are solar/wind powered and transmit data real-time via IRIDIUM. Photo by Jeff Chang

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-112-M

ASC POC/Implementer:
Douglas Miller

Dr. Marc Lessard (Principal Investigator)
marc.lessard@unh.edu
http://www.space-antarctica.org

University of New Hampshire
Space Science Center
Durham, New Hampshire

Supporting Stations: McMurdo Station
Research Locations: AGO 1, 2, 3, 5, AGAP South

Project Description:
The Automatic Geophysical Observatory (AGO) network is a suite of nearly identical instruments (optical and radio-wave auroral imagers, magnetometers, and narrow- and wide-band radio receivers) at remote locations on the polar plateau. This project studies the coupling of the solar wind to ionospheric and magnetospheric processes, emphasizing polar cap dynamics, sub-storm phenomena, and space weather.

Field Season Overview:
Service Automatic Geophysical Observatories (AGOs) P1, P2, P3 and P5.

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Deploying Team Members:

- Jeff Chang (Team Leader)
- Bob Melville (Team Leader)

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Science Project Details: 2008-2009

Collaberative Research: Polar Experiment Network For Geospace Upper-Atmosphere Investigations: PENGUIn - Advancing The Vision For Global Studies

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-106-M

ASC POC/Implementer:
Douglas Miller

Dr. Marc Lessard (Principal Investigator)
marc.lessard@unh.edu
http://www.siena.edu/physics/penguin/

University of New Hampshire
Space Science Center
Durham, New Hampshire

Supporting Stations: McMurdo Station
Research Locations:

Project Description:

The Polar Experiment Network for Geospace Upper?atmosphere Investigations (PENGUIn) team is proposing a major effort to support ground?based observations in Antarctica that coincide with a number of important satellite missions, including the extension of Cluster through 2009, the launches of THEMIS (2006) and e?POP (2007), as well as the Radiation Belt Storm Probes (2011). In addition to exploiting recent successes with Automated Geophysical Observatories located in the polar cap and cusp, the team will also maximize its scientific return by placing remote observatories in the auroral zone, extending to the outer radiation belt regions, as well as along the magnetic meridian that maps to the west coast of Greenland, where a conjugate chain already exists. A particularly fortuitous situation is that the Wais Divide (where a summer camp is being supported for ice core drilling), is located very near the magnetic footprint of GOES 12, with Post de la Baleine as its conjugate point in the northern hemisphere. With the placement of remote observatories in this region, simultaneous observations on the ground and at geosynchronous orbit are possible; the fact that these observations also coincide with the THEMIS orbit provides a unique opportunity for new science data returns and significant increases in scientific understanding. While the underlying science themes of this work

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program are consistent with the objectives of the various satellite missions, the proposed research consists of studies to be addressed with ground? based data alone, as well as those that are complementary to the satellite missions. These broad objectives include substorms, polar cap physics, cusp phenomena and radiation belt particle precipitation, all of which are unified through modeling with applications to space weather efforts.

Field Season Overview:

Last season we established an autonomous low-power magnetometer platform at AGAP-S located at -84.5S 77.20E. We would like to deploy one and possibly two additional autonomous low-power magnetometer platforms to extend the 40 degree magnetic meridian chain. The deployment would be from AGAP-S to the following locations: 84.41S 57.8E and 82.6S 96.76E.

It will be possible to deploy the stations using a twin-otter aircraft. The field team will require about 2 or 3 days on site to undertake the installation and verify proper operation. They will be equipped with an iridium telephone in order to test the Iridium data link for the stations.

Deploying Team Members:

- Lyndell Hockersmith
- Frederick Wilder

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Science Project Details: 2008-2009

Palmer Long Term Ecological Research (LTER): Looking Back In Time Through Marine Ecosystem Space, Physical Oceanography Component

Program Manager:
Dr. Lisa Clough

Event Number: B-021-L
NSF/PLR Award 0823101

ASC POC/Implementer:
Adam Jenkins

Dr. Doug Martinson (Principal Investigator)
dgm@ldeo.columbia.edu
http://www.lternet.edu/sites/pal/

Columbia University
Lamont-Doherty Earth Observatory
Palisades, New York

Supporting Stations: ARSV Laurence M. Gould
Research Locations: Western Antarctic Peninsula Pal-LTER large-scale grid

Project Description:

This LTER component takes responsibility for processing and analyzing hydrographic data. The data are used to describe the hydrography and circulation in the Palmer area in particular, and the western Antarctic Peninsula region in general, with a focus on developing circulation and coupled physical-biological models. The Antarctic shelf regions are influenced by circumpolar deep waters and the circulation pattern in the region shows large-scale flows influenced by topography.

Field Season Overview:

The project will conduct its summer cruise aboard the ARSV Laurence M. Gould (LMG) between approximately 01 January and 15 February each austral summer. The dates allow for 28 science days (PAL-PAL) on the cruise proper, and a two-day loading and set up period at Palmer Station prior to the cruise. This is the minimum time necessary to achieve the core scientific objectives originally identified for the program. The time period is also critical. To minimize confusing seasonal with inter-annual variability, the project must maintain a uniform observation period from year to year.

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A new sediment trap mooring will be deployed to the west of Adelaide Island, and both it and the existing Hugo Island trap mooring will be deployed annually. Five physical oceanographic moorings will be serviced on the cruise each year. The project will conduct three- to five-day field camps on Avian and Charcot islands during the LMG cruise. Zodiac support is required for each cruise to deploy to the field sites, and also to Renaud Island as time and ice conditions permit.

Standard shipboard support, including hydrographic, net, trawl, MOCNESS, acoustic sampling gear, bridge access for seabird and marine mammal surveys is required. Two, fully-equipped radioisotope vans are necessary (one for C14 and one for 3H). Marine technician support is required to deploy XBTs, XCTDs, current drifters and mooring operations. This project requires 22 science berths on each cruise. However, two berths may be made available to cooperating scientists with sufficient prior arrangement.

The education and outreach component requires image and data transfer via email of up to 1 megabyte daily from ship and shore.

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Science Project Details: 2008-2009

Antarctic Auroral Imaging

Dayside auroral imaging at South Pole. Photo by Charles Kaminski.

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-104-S

ASC POC/Implementer:
Charles Kaminski

Dr. Stephen Mende (Principal Investigator)
mende@ssl.berkeley.edu
http://sprg.ssl.berkeley.edu:80/atmos/

University of California Berkeley
Space Sciences Laboratory
Berkeley, California

Supporting Stations: South Pole Station
Research Locations: Atmospheric Research Observatory

Project Description:

More information about the electrodynamics of the polar cap region and the region's role in coupling the solar wind with the Earth's magnetosphere, ionosphere, and thermosphere is necessary to understand the Sun's influence on the structure and dynamics of Earth's upper atmosphere. The following measurements are central to this understanding: electric field convection pattern across the polar cap; and knowledge of the atmospheric response to high-latitude wave and particle energy inputs during both geomagnetically quiet and disturbed situations. To study the coupling of the solar wind to ionospheric and magnetospheric processes, the Automatic Geophysical Observatory (AGO) network uses instruments at six polar-plateau locations as well as optical and radio-wave auroral imagers, magnetometers, and narrow- and wide-band radio receivers.

Field Season Overview:

During last year's summer field season, project personnel changed the instrument filters and replaced the associated data-processing system. There are no anticipated changes to the instrument for the next, two seasons. During the three-month, Antarctic-winter dark period, however, the project will require winter-over personnel to supervise the camera. Project personnel wish to retrieve 500 megabytes per day.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

Find more information about USAP projects by viewing individual project web sites.

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Deploying Team Members:

- William Rachelson

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Science Project Details: 2008-2009

Ice Stories: A Public Educational Resource For IPY

Program Manager:
Ms. Valentine Kass

Event Number: Y-607-M

ASC POC/Implementer:
Chad Naughton

Ms. Mary K Miller (Principal Investigator)
marym@exploratorium.edu
http://icestories.exploratorium.edu

Exploratorium
San Francisco, California

Supporting Stations: McMurdo Station
Research Locations: Cape Royds, Lake Hoare, New Harbor

Project Description:

The Exploratorium (a science museum in San Francisco) will create Ice Stories, a major Web and media effort to showcase research in the Arctic and Antarctic for national and world audiences during the International Polar Year of 2007-2009. The museum will produce media stories and disseminate them through (1) a media and content-rich Internet portal that will provide context for major IPY activities and (2) a media-assets database for students and journalists in all media, as well as educators, museum partners, archivists and historians. To collect media and stories, the Exploratorium will train 16 to 20 young polar scientists in media production and narrative skills and channel their field reports through the museum's Web site.

Field Season Overview:

From November 2008 through February 2009, collaborating participants from science events in Antarctica will gather media in various formats, including text, digital photographs, and audio and video clips, and transfer them via email (for smaller files), and secure FTP or an MPEG store-and-forward device (for larger files) to Exploratorium producers to edit and post on the Website. These file transfers will total approximately 500 mb a day. Collaborating scientists will also participate in 25 live Webcasts each lasting 30 minutes using video teleconferencing facilities at McMurdo and the South Pole. The Exploratorium will stream the VTCs from their Website in San Francisco.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

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Deploying Team Members:

- Ron Hipschman
- Lisa Strong-Aufhauser
- John Weller

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Science Project Details: 2008-2009

Collaborative Research: The Ecological Role Of A Poorly Studied Antarctic Krill Predator, The Humpback Whale (Megaptera Novaeangliae)

Program Manager:
Dr. Roberta Marinelli

Event Number: B-249-L

ASC POC/Implementer:
Patricia Jackson

Dr. Douglas P Nowacek (Principal Investigator)
dpn3@duke.edu
http://www.nicholas.duke.edu/antarctica/

Duke University
Duke University Marine Laboratory
Beaufort, North Carolina

Supporting Stations: ARSV Laurence M. Gould
Research Locations: Bransfield Strait, Dallman Bay, Gerlache Strait, Neumayer Channel, around Vernadsky and Argentine Islands

Project Description:

The near extirpation of baleen whales from Antarctic waters during much the 20th century led to increased availability of krill for other predators in the Antarctic marine ecosystem. Several krill-dependant seal and penguin populations increased dramatically as a result. Over the past decade however, overall krill abundance has decreased significantly in the Peninsula, Krill predators are especially vulnerable to variability in prey populations and have been shown to alter their demography in response to changes in prey availability. How these changes cascade to other ecosystem components such as apex predators remain poorly understood. This project will use novel non-invasive tagging technology combined with traditional fisheries acoustics methods to quantify the types and frequency of prey consumed and daily consumption rates of a poorly understood yet ecologically integral and recovering krill predator in the Antarctic, the humpback whale.

Field Season Overview:

Onboard the ARSV LMG and at Palmer Station, humpback whales will be studied in the near shore waters off the West Antarctic Peninsula. During the

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day four teams will be organized: one ship-based team will conduct whale visual observations from the LMG, a second ship-based team will be responsible for hydrographic and krill patch surveys using ADCP, MOCNESS and CTD, one Zodiac based team will conduct DTag deployment and retrieval, photo identification, and focal follows of humpback whales, and a second Zodiac based team will conduct fine scale acoustic krill patch studies from a second Zodiac. At night, a survey team will be responsible for continuing surveys of currents, hydrography and krill patches. As long as a tag is still attached to a whale, a small team will continue to track the whale via the VHF beacon.

Deploying Team Members:

- Lisa Conger
- Ryan Dorland
- Ari Friedlaender (Co-PI)
- Patrick Halpin (Co-PI)
- Elliott Hazen
- Andrew Read
- Reny Tyson
- Colin Ware
- Di Wu
- Meng Zhou (Co-PI)
- Yiwu Zhu

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Science Project Details: 2008-2009

Collaborative Research: A Broadband Seismic Experiment To Image The Lithosphere Beneath The Gamburtsev Mountains, East Antarctica

Program Manager:
Dr. Vladimir Papitashvili

Event Number: G-055-M

ASC POC/Implementer:
Douglas Miller

Dr. Andy Nyblade (Principal Investigator)
andy@geosc.psu.edu
http://epsc.wustl.edu/seismology/GAMSEIS/index.html

Pennsylvania State University
Dept. of Geosciences
University Park, Pennsylvania

Supporting Stations: McMurdo Station
Research Locations: AGO 1 / AGAP South

Project Description:

This project seeks to collect detailed, passive seismic data on the Gamburtsev Mountains. Analysis of the data is expected to clarify the seismic constraints on crustal and upper mantle structure beneath and surrounding these mountains, processes that support the high elevation of this region, regional distribution of heat flow, and the tectonic framework of the interior of the East Antarctic shield. The information will help address four, fundamental geophysical questions regarding this region: 1) How have the Gamburtsev Mountains formed at an intraplate location, without a straightforward plate-tectonic mechanism? 2) What is the role of topography and heat flow in the formation of continental ice sheets in East Antarctica? 3) What is the geologic and tectonic history of the East Antarctic craton? 4) How do tectonics and regional heat flow control the formation, distribution, and stability of subglacial lakes in East Antarctica?

Field Season Overview:

This project is to be carried out over three field seasons. Field work began during the 2007 season with the deployment of 10 stations:

STATION INSTALL LAT LONG ELEV Dist. to Est Fly SEASON AGAPS time

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(km) N124 07-08 -82.0744 107.6407 3357 471 1.7 N140 07-08 -82.0086 96.7687 3576 374 1.35 N156 07-08 -81.6725 86.5040 3863 338 1.22 N173 07-08 -81.1122 77.4737 4050 377 1.36 N198 07-08 -79.8597 65.9607 3750 542 1.95 P061/AGAPS 07-08 -84.4954 77.2243 2515 0 0 P080 07-08 -82.8054 77.3636 3820 189 0.68 GM01 07-08 -83.9858 104.7200 3272 310 1.12 GM04 07-08 -82.9997 61.1120 3751 255 0.92 AGO1 07-08 -83.8596 129.6114 2810 576 2.07

Th 2008-2009 field season will include deployment of 16 additional stations, plus the service of 10 stations installed during 2007-2008.

STN INSTALL LAT LONG ELEV Dist. to Est Fly SEASON AGAPS time (km) N132 08-09 -82.0751 101.9539 3420 415 1.49 N148 08-09 -81.8670 91.5625 3650 347 1.25 N165 08-09 -81.4106 81.7935 3970 350 1.26 N182 08-09 -80.7342 73.2326 3980 424 1.53 N190 08-09 -80.3276 69.4446 3870 479 1.72 N206 08-09 -79.4044 62.8138 3575 608 2.19 N215 08-09 -78.8972 59.9328 3490 678 2.44 P071 08-09 -83.6400 77.3500 3700 96 0.35 P090 08-09 -81.9300 77.3500 3980 287 1.03 P108(CH) -80.3600 77.3500 4020 462 1.66 P116 08-09 -79.5900 77.3500 3800 548 1.97 P124 08-09 -78.8200 77.3500 633 2.28 GM02 08-09 -79.4299 97.5362 3720 640 2.3 GM03 08-09 -80.0890 86.2821 3900 508 1.83 GM05 08-09 -81.2549 50.9646 504 1.81 GM06 08-09 -79.3313 44.3042 752 2.71 GM07 08-09 -77.3100 39.7000 3800 1001 3.6

Demobilization will occur the last field season in 2009-2010.

The stations are powered with a combination of Li batteries and a secondary set of rechargable batteries charged by solar panel. The solar panel system will power the system during the austral summer, while the Li batteries should enable the system to run during the winter. Each station consists of a set of electronics and batteries in a highly insulated enclosure that weighs approximately 400 pounds, along with a seismic sensor and enclosure and solar panels with mounts. Total equipment weight per station is approximately 800 pounds. The equipment requires transport to the field camp. The project requires workspace at the field camp for assembly of each station. The station is then loaded on a Twin Otter and flown to the above locations. Permits or permission for the transport of Li batteries to field sites is required. The project requests support for 10 participants, with logistics support at AGO1 and at field camp AGAPS to occur during the following time frame: acclimatization AGO1 Nov 27 - 30 acclimatization AGAPS Dec 1 - 4 flying AGAPS Dec 5 - 23 The project requests two flight crews at AGAPS, so as to use the airframe continuously for AGAP alone (two missions per each 24 hours). Project researchers estimate 30 missions during 15 flying days.

The POC will perform camp planning, including food, shelter and other logistics.

Deploying Team Members:

- David Heeszel
- Doug Wiens (Co-PI)

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Science Project Details: 2008-2009

ANDRILL: Investigating Antarctica's Role In Cenozoic Global Environmental Change

Picture of the ANDRILL seismic survey of 2005 showing the seismic sled in orange and the drilling sled (yellow). This year's expedition will be similar in nature. Photo by Stephen Pekar, professor at Queens College, City University of New York

Program Manager:
Dr. Thomas Wagner

Event Number: G-049-M

ASC POC/Implementer:
Chad Naughton

Dr. Stephen Pekar (Principal Investigator)
Stephen.pekar@qc.cuny.edu
http://qcpages.qc.cuny.edu/offshore_new_harbor/offshore.htm

City University of New York/Queens College
Department of Geology
Flushing, New York

Supporting Stations: McMurdo Station
Research Locations: Off Shore New Harbor

Project Description:

The Offshore New Harbor (ONH) Project aims to study sediments deposited in Antarctica during the transition from the Greenhouse World (34-100 Ma) to Icehouse World (<34 Ma). The goal of the Project is to address two widely recognized but unresolved issues regarding Antarctica's history: 1) the initiation of cryospheric (>34 million years ago) development in Antarctica; and 2) the abrupt climate shift at circa 34 million years ago.

Field Season Overview:

SEISMIC SURVEY Seismic Source: A previous, over-sea-ice seismic survey conducted at the ANDRILL Southern McMurdo Sound (SMS) Project site utilized a Generator Injector (GI) air gun to mitigate the bubble train produced when energy is released in the water column. The project will utilize a similar system to that used at the SMS and MacKay Sea Valley sites. Drilling Operations: The project will use a gasoline auger mounted on a

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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sled towed by a Caterpillar Challenger 55 to drill 12- to 13-inch-diameter holes through the sea ice to enable researchers to deploy the GI gun.

Seismic Recording Equipment and Configuration: To collect and record the seismic reflection data, the project will use a 60-channel, towed land-cable (streamer) and a geometric recording system contained in a hut mounted on a sled. The entire system will be towed by the CAT 55. The recording hut and streamer will be pulled to a stop at each station location, where data will be collected. The entire system will be dragged to the next station. Gimbal-mounted geophones will be attached to the streamer on pigtails. Ground coupling is accomplished through the geophone housing that is dragged along the ground surface. A strength member is added to the cable to relieve stress on the cable conductors as the streamer is pulled from station to station.

Project team members will use two snowmobiles to drive up and down the streamer to monitor the system and ensure quality geophone coupling based on input from the seismic leader.

GRAVITY SURVEY The University of Otago, New Zealand, will collaborate on this project by undertaking a detailed gravity survey of the OHN region. The gravity survey is intended to define the intersecting N-S and E-W fault block system beneath New Harbor and to determine the nature of block tilt and the distribution of sediment between the sea floor and basement blocks. A 0.5- to 1-kilometer grid spacing is proposed for the survey over the approximate 250 km2 area of New Harbor and the ~150 km2 immediately seaward of the southern Victoria Land coastline offshore from New Harbor. Researchers will make approximately 700 point measurements.

Each set of measurements must be tied to a base station measurement. The team can establish such a measurement on land at the mouth of Taylor Valley. Establishing the value of such effort requires three trips backward and forward to Scott Base, where the Antarctic base station is located. For each run, the team would start from Taylor Valley mouth, run to another temporary station located mid-sound, and then perform the run. The mid-sound station will offer more control on tidal influence.

Deploying Team Members:

- Andrea Balbas
- Shakira Brown
- Steffan Colls
- Joanna Cyprys
- Howard Koss
- Luci Pandolfi
- Chris Plutte
- Marvin Speece (Co-PI)
- Eric Sturm
- David Sunwall

- Kirsteen Tinto
- Luke Wagner
- Kyle Webster
- Brian Williams

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Science Project Details: 2008-2009

The Role Of Resource Legacy On Contemporary Linkages Between Biodiversity And Ecosystem Processes In A Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program

Helicopter putting in the field team at Lake Vida when the temperature was -48 C.

Program Manager:
Dr. Peter Milne (acting)

Event Number: B-422-M

ASC POC/Implementer:
Rob Edwards

Dr. John Priscu (Principal Investigator)
jpriscu@montana.edu
http://www.homepage.montana.edu/~lkbonney/

Montana State University Bozeman
Land Resources and Environmental Sciences
Bozeman, Montana

Supporting Stations: McMurdo Station
Research Locations: McMurdo Dry Valleys

Project Description:

The McMurdo Long Term Ecological Research (LTER) projects will continue to investigate the McMurdo Dry Valleys as an end-member ecosystem and focus on the relative roles of legacy and extant processes on current biodiversity and ecosystem structure and function. This project will continue long-term measurements of the biological, chemical, and physical properties of McMurdo Dry Valley lakes and lake ice, with special emphasis on LTER core-research areas.

Field Season Overview:

Project researchers will conduct routine lake measurements from October through early January as part of the LTER project. The project team will use the LTER Crary Lab space (Rm. 106) for approximately ten days before field deployment in late October through early November; for approximately ten days during late November through early December; and for approximately 15 days for project close-out during late December through early January. Researchers will periodically occupy the field camps at lakes Bonney, Hoare and Fryxell from early November to early January. The field rotation will

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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begin at Lake Fryxell in early November, move to Lake Hoare the second week of November, and to Lake Bonney the third week of November. The second round of sampling will occur in early December and will follow the same lake rotation. A four-day sampling trip to Fryxell, Hoare and Bonney will occur during late December through early January and will be based primarily from Lake Hoare. Project researchers will also visit Lake Vanda and Don Juan Pond during the season to collect water samples; Canada Stream to collect water and particulate matter samples; and the ice edge or an ice hole in McMurdo Sound to calibrate the project's Seabird CTD instrument. The team will require helicopter support between McMurdo Station and the Dry Valleys from early November through early January. This includes camp put-ins, camp movement, close support for research, transportation of scientific samples back to McMurdo Station, and for camp close-out.

Deploying Team Members:

- Amy Chiuchiolo (Team Leader)

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Science Project Details: 2008-2009

Cosmic Ray Energetics And Mass (CREAM)

The CREAM team with the balloon craft while the balloon is being inflated for the launch in December 2007. Photo by: Eun-Suk Seo

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-137-M

ASC POC/Implementer:
Charles Kaminski

Dr. Eun-Suk Seo (Principal Investigator)
seo@umd.edu
http://cosmicray.umd.edu/cream/

University of Maryland
Institute for Physical Science and Technology
College Park, Maryland

Supporting Stations: McMurdo Station
Research Locations:

Project Description:

CREAM (Cosmic Ray Energetics and Mass) is a balloon-borne science payload designed to study the origins of cosmic rays. The instrument is configured with state-of-the-art particle detectors to measure cosmic-ray composition from protons to iron nuclei over the energy range of approximately 10 Teraelectronvolts (TeV) to 10 Petaelectronvolts (PeV). The goal is to observe cosmic-ray spectral features and/or abundance changes as a function of energy that might signify a limit to supernova acceleration. A command data module developed by the NASA/Wallops Flight Facility accompanies the science payload.

Field Season Overview:

The operational support necessary for the CREAM Project include lodging in McMurdo and transportation to and from Willy Field daily and on an as-needed basis. Following a successful flight, complete recovery of the balloon craft is highly desirable. If the recovery window becomes short, priority components will be identified for partial recovery.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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The cargo and TM requirements for CREAM are included in the CSBF support systems SIP (event number A-145-M)

Deploying Team Members:

- Tyler Anderson
- Prashant Bhoyar
- Michel Buenerd
- Moo Hyun Lee
- Sang Eun Lee
- Alexandre Malinine
- Antje Putze

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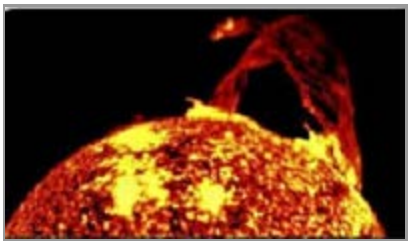
Science Project Details: 2008-2009

Observation Of Upper-Atmospheric Energetics, Dynamics, And Long-Term Variations Over South Pole Station



Effects of enhanced solar disturbances during the 2000-2002 solar-max period on the antarctic Mesosphere-Lower-Thermosphere (MLT) and F regions composition, thermodynamics and dynamics.

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-129-S

ASC POC/Implementer:
Charles Kaminski

Dr. Gulamabas Sivjee (Principal Investigator)
sivjee@erau.edu
http://www.sprl.db.erau.edu/

Embry Riddle Aeronautical University
Space Physics Research Laboratory
Daytona Beach, Florida

Supporting Stations: South Pole Station
Research Locations: South Pole Station/Atmospheric Research Observatory

Project Description:

This project investigates solar-terrestrial interactions involving atomic, molecular, and plasma processes in the upper atmosphere over South Pole Station. The work involves measuring the effects of solar disturbances on the composition, dynamics, and thermodynamics of the Antarctic thermosphere, mesosphere, and stratosphere. In particular, the researchers seek to understand these five processes: 1) The source(s) and propagation of Antarctic F-region patches; 2) Variations in the Antarctic E-region O/N2 ratio; 3) Antarctic middle-atmosphere disturbances generated by stratospheric warming events (SWE); 4) Antarctic thermospheric response to Solar Magnetic Cloud/Coronal Mass Ejection (SMC/CME) events; and 5) Antarctic upper-atmosphere response to solar variability.

Field Season Overview:

This project requires the following support: • A winter-over science technician trained and experienced in electro-optical, preferably spectroscopic, systems

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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to operate the project research facility at South Pole Station. • Adequate supply of scientific-grade, dry nitrogen for instrument purging. • Access to general hardware troubleshooting equipment, such as a digital oscilloscope. • Machine shop, electrical/electronic shop, carpentry shop and plumbing support for minor modifications to mounting and pointing of research instruments. • Continuous, 24-hour-per-day operation of all project research instruments at South Pole Station from April to September of each austral winter season. • Supply of 50 DVDs for data archival and system backup. • Access to the South Pole Station computer network for routine data transfer to the project's home institution.

Deploying Team Members:

- S. Azeem
- Christopher Lech

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Science Project Details: 2008-2009

Ground Ice Dynamics In Hyperarid Soils Of The McMurdo Dry Valleys, Antarctica

Program Manager:
Dr. Alexandra Isern

Event Number: G-121-M

ASC POC/Implementer:
Chad Naughton

Dr. Ronald Sletten (Principal Investigator)
sletten@uw.edu
http://depts.washington.edu/icylands/

University of Washington
Department of Earth and Space Sciences
Seattle, Washington

Supporting Stations: McMurdo Station
Research Locations: McMurdo Dry Valleys

Project Description:

This project seeks to elucidate the formation, stability, and evolution of ground ice in the hyper-arid climate of the McMurdo Dry Valleys by integrating automated microclimate measurements of air and soil parameters, collection and analysis of ground ice samples, and numerical modeling of ground ice stability and formation. Researchers will focus on the condensation, sublimation, and transport of water. These processes are influenced greatly by salts, which are abundant in Antarctic soils and which influence ionic diffusion and weathering processes by lowering the melting point of ice and increasing the amount of unfrozen water at subzero temperatures. Thus, the study will also investigate the dynamics of salts and subsurface ice and their interactions at sites of varying age, ice content, and microclimate.

Field Season Overview:

For the project's second field season, 5 individuals will arrive at McMurdo Station approximately 01 November, including five University of Washington faculty and students, and one or two drillers from Webster Drilling. The team will complete any new or refresher courses, stage instruments, and prepare for the field. Core research will occur in Taylor Valley, Victoria Valley, Beacon Valley, and the Asgard Range, including servicing a data logger

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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installed on Mount Fleming during the prior field season. Webster Drilling will core in Taylor Valley, Victoria Valley, and one high-elevation site yet to be determined. The research team will examine soils and subsurface ice, including mineralogy, chemistry, and water isotopes.

The project requires several helicopter trips, both with and without close support, to sites near the field camps. Night flights are requested for the longer, close-support requests. Researchers will sample dry and ice-cemented soil and ground ice. The ice-rich samples must be shipped from the field in freeze-safe boxes partially filled with blue ice. The ice will require -20 C. freezer storage at McMurdo Station pending further shipment to the United States. Field sampling will occur via coring and hand-dug pits and will use the rock drill. The team will service existing data-logger stations.

This project requests UNAVCO support for three days in Beacon Valley using the new LIDAR system to image active-patterned ground. The team will return to McMurdo Station to process and pack soil and ice samples for shipment to the home institutions. Some samples will be shipped frozen (-20 C) to Seattle. The team requests an office and staging space upon arrival at McMurdo Station and return from the field. Upon return to McMurdo Station, the project requests office space, staging space, and clean laboratory space. Office space upon the team's return can be combined with the laboratory space.

The six-member Russian team will arrive in Christchurch with the Russian program. Four of the team members will work in the Dry Valleys as outlined in this SIP. Two Russian team members will remain at McMurdo Station to process samples at Crary Lab.

Deploying Team Members:

- Tom Carpenter
- Birgit Hagedorn (Co-PI)
- David Kiehl
- Glen Kingan

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Science Project Details: 2008-2009

Collaborative Research: Benthic Faunal Feeding Dynamics On The Antarctic Shelf And The Effects Of Global Climate Change On Bentho-Pelagic Coupling

FOODBANCS2 (B-212) scientists deploy the box core from the L. M. Gould to collect sediment and seafloor animals on the West Antarctic Peninsula shelf. Photo by Sarah L. Mincks

Program Manager:
Dr. Roberta Marinelli

Event Number: B-212-L/N

ASC POC/Implementer:

Dr. Craig Smith (Principal Investigator)
craigsmi@hawaii.edu

University of Hawaii Manoa
Department of Oceanography
Honolulu, Hawaii

Supporting Stations: ARSV Laurence M. Gould, RV/IB Nathaniel B. Palmer

Research Locations:

Project Description:
Climate warming along the Antarctic Peninsula will reduce the duration of winter sea-ice cover, altering both the pelagic ecosystem and pelagic-benthic coupling. This project will test the hypothesis that benthic shelf ecosystems are highly suitable for tracking climate change because they act as “low-pass” filters, removing high-frequency seasonal noise and responding to longer-term trends in pelagic ecosystem structure and export production. Researchers will study bentho-pelagic coupling along a latitudinal climate gradient on the Antarctic Peninsula to explore the impacts of climate change and sea-ice reduction on Antarctic shelf ecosystems.

Field Season Overview:
The project will conduct three cruises over a two-year period using a summer-winter-summer sampling scheme. The first two cruises will occur in the 2007-2008 field season. During the cruise on the RVIB Nathaniel B.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

Find more information about USAP projects by viewing individual project web sites.

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Palmer (NBP) – the second cruise of the project – researchers will work at five, 600-meter-deep stations along the Antarctic Peninsula at the following approximate locations: Station AA at 63 3.2' S, 61 35' W; Station B at 64 48' S, 65 21' W; Station E at 65 59' S, 67 17' W, Station Fat 66 59' S, 69 43' W; Station G at 68 9' S, 71 1' W. The project team will deploy seafloor time-lapse cameras at Stations B and G, and collect samples and data with multiple deployments of the megacore, box core, kasten core, otter trawl, Blake trawl, epibenthic sled, Tucker trawl, Yoyo camera system, CTDs, and Zodiacs (for sea ice samples). Total ship time is estimated at 26 days (approximately 18.5 required for sampling and transit between stations) and includes transit from Punta Arenas to the first station, transit between stations, work at each station, and return to Punta Arenas.

Deploying Team Members:

- Roy Arezzo
- Angelo Bernardino
- Christian Clark
- Fabio De Leo
- David DeMaster (Co-PI)
- Elizabeth Galley
- Arthur Güth
- Shoko Kono
- Daniel Reineman
- Pavica Srsen
- Paulo Sumida
- Amanda Vinson
- Rhian Waller

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Science Project Details: 2008-2009

The Drake Passage High-Density XBT/XCTD Program

Program Manager:
Dr. Peter Milne

Event Number: O-260-L

ASC POC/Implementer:
Karl Newyear

Dr. Janet Sprintall (Principal Investigator)
jsprintall@ucsd.edu
http://www-hrx.ucsd.edu

Scripps Institution of Oceanography
Physical Oceanography Research Division
La Jolla, California

Supporting Stations: ARSV Laurence M. Gould
Research Locations: Laurence M. Gould

Project Description:

The objective of the XBT/XCTD program is to measure the seasonal to interannual variability of upper ocean temperature and geostrophic transport through Drake Passage. Closely spaced XBT (temperature) and XCTD (salinity) measurements are collected underway on six to eight L.M. Gould crossings per year. The project has been ongoing since 1996. With the multi-year time series we have observed substantial variability in circulation, transport and water properties on time scales from seasonal to interannual, and spatial scales from mesoscale eddies to the Antarctic Circumpolar Current cores.

Field Season Overview:

Underway XBT and XCTD measurements are requested on the following LMG cruises (as per the LMG Operating Schedule published 03 March 2008) field season, beginning March 2008:

LMG08-03 LMG08-07 LMG08-09 LMG08-11 LMG08-14

LMG09-01 LMG09-02 LMG09-05 LMG09-06A

The project requests sampling southbound on the cruises. Some flexibility is required dependent on weather conditions.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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The XBTs are loaded and launched using the SIO automatic XBT launcher and associated software that automates the collection of the XBT profiles. The SIO system drops an XBT probe at pre-specified locations, and prompted by the GPS location. The XBT system should be solely dedicated for the use of the XBT program. Any problems that arise in any part of the system should be referred to Janet Sprintall (jsprintall@ucsd.edu), Glenn Pezzoli (gpezzoli@ucsd.edu), and Justine Afghan (jafghan@ucsd.edu).

Approximately 70 XBTs are dropped per crossing.

**********NB: As per the project's NSF OPP award, we request 11 TSK XCTDs be dropped per XBT sampling cruise, at every half-degree between 55.5S and 60S (i.e., 55.5S, 56S, 56.5S, 57S, 57.5S, 58S, 58.5S, 59S, 59.5S, 60S, 60.5S). This means that each XBT/XCTD sampling cruise should have a box of XCTDs on board (12 probes), with one probe used as a spare in case of failure of any of the 11 probes.

The project also requests that salinity bottle samples are collected at each XCTD deployment. This bottle data will be used to calibrate the XCTD and underway thermosalinograph (TSG) data. Offsets between the bottle salt data and the TSG can be significant, and this is one way of determining the offset. The offset between two salinities is lowered when the TSG is cleaned before the crossing, and project personnel request this occur on each XBT/XCTD transect.

To undertake the XBT/XCTD sampling, project researchers request RPSC support to set up and load the XBT probes in the launcher, with the XCTD deployments, and for collection of salinity bottle samples. XBT/XCTD log sheets should note bottom depth < 800 meters, and probe success or failures. All data and log sheets should be zipped or tarred and emailed to the principal investigator when the cruise is complete. The project also requests that TSG, meteorological and navigation data from each cruise is sent on CD via U.S. mail.

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Science Project Details: 2008-2009

Collaborative Research: Microbially Mediated Alteration Of Volcanic Glass Using McMurdo Extreme Environments As Natural Laboratories

G-439 team members will study microbial interactions with volcanic rock in Antarctica's extreme environments. Photo by Hubert Staudigel, Steam vent on the summit of Mt Erebus, 2003-2004 season

Program Manager:
Dr. Alexandra Isern

Event Number: G-439-M

ASC POC/Implementer:
John Rand

Dr. Hubert Staudigel (Principal Investigator)
hstaudigel@ucsd.edu
http://earthref.org/ERESE/projects/GOLF439/2010/

Scripps Institution of Oceanography
Institute for Geophysics and Planetary Physics
La Jolla, California

Supporting Stations: McMurdo Station
Research Locations: Mt Erebus/Walcott Glacier/Taylor Valley/Cape Evans

Project Description:
Antarctica is a very harsh continent with very little life. Food webs have to be very “creative” to adjust to conditions that have been compared to life on other planets or during the early Earth. This project will use these special conditions to explore which microbes are the most successful at using nutrients and energy from volcanic rocks. The goal is to improve understanding of microbes at the bottom of the food chain: How can microbes make organic carbon by using inorganic components? Which microbes are the main players in utilizing chemical energy and nutrients from rocks and soils that are very poor in organic matter? Experiments will focus on the Extreme Environments of the McMurdo area around Ross Island, Antarctica. These will include some (ancient) lava flows and lakes in the Dry Valleys, the Royal Society Range, and on Mount Erebus.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Field Season Overview:

We are planning two field seasons of approximately three to fiive weeks for the deployment and retrieval of exposure experiments in four main areas: Mt Erebus summit, at the termination of Walcott Glacier in the Royal Society Range, and several location in Taylor Valley, including creeks and volcanic exposures south and southeast of Lake Hoare and Lake Bonney and in Lakes Hoare and Lake Fryxell. We also will explore the potential of deploying experiments on the submarine cliffs in the Ross Sea at Cape Evans and in a mooring near Turtle rock. These deployments will be scheduled for the second field season in Year 3. In the first year we will deploy experiments and in Year three we will recover experiments. Mt Erebus deployments will use helicopter transportation to Nausea Knob or LEH followed by snow mobile or on foot to Tramway Ridge and to the Ice Caves at the crater edge. We are planning two trips of 12 hrs in the first field season and one trip in year 3. We hope to work with McIntosh and the MEVO team, and it may be logistically advantageous to replace two 12 hour trips with one week to acclimate to high altitude conditions first and to do the work over a few days out of LEH. Deployments to the Walcott Glacier will be by helicopter and on foot requiring about 8 hrs ground time that may be used for a continued flight to Dry Valleys or other sites nearby. On land exposure experiments in Taylor Valley will involve helicopter deployments and small hikes, and lake deployments will involve warmwater drilling of a hole into the lake and anchoring a mooring in the ice cover. It is planned to coordinate these activities with diving and CTD operations that will be done in the lakes by LTER personnel.

Deploying Team Members:

- Laurie Connell (Co-PI)

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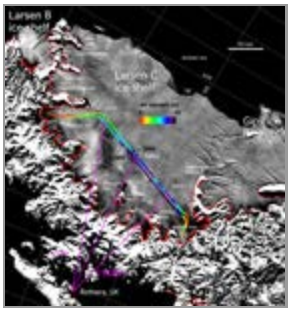
Science Project Details: 2008-2009

IPY: Stability Of Larsen C Ice Shelf In A Warming Climate



MOA mosaic of Larsen ice shelves (T. Scambos et al., NSIDC) with Rothera UK and the 3 proposed AWS stations (190 to 230 km from Rothera) along the NASA/CECS 2002 line (the 2004 line is artificially displaced to ease comparison with 2002 data). The mosaic emphasizes the contributions of various inlets to the formation of Larsen C. Grounding lines (red) are from ERS-1/2 1996 InSAR at two different tides/epochs.

Program Manager:
Dr. Julie Palais

Event Number: I-077-E

ASC POC/Implementer:
Melissa Rider

Dr. Konrad Steffen (Principal Investigator)
konrad.steffen@colorado.edu
http://cires.colorado.edu/science/groups/steffen/larsenC/index.html

University of Colorado Boulder
CIRES
Boulder, Colorado

Supporting Stations: Special Project
Research Locations: Laresen C Ice Shelf and Rothera Station

Project Description:
Following the collapse of the Larsen A ice shelf in 1995 and the Larsen B ice shelf in 2002, it has been demonstrated that the much larger Larsen C ice shelf is thinning, and various data suggest that it will break up as well. The goal of this project is to determine the state and stability of the Larsen C shelf. To that end, the researchers will combine existing data with new measurements to assess what physical processes are controlling the weakening of the ice shelf and whether a break up is likely. This work will

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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provide baseline data to quantify the consequences of a breakup.

Field Season Overview:

Field Season 2008: Early field deployment on Larsen C ice shelf is crucial due to the extensive surface melt which occurred earlier as a result of the general temperate increase in the Peninsula region. We propose to deploy to Larsen C ice shelf in the month of November. Field work including travel to and from Punta Arenas will take approximately one month.

We will set up three instrument towers on Larsen C ice shelf approximately 190 – 250 km from Rothera. The coordinates for the three proposed sites are given in Table 1. Installation and checking of an AWS needs up to 6-8 hours and therefore requires for the field personal to remain in the field. We will collect at each site (AWS 1-3) several shallow firn cores (10-15 m), and test the ground penetrating radar along short profiles (no skidoo required in the first season), along with high-resolution differential GPS profiles for a digital elevation model. The firn cores will be processed in the field and no firn cores will be taken out. AWS and GPS equipment will be installed first to provide sufficient time for system and transmission checks. We will decide on the AWS tower length pending final agreement how long we will leave the instrument in the field. All instruments left in the field are self contained and be powered by batteries with solar panels and sufficient Amperage to survive the winter period. AWS equipment, science cargo, camping gear and up to 3 pax will not exceed one Twin Otter load. We propose to set camp at AWS1, AWS2, and AWS3 for up to 5 days each in November 2008.

The first Twin Otter flight is to set up camp at AWS1 with 3 pax. The second flight would be ~5 days later from Rothera to AWS1 with instruments for the second tower and continuing to AWS site 2. The third flight would be again ~5 days later from Rothera to AWS site 2 with instruments for the third tower and continuation to AWS site 3. The pull-out flight would be after 5 days from Rothera to AWS3 and back.

Table 1: Automatic weather stations deployed during the project. For location on Larsen C ice Shelf. Station Latitude Longitude Distance from Rothera (km) AWS1 68° 31’ 53.3” S 64° 21’ 50.9” W 190 AWS2 67° 54’ 58.1” S 63° 32’ 56.0” W 215 AWS3 67° 25’ 59.0” S 62° 52’ 36.8” W 250

The accumulation on Larsen C averages around 0.4 m/yr w.e. Velocity is about 500 m/yr at the AWS stations 1, 2, and 3. The distance from the AWS to ice front is approx. 100 km, so each AWS needs 200 yrs to get to ice front. Burial rate probably means a servicing of 3-5 years, depending on the instrument and tower heights.

Deploying Team Members:

- Ala Khazendar
- Daniel McGrath

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Science Project Details: 2008-2009

Palmer Long Term Ecological Research (LTER): Looking Back In Time Through Marine Ecosystem Space, Zooplankton Component

Program Manager:
Dr. Lisa Clough

Event Number: B-020-L
NSF/PLR Award 0823101

ASC POC/Implementer:
Adam Jenkins

Dr. Deborah Steinberg (Principal Investigator)
debbies@vims.edu
http://pal.lternet.edu/

Virginia Institute of Marine Sciences
Department of Biological Sciences
Gloucester Point, Virginia

Supporting Stations: ARSV Laurence M. Gould
Research Locations: Western Antarctic Peninsula Pal-LTER large-scale grid

Project Description:

Zooplankton and micro-nekton provides the main trophic link between primary producers and apex predators in the Southern Ocean. Researchers will focus on: (1) Trophic cascading and food selectivity experiments; (2) Determining the target strength and backscattering cross section of krill in response to the Acoustic Doppler Current Profiler (ADCP) that will be used on the bio-acoustic Slocum Webb Glider; (3) Characterizing the microzooplankton community present in local waters to better understand their grazing impact on primary producers; and (4) Characterizing the quality and quantity of total lipids and fatty acids in zooplankton in the region.

Field Season Overview:

For the zooplankton component of Pal-LTER, this field season all work will be done on the LMG09-01 cruise. We require the ability to deploy and retrieve nets with a depth sensor that will provide a readout in the laboratory to monitor/control the net fishing depth. We do two net transects at each station, a 1?M square net to a depth of 300 m and a 2?M net to a depth of 120 m. We need constantly flowing seawater in the aquarium to both keep live zooplankton in tanks, and to cool experimental vessels in racks. We also

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will require an on-deck incubator with running seawater for microzooplankton grazing ("dilution") experiments (which require natural sunlight). During process stations, if possible, we may require a trawling zodiac to collect zooplankton from penguin foraging areas for zooplankton gut content and lipid assays. We plan to use the 1?m MOCNESS to sample discrete depth horizons at the process study stations.

Deploying Team Members:

- Glaucia Fragoso
- Miram Gleiber
- Lori Price
- Kate Ruck

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Science Project Details: 2008-2009

NASA Long Duration Balloon (LDB) Support Program

CSBF crew launches a long duration balloon.

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-145-M
NSF/NASA Agreement

ASC POC/Implementer:
Charles Kaminski

Mr. Bill Stepp (Principal Investigator)
Bill.Stepp@csbf.nasa.gov
http://www.csbf.nasa.gov

Columbia Scientific Balloon Facility
Palestine, Texas

Supporting Stations: McMurdo Station
Research Locations: Williams Field

Project Description:
This austral summer, the Columbia Scientific Balloon Facility (CSBF) will launch three stratospheric balloons as part of NASA's Long Duration Balloon (LDB) program. The balloons measure 400 feet in diameter, expand to a volume of 40 million cubic feet, and ascend at a rate of about 900 feet per minute to a float altitude of 125,000 feet. The payloads are composed of scientific instruments, command and control systems, and solar and/or battery-powered units. The bulk of the data collected is stored on onboard hard drives, with a small amount sent by radio telemetry to the United States. Because of the Antarctic wind pattern that starts in early December, the balloons will circumnavigate Antarctica between 70 and 80 degrees south latitude.

Field Season Overview:
Snow must be removed from the LDB facility and the site maintained throughout the season. Requirements differ from previous seasons, as the new LDB facility should be on site and operational. Fleet Operations assistance is required on launch days to operate heavy equipment related to the launch operation. The kitchen Jamesway must be erected and a cook available for the season. Food service for up to two meals per day is requested during launch operations periods. During non-launch periods, the science team may work late and require additional meals.

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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The facility requires power, heat and water. Cargo must be on site upon the project team's arrival. A tracked, heavy-lift forklift is necessary to move cargo and equipment on site. The forklift is needed both during the packing and unpacking stages of the project season, with intermittent heavy lifts during the season.

Additional project requirements include: • A point-of-contact. • Preparation and maintenance of the launch pad. • Air support for the termination equipment testing, termination, and recovery of the experiments. • Some meteorology assistance. • Facility closure assistance. • Daily transport from McMurdo Station to the site and back. This may include transport at irregular hours.

Deploying Team Members:

- Paul Brasfield
- Don Bunt
- Henry Cathey, Jr.
- Chris Field
- Curtis Frazier
- Jim Humphrey
- Jill Juneau
- Gary Marchant
- Otto Masters
- Nathan McCabe
- Robert Mullenax
- Dwayne Orr
- David Pierce
- Michael Smith
- Fritz Stapf
- Bryan Stilwell
- Bill Stracener
- David Stuchlik
- Robin Whiteside

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Science Project Details: 2008-2009

Processes Driving Spatial And Temporal Variability Of Surface PCO2 In The Drake Passage

Program Manager:
Dr. Peter Milne

Event Number: O-214-N

ASC POC/Implementer:
Robert Kluckhohn

Dr. Colm Sweeney (Principal Investigator)
colm.sweeney@noaa.gov
http://www.ldeo.columbia.edu/CO2

National Oceanic and Atmospheric Administration
Global Monitoring Division (GMD)
Boulder, Colorado

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: Drake Passage (LMG)

Project Description:

This project seeks to broaden and extend the existing time series of the hydrography of the Drake Passage from surface to bottom. This expansion will include the addition of an oxygen probe to the underway pCO2 system and will include adding discrete surface nutrient and Carbon-13 measurements to the eight to ten XBT (eXpendable BathyThermographs) tracks. Two short cruises (four to five days in length) will be dedicated to making Carbon, nutrient, Oxygen and Carbon-13 measurements throughout the water column in the Drake Passage

Field Season Overview:

In addition to the ongoing surface measurements of the partial pressure of CO2 (pCO2), temperature and salinity in these waters aboard the R/VIB L.M. Gould and R/VIB Palmer we will conduct full ocean depth profiles of pCO2, Total CO2, Dissolved Oxygen, Temperature, Salinity, Carbon isotopes and nutrients aboard the Nathanial B Palmer during NBP 08-10

Deploying Team Members:

- Robert Castle
- Patricia Lang

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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- Tim Newberger
- Mark Slovak
- Sharon Stammerjohn
- Sonja Wolter

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Science Project Details: 2008-2009

Investigation Of Climate, Ice Dynamics, And Biology Using A Deep Ice Core From The West Antarctic Ice Sheet

Program Manager:
Dr. Julie Palais

Event Number: I-477-M

ASC POC/Implementer:
Matthew Kippenhan

Dr. Kendrick Taylor (Principal Investigator)
kendrick@dri.edu
http://www.waisdivide.unh.edu

Desert Research Institute
Division of Hydrological Science
Reno, Nevada

Supporting Stations: McMurdo Station
Research Locations: WAIS Divide

Project Description:

This project, part of a five-year collaborative effort of several research teams, will collect a 3,400-meter-deep ice core in West Antarctica. The main objectives are to: 1) develop the most detailed record of greenhouse gases possible for the last 100,000 years; 2) determine if the climate changes that occurred during the last 100,000 years were initiated by changes in the northern or southern hemisphere; 3) investigate the past and future stability of the West Antarctic Ice sheet; and 4) investigate the biology of deep ice.

Field Season Overview:

This is the second season of deep drilling with the DISC Drill. The project will drill 24 hours per day, six days per week (Sundays off). The project team will resume drilling at 580 meters depth and MUST get through all of the "brittle ice" by the end of season. This requires reaching a depth of at least 1,400 meters. All ice from the "brittle ice" zone (580 meters to about 1,400 meters) will be stored in the arch's core storage basement for winter-over at WSD. This will allow it to relax before retrograde during the 2009-2010 field season. If the project team gets ice below the brittle ice zone, it will retro it to McMurdo Station and to CONUS.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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To ensure the team reaches its goal of at least 1,400 meters depth, the amount of time devoted to production drilling must be increased and logistics planning for the project and the WAIS Divide camp, including use of the camp to support other projects, must consider an adequate number of drilling days its highest, non-safety priority. The WAIS Divide Executive Committee and the U.S. Ice Core Working Group will send letters to the NSF to request additional time for drilling operations.

Deploying Team Members:

- Timothy Bartholomaus
- Susanne Buchardt
- Marie Delgrego
- Hilary Hudson
- Natalie Kehrwald
- Bess Koffman
- Alyson Lanciki
- Marie McLane
- Logan Mitchell
- Spruce Schoenemann
- Bruce Vaughn
- Gifford Wong

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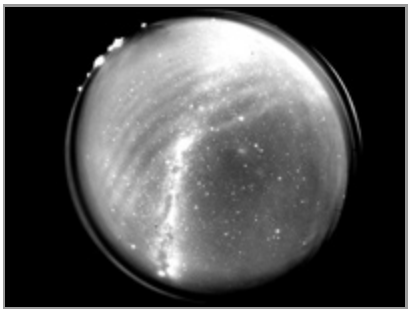
Science Project Details: 2008-2009

Investigating Wave-Driven Mesospheric Dynamics Over South Pole Using An Advanced Mesospheric Temperature Mapper



All-sky image of an unusual "mesospheric bore" wave event imaged from Halley, Antarctica as part of a collaborative research program between Utah State University and British Antarctic Survey (K. Nielsen, M. J. Taylor and M. Jarvis, Geophysical Research Letters, 2006). Atmospheric gravity wave measurements using a new Mesospheric Temperature Mapper at South Pole Station are currently under development.

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-119-S

ASC POC/Implementer:
Charles Kaminski

Dr. Michael Taylor (Principal Investigator)
mike.taylor@usu.edu
http://ail.usu.edu/Data/Data.html

Utah State University
Center for Atmospheric and Space Sciences
Logan, Utah

Supporting Stations: South Pole Station
Research Locations: B2

Project Description:

The novel infrared Advanced Mesospheric Temperature Mapper (AMTM), operated at the South Pole Station over last few years, has advanced scientific exploration capabilities by enabling scientists to measure gravity waves in the high-latitude Antarctic Mesosphere and Lower Thermosphere (MLT, ~80-100 km altitude) region in a new spectral range that is not dominated by aurora, and with a much higher temporal resolution than was previously possible. This research will contribute to a greater understanding

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of the diversity and variability of gravity waves over the Antarctic continent and their associated momentum transport in the MLT region, and acquire new knowledge of the gravity waves most copious sources at the high-latitudes. These data will contribute significantly to the ANtarctic Gravity Wave Imaging Network (ANGWIN) program that brings together multi-instrument measurements from eight key sites around the Antarctic continent, including South Pole.

Field Season Overview:

For optical observations during the Austral Winter 2009 we would like to deploy a scaled-down version of the AMTM comprising a thermoelectrically cooled InGaAS camera, a wide angle lens system and a computer control and data storage system. The system would be used to test out the suitability of a new compact MOSIR 950 IR sensor (to replace our current closed-cycle cryogenically cooled MCT sensor), to obtain first measurements of gravity waves in the IR from South Pole, and to investigate the optical observing conditions and any problems associated with operations in the new B1 facility where the camera will be housed. The camera will operate automatically during the Austral Winter and data would be stored on the computer hard drive. Measurements would initiate in in March and continue until October, 2009. Based on our experience gained with these preliminary measurements the full AMTM system would be expected to be deployed at South Pole in January 2010 for operation over several winter seasons as determined by NSF.

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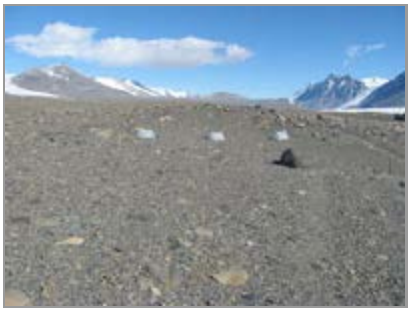
Science Project Details: 2008-2009

Role Of Resource Legacy On Contemporary Linkages Between Biodiversity And Ecosystem Processes In A Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program



Long-term experimental soil plots in the Lake Fryxell basin of Taylor Valley. Photo by Becky Ball

Program Manager:
Dr. Roberta Marinelli

Event Number: B-423-M

ASC POC/Implementer:
Rob Edwards

Dr. Ross Virginia (Principal Investigator)
ross.a.virginia@dartmouth.edu
http://mcmlter.org

Dartmouth College
Environmental Studies Program
Hanover, New Hampshire

Supporting Stations: McMurdo Station
Research Locations: McMurdo Dry Valleys

Project Description:

The McMurdo Long Term Ecological Research (LTER) projects will continue to investigate the McMurdo Dry Valleys as an end-member ecosystem and focus on the relative roles of legacy and extant processes on current biodiversity and ecosystem structure and function. This project samples and maintains core LTER soil experiments, in conjunction with the B-424-M group, that measure the response of soil biota to substrate additions and climate change. Researchers will study relationships between soil biodiversity and ecosystem function by measuring in-situ carbon dioxide, nitrogen, and phosphorus flux through a combination of gas-flux, buried-bag, and resin-exchange-membrane techniques.

Field Season Overview:

The project's field season will include brief trips of one to seven days to the Dry Valleys to monitor, maintain and sample long-term experiments, and to sample soil to support developing work on the N and P cycles, turnover of organic matter, and moss-soil interactions in the field. Researchers will

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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return to the Crary Lab at McMurdo Station for sample processing and initial analysis, as well as to perform incubation assays on selected soils. The team will require field camp and helicopter support for field activities. The project also requires space and support in the Crary Analytical Lab at McMurdo Station for processing and sampling of soils and sediments collected in the Dry Valleys. This project will work closely with research group B-424-M to integrate the soil biological component with ecosystem process and biogeochemical cycling.

Deploying Team Members:

- Rebecca Ball (Team Leader)
- Katie Moerlein
- Elizabeth Traver

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Science Project Details: 2008-2009

Role Of Resource Legacy On Contemporary Linkages Between Biodiversity And Ecosystem Processes In A Cold Desert Ecosystem: The McMurdo Dry Valley LTER Program

Program Manager:
Dr. Roberta Marinelli

Event Number: B-424-M

ASC POC/Implementer:
Rob Edwards

Dr. Diana Wall (Principal Investigator)
diana.wall@colostate.edu
http://www.nrel.colostate.edu/projects/soil/MCM/index.html

Colorado State University
Natural Resource Ecology Laboratory
Fort Collins, Colorado

Supporting Stations: McMurdo Station
Research Locations: McMurdo Dry Valleys

Project Description:

The McMurdo Long Term Ecological Research (LTER) projects will continue to investigate the McMurdo Dry Valleys as an end-member ecosystem and focus on the relative roles of legacy and extant processes on current biodiversity and ecosystem structure and function. This project continues a long-term study of the impact of climate and other global changes on the abundance, distribution, and diversity of soil biota in the McMurdo Dry Valleys. Researchers maintain, monitor, and sample soils in various long-term experimental plots throughout Taylor Valley, in collaboration with the B-423-M research group. These experiments reveal relationships between biodiversity and Dry Valley carbon, nitrogen, and hydrologic cycles.

Field Season Overview:

Helicopter transport for personnel, field equipment, and samples (soil, water, sucrose solutions) is necessary, as the group will conduct experiments in the Dry Valleys. Most trips are day trips of four to eight hours ground time. Project team deployment is essential during December and January, when biological activity in soil peaks. Project researchers will require space and

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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support in the Crary Lab to process and sample soils and sediments collected in the Dry Valleys. This project works closely with group B-423-M.

Deploying Team Members:

- Byron Adams
- Uffe Neilsen
- Breana Simmons

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Science Project Details: 2008-2009

Collaborative Research: Sampling The Ocean - Sea Ice Interaction In The Pacific Center Of The Antarctic Dipole

Program Manager:
Dr. Peter Milne

Event Number: O-261-N

ASC POC/Implementer:
Patricia Jackson

Dr. Xiaojun Yuan (Principal Investigator)
xyuan@ldeo.columbia.edu
http://www.ldeo.columbia.edu/~xyuan/ADPmooring/index.html

Columbia University
Lamont Doherty Earth Observatory
New York, New York

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: Amundsen Sea

Project Description:

The Antarctic Dipole (ADP) presents the strongest tropical-polar teleconnection climate signal in the Southern Ocean, with poles centered within the Ross Gyre of the Pacific sector and the central Weddell Gyre of the Atlantic sector. The ADP is a standing mode pattern characterized by out-of-phase relationships in the surface air temperature, sea surface temperature, and sea ice fields. While the atmospheric and sea surface signatures of the ADP have received much recent attention, little is known about the role of the upper ocean in maintaining and reinforcing the ADP climate anomalies in the Southern Ocean. This project installed a deep sea mooring that reaches to the mixed layer in winter. The mooring directly monitors the upper ocean in the regional centers of the strongest climate signal in the Southern Ocean, providing an ability to investigate the role of the ocean in the highly coupled air-sea-ice system that maintains this signal. The high vertical resolution mooring data will provide unique measurements of the upper ocean temperature and salinity characteristics in the Pacific ADP center.

Field Season Overview:

The field party will deploy onboard RV/IB Nathaniel B. Palmer's first cruise of 2009 (NBP09-01). A deep-sea mooring will be deployed at the Pacific center

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of the Antarctic Dipole (near 130 W and 67 S) in austral summer 2008-2009, redeployed in austral summer 2010-2011, and recovered in austral summer 2012-2013. During each deployment, redeployment and recovery, the project team will conduct CTD casts and XTB surveys.

Deploying Team Members:

- Karen Assman
- Tim Newberger

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Science Project Details: 2008-2009

Measurements Addressing The Initial Stages Of Ozone Recovery, The Nucleation Of, Index Of Refraction Of, And Existence Of Large PSC Particles

A-131 team members launching an aerosol particle counter. Photo by Philippe Cocquerez of the Centre National d'Etudes Spatiales France.

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-131-M

ASC POC/Implementer:
Charles Kaminski

Dr. Terry Deshler (Principal Investigator)
deshler@uwyo.edu

University of Wyoming
Department of Atmospheric Science
Laramie, Wyoming

Supporting Stations: McMurdo Station
Research Locations: McMurdo Station

Project Description:

Polar stratospheric clouds (PSCs) play a pivotal role in polar ozone depletion. Heterogeneous chemistry occurs on the surface of the particles in the clouds, releasing active chlorine that destroys ozone. This project continues to focus on the development of the Antarctic ozone hole and the characteristics of PSCs by making balloon-borne, in-situ measurements of ozone and PSC profiles in the atmosphere above McMurdo Station, from the surface to about 35 kilometers. Project scientists will also make ground-based LIDAR measurements of atmospheric aerosols and compare them to the balloon-borne measurements.

Field Season Overview:

As in the past, all members of the project team and most cargo should arrive on the first flight to McMurdo Station in August. This ensures the earliest possible start for measurement of the development of the ozone hole. Additionally, one team member from Italy will deploy in late January 2008 to check and upgrade the LIDAR system and train the winter-over science technician.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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The project requests to use the area outside the Waste Water Treatment Plant for balloon launches. The building provides protection from wind in three different directions and maximizes launch possibilities.

The project requires laboratory and office spaces in Crary Lab: 238 for the balloon operations and 239 for the LIDAR operations. In addition to the offices inside the lab, office number 232 is requested for use by the team leader, with at least one additional office for the team during WinFly.

To accommodate the August to October measurements, approximately 8,000 cubic feet of helium is required for balloon launches. The best placement is one half-rack of helium (similar to that used last year) placed against the west side of the Waste Water Treatment Plant and a pallet of helium cylinders placed near Crary Lab, with the exact location TBD. Snow removal and grading may be necessary on the west and north sides of the Waste Water Treatment Plant for helium placement and to provide a large launch area. In addition, the project requests that area and the space across the road from the plant is maintained free of obstacles from 19 August to 01 November 2008.

The project team requires access to Building 70 to locate a secondary receiving station and support by the antenna riggers to mount the GPS antenna on the mast at Building 70. A vehicle plug-in should be installed at the building as the team will spend up to three hours there at a time.

The project requests access to Cosray, where winter-over cargo is stored.

The project team requires a dedicated vehicle (preferably a van) from 20 August through the end of October for balloon launch operations, plus pool access to a tracked vehicle for nearby instrument recoveries.

Up to 25 hours of close-support, A-Star helicopter time is needed for instrument recovery over the Ross Ice Shelf.

The project requests the Crary Lab weather station website is maintained during its operational period. The weather station is located on top of the Crary Lab and includes a computer in Lab 238. Team members use the weather station and website for each balloon launch to closely monitor the local wind conditions on 15-minute intervals. Project researchers also request that a computer in lab 238 is set up and programmed not to time out. The computer is used during launches to take wind speed and direction readings. The project requests approximately 20 hours per month from the winter-over science technician from February 2009 to October 2009 to conduct LIDAR measurements.

The project requests McMurdo Station weather office support for meteorological soundings during winter 2009 to provide calibration parameters to the LIDAR up to 20 to 25 kilometers of height.

Deploying Team Members:

- Leslie Baran
- Luca Di Liberto

- Mahesh Kovilakam

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Science Project Details: 2008-2009

Operation Of An ELF/VLF Radiometer At Arrival Heights

View from the ELF/VLF radio antenna on the "Second Crater" at Arrival Heights. Mt. Discovery provides a backdrop for the New Zealand communications satellite installation on top of the "First Crater." US (white) and New Zealand (green) huts are also visible.

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-100-M

ASC POC/Implementer:
John Rand

Dr. Antony Fraser-Smith (Principal Investigator)
acfs@alpha.stanford.edu

Stanford University
STAR Laboratory
Stanford, California

Supporting Stations: McMurdo Station
Research Locations: Arrival Heights

Project Description:

The radiometers at McMurdo Station operate in both the extremely-low-frequency and very-low-frequency (ELF/VLF) ranges, monitoring radio noise from natural sources. Because thunderstorms generate telltale radio signals, tracking variations in global radio noise reflects thunderstorm activity, which can provide information on global climate change. The ELF/VLF record collected by this project at Arrival Heights is unbroken for nearly 20 years. Such a long period of data collection allows researchers to look for weak effects, such as those that might be associated with global warming. The McMurdo Station site is part of a network of eight radiometers operated by Stanford University for the Office of Naval Research.

Field Season Overview:

This project requires regular maintenance and data-transfer assistance from a field-site technician, as well as a supply of DVDs for data recording.

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Science Project Details: 2008-2009

Collaborative Research: Polar Experiment Network For Geospace Upper Atmosphere Investigations (PENGUIn) - Advancing The Vision For Global Studies

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-105-M

ASC POC/Implementer:
Douglas Miller

Dr. Marc Lessard (Principal Investigator)
marc.lessard@unh.edu

University of New Hampshire
Space Science Center
Durham, New Hampshire

Supporting Stations: McMurdo Station
Research Locations:

Project Description:

The Polar Experiment Network for Geospace Upper-atmosphere Investigations (PENGUIn) uses Automatic Geophysical Observatories (AGOs) to study upper-atmospheric phenomena, including substorms, polar cap physics, cusp phenomena, and radiation belt particle precipitation. The project seeks to increase ground-based observations in Antarctica to coincide with a number of important satellite missions. Researchers also maximize scientific return by placing observatories in the auroral zone, extending to the outer radiation belt regions, as well as along the magnetic meridian that maps to the west coast of Greenland, where a conjugate chain already exists.

Field Season Overview:

Last field season, a prototype ARRO was installed at McMurdo station. A new and improved ARRO enclosure is currently being developed and will be deployed at WAIS divide. In addition several instruments will be deployed at the WAIS site as well.

The prototype currently at McMurdo will be brought down and shipped back to the University of New Hampshire. Support equipment within the prototype including batteries, racks etc will be shipped to WAIS divide to provide

Project Indexes

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support for the new system.

Deploying Team Members:

- Matthew Argall
- Hyomin Kim
- Bob Melville

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Science Project Details: 2008-2009

Collaborative Study Of The Antarctic Mesosphere And Lower Thermosphere

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-284-S

ASC POC/Implementer:
Charles Kaminski

Dr. Scott Palo (Principal Investigator)
scott.palo@colorado.edu

University of Colorado Boulder
Department of Aerospace Engineering Sciences
Boulder, Colorado

Supporting Stations: South Pole Station
Research Locations: Meteor Radar Building

Project Description:

Using a meteor radar (a very-high frequency VHF system capable of measuring the spatial structure and temporal evolution of the horizontal wind field), researchers will measure winds in the mesosphere and lower thermosphere (MLT) atmospheric region to understand the processes controlling the neutral dynamics and chemistry of the Antarctic MLT. They specifically seek to understand: 1. The space-time decomposition of wave motions; 2. Delineation of the spatial climatology over Antarctica with emphasis on the structure of the polar vortex; 3. Dynamical response to energetic events; and 4. Inter-annual variability.

Field Season Overview:

1. Installation of all-sky camera 2. Annual system maintenance 3. Annual system calibration 4. Transmit and receive antenna experiments 5. System calibration by tracking of an LC-130 flying above the antennas 6. PMSE experiment

Project personnel request permission for 100% duty cycle for the meteor radar for the upcoming season. This is up from the current 50% (1-minute on / 1-minute off transmission cycles).

Deploying Team Members:

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

Find more information about USAP projects by viewing individual project web sites.

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- Diego Janches
- Elias Lau
- Cody Vaudrin
- Bifford Williams

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Science Project Details: 2008-2009

Shedding Dynamic Light On Iron Limitation: The Interplay Of Iron Limitation And Dynamic Irradiance Conditions In Governing The Phytoplankton Distribution In The Ross Sea

Program Manager:
Dr. Roberta Marinelli

Event Number: B-244-N

ASC POC/Implementer:
Patricia Jackson

Dr. Anne-Carlijn Alderkamp (Principal Investigator)
alderkamp@stanford.edu

Stanford University
Environmental Earth System Science
Stanford, California

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: Amundsen Sea

Project Description:

This project is part of the international collaborative DynaLiFe project, which aims to understand what controls the blooms of Antarctic diatoms and Phaeocystis Antarctica in the coastal areas of the Southern Ocean through a combination of physiological experiments in the laboratory, validation of results in the field and modeling of bloom dynamics. Cruise objectives include: Determining the concentration of dissolved iron and the distribution of Fe(II) species between colloid and organic complexed pools; assessing the extend to which the phytoplankton community is iron limited and able to use organically bound Fe in bottle experiments; and determining the effect of prevailing iron concentrations on photoinhibition of phytoplankton when they reside near the surface.

Field Season Overview:

The field party will deploy onboard RV/IB Nathaniel B. Palmer's first cruise of 2009 (NBP09-01). Samples will be collected using a trace-metal-clean sampling system and radioisotope-tagged growth experiments conducted in the laboratory.

Deploying Team Members:

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

Find more information about USAP projects by viewing individual project web sites.

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- Patrick Laan
- Matthew Mills
- Charles-Edouard Thurozcy
- Gerrit Van Dijken

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Science Project Details: 2008-2009

Collaborative Research: Biogeochemistry Of Cyanobacterial Mats And Hyporheic Zone Microbes In McMurdo Dry Valley Glacial Meltwater Streams

Program Manager:
Dr. Roberta Marinelli

Event Number: B-305-M

ASC POC/Implementer:
Rob Edwards

Dr. Edward Carpenter (Principal Investigator)
ecarpent@sfsu.edu

San Francisco State University
Romberg Tiburon Center
Tiburon, California

Supporting Stations: McMurdo Station
Research Locations: Miers, Marshall, and Garwood Valleys

Project Description:

Researchers will study the microbial ecology of the hyporheic (wetted) zone of dry-valley glacial melt-water streams. They will determine how carbon and nitrogen, fixed by cyanobacteria in microbial mats, affect bacterial activity, dissolved organic carbon, and dissolved organic nitrogen in these zones.

Field Season Overview:

Field team members will be transported by helicopter to two study sites in Miers Valley, where they will establish a tented lab to process groundwater and microbial samples. They will conduct research in early January, when melt water streams are most active.

Deploying Team Members:

- Doug Capone (Co-PI)
- Thomas Niederberger
- Jill Sohm
- Joelle Tirindelli

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Science Project Details: 2008-2009

Collaborative Research: Hunting In Darkness: Behavioral And Energetic Strategies Of Weddell Seals In Winter

Program Manager:
Dr. Roberta Marinelli

Event Number: B-017-M

ASC POC/Implementer:
John Rand

Dr. Randall Davis (Principal Investigator)
davisr@tamug.edu

Texas A & M University
Dept. of Marine Biology
Galveston, Texas

Supporting Stations: McMurdo Station
Research Locations: McMurdo Sound / Crary Lab

Project Description:

Weddell seals locate and capture sparsely distributed and mobile prey under shore-fast ice throughout the year. They accomplish this under the physiological constraints associated with holding their breath and intermittent oxygen loading due to limited access to breathing holes. Consequently, this is one of the most challenging environments occupied by an aquatic mammalian predator, and it presents unique opportunities to test hypotheses concerning behavioral strategies and physiological adaptations for foraging; sensory modalities used for prey capture; and the distribution of prey under permanent ice. Researcher's primary objectives include: 1) Determining how Weddell seals locate and capture prey and then relocate breathing holes in the ice under low, ambient-light levels; and 2) determining how behavioral and physiological metabolic responses to minimal low ambient-light level and seasonality influence energetic costs, benefits, and efficiency of foraging.

Field Season Overview:

We will conduct this project with eight people during Winfly seasons in 2008-2010, even if the start date is delayed in 2008. However, if a late season (April) flight becomes possible in 2009, we would like to return to our originally requested field season of late January-April with a two person

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winter-over team and the main team returning in Winfly. We will limit our movements to specific areas that have been surveyed and deemed safe for travel; specifically south of Scott Base towards the end of Cape Armitage and around Hutton Cliffs, Turtle Rock and Hut Point. With regards to access to Hutton Cliffs and Turtle Rock, we would use the access road across Cape Armitage rather than the Cape Evans Road, which is usually flagged later in the season. The intent is to gain access to limited areas of the Sound as early as reasonably possible. We will base our operations from the Crary Lab, but will also need a 5-section Jamesway on the sea ice (with a hole beneath the structure) in front of McMurdo Station for weighing, sedating and instrumenting seals. However, we will also experiment with a portable, inflatable dome as a shelter for instrumenting seals at the site of capture. Our team will live and work in McMurdo which will preclude the need for a large camp. However, we will require access to the sea ice in a tracked vehicle and four skidoos (preferably Alpines I or II models that are more tolerant to cold weather). Adult Weddell seals will be captured as close to McMurdo Station as possible. Once morphological and resting metabolic measurements are completed, the video and data recorders will be attached, and the seals released for ca. two weeks.

Animal Capture and Attachment of Instruments A Marine Mammal Permit has been obtained by Co-PI Terrie Williams. Adult male and female seals weighing 350-450 kg will be captured with a purse-string net in McMurdo Sound and along the shore of Ross Island and transported to the Jamesway in a specially designed seal sled. Seals will be sedated and weighed from a beam-and-post structure or tripod using a sling and an electronic digital scale. The seal will then be moved indoors for metabolic measurements and attaching the video and data recorder. During each deployment of the video and data recorder, seals will be captured, instrumented, and released for at least two weeks.

Seals We will use satellite transmitters and VHF radio transmitters to track animals at the surface. These small transmitters will be glued to the seal’s fur. When an instrumented seal hauls out on the ice, we will receive satellite-based locations (latitude and longitude) by email from Service Argos within 90 min. From these coordinates, we can determine the animal’s location within 1 km. We will then use the signal from the VHF transmitter to pinpoint the seal’s location. We have used this method successfully in McMurdo Sound during previous studies. Seals will be recaptured to recover the video and data recorder or to exchange it for one with fresh batteries and full memory capacity. When we finish working with a seal, the animal will be recaptured and all of the equipment and the attachment system will be removed.

Transportation We will need a dedicated Piston Bully and four skidoos. We will spend many hours searching for seals on the sea ice, so dependable, cold-weather skidoos with good suspensions are needed.

Lab Space We would like a full lab in the Crary lab during Winfly, but can contract to half a lab if needed during Main Body starting in October. One office is also requested

Deploying Team Members:

- Randall Davis
- Traci Fink
- Kathryn Wheatly
- Terrie Williams (Co-PI)
- Traver Wright

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Science Project Details: 2008-2009

Collaborative Research: Microbially-Mediated Anaerobic Carbon Cycling In Limnologically Contrasting Perennially Ice-Covered Antarctic Lakes

Program Manager:
Dr. Roberta Marinelli

Event Number: B-332-M

ASC POC/Implementer:
John Rand

Dr. Samantha Joye (Principal Investigator)
mjoye@uga.edu

University of Georgia
Marine Sciences
Athens, Georgia

Supporting Stations: McMurdo Station
Research Locations: Lk Fryxell / Lk Vanda

Project Description:

The McMurdo Dry Valleys (MCM), Antarctica are the driest and coldest environments on Earth and are primarily microbial ecosystems. The MCM ecosystem is comprised of a mosaic of glaciers, glacial streambeds, exposed soils, and permanently ice-covered lakes; the latter are the only permanently ice-covered lakes on Earth. The permanent ice eliminates wind-driven mixing resulting in an extremely stable water column with gradients of nutrients important to microbial metabolism. The lakes are the only habitats containing liquid water in Antarctica and support year-round microbial metabolic activity. Lakes Fryxell and Vanda are the focus of this study since they support similar anaerobic microbial processes (methanogenesis, methanotrophy, sulfate reduction and sulfide oxidation), yet are limnologically quite distinct in terms of their depth, salinity, and bottom water temperatures. We will use molecular tools and culturing techniques to define the bacterial groups responsible for the geochemical gradients that control microbial activity in Lakes Fryxell and Vanda. Our work will reveal the microorganisms that catalyze these processes and provide new genetic resources for further study of polar microbiology. Our results will be significant to the areas of microbial diversity, biotechnology, geobiology, polar ecology, and astrobiology. We will work closely with the MCM LTER to share logistics and common research themes and link our research with highly visible education,

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outreach, and human diversity programs supported by NSF.

Field Season Overview:

Crary Lab space will be used from early November until near the end of December. Most team members will travel to Lake Fryxell periodically to drill through the ice and collect water and sediment samples. In addition, at least two day trips to Lake Vanda will be required. In addition to Lakes Fryxell and Vanda, we will also visit Don Juan Pond once to collect sediment and water samples and do field measurements to follow up on research carried out by the MCM Microbial Observatory (B-195). We require helo support between McMurdo and the Dry Valleys. We will work closely with the LTER limnological group to merge their research efforts with ours, minimizing field logistical costs.

Deploying Team Members:

- Marshall Bowles
- Michael Madigan (Co-PI)
- Vladimir Samarkin (Co-PI)
- Charles Schutte

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Science Project Details: 2008-2009

Biogeography And Evolution Of Chemosynthetic Ecosystems In The Southern Ocean

Program Manager:
Dr. Roberta Marinelli

Event Number: B-331-E

ASC POC/Implementer:
John Evans

Dr. Timothy M. Shank (Principal Investigator)
tshank@whoi.edu

Woods Hole Oceanographic Institution
Biology Department
Woods Hole, Massachusetts

Supporting Stations: Special Project
Research Locations:

Project Description:

This two-year project plans to locate and study hydrothermal vents and cold seeps in the Southern Ocean. This is the first such study, and is designed to lead to an improved understanding of factors controlling marine biodiversity and the distribution and evolution of marine animals.

Field Season Overview:

This study will take advantage of an invitation to participate in a major field program led by colleagues in the United Kingdom. Deployment will be via British vessels out of Punta Arenas, Chile. The January 2009 deployment will be via the British Antarctic Survey ship the RRS James Clark Ross, and the January 2010 deployment is expected to be via the RRS James Cook, operated by the National Oceanography Centre in Southampton.

Deploying Team Members:

- Chris German (Co-PI)

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Science Project Details: 2008-2009

Free-Drifting Icebergs As Proliferating Dispersion Sites Of Iron Enrichment, Organic Carbon Production And Export In The Southern Ocean

Program Manager:
Dr. Roberta Marinelli

Event Number: B-387-N

ASC POC/Implementer:
Adam Jenkins

Dr. Tim Shaw (Principal Investigator)
shaw@mail.chem.sc.edu

University of South Carolina
Department of Chemistry and Biochemistry
Columbia, South Carolina

Supporting Stations: RV/IB Nathaniel B. Palmer

Research Locations:

Project Description:

As drifting islands, icebergs impart unique physical, chemical, and biological characteristics to the surrounding water. The dimensions of this iceberg sphere of influence are related to the size and physical configuration of the iceberg. However, the precise impacts of icebergs on natural fertilization, organic carbon export, and the Antarctic pelagic community are not well understood. This project, part of the multi-PI collaborative effort, will attempt to determine the relationship between the physical dynamics of free-drifting icebergs and the iron and nutrient distributions of the surrounding water column.

Field Season Overview:

Team members will travel on the RV/IB Nathaniel B. Palmer from Punta Arenas, Chile, to the study area in the northwest Weddell Sea. There, they will intercept and study pelagic icebergs using a variety of underway water collection methods including a conductivity temperature depth (CTD) rosette, and a modified towfish capable of pumping trace metal clean water to the vessel labs.

Deploying Team Members:

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- Cole Hexel
- Hai Lin
- Benjamin Twining

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Science Project Details: 2008-2009

Free Drifting Icebergs: Influence Of Floating Islands On Pelagic Ecosystems In The Weddell Sea

Program Manager:
Dr. Roberta Marinelli

Event Number: B-050-N

ASC POC/Implementer:
Adam Jenkins

Dr. Kenneth Smith (Principal Investigator)
ksmith@mbari.org

Monterey Bay Aquarium Research Institute
Moss Landing, California

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: North Weddell Sea, South Orkney Islands

Project Description:

As drifting islands, icebergs impart unique physical, chemical, and biological characteristics to the surrounding water. The dimensions of this iceberg "sphere of influence" are related to the size and physical configuration of the iceberg. However, the precise impacts of icebergs on natural fertilization, organic carbon export, and the Antarctic pelagic community are not well understood. This project will attempt to determine 1) the physical dynamics of drifting icebergs; 2) the relationship between physical dynamics and the iron and nutrient distributions of the surrounding water; 3) the relationship between iron and nutrient distributions and the organic carbon production of ice-attached and surrounding pelagic communities; 4) the relationship between this organic carbon production and the export flux of particulate organic carbon from the surrounding mixed layer; and 5) the combined impact of all drifting icebergs on the enrichment, carbon production, and mixed-layer particulate export in the Weddell Sea.

Field Season Overview:

The science party will embark on RVIB Nathaniel B. Palmer with 25 participants to measure the sphere of influence of both large and small icebergs in the north Weddell Sea and east of the South Orkney Islands. Each iceberg will be digitally imaged using shipboard acoustics, radar, and sonar, to estimate the aerial extent, submerged area and contours. The under-surface will then be surveyed acoustically and optically with a

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Remotely Operated Vehicle. The aerial and pelagic zones radiating out from the iceberg will be surveyed and sampled with ship-borne instruments in a spiral configuration.

Deploying Team Members:

- Stephanie Bush
- Adrian Cefarelli
- Diane Chakos
- Jacob Ellena
- Steve Etchemendy
- Danielle Garcia
- John Helly (Co-PI)
- Cole Hexel
- Amanda Kahn
- Ronald Kaufmann (Co-PI)
- Hai Lin
- Lawrence Lovell
- Paul McGill
- Kim Reisenbichler
- Bruce Robison (Co-PI)
- Tim Shaw (Co-PI)
- Robert Sherlock
- Alana Sherman
- Karie Sines
- Benjamin Twining (Co-PI)
- Maria Vernet (Co-PI)

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Science Project Details: 2008-2009

Penguins As Monitors Of The Krill-Centric Southern Ocean Marine Ecosystem

Program Manager:
Dr. Roberta Marinelli

Event Number: B-040-E

ASC POC/Implementer:
John Evans

Dr. Wayne Trivelpiece (Principal Investigator)
wayne.trivelpiece@noaa.gov

National Oceanic and Atmospheric Administration
AMLR - Antarctic Ecosystem Research Division (SW Fisheries Sci Ctr)
La Jolla, California

Supporting Stations: Special Project
Research Locations: Copacabana Field Station via LMG

Project Description:

This project continues a long-term study of the breeding biology and demography of Adelie, Chinstrap, and Gentoo penguins at Admiralty Bay, King George Island, in the South Shetland Islands. The primary objectives are to: 1) determine and compare the relationships of sex, age, and breeding experience to reproductive success and survival, clarifying how the demographic variables interact to affect changes in animal populations; and 2) investigate the relationships between population dynamics, prey availability, and environmental variability to clarify the mechanisms whereby environmental variation may influence predator dynamics via the prey field.

Field Season Overview:

Research activity occurs from early October through early March at the Copacabana Field Station on King George Island. The field station includes two huts with space for four to six individuals. Support requirements for the austral summer include vessel delivery of equipment, food, and fuel, including a new 2.5 kW Honda generator, MoGas, and 30 to 40 tanks of propane; two HF radios (primary and backup) to communicate with Palmer Station and Program vessels; two Iridium phone systems for primary email and emergency voice communications (primary and backup); three to four notebook computers (one dedicated for email only); two base radios (primary and back-up) and four-to-six hand-held VHF radios to communicate with field members, nearby stations and ships in the bay; rechargeable batteries

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

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and rapid chargers for the hand-held radios; fresh, canned, dry and frozen food sufficient for four individuals for five months; office supplies for data entry and analysis; general supplies for daily living (toilet paper, plastic bags, kitchen supplies); lab equipment, including field notebooks, small vials, Nalgene bottles, Ziplock bags, ethanol, and formalin); and clean sheets, blankets and field gear stored in the Punta Arenas warehouse.

Four team members (S. Trivelpiece, D. Loomis, A. Lindsley, K. Green) require transport on the LMG08-12 to Copacabana Field Station in October 2008. Prior to ship departure, the team requires two-to-three days in one of the Agunsa warehouses in Punta Arenas to inventory and pack the materials listed above in preparation for loading the ship, and to shop for outstanding supplies with the aid of an Agunsa agent. The team requests the assistance of the POC for the inventory and packing. Off-load at Copacabana Field Station requires several hours, weather permitting.

All other transport to and from Copacabana Field Station will largely be handled by the AMLR program, as follows: • One individual (J. Hinke) will be dropped off at the field station and one individual (S. Trivelpiece) picked up by a tour ship in mid-November to early December 2008. • One-to-two individuals (W. Trivelpiece, S. Woods) will be dropped off at the field station and one individual (J. Hinke) picked up by the AMLR ship (R/V Yuhzmorgeologiya) or a tour ship in early to mid-January 2009. • The R/V Yuzhmorgeologiya will close the field camp and transport personnel to Punta Arenas in early to mid-March 2009.

Deploying Team Members:

- Kristen Green
- Jefferson Hinke
- Amy Lindsley
- David Loomis
- Susan Trivelpiece (Co-PI)
- Susan Woods

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Science Project Details: 2008-2009

SGER Collaborative Research: Mechanisms Behind Non-Redfieldian P Cycling In Water Masses Of The Southern Ocean, New Insights From X-Ray Spectromicroscopy And Electrodialysis

Program Manager:
Dr. Kelly Falkner

Event Number: C-384-O

ASC POC/Implementer:
Patricia Jackson

Dr. Ellery Ingall (Principal Investigator)
ingall@eas.gatech.edu

Georgia Institute of Technology
Earth and Atmospheric Sciences
Atlanta, Georgia

Supporting Stations: Icebreaker Oden
Research Locations: Amundsen and Ross Seas

Project Description:

This project investigates the influence of unique phosphorus cycling processes in the Southern Ocean on the nutrient balance of major oceanographic water masses.

Field Season Overview:

Project team members will embark the Icebreaker ODEN in Montevideo, Uruguay and will conduct research enroute to McMurdo Station. Researchers will focus on sampling and isolating dissolved and particulate materials from 0-1000m water column profiles along a meridional transect in sea ice-covered waters of the Southern Ocean. They will apply and test new approaches to oceanographic research including electrodialysis techniques and x-ray spectroscopy. The research is expected to demonstrate the efficacy of these new approaches to solving long-standing oceanographic mysteries in the Southern Ocean. Project team members will disembark by helicopter when the ODEN reaches the ice edge.

Deploying Team Members:

- Julia Diaz

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

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Science Project Details: 2008-2009

Bio-Physical Variability In Regions Of The Southern Ocean With Contrasting Climatic Response: The Eastern Amundsen And Ross Seas

Program Manager:
Dr. Kelly Falkner

Event Number: C-457-O

ASC POC/Implementer:
Patricia Jackson

Dr. Raymond Sambrotto (Principal Investigator)
sambrott@ldeo.columbia.edu

Columbia University
Lamont-Doherty
Palisades, New York

Supporting Stations: Icebreaker Oden
Research Locations: Amundsen Sea, Ross Sea

Project Description:

The project extends last year's sampling program onboard the ODEN. Researchers will examine upper ocean characteristics for evidence of increased volume and/or temperature on the shelf within the context of ice-atmosphere variability associated with large scale climate patterns. They will characterize the phytoplankton communities and measure dissolved inorganic and organic pools of nitrogen and phosphorus to assess the stoichiometric relationship among these pools. Team member will also assess meltwater using multiple tracers and investigate possible sources of freshening (e.g. decreased sea ice production versus ice shelf melt) based on water mass distributions and ocean-atmosphere-ice interactions found in the eastern Amundsen versus eastern Ross Sea region.

Field Season Overview:

Project team members will embark the Icebreaker ODEN in Montevideo and conduct research enroute to McMurdo station. The field party of three will deploy XBT/XCTDs and conduct water column sampling and analysis. The field party will disembark the ODEN by helicopter when it reaches the ice edge at McMurdo.

Deploying Team Members:

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

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- Kris Swenson
- Xiaojun Yuan (Co-PI)

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Science Project Details: 2008-2009

Collaborative Research: Dating And Paleoenvironmental Studies On Ancient Ice In The Dry Valleys, Antarctica

Program Manager:
Dr. Vladimir Papitashvili

Event Number: G-070-M

ASC POC/Implementer:
Chad Naughton

Dr. Michael Bender (Principal Investigator)
bender@princeton.edu

Princeton University
Department of Geosciences
Princeton, New Jersey

Supporting Stations: McMurdo Station
Research Locations: Taylor Valley, Beacon Valley, Mullins Valley

Project Description:

The Mullins Valley debris-covered glacier forms at the headwall of Mullins Valley, Dry Valleys region of Antarctica. As it flows down this small valley, it enters a region of net ablation, and mass loss leads to the surface exposure of dirt and rocks that fell in at the headwall. The dirt/rock layer, which eventually reaches a thickness of about 1 m, insulates the ice and causes evaporation to be very slow. In addition, glacial flow alleviates thinning due to ablation, so that glacial ice is foreshortened laterally, rather than vertically. The consequence of these two features is that very old ice is preserved: 40Ar/39Ar ages of volcanic ashes found in the rock layer progressively increase down the length of the glacier, and reach nearly 10 Ma at the outer limit.

Field Season Overview:

1. Establish Camp with driller and 3 scientists, Drill at Site 1 for days 1-11. Retrograde ice during drill move on day 12.

2. Move drill (helo flight), drill at Site 2 for days 12-21. Scientist 1 departs on Day 14. Retrograde ice during drill move on day 22.

3. Move drill (helo flight), drill at Site 3 for days 21-40. Scientists 2-3 depart

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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on Day 30. Retrograde ice on day 30. 2 GA's come to camp on Day 30.

4. Break camp on day 40; retrograde ice; driller and GA's return to McMurdo.

Deploying Team Members:

- James Green
- Jackie Hams
- Gareth Morgan

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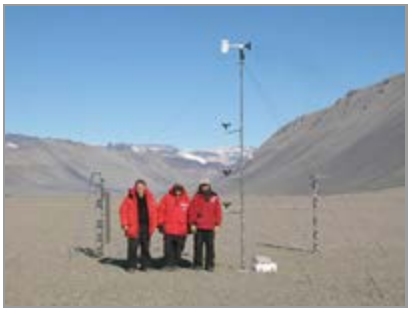
Science Project Details: 2008-2009

Dynamics Of Aeolian Processes In The McMurdo Dry Valleys, Antarctica



G-167 team members (left to right) W.G. Nickling, M. Tilson, and J. Gillies at one of their instrumented sites (Wright Valley) for measuring the frequency and magnitude of aeolian sediment transport in the Dry Valley system on an annual basis. Photo by W.G. Nickling

Program Manager:
Dr. Alexandra Isern

Event Number: G-167-M

ASC POC/Implementer:
Charles Kaminski

Dr. John Gillies (Principal Investigator)
jackg@dri.edu

Desert Research Institute
Reno, Nevada

Supporting Stations: McMurdo Station
Research Locations: Lake Fryxell, Taylor Valley, Victoria Valley, Wright Valley

Project Description:

The spatial and temporal patterns of aeolian transport in the McMurdo Dry Valleys are not well understood. In particular, the magnitude and frequency of sediment transport events, the differences between the summer and winter transport regimes, and the flux rates of wind-blown sand are not established. In addition, it is unknown whether the aeolian gravel ripple bedforms in the Dry Valleys are current or relict forms. This project will conduct two, process-based experiments and accompanying morphometric analyses to answer these questions. Researchers will establish sediment-transport measurement systems at four locations in the Victoria, Taylor, and Wright valleys to quantify sediment transport frequency and magnitude. The research team will begin a study designed to quantify the movement rate and form change of very coarse gravel megaripples in the Wright Valley.

Field Season Overview:

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The project's second season includes the following activities: • Download the collected data and collect the sediment in the traps. At each sediment-transport measurement sites at four locations in three of the Dry Valleys (Victoria, Taylor and Wright), the team will replace anemometers and Safires with newly-calibrated instruments to quantify the sediment-transport frequency and magnitude through the summer of 2008 and winter of 2009.

• Map the tracer movements at the coarse gravel megaripples in the Wright Valley and re-survey the ripple morphology to quantify the rate of movement and any form changes. Emplace traction load samplers into the gravel ripple field to quantify the sediment transport of the material moving in contact with the surface.

Deploying Team Members:

- William Nickling (Co-PI)
- Michael Tilson

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Science Project Details: 2008-2009

Byrd Glacier: Evidence For Plateau Collapse

Program Manager:
Dr. Vladimir Papitashvili

Event Number: G-437-M

ASC POC/Implementer:
Chad Naughton

Dr. Audrey Huerta (Principal Investigator)
ahuerta@cwu.edu

Department of Geological Sciences
Ellensburg, Washington

Supporting Stations: McMurdo Station
Research Locations: Cape Kerr, Byrd Glacier, Lake Judith

Project Description:

Early theories on the formation of the Byrd outlet were based on the idea that the outlet developed during glacial times by the incision of ice over-topping the Trans-Antarctic Mountains (TAM). However, recent thermochronologic results indicate that the Byrd outlet was formed during the Cretaceous period by fluvial incision as streams flowed from West Antarctica to East Antarctica. These results are consistent with geodynamic models that predict a high-elevation plateau in West Antarctica during the Cretaceous. This project will collect rock samples for an in-depth, thermochronologic study along five vertical transects to further refine the thermal evolution of the region. These results will be used to constrain geodynamic models testing the hypothesis that the TAM are the abandoned margin of a collapsed Mesozoic West Antarctic Plateau.

Field Season Overview:

The seven-member G-437 team, plus a mountaineer from the Field Safety Training Program, will travel by Twin Otter from McMurdo Station to Lake Judith Camp (180 nm) the week of 12 January. Once there, the team will be supported by Antarctic New Zealand. Tents and sleep kits from Berg Field Center are needed at Lake Judith Camp. The team will travel in two groups, each with a mountaineer, by helicopter in the morning (30 to 35 nm) to the various field sites along the margin of Byrd Glacier. The team will traverse by foot during the day while collecting samples, and will be picked up in the late afternoon for a return to the camp. Three team members will return to

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McMurdo Station around 21 January and redeploy 23 January. The remaining four team members will finish work at Byrd Glacier, returning to McMurdo Station to redeploy on 30 January. Approximately 1,500 pounds of rock samples will be returned to CONUS via the vessel.

Deploying Team Members:

- Ann Blythe (Co-PI)
- Meilani Bowman-Kamaha'o
- Stephanie Kay
- Forrest McCarthy
- Michael Roberts
- Don Voigt

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Science Project Details: 2008-2009

Collaborative Research: Upper Cretaceous-Lower Paleocene Strata From The James Ross Island Region: Chemo-, Magneto-, And Biomarker Tests Of Intercontinental Correlation And Extinction Hypotheses

Joseph Kirschvink pointing his finger to the Cretaceous/Tertiary boundary (indicated by the aluminum stake), showing the little plastic boxes that they were using to collect oriented samples for paleomagnetism. The K/T boundary has an Iridum spike that signals the time a large meteorite hit, and things like the Dinosaurs were wiped out. Photo by Ross Mitchell

Program Manager:
Dr. Vladimir Papitashvili (acting)

Event Number: G-436-E

ASC POC/Implementer:
John Evans

Dr. Joseph Kirschvink (Principal Investigator)
kirschvink@caltech.edu

California Institute of Technology
Geological and Planetary Sciences
Pasadena, California

Supporting Stations: Special Project
Research Locations: Seymour Island

Project Description:

Researchers will address the causes of mass extinction based on evidence from stratigraphic sections of late Cretaceous age in Antarctica. While it is known that a sudden extinction occurred at the end of the Cretaceous, it has become increasingly clear that pre-Cretaceous Tertiary (KT) diversity decrease had already occurred in Antarctica. This indicates that significant cooling may have occurred in the Southern Hemisphere high latitudes during this period of time. However, at the same time flood basalts in India were exhaling large amounts of carbon dioxide into the atmosphere, a process that is also associated with mass extinction, and one that might provide an alternate explanation. Tests of these hypotheses on mass extinction have

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been conducted at sites in the Northern Hemisphere, but understanding of these events must also take into account effects in the Southern Hemisphere.

Researchers will seek to answer the questions of what biotic, climatic and tectonic events and trends occurred in the Southern Hemisphere during the late Cretaceous. They hope to determine if these events and trends can be matched to those already known to have occurred in the Northern Hemisphere.

Field Season Overview:

The U.S. field team of 6 will fly to Punta Arenas, Chile for a couple days of packing and organizing, then board cruise LMG09-02 of the ARSV Laurence M. Gould, scheduled to depart on February 11. The ship will transit directly to James Ross Island, arriving at Santa Marta Cove approximately February 15 (weather and ice permitting). Here we will establish a temporary tent camp from which we will work until picked up by the ship, approximately December 18. Our scheduled return date to Punta Arenas is December 23.

The Argentine team of 2 will fly by Argentine fixed-wing aircraft to Base Marambio on Seymour Island, and from there by Argentine helicopter to James Ross Island--reversing this at the conclusion of the field work. The Argentines will provide their own basic camp suppport (Food, fuel, and shelter) and their travel will be timed to match the arrival of the U.S. team on the L.M.Gould. Operational support requirements include an all-terrain vehicle (ATV) and small tractor, as well as a full field camp and a Camp Manager.

Deploying Team Members:

- Isaac Hilburn
- Eduardo Olivero
- David Smith
- Alvar Sorbal
- Eric Steig (Co-PI)
- Thomas Tobin
- Peter Ward (Co-PI)

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Science Project Details: 2008-2009

Vertebrate Paleontology Of Livingston Island, South Shetlands, Antarctica

Program Manager:
Dr. Vladimir Papitashvili (acting)

Event Number: G-170-E

ASC POC/Implementer:
John Evans

Dr. Ross MacPhee (Principal Investigator)
macphee@amnh.org

American Museum of Natural History
New York, New York

Supporting Stations: Special Project
Research Locations: Livingston Island/Laurence M. Gould

Project Description:

The Antarctic Peninsula and islands in the Scotia Arc are tectonically related. Until about 40 million years ago (Ma), these terranes formed a closely-packed array, joining West Antarctica with southernmost South America. An intriguing possibility is that this array of terranes may have acted as a land bridge over which land vertebrates dispersed. If so, one would expect to see their fossils in appropriately aged deposits on the islands. Project researchers will search for late Mesozoic vertebrate fossils on Livingston Island in the South Shetland group, in deposits ranging in age from 112 Ma to about 84 Ma. Anticipated discoveries include reptiles (dinosaurs, mosasaurs, plesiosaurs), birds, and possibly mammals. The team will collect rock samples to analyze for stable isotopes of oxygen, carbon, and hydrogen to shed light on late Mesozoic climatic conditions in the South Shetlands area and to improve correlations with other areas.

Field Season Overview:

This project will require a temporary field camp on the Byers Peninsula, Livingston Island, supported by cruise LMG09-02 of the ARSV Laurence M. Gould. This cruise is scheduled to depart Punta Arenas, Chile, on 14 February 2009 and to return 13 March 2009. This schedule should position the ship off the Byers Peninsula for offload and camp setup on approximately 17 February 2009, and will require onload at the end of the field work no later than 09 March 2009. Based on this schedule, the window for dedicated

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science is 19 days from 18 February to 08 March 2009. President Beaches on the west side of the Byers Peninsula is the target site for this season. If the site is deemed unworkable, the team will use the South Beaches location from last season.

The study site is an Antarctic Specially Protected Area and planned work requires a special permit as stipulated by the Antarctic Conservation Act.

This is the second season of a two-season project.

Deploying Team Members:

- Robin Beck
- Clare Flemming
- Louis Jacobs
- Marcelo Reguero
- Marcelo Tejedor

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Science Project Details: 2008-2009

Project Summary: Landform Evolution In The Dry Valleys And Its Implications For Miocene-Pliocene Climate Change In Antarctica

Program Manager:
Dr. Thomas Wagner

Event Number: G-438-M

ASC POC/Implementer:
Chad Naughton

Dr. Sujoy Mukhopadhyay (Principal Investigator)
sujoy@eps.harvard.edu

Harvard University
Cambridge, Massachusetts

Supporting Stations: McMurdo Station
Research Locations: Arena Valley / Asgard Range / Battleship Promontory

Project Description:

We will collect samples for measurement of cosmogenic nuclides in order test whether the dramatic pothole and channel complexes in the Asgard and Convoy Range are the result of subaerial weathering processes or subglacial erosion beneath an ice sheet. We will also collect samples from surface boulders and soil profiles from mid Miocene age glacial tills in order to constrain deflation rates of these deposits. These deflation rates will determine how long in the past stable polar climates in the Dry Valleys can be inferred based on the lack of geomorphic features indicative of processes involving liquid water on the surfaces of these tills.

Field Season Overview:

We plan to spend approximately one week in McMurdo preparing for our field work.Our field party will consist of four persons. We will conduct our field work over about 4 weeks out of three camps in the Dry Valleys located in the Sessrumir Valley in the Asgard Range, Arena Valley in the Quartermain Range and at Battleship Promentory in the Convoy Range.. We will also utilze helicopters to make day trips to other locations from these camps. We plan for one week in McMurdo packing samples and checking in gear before returning to the US.

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Deploying Team Members:

- Robert Ackert (Team Leader)
- Rob McBrearty
- Allan Pope

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Science Project Details: 2008-2009

Collaborative Research: Physical Properties Of The WAIS Divide Deep Core

Program Manager:
Dr. Julie Palais

Event Number: I-168-M

ASC POC/Implementer:
Matthew Kippenhan

Dr. Richard Alley (Principal Investigator)
ralley@essc.psu.edu

Pennsylvania State University
Dept. of Geosciences & Earth System Science Center
University Park, Pennsylvania

Supporting Stations: McMurdo Station
Research Locations: WAIS Divide

Project Description:

As part of the West Antarctic Ice Sheet (WAIS) Divide deep ice-coring program, this project seeks to acquire a high-resolution climate record from WAIS that will be commensurate in scope to the record provided from the Greenland Ice Sheet Project 2 (GISP2) ice core. Researchers will catalog ice core visible stratigraphy, the depth evolution of ice grain size and orientation, bubble sizes, and the size distributions and characteristics of specific, verified event depths such as the onset of enclathratization and the climate transition from the end of the last glacial period into the Holocene.

Field Season Overview:

The project team member will deploy to WAIS Divide in mid-December and work with the National Ice Core Laboratory (I-478 M) to process the core. All science cargo will be placed into the field before drilling commences and most will remain on site. The project requests that RPSC supply several key pieces of equipment, which will be returned to McMurdo Station at the end of the season. The team member will redeploy in mid-January, or when drilling is complete for the season.

Deploying Team Members:

- John Fegyveresi

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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Science Project Details: 2008-2009

IPY, Flow Dynamics Of Two Amundsen Sea Glaciers: Thwaites And Pine Island

Program Manager:
Dr. Julie Palais

Event Number: I-205-M

ASC POC/Implementer:
Michael McClanahan

Dr. Sridhar Anandakrishnan (Principal Investigator)
sak@essc.psu.edu

Pennsylvania State University
Department of Geosciences and Environment Instit
University Park, Pennsylvania

Supporting Stations: McMurdo Station
Research Locations: West Antarctica

Project Description:

This project will study the flow dynamics of the Thwaites Glacier. This glacier is buttressed by only a small ice shelf and is therefore especially susceptible to rapid changes. Combined, the Thwaites and Pine Island glaciers account for approximately 5% of the ice discharge of the entire Antarctic ice sheet. There is increasing evidence for rapid and recent changes in their flow behavior. Researchers will conduct a reflection seismic experiment over the grounding zone ridge of Thwaites Glacier to better understand controlling characteristics, such as whether the ridge is sedimentary or crystalline in nature and whether there are deep-water channels. Researchers will measure the flow speed of the glacier using GPS. This work will result in the best, most recent flow-velocity determinations for Thwaites Glacier that can then be compared with satellite-based data.

Field Season Overview:

Approximately 30 GPS receivers will be deployed and operate continuously during the season to study the glacier's flow dynamics.

I-205-M and I-188-M are collaborative projects. Berg Field Center requests are included on the I-188 SIP. Two team members listed here will deploy with I-188 and assist with that project, except when installing and removing the GPS equipment for I-205.

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Deploying Team Members:

- Huw Horgan
- Leo Peters

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Science Project Details: 2008-2009

Collaborative Research: The Time Evolution Of Trace Gases In South Pole Firn Air

Drillers setting up the 4" drill for a firn hole at WAIS Divide, Antarctica. Photo by Murat Aydin from University of California, Irvine

Program Manager:
Dr. Julie Palais

Event Number: I-344-S

ASC POC/Implementer:
Charles Kaminski

Dr. Murat Aydin (Principal Investigator)
maydin@uci.edu

University of California Irvine
Earth System Science
Irvine, California

Supporting Stations: South Pole Station
Research Locations: Firn camp

Project Description:

We propose to drill two 125 m deep firn holes at South Pole for gas sampling and analysis. We will sample the firn air in each hole to measure the abundance of trace and ultra-trace level gas species. Gas movement through the firn will be modeled using measurements of gases with known atmospheric histories. We will use this information to reconstruct trace gas atmospheric histories since the beginning of the 20th century.

Field Season Overview:

We need about 20 days at South Pole for two scientists and two drillers. We expect to set up a structure 1-2km from Pole along the clean air sector boundary. We will incrementally drill each 3" hole and sample the firn air with our rubber bladder assembly. The pump assembly will be set up in the structure. We hope to work 12-14 hour days, commute via snow machine to and from our firn camp to Pole. At this point we do not expect to retro any firn core. We expect our cargo to be less than 6,000 lbs total both ways from pole. No frozen cargo. We will use the lightweight Eclipse drill as in past seasons.

Deploying Team Members:

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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- Todd Sowers (Co-PI)

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Science Project Details: 2008-2009

Grounding-Line Retreat In The Southern Ross Sea And Constraints From Scott Glacier

I-196 member examining the composition of Late Pleistocene moraines on Taylor Ridge, Scott Glacier. Photo by Gordon Bromley

Program Manager:
Dr. Julie Palais

Event Number: I-196-M

ASC POC/Implementer:
Charles Kaminski

Dr. Howard Conway (Principal Investigator)
conway@ess.washington.edu

University of Washington
Earth and Space Sciences
Seattle, Washington

Supporting Stations: McMurdo Station
Research Locations: Scott Glacier

Project Description:

A key unresolved question in Antarctic glaciology concerns the stability of the West Antarctic Ice Sheet (WAIS). The WAIS is marine-based, meaning that its substratum is a series of archipelagoes in the northwestern Ross Sea Embayment off the northern Scott Coast. As deglaciation began after the last glacial maximum, the WAIS became unmoored. Learning how, when and in what sequence this occurred is a critical step toward isolating the mechanisms that control WAIS dynamics. The northern Scott Coast is of particular interest to researchers looking for mechanisms that may have triggered the key stages of deglaciation. This project seeks to reconstruct the glacial history of the Scott Glacier, concentrating on its evolution from the last glacial maximum to the present day. Establishing constraints on Scott Glacier thinning since the last glacial maximum will allow researchers to bracket the timing of grounding-line retreat past the glacier mouth, which will help establish whether the Holocene retreat of the West Antarctic Ice Sheet is ongoing, or if it has ended.

Field Season Overview:

The six-member field party will map, sample and correlate moraines at sites

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

Find more information about USAP projects by viewing individual project web sites.

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along the length of Scott Glacier over two field seasons. Standard remote field equipment (including three snow machines and sleds) is required for six weeks. The project's plan requires Twin Otter support for field camp put-in, camp moves, close support, and a camp pull-out. An LC-130 to Siple Dome can stage gear for the put in and pull out. The team also plans to use the Twin Otter to fly radar.

Deploying Team Members:

- Gordon Bromley
- Maurice Conway

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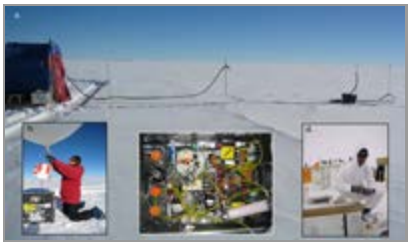
Science Project Details: 2008-2009

Atmospheric, Snow And Firn Chemistry Studies For Interpretation Of WAIS-Divide Cores



Atmospheric, Snow and Firn Chemistry Studies at WAIS Divide for interpretation of the deep core: a) continuous sampling of atmospheric trace chemical species (ozone, nitrogen oxide, peroxides & formaldehyde) b) balloon sounding c) custom built detector for atmospheric hydroperoxides and d) surface snow sampling. Photos by M.M. Frey, except d) by E. Youngman.

Program Manager:
Dr. Julie Palais

Event Number: I-151-M

ASC POC/Implementer:
Michael McClanahan

Dr. Markus M. Frey (Principal Investigator)
mfrey@ucmerced.edu

University of California Merced
School of Engineering
Merced, California

Supporting Stations: McMurdo Station
Research Locations: WAIS Divide

Project Description:
The primary aim of this project is to improve our understanding of atmospheric chemistry over Antarctica, currently and as recorded in snow, firn and ice and interpret quantitatively the chemical record expected from the WAIS?Divide core in terms of past atmospheric change. Models developed and validated as part of the ITASE traverse, at South Pole and at Summit, Greenland will be extended to other species that will be measured in the WAIS?Divide cores. To accomplish this we will make atmospheric, snow and firn?core measurements of selected gas, meteorological and snow physical measurements, and carry out modeling of snow?atmosphere exchange. Current atmospheric chemistry will be based on atmospheric, surface?snow and snow?pit measurements at the ice?coring site, which will

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Find information about current USAP projects using the principal investigator, event number station, and other indexes.

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be linked with both year?round atmospheric and surface?snow measurements at South Pole and spatial measurements made previously as part of the West Antarctic ITASE traverses. Records of past atmospheric chemistry will come from analyzing firn cores to develop chemical records, analyzing selected sections of the deep core and working with other investigators who will make continuous measurements in the deep core. On?site analyses will be done using custom?built atmospheric detectors and a continuous flow analysis system. Atmosphere?snow?ice transfer models validated for snow and shallow firn cores and atmospheric photochemical models will be applied to interpret the longer ice?core records. Three main results will emerge from the research. First will be an understanding of the atmospheric chemistry in West Antarctica, it's bi?directional linkages with the snowpack, and how it responds to regional influences. This includes both photochemically active species, which are influenced by both changes in transport and in radiation associated with greenhouse gas increase and stratospheric ozone variability, and thus anthropogenic emissions, the solar activity cycle and volcanic eruptions. Second will be an extension of our knowledge of the effect of post?depositional air?snow exchange on firn/ice records of various species at this site, i.e. the atmosphere?snow?ice transfer function. Sustained investigations at the WAIS?Divide site, when combined with data from the much shorter ITASE campaigns, provide the basis for extending our knowledge of transfer functions for formaldehyde and hydrogen peroxide to organic acids and strong acid ions. Third, this understanding of air?snow interactions will be used to interpret multi?century, Holocene and last glacial period ice?core records of atmospheric composition, providing an analysis of past atmospheric oxidation capacity. A photochemistry model coupled to a GCM will be applied to address the feedbacks in the chemistry?climate system, constrain past trends in atmospheric photo?oxidants and quantify contributions expected from natural and anthropogenic impacts. There are at least four broader impacts of this work. First is education of university students at both the graduate and undergraduate levels. One one postdoctoral researcher and one graduate student will carry out much of the work, and a number of undergraduates will be involved. Second, we will use involvement with the WAIS?Divide coring program to help recruit under?represented groups as UC Merced students. As part of UC Merced's outreach efforts in the San Joaquin Valley, whose students are under?represented in the UC system, the PI gives short research talks to groups of Operational Requirements Worksheet ? Project Information Operational Requirements Worksheet Event Number Undefined? U Page 1 of 37 prospective students, community college and high school educators and other groups. He will develop one such talk highlighting this project. Including high?profile research in these recruiting talks has proven to be an effective way to promote dialog, and interest students in UC Merced. Third, talks such as this also contribute to the scientific literacy of the general public. The PI and grad student will all seek opportunities to share project information with K?14 and community audiences. Fourth, we will disseminate research results broadly to the scientific community, and seek additional applications for the transfer functions as tools to improve interpretation of ice?cores. This research is highly collaborative, and leverages the expertise and data from a number of other groups.

Field Season Overview:

During the 2008-09 season two persons (W. Rogge, S. Masclin) from our group at UC Merced will deploy to the WAIS Divide site at the earliest possible date (Nov-20). Atmospheric measurements and surface snow sampling will be done based out of the Atmospheric Chemistry shelter at the designated clean air site. W. Rogge will stay until around Christmas, while S. Masclin will stay until Jan-20 (or the latest date for science personnel at WAIS Divide).

Deploying Team Members:

- Sylvain Masclin
- Wolfgang Rogge (Co-PI)

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Science Project Details: 2008-2009

National Ice Core Laboratory (NICL) Core-Handling And Data Recording

Program Manager:
Dr. Julie Palais

Event Number: I-478-M

ASC POC/Implementer:
Matthew Kippenhan

Mr. Geoffrey Hargreaves (Principal Investigator)
hargreavesmg@gmail.com

United States Geological Survey
National Ice Core Laboratory
Denver, Colorado

Supporting Stations: McMurdo Station
Research Locations: WAIS Divide

Project Description:

Project personnel from the US National Ice Core Laboratory (NICL) will deploy to Antarctica in collaboration with the WAIS Divide drilling program. The overall program objective is to reconstruct a paleoclimate record from a deep ice core recovered from this site. NICL personnel will provide a core-handling and data-recording system, quality assurance and oversight, assistance with core-processing operations and will ensure safe transit for the core from Antarctica to the NICL laboratory in Denver, Colorado.

Field Season Overview:

Two NICL personnel will deploy to McMurdo Station from Denver: the first in mid-November and second in mid-December with a short overlap. After completing required safety training at McMurdo Station, the first team member will fly to the WAIS core camp in late November, and the second team member in late December. Related cargo should arrive at the field location at the same time or earlier than the first deploying team member. NICL personnel will re-install the components of the ice-core processing equipment removed for winter, assist ICDS in installing re-engineered receiving equipment, test all the systems in collaboration with ICDS, and provide training and quality assurance for the core handling team and assistance with core processing operations. The team anticipates recovering approximately 800-plus meters of core. Most of the core drilled (approx. 800

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meters) will remain on site. If drilling goes beyond the brittle ice zone, some ice (200 to 300 meters) will be staged out of the field and to McMurdo Station toward the close of the season on LC-130 cold-deck flights. The palletized core will require freezer (-22 C) storage at McMurdo Station until the ice can be loaded on to the resupply vessel. The ice retrograde to the National Ice Core Laboratory will be coordinated from Port Hueneme after the ship arrives in California. The first NICL team member will return to McMurdo Station in late December, and the second at the end of the drilling season in late January.

Deploying Team Members:

- Brian Bencivengo

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Science Project Details: 2008-2009

Collaborative Research: Atmosphere-Ocean-Ice Interaction In A Coastal Polynya

An Aerosonde UAV during landing approach at the UIC-NARL facility in Barrow, Alaska in March, 2003. Photo by Jake Andrew, Aerosonde, Ltd.

Program Manager:
Dr. Peter Milne

Event Number: O-400-M

ASC POC/Implementer:
John Rand

Dr. John Cassano (Principal Investigator)
john.cassano@colorado.edu

University of Colorado Boulder
CIRES
Boulder, Colorado

Supporting Stations: McMurdo Station
Research Locations: Terra Nova Bay

Project Description:
Researchers with this project will make in-situ oceanic and atmospheric measurements of the oceanic response to mesoscale atmospheric circulatuions in Terra Nova Bay.

Field Season Overview:
Conduct Aerosonde site survey in McMurdo

Deploying Team Members:

- Nickolas Logan
- James Maslanik (Co-PI)

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Science Project Details: 2008-2009

IPY/ASEP - Collaborative International Research: Amundsen Sea Influence On West Antarctic Ice Sheet Stability And Sea Level Rise

Program Manager:
Dr. Peter Milne

Event Number: O-274-N

ASC POC/Implementer:
Patricia Jackson

Dr. Stanley S Jacobs (Principal Investigator)
sjacobs@ldeo.columbia.edu

Columbia University
Lamont-Doherty Earth Observatory
Palisades, New York

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: Amundsen Sea

Project Description:

West Antarctic Ice Sheet (WAIS) stability in a changing climate hinges on the balance between surface accumulation, iceberg calving, and in-situ basal melting of fringe ice shelves. In Pine Island Bay, shelf ice is melting orders of magnitude faster than elsewhere around Antarctica, fueled by intrusions of relatively warm deep water onto the continental shelf. Remote sensing has correlated that melting, with thinning ice shelves, increases the ice streams' velocity and drawdown of adjacent ice sheets. The objectives of this project are to extend past summer ocean measurements to clarify the Amundsen Sea's influence on the regional ice shelves, and in turn the effects of ice sheet change on the ocean. Researchers seek multi-year time-series records to facilitate understanding of seasonal and inter-annual variability of deep water access to the continental shelf, its melting of regional ice shelves, and its role in sea ice formation and decay. Sea-ice observations will focus on the role of snow, ice, and ocean-heat transport in its mass balance. Swath mapping will concentrate on deep troughs and outer shelf depressions that funnel warm, salty deep water to vulnerable ice-shelf grounding zones. Researchers will use the measurements to model ocean properties, their interactions with ice cover, and impacts on WAIS ice shelves.

Field Season Overview:

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The field party will deploy onboard RV/IB Nathaniel B. Palmer's first cruise of 2009 (NBP09-01). Team members will deploy moorings, conduct CTD casts, collect water samples, sea ice cores, and multibeam swath bathymetry. Dr. Jacobs' collaborator, Adrian Jenkins of the British Antarctic Survey and Southampton University (U.K.), will deploy an autonomous underwater vehicle (AutoSub) to the Pine Island Ice Shelf. The 7-meter long, 1-meter diameter instrument will attempt to measure water temperature, salinity, and collect data using an upward-looking sonar. These data will help determine the mass-balance and stability of this keystone outlet glacier of the West Antarctic Ice Shelf.

Deploying Team Members:

- Pierre Dutrieux
- Raul Guerrero
- Adrian Jenkins (Co-PI)
- Katherine Leonard
- Chris Little
- Ted Maksym
- Steve McPhail
- Frank Nitsche
- James Perrett
- Sharon Stammerjohn
- Andy Webb
- Dave White

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Science Project Details: 2008-2009

Continuation Of Ice Crystal Observations At South Pole Station And Collection Of Cloud Microphysical Data On Ross Island In Support Of ANTCI And RIME

SPEC Incorporated will be conducting investigations of clouds at the South Pole using a 43 m^-3 tethered balloon with an instrument package that records digital images of cloud particles (see inset), along with standard meteorological parameters. Photo by Paul Lawson

Program Manager:
Dr. Peter Milne

Event Number: O-226-S

ASC POC/Implementer:
Charles Kaminski

Dr. R. Paul Lawson (Principal Investigator)
plawson@specinc.com

SPEC, Inc.
Boulder, Colorado

Supporting Stations: South Pole Station
Research Locations: ARO

Project Description:

One objective is to improve our understanding of the microphysical and radiative properties of ice crystals observed during summer months at the SPS, including an improved understanding of the formation and development of these ice crystals. This will be accomplished by deploying ground-based measurements and a tethered balloon system that is capable of recording cloud particle imager (CPI) images and other meteorological data in clouds from the surface to 2 km. These measurements can also be used for radiative studies of mid-latitude cirrus because the sizes and shapes of SPS crystals have recently been shown to have very similar geometric relationships as those observed in mid-latitude cirrus clouds.

Field Season Overview:

In January 2009 SPEC will deploy two ground-based CPIs, an ice crystal

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video spectrometer (ICVS), a polar nephelometer, a tethered-balloon system with a CPI and other cloud sensors to the SPS. The ground-based CPIs will be mounted on wooden stands previously built for the SPEC SPICE deployments in 2001/2002 and placed on either the SPARCLE shack or the ARO building. Both locations were used in 2001 and 2002. The tethered-balloon instrument package can be launched from just outside the SPARCLE or ARO buildings. It is desirable to dig a pit for the mooring of the balloon. Helium will be required for balloon inflation. A structure with a double wide door will be necessary to work on the winch indoots. Computers and data processing equipment will be located in the SPARCLE shack and/or ARO buildings. The primary requirement for the deployment period is to get 3 weeks when the surface temperature is between -5 and -45 C, which generally implies that we need to be at SPS from middle January until early February.

Deploying Team Members:

- Michael Carrithers
- Alexei Korolev
- Darren O'Connor
- Patrick Zmarzly

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Science Project Details: 2008-2009

SASSI Mooring Array In The Western Antarctic Peninsula

Program Manager:
Dr. Peter Milne

Event Number: O-241-L

ASC POC/Implementer:
Adam Jenkins

Dr. Doug Martinson (Principal Investigator)
dgm@ldeo.columbia.edu

Columbia University
Lamont-Doherty Earth Observatory
Palisades, New York

Supporting Stations: ARSV Laurence M. Gould
Research Locations: Peninsula Area LTER grid

Project Description:

The overall objective of this International Polar Year (IPY) project is to deploy a mooring array (four moorings) on standard Long Term Ecological Research (LTER) summer cruise stations. The purpose is to monitor flooding of the West Antarctic Peninsula (WAP) continental shelf by the Antarctic Circumpolar Current in order to determine the role of the ocean heat flux on WAP climate change.

Field Season Overview:

Four moorings will be recovered, serviced and redeployed aboard the annual LTER cruise in January 2009. A CTD cast will be performed at each station (coinciding with regular LTER sampling).

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Science Project Details: 2008-2009

SGER: Direct Cross-Slope Ventilation Of The ACC At The Western Scotia Ridge

Start of a deep hydrographic station in the Ross Sea on board the RVI N.B. Palmer, to measure continuous conductivity, temperature, pressure and current profiles and to collect a number of water samples for geochemical tracers. Photo by Alejandro Orsi of Texas A&M University

Program Manager:
Dr. Peter Milne

Event Number: O-401-E

ASC POC/Implementer:
John Evans

Dr. Alejandro H Orsi (Principal Investigator)
aorsi@tamu.edu

Texas A & M University
Oceanography
College Station, Texas

Supporting Stations: Special Project
Research Locations: Weddell Sea (via Argentine vessel)

Project Description:
This project is part of the Antarctic CRossroad Of Slope Streams (ACROSS) project, which is a U.S. contribution to the IPY “SASSI” program (IPY Activity #9). ACROSS seeks to (1) better understand the physical processes governing northward outflow of ventilated slope waters from the Weddell Sea across the western South Scotia Ridge, and (2) quantify their contribution to the cooling and freshening of the Antarctic Circumpolar Current as it transits the deep Scotia Sea. This is a collaborative project for which fieldwork will be supported by the Argentine National Antarctic Program, Instituto Antartico Argentino (IAA). Although as proposed this is a stand-alone project, it is closely linked to project OPP-0830398 (Laurence Padman); both projects plan to deploy on the same IAA vessel.

Project Indexes

Find information about current USAP projects using the principal investigator, event number station, and other indexes.

Project Web Sites

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Field Season Overview:

This SGER proposal is based on a single cruise on the Argentine research vessel Puerto Deseado sailing from Ushuaia, Argentina: a 30-day (port-to-port) cruise in the austral summer of 2009. Twenty-four days of work in the area are required to carry out all planned CTD/LADCP/Microstructure measurements and all mooring deployments; a 3-day port-to-area transit time is estimated (6 total transit days).

Deploying Team Members:

- Kelly Cole
- Yong Kim
- Benjamin Morgan
- Christina Wiederwohl

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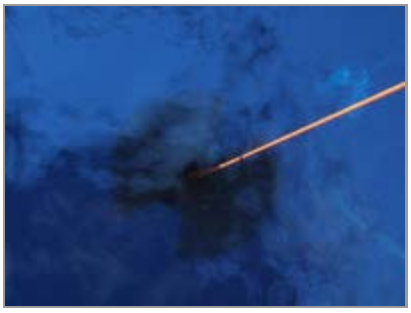
Science Project Details: 2008-2009

SGER: Direct Cross-Slope Ventilation Of The ACC At The Western Scotia Ridge



The “Vampire” profiler begins its descent to measure ocean turbulence to a depth of 800 m. Photo by Laurie Padman of Earth & Space Research, Corvallis OR

Program Manager:
Dr. Peter Milne

Event Number: O-265-E

ASC POC/Implementer:
John Evans

Dr. Laurence Padman (Principal Investigator)
padman@esr.org

Earth & Space Research
Corvallis, Oregon

Supporting Stations: Special Project
Research Locations: Western portion of the South Scotia Ridge (via Argentine vessel)

Project Description:

This project is part of the Antarctic CRossroad Of Slope Streams (ACROSS) project, which is a U.S. contribution to the IPY “SASSI” program (IPY Activity #9). ACROSS seeks to (1) better understand the physical processes governing northward outflow of ventilated slope waters from the Weddell Sea across the western South Scotia Ridge, and (2) quantify their contribution to the cooling and freshening of the Antarctic Circumpolar Current as it transits the deep Scotia Sea. This is a collaborative project for which fieldwork will be supported by the Argentine National Antarctic Program, Instituto Antartico Argentino (IAA). Although as proposed this is a stand-alone project, it is closely linked to project OPP_0818061(Alejandro Orsi); both projects plan to deploy on the same IAA vessel.

Field Season Overview:

This SGER proposal is based on a single cruise on the Argentine research vessel Puerto Deseado sailing from Ushuaia, Argentina: a 30-day (port-to-port) cruise in the austral summer of 2009.

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Twenty-four (24) days of work in the area are required to carry out all planned CTD/LADCP/Microstructure measurements and all mooring deployments; a 3-day port-to-area transit time is estimated (6 total transit days).

Deploying Team Members:

- Satoshi Kimura

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Science Project Details: 2008-2009

The Art Of Recycling In Antarctica: The Long View

Four views of Vostok, a 2007 artist's book in an edition of 30 by Michael Bartalos. Photo by Douglas Sandberg

Program Manager:
Ms. Kim Silverman

Event Number: W-481-M

ASC POC/Implementer:
Chad Naughton

Mr. Michael Arpad Bartalos Von Nagymad (Principal Investigator)
mb@bartalos.com

Artist & Writers Program
San Francisco, California

Supporting Stations: McMurdo Station
Research Locations: McMurdo, South Pole

Project Description:

This project aims to raise international awareness of resource conservation practices in Antarctica and promote and inspire sustainability worldwide. Non hazardous solid disposables and recyclables will be collected through the U.S. Antarctic Program's recycling system. These materials will be used to create a sculptural artist's book project that will be supplemented with the artist's own drawings, materials, forms, colors, textures, and pigments in order to create a uniquely Antarctic 'portrait.' Time in Antarctica will also be used to sketch, photograph, and otherwise document the technologies and practices of Antarctic researchers more extensively than would otherwise be possible. The final art works will be constructed in the artist's U.S. studio.

Field Season Overview:

Collecting physical material will take place within the stations' immediate environs. Conversations will be conducted with scientists in the field. The artist intends to keep a journal, take notes, and join excursions if/when possible, which will all feed into the artwork's imagery.

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Science Project Details: 2008-2009

Antarctica : Exquisite Light And Dark

Photo by Lisa K. Blatt

Program Manager:
Ms. Kim Silverman

Event Number: W-467-M

ASC POC/Implementer:
Rob Edwards

Ms. Lisa Kaye Blatt (Principal Investigator)
lkblatt@gmail.com

San Francisco, California

Supporting Stations: McMurdo Station
Research Locations: Siple Dome, lower Erebus hut, Dry Valleys, McMurdo Sound sea ice

Project Description:

Shooting photographs and video of landscapes, science and history, the artist will attempt to capture the subtle contrasts in minimal landscapes. This includes, but is not limited to, the color variations in white, the contrast of the water with the snow and icebergs, the variation in the light in the sky, the light coming through an ice cave, the contrast of the light and dark from shadows, and the different landscape shapes from the different land and ice formations.

Field Season Overview:

The project will be based in McMurdo, and will coordinate with scientists for visits to established field camps in the Dry Valleys, on the sea ice, and at Lower Erebus Hut. A trip to Siple Dome will be coordinated with Field Science Support utilizing existing LC-130 missions to the camp.

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Science Project Details: 2008-2009

Shifting Baselines: Antarctica

Artwork and photo by Judit Hersko.

Program Manager:
Ms. Kim Silverman

Event Number: W-479-M

ASC POC/Implementer:
Chad Naughton

Ms. Judit Hersko (Principal Investigator)
jhersko@csusm.edu

California State University San Marcos
San Marcos, California

Supporting Stations: McMurdo Station
Research Locations: On station, Cape Evans, Cape Royds, Dry Valleys, Ross Ice Shelf

Project Description:

This project will attempt to identify and capture the human presence in Antarctica and human adjustment to the extreme conditions there through five focuses: science in Antarctica, the Antarctic landscape and human perception, UV graphs, nature and culture in Antarctica, and a K-12 education project. Collaborators on this project include Dr. David Ainley and Jean Pennycook (B-031-M), Dr. Diane McKnight (B-421-M), and Dr. Mak Saito (B-243-M).

Field Season Overview:

Science in Antarctica involves observing a team of scientists as they go through all stages of research and documenting this process through photography, video, notes and drawings. The Antarctic landscape and human perception involves observing and documenting the landscape of Antarctica with its ice formations, light phenomena, and limitless vistas in order to create installations that embody the Antarctic experience. UV graphs include the artist creating images by altering materials through exposure to UV rays. These materials will be combined with small relief ice sculptures based on photographs that are placed and photographed in the landscape. Nature and culture in Antarctica encompasses visits to the huts of the explorers and documenting the work of researchers and the life of residents at McMurdo Station. The K-12 education project includes follow up to pre-

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deployment classroom visits in which the artist got acquainted with students so they would feel comfortable asking her questions and receiving answers while she is deployed to Antarctica. The artist will facilitate classroom projects involving art and science upon her return to the U.S.

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Science Project Details: 2008-2009

Antarctica: Hidden Musical Worlds

Cheryl Leonard plays music on an amplified piece of granite. Photo by Cheryl Leonard.

Program Manager:
Ms. Kim Silverman

Event Number: W-482-P

ASC POC/Implementer:
Rob Edwards

Undefined Cheryl Elizabeth Leonard (Principal Investigator)
ie@allwaysnorth.com

San Francisco, California

Supporting Stations: Palmer Station
Research Locations: Palmer local boating area and islands

Project Description:

For “Antarctica: Hidden Musical Worlds” I will travel to Palmer Station and create a series of musical compositions from natural materials and sounds in the area. My primary objective is to play natural objects and materials such as ice, rock, water, lichen, moss, shells, feathers, bones and fossils, as musical instruments, and to record compositions and improvisations created with them. I will also make field recordings of ice, water, animals and wind, and document my musical activities with video and still photography. Themes for each musical work will be drawn from topics under investigation by the scientific community at the time of my visit, especially those linked to changes in the Antarctic Peninsula's climate. Thus my second objective is to connect with experts from many different scientific fields in order to learn about their current research projects in the region.

Field Season Overview:

To realize this project I will spend 4 weeks at Palmer Station and travel to and from the Antarctic Peninsula. In Antarctica I will search out natural materials, objects and locations with intriguing acoustic properties or ambiences. These will then be recorded using condenser, contact, and underwater microphones and audio field recorders. Objects and materials will be played in non-destructive ways and, most often, where they are found in the field. Some natural-object instruments may also be brought back to the

Project Indexes

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station for further experimentation and indoor recording. If I am able to obtain permits to do so, a few objects will be exported to the U.S. for use in live performances and educational outreach.

My project will be tailored to both the kinds of research underway in the area at the time of my visit, and the materials and sites I am able to access. It allows for a great deal of flexibility and its overall success does not hinge upon being able to realize any one individual element. What is most important to me is to have a wide range of experiences in terms of locations, materials, and the types of scientists I might interact with. I would like to explore and record in as many of the following locations as possible: glaciers; beaches; diverse rock formations; an area containing fossils; breeding grounds for birds and seals; wrecks or remains connected to whaling or sealing; a place with whale and/or seal bones; in the ocean amongst a variety of wildlife; places where grass, pearlwort, moss and lichen grow; and in the midst of different kinds of icebergs and sea ice. I would like to spend time with scientists from a spectrum of fields possibly including: biology, oceanography, geology, glaciology, paleontology, and meteorology. I am especially interested in research that relates to global climate change and/or draws connections between the Antarctic Peninsula and the rest of the world.

Most recording forays would be day trips to locations near Palmer Station, either on foot or via zodiac. Ideally I would like to spend a minimum of several hours at each site. Some locations may warrant a full day onsite or repeat visits. I am very interested in visiting any scientific field camps or research sites in the area where I might be welcome, either as day trips or for a few days. I would also like to camp for a day or two in one or more recording locations if conditions and resources permit, and would love to journey to the peninsula's mainland if there is a chance to do so. Although the majority of my project will take place once I arrive in Antarctica, I plan to work onboard the ship during the journeys there and back so I can include aspects of the Southern Ocean and sub-Antarctic Islands in my music. If the ship will be stopping at any bases or field camps enroute to or from Palmer Station and there is an chance to visit these, even briefly, I would be excited to do that as well.

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Science Project Details: 2008-2009

White Lantern

William's Field #3, 2002. Photo by Anne Noble

Program Manager:
Ms. Kim Silverman

Event Number: W-468-M

ASC POC/Implementer:
Chad Naughton

Ms. Anne Lysbeth Noble (Principal Investigator)
a.noble@massey.ac.nz

Wellington, Other

Supporting Stations: McMurdo Station
Research Locations: Siple Dome, WAIS Divide, Local Sites

Project Description:

The primary objective of the project 'White Lantern', is to develop a new photographic aesthetic of Antarctic whiteness, light and Antarctic space. The project entails photography of subtle changes in Antarctic light and atmospheric conditions in vast white space, and near whiteout conditions in the environs of McMurdo, The Ross Sea, WAIS Divide, Siple Dome and the South Pole. It will also entail photography of science activities and personnel within these locations. The outcome will be a suite of 100 photographs which will be published in the proposed book WHITE LANTERN (US / NZ publication) and in a series of exhibitions in the United States, Europe, Australia and New Zealand during 2009 - 2011.

Field Season Overview:

Photographic activity will include sustained observation and photography of subtle changes in Antarctic light and atmospheric conditions in vast white space, and near whiteout conditions. It will also entail photography of science structures, activities and personnel within these contexts. Specific locations include WAIS Divide, Siple Dome, South Pole and locations in the Ross Sea Region such as Cape Evans, Barne Glacier, the sea ice, White Island, William's Field, Pegasus and Cape Crozier.

Two kinds of photography will be undertaken in each location: the first entails the observation and photography of light and atmospheric effects. This will involve return visits to selected locations over a number of days to observe

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Project Web Sites

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and photograph both subtle and dramatic variations in light and atmosphere. Photographs will include phenomena such as ice blink, halos, shifting effects of light in frozen aerial crystals, mirages and sun dogs as well as subtle effects of the light within foggy, low cloud and near whiteout conditions.

The second kind of photography involves documentation of science activities and architecture within each location. Subjects will include permanent and semi permanent architectural features, half buried structures, tunnels, antennae, arrays, buried buildings, underground storage facilities, laboratories, and the installation of technology and its operation by science personnel.

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Science Project Details: 2008-2009

"Seeing" Dark Energy From The South Pole

Program Manager:
Ms. Kim Silverman

Event Number: W-483-S

ASC POC/Implementer:
Charles Kaminski

Mr. Richard J Panek (Principal Investigator)
richardpanek@yahoo.com

New York, New York

Supporting Stations: South Pole Station
Research Locations:

Project Description:

South Pole Station will be visited to observe instrumentation and infrastructure: dark energy research at the South Pole Telescope in particular; other cosmology-related science (QUaD, BICEP, IceCube); and the scientific setting in general. This research will become part of a book on dark matter, dark energy, and the frontiers of cosmology, Let There Be Dark: At the Dawn of the Next Universe, scheduled for publication by Houghton Mifflin in 2010. This section of the book will strive to capture not only the research at the Pole but the reasons that this research has driven scientists to the ends of the Earth.

Field Season Overview:

Research will be conducted though in-depth observation: to see the scientific instrumentation in action, to understand how scientists go about their work, to get a sense of the setting in order to acquire the details that will bring the scene and the science alive for readers. This approach involves a good deal of staying out of the way except to the extent that the scientists make themselves available for explanations of the instrumentation or their own roles in the research. Interviews may be conducted with the scientists on a casual, as-available basis.

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Science Project Details: 2008-2009

Ice Fractures; A Study Of Ice Shelves And Ice Sheets

Untitled (iceberg), mixed media on paper, 12" x 9", 2008. Photo by Oona Stern

Program Manager:
Ms. Kim Silverman

Event Number: W-480-P

ASC POC/Implementer:
Rob Edwards

Ms. Oona Stern (Principal Investigator)
oostern@nyc.rr.com

Brooklyn, New York

Supporting Stations: Palmer Station
Research Locations: Marr ice piedmont, Palmer local boating area and islands

Project Description:

The aim of this project is to observe the form and structure of ice in the Antarctic, with a focus in particular on how ice breaks up, and the forms and shapes it takes in doing so. The relationships between stable structures, and the fragmented parts is also of interest. Various forms of ice will be observed from the surface and from the sea. Ice accessible for observation at Palmer Station includes bergs, bergy bits, growlers, brash ice, pancake ice and more. Ice sheets and ice shelves, the original focus for study of this project are not easily accessible from Palmer.

These observations will later be used in the studio to develop a public sculptural installation which can communicate the conditions of Antarctic ice.

Field Season Overview:

The Antarctic Peninsula in particular has been seeing greater and earlier sea ice melt, presumably as a result of climate changes. I will travel to Palmer Station for the duration of research cruise LMG09-01, from 30 Dec to 7 Feb.

As a sculptor I am interested in the structure of ice, and its physical forms, and my field activities are designed to gather information on ice from that perspective. An example of something that really interests me can be see in recent photos of the shattered Wilkins ice shelf. These images from a twin-otter flyover show the massive horizontal ice shelf, with its clean sheared edges, as well as a variety of cleaved forms, from regular-sided polyhedrons, to irregular crumbled parts. It is this kind of phenomena which interests me,

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as well as the accompanying observations of melt-pools, and their effects on cracks and fissures. While I don't believe Wilkins itself is accessible from Palmer, I mention this as an example of what I hope to be able to observe.

To this end, I would like to conduct daily excursions for observation of ice during the 3 weeks at Palmer Station. These excursions would include day hikes, atv and zodiac day trips. Because travel to Antarctica is such a rare opportunity, I plan on using as many days as possible for field observations, say 5 or 6 days each week as my stay will be relatively short. Observations during these excursions will be recorded as sketches, and with photography. I would need an office/studio for several hours each day as well. For some of my proposed excursions on-site recording may be challenging, for example making a drawing from a zodiak, and so the office will be used to make small drawings after returning. On other trips it may be possible to set up a temporary shelter for on-site drawing.

As a sculptor I am interested in the structure of ice, and its physical forms, and my field activities are designed to gather information on ice from that perspective. An example of tremendous interest to me can be see in recent photos of the shattered Wilkins ice shelf. These images from a twin-otter flyover show the massive horizontal ice shelf, with its clean sheared edges, as well as a variety of cleaved forms, from large regular-sided polyhedrons, to irregular crumbled bits. It is this kind of phenomena which interests me, as well as the accompanying observations of melt-pools, and their effects on cracks and fissures. While I don't believe Wilkins itself is accessible from Palmer, I mention this as an example of what I hope to be able to observe.

I also need to see a variety of ice in person, not just remotely from a zodiac. If possible I would like to see crevasses, fissures, cracks and ice fields, and if it is safe, to explore any structurally sound crevasses. Seeing the structure of ice, and of an ice crack in particular from the inside would be extremely valuable to my research. One or two crevasse explorations would be great. Similarly, I am also very interested in exploring ice caves in the area.

I would like to camp overnight a couple of times, perhaps on the nearby glacier or other ice-based location, as well as at the snow field near the old station.

Scale is also an aspect of my research. I am interested not only in the vertical structure of ice, but also in its horizontal vastness. As ices shelves and sheets are not easily accessible from Palmer Station, hopefully there are some sort of ice or snow fields of a large scale which can be experienced. Sound too is associated with ice, not just the obvious splash of a fragment falling into water, but also creaks, cracks, and hums which occur as ice expands and contracts. My excursions will be designed to observe these aspects as well.

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Science Project Details: 2008-2009

Antarctica In Black And White

Program Manager:
Ms. Kim Silverman

Event Number: W-484-P

ASC POC/Implementer:
Rob Edwards

Mr. Scott Sternbach (Principal Investigator)
ssternbach@lagcc.cuny.edu

Long Island City, New York

Supporting Stations: Palmer Station
Research Locations: Palmer local boating area and islands

Project Description:

Palmer Station in Antarctica and it's inhabitants will be my subject of study when I arrive in The Austral Summer of 2008. Using an 8X10" view camera and cameras of varying formats I will travel with and document the work being done by resident scientists and all of those who are participating in the tasks at hand at Palmer. Environmental portraiture is my goal and to gain access to as many different working environments being studied will enhance the range and scope of my documentary. Whenever possible I would need to accompany expeditions and scientists out into the field.

Field Season Overview:

My field camera gear is condensed into 2 shoulder bags. Shared transportation to areas where scientific research is being done whether by sea, air or ground based vehicle will be sufficient. I will need only enough space for my gear, my assistant and myself. At Palmer station, my darkroom needs will be minimal since I only plan to process 8X10” sheet film and a lesser amount of roll film. This can be accomplished with a small developing tank, 5 9X12” plastic trays, a moderate amount of fresh water and developing, fixing and finishing chemicals. If the darkroom facility at Palmer is unavailable, all testing for film based images will be accomplished using both a digital camera and Polaroid instant film. Exposed roll and sheet film would be returned to New York for processing. For proofing images, a flatbed scanner with a transparency bed would eliminate the need to make silver prints from the negatives in Antarctica. Scanning the images to my laptop computer would allow me to review and edit my images on site.

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Science Project Details: 2008-2009

IPY: Poles Apart: Visual Documentation Of The Marine Ecosystems Of The Polar Regions

ON THE PULSE Jellyfish or medusae were among the most prominent midwater organisms that I saw under the ice at McMurdo. The huge jellyfish Desmonema glaciale has a bell that can reach more than a metre across and just a few, distinctive, cord-like tentacles. I constantly encountered medusae drifting along with the prevailing current, but the larger ones such as D. glaciale, which occurs near the surface, are active swimmers. Here, marine ecologist Dale Stokes captured one on video. Photograph © Norbert Wu www.norbertwu.com

Program Manager:
Ms. Valentine Kass

Event Number: Y-608-M/P

ASC POC/Implementer:
Rob Edwards

Mr. Norbert Wu (Principal Investigator)
office@norbertwu.com

Artist & Writers Program
Pacific Grove, California

Supporting Stations: McMurdo Station, Palmer Station
Research Locations: McMurdo Sound / New Harbor / Palmer Station local boating area

Project Description:
Beneath Antarctic Seas: Visual Documentation of the Marine Ecosystem of the Antarctic Polar Region This is a collaborative effort by a team of documentary film makers, photographers, scientists and educators with the aim of instructing a wide audience on the critical importance of Antarctic polar marine ecosystems.

There will be collaboration with the BBC Natural History Unit, the Ocean

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Institute, and short format videos and video podcasts utilizing popular video and social networking websites including iTunes, YouTube, MySpace and Facebook.

Field Season Overview:

McMurdo Station We hope to visit McMurdo Sound as close to the start of the diving season as possible (main body, October 1, 2008) and work there through early December 2008, utilizing diving, camping, and helicopter support for aerial filming and transport.

At McMurdo Station, the team plans to continue and extend our previous visual documentation of the marine ecosystem of deep Antarctica by creating high-definition-quality (HDTV) time-lapse sequences of marine life.

Specific personnel will include: 1. a BBC team of four crew (including Norbert Wu) to McMurdo this coming fall from the beginning of October through early-December. Also bringing a crew of two BBC folks for two/three weeks to do a "making of" segment -- from October 1 to October 13/14. Focus will be on underwater filming.

The BBC team hopes to dive and film out of both New Harbor and around McMurdo.

2. Bringing a team of two folks to McMurdo this coming fall to make a series of video podcasts -- same time frame as the BBC crew (October through early-December). Some underwater filming, but mostly topside filming of researchers.

We hope to conduct a great many dives in several different diving sites. We may conduct up to 3 dives per day both through the ice, both close to and remote from McMurdo Station. As such, we will require helicopter time, tracked vehicles, snowmobiles, on-ice project personnel to help drill diving holes, and other diving support such as fishing huts and tenders. Our laboratory needs are minimal: we will require use of aquariums for photography. We would like wet laboratory space to store our gear and cameras and a dry lab space to store HDTV monitors and equipment. Specific dive sites that we hope to visit include: Turtle Rock, Little Razorback, Arrival Heights, and other diving sites around McMurdo Station, and New Harbor. We are willing to work through “flights of opportunity, alhough I am hoping that we will have helicopter time budgeted for us as designated in this SIP. I would like to stress how much diving we plan to do. We will be at McMurdo for 8 to 10 weeks of intense diving activity. We hope to dive daily, weather permitting, for up to 3 dives per day.

Please note that we hope to deploy a crew of three to four divers in January, February, and/or March of 2009 for four weeks diving at Palmer Station. I have described these plans in a separate SIP.

Palmer Station We hope to work at Palmer Station in two successive seasons, during two different time periods. For the first season, we hope to deploy at Palmer Station within the time period of the beginning of January 2009 through April 2009, for diving and topside filming. For the second season, we hope to visit Palmer Station at a different time in the season, perhaps the months of December to February 2010.

Deploying Team Members:

- Douglas Allan
- Michael Gunton
- Neil Lucas (Team Leader)
- Hugh Miller
- Mary Lynn Price
- John Wood

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