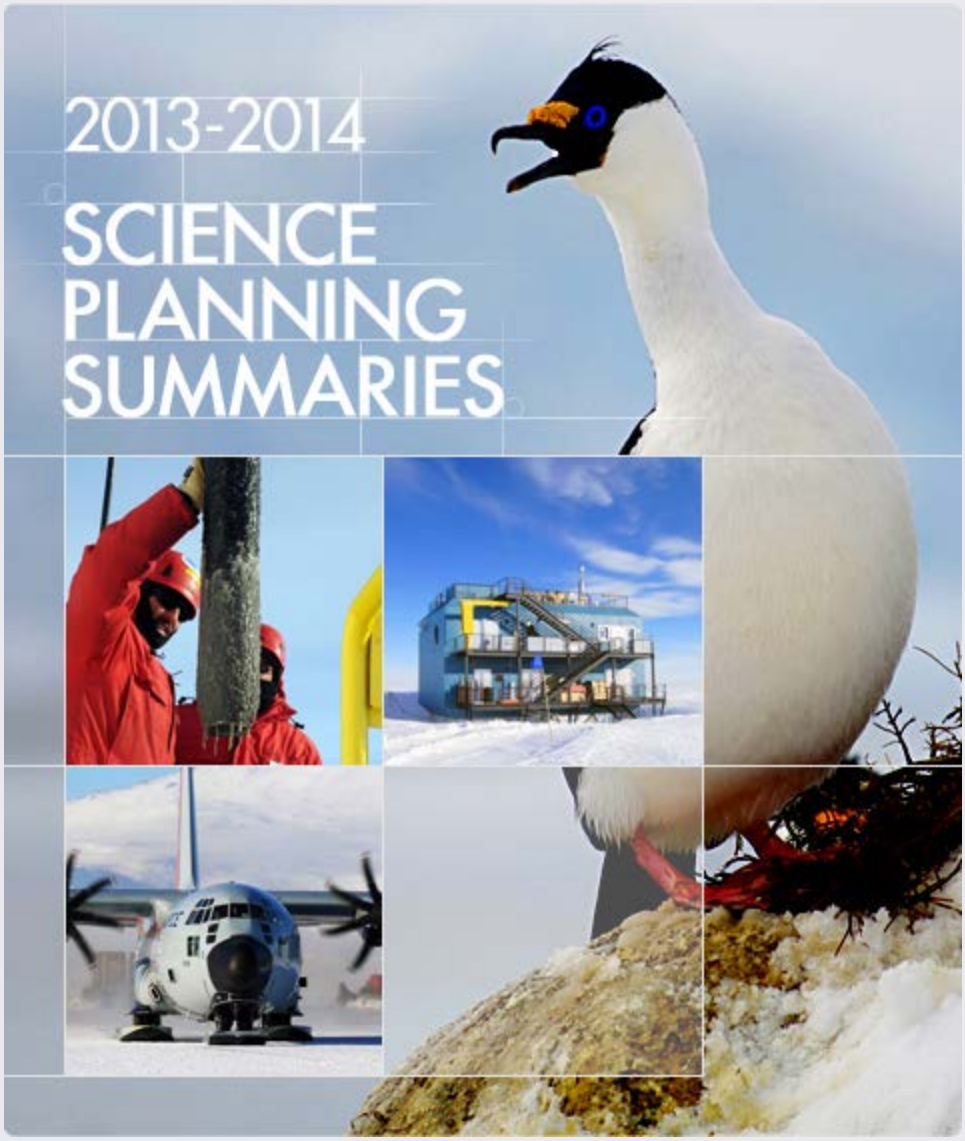

Project Indexes

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

- Project Web Sites
- Principal Investigator Index
- USAP Program Indexes
  - Astrophysics and Geospace Sciences
    Dr. Vladimir Papitashvili, program director
  - Organisms and Ecosystems
    Dr. Charles Amsler, program director
  - Earth Sciences
    Dr. Mark Kurz, program director
  - Glaciology
    Dr. Julie Palais, program director
  - Ocean and Atmospheric Sciences
    Dr. Peter Milne, program director
  - Integrated System Science
    Dr. Lisa Clough, program director
  - Artists and Writers
    Mr. Peter West, program manager
- Institution Index
- USAP Station and Ship Indexes
  - Amundsen-Scott South Pole Station
  - McMurdo Station
  - Palmer Station
  - RVIB Nathaniel B. Palmer
  - ARSV Laurence M. Gould
  - Special Projects
- Event Number Index
- Technical Event Index
- Deploying Team Members Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM WEB SITES 2013-2014

Project Web Sites

Return to Index

Principal Investigator	Event No.	Project Title
Ainley, David	B-031-M	Adelie Penguin response to climate change at the individual, colony and metapopulation levels
Anderson, Kent	G-090-P/S	Global seismograph station at South Pole and Palmer Stations
Barwick, Steven	A-127-M	Development of hexagonal radio array for the ARIANNA ultra-high energy neutrino detector
Bristow, William	A-369-M/S	McMurdo and South Pole SuperDARN: Investigation of the ionospheric dynamics and magnetosphere-ionosphere coupling in Antarctica
Butler, James Hall	O-257-M/S	South Pole monitoring for climatic change
Butler, James Hall	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
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, Paul	T-299-M	IRIS/PASSCAL seismic support
Cassar, Nicolas	O-405-L	Physiological and ecosystem structure forcings on carbon fluxes in the Southern Ocean mixed layer
Chu, Xinzhao	A-130-M	Lidar Investigation of middle and upper atmosphere temperature, composition, chemistry, and dynamics at McMurdo, Antarctica
Conway, Howard	I-209-M	Deglaciation of the Ross Sea

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

		Embayment - constraints from Roosevelt Island
Corbett, David	O-176-L/P	Submarine groundwater and freshwater inputs along the Western Antarctic Peninsula
Domack, Eugene	C-515-L	Continuation of the LARISSA continuous GPS network in view of observed dynamic response to Antarctic Peninsula mass balance and required geologic constraints
Doran, Peter	B-511-M	McMurdo LTER - Lakes: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Ducklow, Hugh William	B-045-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, microbial ecology component
Engebretson, Mark J	A-102-M/S	Studies of solar wind - Magnetosphere interactions using observations of ULF waves at an extensive ground array at high latitudes
Evenson, Paul	A-118-S	Element composition of high-energy solar particles
Fountain, Andrew	B-504-M	McMurdo LTER - Glaciers: Increased connectivity in a polar desert resulting from climate warming: 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
Girton, James Bannister	O-409-L	DIMES finestructure profiling floats: Analysis and enhancement of the EM-APEX array upstream and downstream of Drake Passage
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
Gogineni, Prasad	I-185-M	Center for Remote Sensing of Ice Sheets (CReSIS) - Unmanned Aerial System (UAS) operations
Halanych, Kenneth	B-281-L	Genetic connectivity and biogeographic patterns of Antarctic benthic invertebrates
Halzen, Francis	A-333-S	IceCube operations and maintenance
Hanany, Shaul	A-146-M	E & B Experiment (EBEX)
Harvey, Ralph	G-058-M	Antarctic Search for Meteorites (ANSMET)
Hofmann, Gretchen	B-134-M	Ocean acidification seascape: linking natural variability and anthropogenic changes in pH and temperature to performance in calcifying Antarctic marine invertebrates
Hosticka, Bouvard NMI	T-998-P	Operation and maintenance of a CTBT radionuclide monitoring station at Palmer Station
Kemerait, Robert	G-078-M	Dry Valley seismic project
Klein, Andrew	B-518-M	Temporal variability in natural and anthropogenic disturbance of McMurdo Station
Kovac, John	A-149-S	Imaging the beginning of time from the South Pole: Observations with the full SPUD array
Kulesa, Craig	A-364-S	High Elevation Antarctic Terahertz (HEAT) telescopes for Dome A and Ridge A
Kyle, Phillip	G-081-M	Mount Erebus Volcano Observatory: Operations, Science and Outreach (MEVO-OSO)
LaBelle, James	A-128-S	Outstanding Questions on Auroral Radiation Fine Structure
LaBelle, James	A-125-S	Application of the AGO network to energy transfer in the radiation

		belts and remote sensing of auroral plasma processes
Lazzara, Matt	O-283-M	Antarctic Automatic Weather Station (AWS) program
Ledwell, James Robert	O-124-N	Studies of turbulence and mixing in the Antarctic Circumpolar Current, a continuation of DIMES
Lyons, W. Berry	B-509-M	McMurdo LTER - Geochemistry: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Martinson, Doug	B-021-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, physical oceanography component
McKnight, Diane	B-506-M	McMurdo LTER - Streams: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Millan, Robyn	A-144-E	Balloon Array for RBSP Relativistic Electron Losses (BARREL)
Mitchell, John	A-142-M	Super Trans-Iron Galactic Element Recorder (SuperTIGER)
Moore, Robert C	A-109-M/P/S	Antarctic ELF/VLF observations of Q-bursts, radio atmospherics, and energetic particle precipitation
Morin, Paul	T-434-M	The Polar Geospatial Information Center: Joint support
Orr, Gerald Dwayne	A-145-M	NASA Long Duration Balloon (LDB) support program
Pettit, Joseph R	T-295-M	UNAVCO GPS survey support
Priscu, John	B-505-M	McMurdo LTER - Lakes: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Rack, Frank	C-524-M	WISSARD borehole drill contractor

Rotella, Jay	B-009-M	The demographic consequences of environmental variability and individual heterogeneity in life-history tactics of a long-lived Antarctic marine predator
Saltzman, Eric S	I-164-S	Collaborative Research: A 1,500-meter ice core from South Pole
Steinberg, Deborah	B-020-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, zooplankton component
Studinger, Michael	C-529-M	Operation IceBridge
Surgent, April	W-489-P	21st Century Antarctica - The Science and Landscape of Palmer Station
Szuberla, Curt	T-396-M	Installation of a CTBT class infrasound station
Taylor, Michael	A-119-M/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper
Taylor, Michael	A-119-M/S	Development of an ANtarctic Gravity Wave Imager Network (ANGWIN) for collaborative mesospheric research
Thoman, Bruce	T-927-M	NASA/McMurdo Ground Station (MG1)
Tulaczyk, Slawomir M	C-521-M	Integrative study of marine ice sheet stability and subglacial life habitats - Lake and Ice Stream Subglacial Access Research Drilling (LISSARD)
Wall, Diana	B-507-M	McMurdo LTER - Soils: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Watters, George	B-006-N	NOAA/AMLR Cruise
Wilson, Terry	G-079-M	POLENET Antarctica: Investigating links between geodynamics and ice sheets - Phase 2

Wu, Qian	A-132-P	Thermospheric neutral wind observation in the Antarctica Peninsula

Return to Index Back to Top

STATION SCHEDULES 2013-2014

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

	Austral Summer Season Openings		Austral Winter Season Openings
	Operational	Science	
McMurdo	15 Aug 2013 (Winfly*)	3 Oct 2013 (Mainbody)	24 Feb 2014
South Pole	1 Nov 2013	1 Nov 2013	15 Feb 2014
Palmer	17 Sep 2013	17 Sep 2013	N/A
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	
	Summer	Winter
McMurdo	850 (weekly average) 2,300 (total)	180 (winter total)
South Pole	150 (weekly average) 450 (total)	40 (winter total)
Palmer	36-44 (weekly average) 196 (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

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

AIR OPERATIONS 2013-2014

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.

PHI

PHI will provide helicopter support with four helicopters (two AS-350-B2 "A-Stars" and two Bell 212s) based out of McMurdo Station. The four helicopters will support research in the McMurdo Dry Valleys, Royal Society Range and on Ross Island. In addition, Antarctic New Zealand will be providing a *ZK-IDE B3 Type Squirrel* from approximately the beginning of November through mid-February.
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, WISSARD/CReSIS SLW and various open field landing locations.
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/

Project Indexes

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Project Web Sites

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

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Staffed Field Camps

A total of five field camps/traverses will have resident staff to provide logistical and operational assistance to McMurdo-based researchers.

Marble Point — 77°41 S, 163°67 E
46 nautical miles from McMurdo Station

This camp supports refueling operations for helicopters working in the Dry Valleys and on local sea ice. Two resident staff and rotating fuels operators will operate the camp. Fuel and equipment will be delivered by traverse from McMurdo Station.

Dry Valleys — 77°30 S, 162° E
50 nautical miles from McMurdo Station

Each year, Long Term Ecological Research (LTER) grantees and other groups conduct research throughout the Dry Valleys. Two resident staff will operate the main base camp at Lake Hoare and the semi-permanent camps at Lake Fryxell, F-6 and Lake Bonney. Science project teams will erect their own small tent camps on the Taylor Glacier near Lake Joyce, and in the Garwood, Meirs, and Wright Valleys.

Siple Dome — 81°39 S, 149°04 W
507 nautical miles from McMurdo Station

This camp serves as a fueling point for aircraft operating between McMurdo Station and West Antarctica or South Pole. Two resident staff will provide daily weather observations and maintain the camp. They will also support borehole logging activities completed by I-172-M (Talghader) and T-350-M (Bentley), as well as O-283-M (Lazzarra), and required KBA crews.

CReSIS — 84°14 S, 153°41 W
515 nautical miles from McMurdo Station

The Center for Remote Sensing of Ice Sheets (CReSIS) field camp will be located on Whillans Ice Stream near the Subglacial Lake Whillans (SLW) borehole site established by the WISSARD project in 2012-13. Seven resident staff will support six KBA crew and 14 science participants from three field teams (Gogineni I-185,188, 189-M) who will be conducting airborne and ground-based radar surveys and ground-based seismic surveys on the Whillans, Kamb, and Bindschadler Ice Streams. The CReSIS camp will also receive some flights in support of the WISSARD related science projects in the area of Subglacial Lake Whillans and the Grounding Zone, an area where the Antarctic ice sheet starts to flow from land to ocean and float as the Ross Ice Shelf. They will also support a roving hot water drill (C-524-M/Rack), Tulczyk (C-521-M), and Schwartz (C-525-

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

M).

WISSARD Traverse	Vicinity of CReSIS/Subglacial Lake Whillians and the Grounding Zone (GZ)

A staff of three will conduct a traverse from McMurdo Station to Subglacial Lake Whillians (SLW) in support of a roving hot water drill project (including members of C-521-M, C-524, C-525-M and C-530-M).

SCIENCE EVENT NUMBERING SYSTEM 2013-2014

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

Prefix	USAP Program
A	**Astrophysics and Geospace Sciences**
B	**Organisms and Ecosystems**
C	**Integrated System Science**
G	**Earth Sciences**
I	**Glaciology**
O	**Oceans and Atmospheric Sciences**
W	**Artists and Writers**
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.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

Principal Investigator Index

Return to Index

Principal Investigator	Event No.	Project Title
Aciego, Sarah	I-184-M	Climate controls on aerosol fluxes to Taylor Dome and Taylor Glacier
Ainley, David	B-031-M	Adelie Penguin response to climate change at the individual, colony and metapopulation levels
Anderson, Kent	G-090-P/S	Global seismograph station at South Pole and Palmer Stations
Aronson, Richard	B-002-N	Climate change and predatory invasion of the Antarctic benthos
Arrigo, Kevin	B-244-N	Adaptive responses of Phaeocystis populations in Antarctic ecosystems
Barna, Lynette Anne	T-940-M	CRREL 09-10 activities
Barwick, Steven	A-127-M	Development of hexagonal radio array for the ARIANNA ultra-high energy neutrino detector
Bench, Shelley R	B-018-P	PostDoctoral Research Fellowship
Bristow, William	A-369-M/S	McMurdo and South Pole SuperDARN: Investigation of the ionospheric dynamics and magnetosphere-ionosphere coupling in Antarctica
Burns, Jennifer	B-292-M	The cost of a new fur coat: Interactions between molt and reproduction in Weddell seals
Butler, James Hall	O-257-M/S	South Pole monitoring for climatic change
Butler, James Hall	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
Carlstrom, John	A-370-S	Science Coordination Office for Astrophysical Research in Antarctica (SCOARA-II)

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Carlstrom, John	A-379-S	Cosmological research with the 10-meter South Pole Telescope
Carpenter, Edward	B-012-M	Collaborative Research: Importance of heterotrophic and phototrophic N2 fixation in the McMurdo Dry Valleys on local, regional and landscape scales
Carpenter, Paul	T-299-M	IRIS/PASSCAL seismic support
Cassar, Nicolas	O-405-L	Physiological and ecosystem structure forcings on carbon fluxes in the Southern Ocean mixed layer
Chu, Xinzhao	A-130-M	Lidar Investigation of middle and upper atmosphere temperature, composition, chemistry, and dynamics at McMurdo, Antarctica
Clauer, C. Robert	A-106-M/S	Polar Experiment Network for Geospace Upper-atmosphere Investigations (PENGUIn): Interhemispheric investigations along the 40-degree magnetic meridian
Comstock, Allyson	W-492-P	Antarctica: Micro, macro and in-between
Conway, Howard	I-210-M	East Antarctic outlet glacier dynamics
Conway, Howard	I-209-M	Deglaciation of the Ross Sea Embayment - constraints from Roosevelt Island
Corbett, David	O-176-L/P	Submarine groundwater and freshwater inputs along the Western Antarctic Peninsula
Domack, Eugene	C-515-L	Continuation of the LARISSA continuous GPS network in view of observed dynamic response to Antarctic Peninsula mass balance and required geologic constraints
Doran, Peter	B-511-M	McMurdo LTER - Lakes: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Doran, Peter	B-280-M	Habitability of Antarctic lakes and detectability of microbial life in icy environments by autonomous year-

		round instrumentation
Ducklow, Hugh William	B-045-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, microbial ecology component
Engebretson, Mark J	A-102-M/S	Studies of solar wind - Magnetosphere interactions using observations of ULF waves at an extensive ground array at high latitudes
Evenson, Paul	A-118-S	Element composition of high-energy solar particles
Fountain, Andrew	B-504-M	McMurdo LTER - Glaciers: Increased connectivity in a polar desert resulting from climate warming: 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
Gerrard, Andrew	A-111-M/S	Synoptic geospace systems analysis utilizing instrumentation from South Pole and McMurdo Stations
Girton, James Bannister	O-409-L	DIMES finestructure profiling floats: Analysis and enhancement of the EM-APEX array upstream and downstream of Drake Passage
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
Gogineni, Prasad	I-185-M	Center for Remote Sensing of Ice Sheets (CReSIS) - Unmanned Aerial System (UAS) operations
Halanych, Kenneth	B-281-L	Genetic connectivity and biogeographic patterns of Antarctic benthic invertebrates
Hall, Brenda	I-196-M	Assessing the Antarctic contribution

		to sea-level changes during the last deglaciation: Constraints from Darwin Glacier
Halzen, Francis	A-333-S	IceCube operations and maintenance
Hanany, Shaul	A-146-M	E & B Experiment (EBEX)
Hansen, Samantha	G-061-M	CAREER: Deciphering the tectonic history of the Transantarctic Mountains and the Wilkes Subglacial Basin
Harvey, Ralph	G-058-M	Antarctic Search for Meteorites (ANSMET)
Helmig, Detlev	O-233-M	Reactive gas chemistry in the Dome C snowpack and its influence on surface-layer chemistry and ice-core records
Hofmann, Gretchen	B-134-M	Ocean acidification seascape: linking natural variability and anthropogenic changes in pH and temperature to performance in calcifying Antarctic marine invertebrates
Hosticka, Bouvard NMI	T-998-P	Operation and maintenance of a CTBT radionuclide monitoring station at Palmer Station
Kemerait, Robert	G-078-M	Dry Valley seismic project
Klein, Andrew	B-518-M	Temporal variability in natural and anthropogenic disturbance of McMurdo Station
Koch, Paul	B-225-M	Exploring the vulnerability of Southern Ocean pinnipeds to climate change - an integrated approach
Kohut, Josh	B-005-P	Collaborative Research: Impacts of local oceanographic processes on Adélie penguin foraging ecology
Kovac, John	A-149-S	Imaging the beginning of time from the South Pole: Observations with the full SPUD array
Kulesa, Craig	A-364-S	High Elevation Antarctic Terahertz (HEAT) telescopes for Dome A and Ridge A

Kyle, Phillip	G-081-M	Mount Erebus Volcano Observatory: Operations, Science and Outreach (MEVO-OSO)
LaBelle, James	A-128-S	Outstanding Questions on Auroral Radiation Fine Structure
LaBelle, James	A-125-S	Application of the AGO network to energy transfer in the radiation belts and remote sensing of auroral plasma processes
Lamanna, Matthew	G-182-L	Late Cretaceous-Paleogene vertebrates from Antarctica: Implications for paleobiogeography, paleoenvironment, and extinction in Polar Gondwana
Lazzara, Matt	O-283-M	Antarctic Automatic Weather Station (AWS) program
Ledwell, James Robert	O-124-N	Studies of turbulence and mixing in the Antarctic Circumpolar Current, a continuation of DIMES
Leventer, Amy Ruth	C-527-N	Totten Glacier System and the marine record of cryosphere-ocean dynamics
Levy, Joseph	G-080-M	Rapid landscape change in Garwood Valley: Monitoring buried glacier melt and exploring “Péwé’s Lost Lake”
Lyons, W. Berry	B-509-M	McMurdo LTER - Geochemistry: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Marchant, David R	G-054-M	West Antarctic Ice Sheet stability, alpine glaciation, and climate variability: a terrestrial perspective from cosmogenic-nuclide dating in McMurdo Sound
Martin, Jennifer	W-490-M	An ark of questions sent sailing south: Poetry from Antarctica
Martinson, Doug	B-021-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, physical oceanography component

McKnight, Diane	B-506-M	McMurdo LTER - Streams: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Mikucki, Jill	C-528-M	MIDGE: Minimally Invasive Direct Glacial Exploration of biogeochemistry, hydrology and glaciology of Blood Falls, McMurdo Dry Valleys
Millan, Robyn	A-144-E	Balloon Array for RBSP Relativistic Electron Losses (BARREL)
Mitchell, John	A-142-M	Super Trans-Iron Galactic Element Recorder (SuperTIGER)
Moore, Anna	A-356-S	Analysis of the data from the Gattini Antarctic camera network
Moore, Robert C	A-109-M/P/S	Antarctic ELF/VLF observations of Q-bursts, radio atmospherics, and energetic particle precipitation
Morin, Paul	T-434-M	The Polar Geospatial Information Center: Joint support
Orr, Gerald Dwayne	A-145-M	NASA Long Duration Balloon (LDB) support program
Petrenko, Vasilii Victorovich	I-159-M	The Taylor Glacier, Antarctica, horizontal ice core: exploring changes in the natural methane budget in a warming world and expanding the paleo-archive
Pettit, Joseph R	T-295-M	UNAVCO GPS survey support
Priscu, John	B-505-M	McMurdo LTER - Lakes: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Rack, Frank	C-524-M	WISSARD borehole drill contractor
Rack, Frank	C-530-M	WISSARD Roving Drill
Roberts, Gregory C	O-215-L/P	In-situ observations of maritime sources/sinks of aerosol and cloud condensation nuclei at Palmer Station, Antarctica: Portable AERosol Observing System (PAEROS) pilot phase
Romalis, Michael V	A-103-S	Test of Lorentz invariance at the

		South Pole
Rotella, Jay	B-009-M	The demographic consequences of environmental variability and individual heterogeneity in life-history tactics of a long-lived Antarctic marine predator
Saba, Grace	B-068-P	Synergistic effects of elevated carbon dioxide and temperature on the metabolism, growth, and reproduction of Antarctic krill (Euphausia superba)
Saltzman, Eric S	I-164-S	Collaborative Research: A 1,500-meter ice core from South Pole
Schofield, Oscar	B-019-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, phytoplankton component
Schwartz, Susan	C-525-M	Investigating (un)stable sliding of Whillians Ice Stream and subglacial water dynamics using borehole seismology: A component of the Whillans Ice Stream Subglacial Access Research Drilling (WISSARD) Project
Steinberg, Deborah	B-020-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, zooplankton component
Studinger, Michael	C-529-M	Operation IceBridge
Surgent, April	W-489-P	21st Century Antarctica - The Science and Landscape of Palmer Station
Swanger, Kate	G-085-M	Multinuclide approach to systematically evaluate the scatter in surface exposure ages in Antarctica and to develop consistent alpine glacier chronologies
Szuberla, Curt	T-396-M	Installation of a CTBT class infrasound station
Takacs-Vesbach, Cristina	B-330-M	An integrated ecological investigation of McMurdo Dry Valley's active soil microbial communities

Talghader, Joseph John	I-172-M	Optical fabric and fiber logging of glacial ice
Taylor, Michael	A-119-M/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper
Taylor, Michael	A-119-M/S	Development of an ANtarctic Gravity Wave Imager Network (ANGWIN) for collaborative mesospheric research
Thoman, Bruce	T-927-M	NASA/McMurdo Ground Station (MG1)
Todgham, Anne Elizabeth	B-207-M	Research in Undergraduate Institutions (RUI): Synergistic effects of ocean acidification and warming on larval development in Antarctic fishes
Tulaczyk, Slawomir M	C-521-M	Integrative study of marine ice sheet stability and subglacial life habitats - Lake and Ice Stream Subglacial Access Research Drilling (LISSARD)
Wall, Diana	B-507-M	McMurdo LTER - Soils: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Watters, George	B-006-N	NOAA/AMLR Cruise
Wilson, Terry	G-079-M	POLENET Antarctica: Investigating links between geodynamics and ice sheets - Phase 2
Wu, Qian	A-132-P	Thermospheric neutral wind observation in the Antarctica Peninsula
Yen, Jeannette	B-048-P	Ocean Acidification: Pteropod swimming behavior as a bioassay for ocean acidification
Yu, Zicheng	G-094-P	Response of carbon accumulation in moss peatbanks to past warm climates in the Antarctic Peninsula

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

Institution Index

Return to Index

Institution	Event No.	Principal Investigator
Alabama Tuscaloosa, University of	G-061-M	Hansen, Samantha
Alaska Anchorage, University of	B-292-M	Burns, Jennifer
Alaska Fairbanks, University of	T-396-M	Szuberla, Curt
Alaska Fairbanks, University of	A-369-M/S	Bristow, William
Arizona Tucson, University of	A-364-S	Kulesa, Craig
Auburn University	B-281-L	Halanych, Kenneth
Augsburg College	A-102-M/S	Engebretson, Mark
Boston University	G-054-M	Marchant, David
California Institute of Technology	A-356-S	Moore, Anna
California Irvine, University of	A-127-M	Barwick, Steven
California Irvine, University of	I-164-S	Saltzman, Eric
California San Diego, University of	O-215-L/P	Roberts, Gregory
California Santa Barbara, University of	B-134-M	Hofmann, Gretchen
California Santa Cruz, University of	B-225-M	Koch, Paul
California Santa Cruz, University of	C-521-M	Tulaczyk, Slawomir
California Santa Cruz, University of	C-525-M	Schwartz, Susan
Case Western Reserve University	G-058-M	Harvey, Ralph
Chicago, University of	A-370-S	Carlstrom, John
Chicago, University of	A-379-S	Carlstrom, John
Colgate University	C-527-N	Leventer, Amy
Colorado Boulder, University of	B-506-M	McKnight, Diane
Colorado Boulder, University of	A-130-M	Chu, Xinzhao
Colorado Boulder, University of	O-233-M	Helmig, Detlev
Colorado State University	B-507-M	Wall, Diana

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Columbia Scientific Balloon Facility	A-145-M	Orr, Gerald
Columbia University	B-021-L	Martinson, Doug
Columbia University	B-045-L/P	Ducklow, Hugh
Dartmouth College	A-144-E	Millan, Robyn
Dartmouth College	A-128-S	LaBelle, James
Dartmouth College	A-125-S	LaBelle, James
Delaware, University of	A-118-S	Evenson, Paul
Duke University	O-405-L	Cassar, Nicolas
East Carolina University	O-176-L/P	Corbett, David
Florida Institute of Technology	B-002-N	Aronson, Richard
Florida, University of	A-109-M/P/S	Moore, Robert
Georgia Institute of Technology	B-048-P	Yen, Jeannette
H.T. Harvey & Associates	B-031-M	Ainley, David
Hamilton College	C-515-L	Domack, Eugene
Harvard University	A-149-S	Kovac, John
Illinois Chicago, University of	B-280-M	Doran, Peter
Illinois Chicago, University of	B-511-M	Doran, Peter
Kansas Lawrence, University of	I-189-M	Gogineni, Prasad
Kansas Lawrence, University of	I-188-M	Gogineni, Prasad
Kansas Lawrence, University of	I-185-M	Gogineni, Prasad
Lehigh University	G-094-P	Yu, Zicheng
Massachusetts, University of	G-085-M	Swanger, Kate
Michigan, University of	I-184-M	Aciego, Sarah
Minnesota, University of	I-172-M	Talghader, Joseph
Minnesota, University of	T-434-M	Morin, Paul
Minnesota, University of	A-146-M	Hanany, Shaul
Montana State University Bozeman	B-505-M	Priscu, John
Montana State University Bozeman	B-009-M	Rotella, Jay
National Aeronautics and Space Administration	A-142-M	Mitchell, John
National Aeronautics and Space	T-927-M	Thoman, Bruce

Administration		
National Aeronautics and Space Administration	C-529-M	Studinger, Michael
National Oceanic and Atmospheric Administration	O-257-M/S	Butler, James
National Oceanic and Atmospheric Administration	B-006-N	Watters, George
National Oceanic and Atmospheric Administration	O-257-M/S	Butler, James
Nebraska Lincoln, University of	C-524-M	Rack, Frank
Nebraska Lincoln, University of	C-530-M	Rack, Frank
New Jersey Institute of Technology	A-111-M/S	Gerrard, Andrew
New Mexico Institute of Mining and Technology	G-081-M	Kyle, Phillip
New Mexico Institute of Mining and Technology	T-299-M	Carpenter, Paul
New Mexico, University of	B-330-M	Takacs-Vesbach, Cristina
Ohio State University	B-509-M	Lyons, W. Berry
Ohio State University	G-079-M	Wilson, Terry
Polar Oceans Research Group	B-013-L/P	Fraser, Bill
Portland State University	B-504-M	Fountain, Andrew
Princeton University	A-103-S	Romalis, Michael
Rochester, University of	I-159-M	Petrenko, Vasilii
Rutgers University	B-068-P	Saba, Grace
Rutgers University	B-005-P	Kohut, Josh
Rutgers University	B-019-L/P	Schofield, Oscar
San Francisco State University	B-207-M	Todgham, Anne
San Francisco State University	B-012-M	Carpenter, Edward
Stanford University	B-244-N	Arrigo, Kevin
Stanford University	B-018-P	Bench, Shelley
Tennessee, University of	C-528-M	Mikucki, Jill
Texas A & M University	B-518-M	Klein, Andrew
Texas Austin, University of	G-080-M	Levy, Joseph

The University of Maine	I-196-M	Hall, Brenda
UNAVCO	T-295-M	Pettit, Joseph
United States Air Force	G-078-M	Kemerait, Robert
United States Geological Survey	G-090-P/S	Anderson, Kent
University Corporation for Atmospheric Research, UCAR/NCAR	A-132-P	Wu, Qian
US Army Cold Regions Research & Engineering Lab	T-940-M	Barna, Lynette
Utah State University	A-119-M/S	Taylor, Michael
Utah State University	A-119-M/S	Taylor, Michael
Virginia Institute of Marine Sciences	B-020-L	Steinberg, Deborah
Virginia Tech	A-106-M/S	Clauer, C.
Virginia, University of	T-998-P	Hosticka, Bouvard
Washington, University of	I-209-M	Conway, Howard
Washington, University of	I-210-M	Conway, Howard
Washington, University of	O-409-L	Girton, James
Wisconsin Madison, University of	O-283-M	Lazzara, Matt
Wisconsin Madison, University of	A-333-S	Halzen, Francis
Woods Hole Oceanographic Institution	O-124-N	Ledwell, James

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

Event Number Index

Return to Index

Root No.	Event No.	Principal Investigator
002	B-002-N	Aronson, Richard
005	B-005-P	Kohut, Josh
006	B-006-N	Watters, George
009	B-009-M	Rotella, Jay
012	B-012-M	Carpenter, Edward
013	B-013-L/P	Fraser, Bill
018	B-018-P	Bench, Shelley
019	B-019-L/P	Schofield, Oscar
020	B-020-L	Steinberg, Deborah
021	B-021-L	Martinson, Doug
031	B-031-M	Ainley, David
045	B-045-L/P	Ducklow, Hugh
048	B-048-P	Yen, Jeannette
054	G-054-M	Marchant, David
058	G-058-M	Harvey, Ralph
061	G-061-M	Hansen, Samantha
068	B-068-P	Saba, Grace
078	G-078-M	Kemerait, Robert
079	G-079-M	Wilson, Terry
080	G-080-M	Levy, Joseph
081	G-081-M	Kyle, Phillip
085	G-085-M	Swanger, Kate
090	G-090-P/S	Anderson, Kent
094	G-094-P	Yu, Zicheng
102	A-102-M/S	Engebretson, Mark

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

103	A-103-S	Romalis, Michael
106	A-106-M/S	Clauer, C.
109	A-109-M/P/S	Moore, Robert
111	A-111-M/S	Gerrard, Andrew
118	A-118-S	Evenson, Paul
119	A-119-M/S	Taylor, Michael
119	A-119-M/S	Taylor, Michael
124	O-124-N	Ledwell, James
125	A-125-S	LaBelle, James
127	A-127-M	Barwick, Steven
128	A-128-S	LaBelle, James
130	A-130-M	Chu, Xinzhao
132	A-132-P	Wu, Qian
134	B-134-M	Hofmann, Gretchen
142	A-142-M	Mitchell, John
144	A-144-E	Millan, Robyn
145	A-145-M	Orr, Gerald
146	A-146-M	Hanany, Shaul
149	A-149-S	Kovac, John
159	I-159-M	Petrenko, Vasilii
164	I-164-S	Saltzman, Eric
172	I-172-M	Talghader, Joseph
176	O-176-L/P	Corbett, David
182	G-182-L	Lamanna, Matthew
184	I-184-M	Aciego, Sarah
185	I-185-M	Gogineni, Prasad
188	I-188-M	Gogineni, Prasad
189	I-189-M	Gogineni, Prasad
196	I-196-M	Hall, Brenda
207	B-207-M	Todgham, Anne
209	I-209-M	Conway, Howard

210	I-210-M	Conway, Howard
215	O-215-L/P	Roberts, Gregory
225	B-225-M	Koch, Paul
233	O-233-M	Helmig, Detlev
244	B-244-N	Arrigo, Kevin
257	O-257-M/S	Butler, James
257	O-257-M/S	Butler, James
280	B-280-M	Doran, Peter
281	B-281-L	Halanych, Kenneth
283	O-283-M	Lazzara, Matt
292	B-292-M	Burns, Jennifer
295	T-295-M	Pettit, Joseph
299	T-299-M	Carpenter, Paul
330	B-330-M	Takacs-Vesbach, Cristina
333	A-333-S	Halzen, Francis
356	A-356-S	Moore, Anna
364	A-364-S	Kulesa, Craig
369	A-369-M/S	Bristow, William
370	A-370-S	Carlstrom, John
379	A-379-S	Carlstrom, John
396	T-396-M	Szuberla, Curt
405	O-405-L	Cassar, Nicolas
409	O-409-L	Girton, James
434	T-434-M	Morin, Paul
489	W-489-P	Surgent, April
490	W-490-M	Martin, Jennifer
492	W-492-P	Comstock, Allyson
504	B-504-M	Fountain, Andrew
505	B-505-M	Priscu, John
506	B-506-M	McKnight, Diane

507	B-507-M	Wall, Diana
509	B-509-M	Lyons, W. Berry
511	B-511-M	Doran, Peter
515	C-515-L	Domack, Eugene
518	B-518-M	Klein, Andrew
521	C-521-M	Tulaczyk, Slawomir
524	C-524-M	Rack, Frank
525	C-525-M	Schwartz, Susan
527	C-527-N	Leventer, Amy
528	C-528-M	Mikucki, Jill
529	C-529-M	Studinger, Michael
530	C-530-M	Rack, Frank
927	T-927-M	Thoman, Bruce
940	T-940-M	Barna, Lynette
998	T-998-P	Hosticka, Bouvard

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

Technical Event Index

Return to Index

Principal Investigator	Event No.	Project Title
Barna, Lynette	T-940-M	CRREL 09-10 activities
Carpenter, Paul	T-299-M	IRIS/PASSCAL seismic support
Hosticka, Bouvard	T-998-P	Operation and maintenance of a CTBT radionuclide monitoring station at Palmer Station
Morin, Paul	T-434-M	The Polar Geospatial Information Center: Joint support
Pettit, Joseph	T-295-M	UNAVCO GPS survey support
Szuberla, Curt	T-396-M	Installation of a CTBT class infrasound station
Thoman, Bruce	T-927-M	NASA/McMurdo Ground Station (MG1)

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

Deploying Team Members Index

Return to Index

Team Members	Event No.	Principal Investigator
Aarons, Sarah Miranda	I-184-M	Sarah Aciego
Aboltins, Derek	A-370-S	John Carlstrom
Aboobaker, Asad	A-146-M	Shaul Hanany
Adams, Aubreya Nicole	G-079-M	Terry Wilson
Adams, Aubreya Nicole	G-079-M	Terry Wilson
Adams, Byron	B-507-M	Diana Wall
Adams, Gregg	B-292-M	Jennifer Burns
Adhikari, Deepak NMI	B-048-P	Jeannette Yen
Ahmed, Zeeshan NMI	A-149-S	John Kovac
Aird, Ken	A-379-S	John Carlstrom
Alderkamp, Anne-Carlijn	B-244-N	Kevin Arrigo
Amsler, Margaret	B-002-N	Richard Aronson
Anandakrishnan, Sridhar	I-188-M	Prasad Gogineni
Anderson, Brett	A-144-E	Robyn Millan
Anderson, Michael Ross	C-529-M	Michael Studinger
Arendt, Carli Anne	I-184-M	Sarah Aciego
Arevalo, Gonzalo	A-333-S	Francis Halzen
Auer, Ralf	A-333-S	Francis Halzen
Bach, William Joseph	G-078-M	Robert Kemerait
Badgeley, Jessica NMI	C-528-M	Jill Mikucki
Baggenstos, Daniel	I-159-M	Vasilii Victorovich Petrenko
Ballou, Stephen Michael	G-058-M	Ralph Harvey
Barcheck, Grace	C-525-M	Susan Schwartz
Barrett, John	B-507-M	Diana Wall
Basagic, Hassan	B-504-M	Andrew Fountain

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Bauska, Thomas Keith	I-159-M	Vasilii Victorovich Petrenko
Bay, Ryan	I-172-M	Joseph John Talghader
Bayou, Nicolas NM	T-295-M	Joseph R Pettit
Beange, Alexander	A-145-M	Gerald Dwayne Orr
Beck, Jefferson Andrews	C-529-M	Michael Studinger
Beilman, David W.	G-094-P	Zicheng Yu
Beitch, Marci NMI	C-521-M	Slawomir M Tulaczyk
Beltran, Roxanne	B-292-M	Jennifer Burns
Benson, Bradford	A-379-S	John Carlstrom
Bernard, Kim	B-005-P	Josh Kohut
Berngartt, Rachel Katherine	B-292-M	Jennifer Burns
Bischoff, Colin NMI	A-149-S	John Kovac
Bjelde, Brittany Elizabeth	B-207-M	Anne Elizabeth Todgham
Bleem, Lindsey	A-379-S	John Carlstrom
Bliss, Kelli-Ann Elizabeth	O-257-M/S	James Hall Butler
Blythe, Daren	C-524-M	Frank Rack
Blythe, Daren	C-530-M	Frank Rack
Bockus, Abigail	B-068-P	Grace Saba
Bolsey, Robin Jack	C-521-M	Slawomir M Tulaczyk
Braddock, Scott	B-225-M	Paul Koch
Branecky, Carolyn Marie	C-521-M	Slawomir M Tulaczyk
Brault, Emily	B-225-M	Paul Koch
Brik, Vladimir	A-333-S	Francis Halzen
Brophy, Todd Matthew	C-529-M	Michael Studinger
Brothers, Cecilia	B-002-N	Richard Aronson
Brown, Nicholas	I-185-M	Prasad Gogineni
Buder, Immanuel NMI	A-149-S	John Kovac
Buelow, Heather	B-330-M	Cristina Takacs-Vesbach
Bullock, Eric NMI	A-149-S	John Kovac
Burgener, Ross Griffin	O-257-M/S	James Hall Butler
Burkett, Peter Giles	I-188-M	Prasad Gogineni

Burton, Bethany	C-529-M	Michael Studinger
Burton, Timothy	G-081-M	Phillip Kyle
Byrd, Don	T-396-M	Curt Szuberla
Camps-Raga, Bruno Francisco	C-529-M	Michael Studinger
Carpenter, Chad	C-524-M	Frank Rack
Carpenter, Paul Joseph	G-079-M	Terry Wilson
Carpenter, Paul Joseph	G-079-M	Terry Wilson
Carr, Christina Grace	C-528-M	Jill Mikucki
Cassano, John	O-283-M	Matt Lazzara
Castillo, Obed	A-333-S	Francis Halzen
Chambert, Thierry	B-009-M	Jay Rotella
Chan, Wing Shan NMI	I-172-M	Joseph John Talghader
Chandler, Jeffery Francis	C-529-M	Michael Studinger
Charles, Kevin James	C-529-M	Michael Studinger
Chen, Cao	A-130-M	Xinzhao Chu
Chen, Jie NMI	G-079-M	Terry Wilson
Childs, Dean Mark	T-299-M	Paul Carpenter
Chiuchiolo, Amy	B-505-M	John Priscu
Chua, Michelle June	C-528-M	Jill Mikucki
Claeson, Kerin Michele	G-182-L	Matthew Lamanna
Clark, Glenn W	C-527-N	Amy Ruth Leventer
Clark, Paul	C-527-N	Amy Ruth Leventer
Clarke, Julia	G-182-L	Matthew Lamanna
Clemens-Sewall, David William	I-209-M	Howard Conway
Clements, Theodore NMI	C-515-L	Eugene Domack
Cochran, James R	C-529-M	Michael Studinger
Cohen, Barbara Anne	G-058-M	Ralph Harvey
Conway, Maurice	I-210-M	Howard Conway
Cope, Joseph	B-020-L	Deborah Steinberg
Cornelison, Erik J	G-078-M	Robert Kemerait

Corrigan, Craig E	O-215-L/P	Gregory C Roberts
Cossio, Anthony	B-006-N	George Watters
Courville, Zoe	T-940-M	Lynette Anne Barna
Courville, Zoe	T-940-M	Lynette Anne Barna
Couto, Nicole	B-019-L/P	Oscar Schofield
Coyne, Kathryn	B-012-M	Edward Carpenter
Crawford, Thomas	A-379-S	John Carlstrom
Crenshaw, Jared Keith	O-176-L/P	David Corbett
Crisp, Steven	B-506-M	Diane McKnight
Cronin, Kyle David	B-511-M	Peter Doran
Curtis, Aaron	G-081-M	Phillip Kyle
Dachwald, Bernd Gerd	C-528-M	Jill Mikucki
Dahood-Fritz, Adrian	B-006-N	George Watters
Dawson, Kit Dalton	T-396-M	Curt Szuberla
Delmont, Tom	B-244-N	Kevin Arrigo
Dickson, James	G-080-M	Joseph Levy
Dietrich, Kimberly	B-006-N	George Watters
Dohm, Austin NMI	G-078-M	Robert Kemerait
Domack, Eugene	C-527-N	Amy Ruth Leventer
Dover, Shane	C-529-M	Michael Studinger
Driscoll, Ryan	B-006-N	George Watters
DuBay, Brian Robert	G-061-M	Samantha Hansen
Ducklow, Hugh	B-021-L	Doug Martinson
Dugan, Hilary	B-511-M	Peter Doran
Dugger, Katie	B-031-M	David Ainley
Duling, Dennis	C-524-M	Frank Rack
Duling, Dennis	C-530-M	Frank Rack
DuVernois, Michael	A-333-S	Francis Halzen
Dyonisius, Michael	I-159-M	Vasilii Victorovich Petrenko
Eberhardt, Benjamin	A-333-S	Francis Halzen
Elder, Matthew Greer	C-529-M	Michael Studinger

Ellis, Daniel	B-002-N	Richard Aronson
Elrod, Megan Lynn	B-031-M	David Ainley
Emry, Erica NMI	G-079-M	Terry Wilson
Emry, Erica NMI	G-079-M	Terry Wilson
Espe, Clemens Ulrich	C-528-M	Jill Mikucki
Everett, Wendeline Bray	A-379-S	John Carlstrom
Fantasia, Ryan	B-068-P	Grace Saba
Farley, Brian Scott	C-529-M	Michael Studinger
Farry, Shawn	B-013-L/P	Bill Fraser
Feinzeig, Jacob	A-333-S	Francis Halzen
Feldmann, Marco NMI	C-528-M	Jill Mikucki
Fernandez, Rodrigo	C-527-N	Amy Ruth Leventer
Fliescher, Stefan	A-149-S	John Kovac
Flynn, Erin Elizabeth	B-207-M	Anne Elizabeth Todgham
Foley, Neil T	C-521-M	Slawomir M Tulaczyk
Ford, Christopher R	G-085-M	Kate Swanger
Forrest, Joel	B-009-M	Jay Rotella
Fraim, Eric William	C-529-M	Michael Studinger
Francis, Jane Elizabeth	G-182-L	Matthew Lamanna
Francke, Gero Marius Clemens	C-528-M	Jill Mikucki
Frazier, Curtis	A-145-M	Gerald Dwayne Orr
Frederick, Bruce	C-527-N	Amy Ruth Leventer
Fricker, Helen A	C-521-M	Slawomir M Tulaczyk
Gallicchio, Jason Richard	A-379-S	John Carlstrom
Gardner, Christopher B	B-509-M	W. Berry Lyons
Garrott, Robert	B-009-M	Jay Rotella
Gibson, Dar	C-524-M	Frank Rack
Gibson, Dar	C-530-M	Frank Rack
Gleiber, Miram	B-020-L	Deborah Steinberg
Glowacki, David	A-333-S	Francis Halzen
Gooseff, Michael	B-507-M	Diana Wall

Graw, Jordan Hunter	G-061-M	Samantha Hansen
Greenbaum, Jamin	C-527-N	Amy Ruth Leventer
Greer, Christopher	A-379-S	John Carlstrom
Gregg, Gerald	A-145-M	Gerald Dwayne Orr
Guitard, Michelle E	C-527-N	Amy Ruth Leventer
Gulick, Sean P. S.	C-527-N	Amy Ruth Leventer
Gunderson, Troy	B-012-M	Edward Carpenter
Hale, George Richard	C-529-M	Michael Studinger
Hale, Richard	I-185-M	Prasad Gogineni
Hams, Thomas	A-142-M	John Mitchell
Hansen, Christy M	C-529-M	Michael Studinger
Hanson, Kael	A-333-S	Francis Halzen
Harpold, Robert Earl	C-529-M	Michael Studinger
Hawkins, David Witmer	O-176-L/P	David Corbett
Hawley, Robert L	I-209-M	Howard Conway
Hebert, Jason Paul	G-079-M	Terry Wilson
Hebert, Jason Paul	T-299-M	Paul Carpenter
Hedges, Morgan P	A-103-S	Michael V Romalis
Heindel, Ruth	B-507-M	Diana Wall
Helmericks, Jay	T-396-M	Curt Szuberla
Herried, Bradley	T-434-M	Paul Morin
Hibbard, Shannon Maria	G-080-M	Joseph Levy
Hillebrand, Trevor Ray	I-196-M	Brenda Hall
Hindmarsh, Richard Carl Aidan	I-209-M	Howard Conway
Hmiel, Benjamin Isaiah	I-159-M	Vasilii Victorovich Petrenko
Hodge, Brendan Evans	T-295-M	Joseph R Pettit
Hrubes, James	A-379-S	John Carlstrom
Huang, Nicholas Dickey	A-379-S	John Carlstrom
Huber, Bruce Alan	C-527-N	Amy Ruth Leventer
Hugghes, Kelly NMI	G-080-M	Joseph Levy

Hui, Howard Hao Hung	A-149-S	John Kovac
Jacobson, Jr, James Daniel	C-529-M	Michael Studinger
Jadhav, Manavi Mansingh	G-058-M	Ralph Harvey
James, Collins	B-045-L/P	Hugh William Ducklow
Jaros, Chris	B-506-M	Diane McKnight
Jayred, Michael	I-184-M	Sarah Aciego
Jeffer, Gilbert Thomas	A-111-M/S	Andrew Gerrard
Jenkins, Bethany	B-244-N	Kevin Arrigo
Jennings, Scott Forrest	B-031-M	David Ainley
Jevon, Fiona	B-045-L/P	Hugh William Ducklow
Jinnah, Zubair Ali	G-182-L	Matthew Lamanna
Kalmbach, Andrew	B-012-M	Edward Carpenter
Kambarn, William	T-927-M	Bruce Thoman
Kappes, Peter	B-031-M	David Ainley
Kapsenberg, Lydia	B-134-M	Gretchen Hofmann
Karkare, Kirit S	A-149-S	John Kovac
Karner, James	G-058-M	Ralph Harvey
Kelleher, Cole	T-434-M	Paul Morin
Kelley, Amanda Lynn	B-207-M	Anne Elizabeth Todgham
Kelley, John	A-333-S	Francis Halzen
Kendhammer, Justin	B-330-M	Cristina Takacs-Vesbach
Kendrick, Eric Clyde	G-079-M	Terry Wilson
Kendrick, Eric Clyde	G-079-M	Terry Wilson
Kenyon, Lindsey Metcalf	G-061-M	Samantha Hansen
Keshmiri, Shahriar	I-185-M	Prasad Gogineni
Khan, Alia	B-506-M	Diane McKnight
King, Courtney Christie	I-196-M	Brenda Hall
Kirkham, Amy	B-292-M	Jennifer Burns
Knox, Matthew	B-507-M	Diana Wall
Kotovsky, Daniel Abrahm	A-109-M/P/S	Robert C Moore

Koutnik, Michelle	I-210-M	Howard Conway
Krabill, Kyle Austin	C-529-M	Michael Studinger
La Dieu, Donald	A-333-S	Francis Halzen
Laan, Patrick	B-244-N	Kevin Arrigo
Lanci, Luca NM	I-184-M	Sarah Aciego
Laundrie, Andrew	A-333-S	Francis Halzen
Lavers, Nicholas Mac Lean	A-144-E	Robyn Millan
Lawrence, Justin	B-505-M	John Priscu
Lawson, Brian	T-396-M	Curt Szuberla
Lawson, Kathleen	T-396-M	Curt Szuberla
Leitch, Erik	A-379-S	John Carlstrom
Lescroel, Amelie	B-031-M	David Ainley
Lesser, David	A-364-S	Craig Kulesa
Leuschen, Carlton	I-189-M	Prasad Gogineni
Lewis, Katelyn	B-244-N	Kevin Arrigo
Limon, Michele	A-146-M	Shaul Hanany
Linkswiler, Matthew Aaron	C-529-M	Michael Studinger
Liu, Yongqin	B-505-M	John Priscu
Lively, Joshua Ryan	G-182-L	Matthew Lamanna
Llewellyn, Chandra Terezina	I-159-M	Vasilii Victorovich Petrenko
Lloyd, Andrew	G-079-M	Terry Wilson
Lloyd, Andrew	G-079-M	Terry Wilson
Loisel, Julie NMI	G-094-P	Zicheng Yu
Lueker, Martin	A-149-S	John Kovac
Lund, Eric Karl	G-182-L	Matthew Lamanna
Lykins, Ryan	I-185-M	Prasad Gogineni
MacPhee, Ross Douglas Earle	G-182-L	Matthew Lamanna
Mahon, Andrew	B-281-L	Kenneth Halanych
Manizade, Serdar Sabri	C-529-M	Michael Studinger
Mankoff, Kenneth D	G-081-M	Phillip Kyle
Mankoff, Kenneth D	C-521-M	Slawomir M Tulaczyk

Marrone, Daniel P.	A-379-S	John Carlstrom
Martin, Catherine Anne	C-529-M	Michael Studinger
Martin, Christopher	A-356-S	Anna Moore
Mass, Alexandra	B-506-M	Diane McKnight
Massaro, Melanie	B-031-M	David Ainley
Masters, Otto	A-145-M	Gerald Dwayne Orr
McCarthy, Michael	A-144-E	Robyn Millan
McKee, Darren	B-021-L	Doug Martinson
McMahon, Craig Albert	C-529-M	Michael Studinger
Melendy, Jr., Terry	T-940-M	Lynette Anne Barna
Melville, Bob	A-111-M/S	Andrew Gerrard
Meshik, Alexander NMI	G-058-M	Ralph Harvey
Mickus, Kevin Lee	G-081-M	Phillip Kyle
Mikolajczyk, David	O-283-M	Matt Lazzara
Miles, Travis	B-019-L/P	Oscar Schofield
Miller, Justin Phillip	C-529-M	Michael Studinger
Miller, Nathan Andrew	B-207-M	Anne Elizabeth Todgham
Mittal, Rajat nmi	B-048-P	Jeannette Yen
Moore, Kevin NM	C-529-M	Michael Studinger
Morris, Alexander	A-369-M/S	William Bristow
Murray, Alison	B-006-N	George Watters
Nagy, Johanna NMI	A-379-S	John Carlstrom
Natoli, Tyler	A-379-S	John Carlstrom
Nguyen, Hien	A-149-S	John Kovac
Null, Kimberly	O-176-L/P	David Corbett
Nye, Jonathan Wayne	B-225-M	Paul Koch
Nylen, Thomas	T-295-M	Joseph R Pettit
Nylen, Thomas	G-079-M	Terry Wilson
O'Connor, Patrick	G-182-L	Matthew Lamanna
O'Rourke, Sean Thomas	C-529-M	Michael Studinger
Okal, Marianne	T-295-M	Joseph R Pettit

Oppenheimer, Clive	G-081-M	Phillip Kyle
Orsi, Alejandro	C-527-N	Amy Ruth Leventer
Paden, John	I-189-M	Prasad Gogineni
Palardy, Avery Patricia	I-159-M	Vasilii Victorovich Petrenko
Palmer, Terence	B-518-M	Andrew Klein
Parker, Tim	T-299-M	Paul Carpenter
Paterson, John	B-009-M	Jay Rotella
Patterson-Fraser, Donna	B-013-L/P	Bill Fraser
Pautet, Pierre-Dominique	A-119-M/S	Michael Taylor
Pautet, Pierre-Dominique	A-119-M/S	Michael Taylor
Paxton, Dominique	B-020-L	Deborah Steinberg
Pearson, Linnea	B-292-M	Jennifer Burns
Pelto, Jillian Nancy	B-225-M	Paul Koch
Pennycook, Jean	B-031-M	David Ainley
Pernic, Robert	A-370-S	John Carlstrom
Pernic, Robert J	A-370-S	John Carlstrom
Peters, Nial	G-081-M	Phillip Kyle
Peterson, Leigha Elizabeth	O-176-L/P	David Corbett
Peterson, Richard Neil	O-176-L/P	David Corbett
Pettit, Erin Christine	C-528-M	Jill Mikucki
Pfirrmann, Bruce	B-020-L	Deborah Steinberg
Phillips, Joseph Thornton	O-257-M/S	James Hall Butler
Post, Alix NMI	C-527-N	Amy Ruth Leventer
Post, Anton	B-244-N	Kevin Arrigo
Pound, Rachel	B-006-N	George Watters
Pryke, Clement	A-149-S	John Kovac
Radebaugh, Jani NMI	G-058-M	Ralph Harvey
Radonic, Catherine Rose	G-085-M	Kate Swanger
Randall, Emily NMI	G-081-M	Phillip Kyle
Reed, Corey	A-127-M	Steven Barwick

Reiss, Christian	B-006-N	George Watters
Richard, Jacob	A-145-M	Gerald Dwayne Orr
Richards, John	A-333-S	Francis Halzen
Richards, Melissa	O-283-M	Matt Lazzara
Richerson, Kate	B-006-N	George Watters
Richman, Mike	A-333-S	Francis Halzen
Richmond, Julie	B-292-M	Jennifer Burns
Risse, William Loren	T-434-M	Paul Morin
Roberts, Darren	B-009-M	Jay Rotella
Roberts, Graham	C-524-M	Frank Rack
Roberts, J.R.	G-079-M	Terry Wilson
Roberts, J.R.	G-079-M	Terry Wilson
Roberts, Michael J	G-079-M	Terry Wilson
Robinson, Patrick William	B-292-M	Jennifer Burns
Rodriguez-Morales, Fernando	I-189-M	Prasad Gogineni
Rosenbeck, Loren Andrew	G-079-M	Terry Wilson
Rosenheim, Brad E.	C-515-L	Eugene Domack
Roth, James	A-333-S	Francis Halzen
Roth, William Lance	O-257-M/S	James Hall Butler
Ruck, Kate	B-020-L	Deborah Steinberg
Ruhl, John	A-379-S	John Carlstrom
Russell, Robbie L	C-529-M	Michael Studinger
Saddler, David Michael	G-079-M	Terry Wilson
Sakaeva, Aneliya	B-506-M	Diane McKnight
Salisbury, Steven Walter	G-182-L	Matthew Lamanna
Saliwanchik, Benjamin Roman Bernard	A-379-S	John Carlstrom
Sampson, Daniel NMI	C-521-M	Slawomir M Tulaczyk
Sandstrom, Perry	A-333-S	Francis Halzen
Santora, Jarrod	B-006-N	George Watters
Santos, Scott	B-281-L	Kenneth Halanych

Saustrup, Steffen	C-527-N	Amy Ruth Leventer
Savarino, Joel	O-233-M	Detlev Helmig
Schler, Derek James	G-078-M	Robert Kemerait
Schmidt, Anne	B-031-M	David Ainley
Schutt, John	G-058-M	Ralph Harvey
Schwartz, Egbert	B-330-M	Cristina Takacs-Vesbach
Schwarz, Robert	A-149-S	John Kovac
Seibel, Brad	B-068-P	Grace Saba
Sertich, Joseph John Warren	G-182-L	Matthew Lamanna
Severinghaus, Jeffrey Peck	C-521-M	Slawomir M Tulaczyk
Shaw, Nathan NMI	G-078-M	Robert Kemerait
Shero, Michelle	B-292-M	Jennifer Burns
Shevenell, Amelia Endicott	C-515-L	Eugene Domack
Shevenell, Amelia Endicott	C-527-N	Amy Ruth Leventer
Shilling, Alison	B-031-M	David Ainley
Shore, Patrick	G-079-M	Terry Wilson
Shore, Patrick John	G-079-M	Terry Wilson
Siegfried, Matthew	C-521-M	Slawomir M Tulaczyk
Singer, Michael Keith	C-529-M	Michael Studinger
Sinkola, Nickolas	T-927-M	Bruce Thoman
Skone, Brandi	B-009-M	Jay Rotella
Smiciklas, Marc NMI	A-103-S	Michael V Romalis
Smith, Alexander Craig	A-145-M	Gerald Dwayne Orr
Smith, Catherine D.	C-527-N	Amy Ruth Leventer
Smith, Kathryn	B-002-N	Richard Aronson
Snow, Tasha M	C-515-L	Eugene Domack
Snow, Tasha M	C-527-N	Amy Ruth Leventer
Soderlund, Krista	C-527-N	Amy Ruth Leventer
Sohm, Jill	B-012-M	Edward Carpenter
Sokol, Eric	B-507-M	Diana Wall
Sonntag, John G	C-529-M	Michael Studinger

Sontag, Philip	B-019-L/P	Oscar Schofield
Spaleta, Jeff	A-369-M/S	William Bristow
Stastny, Thomas James	I-185-M	Prasad Gogineni
Stewart, Sebastian	O-257-M/S	James Hall Butler
Stokes, Sarah	A-149-S	John Kovac
Stone, John O	I-196-M	Brenda Hall
Story, Kyle	A-379-S	John Carlstrom
Straw, Rebecca Jane	C-515-L	Eugene Domack
Stumpf, Theresa Magdalena	C-529-M	Michael Studinger
Subt, Christina NMI	C-515-L	Eugene Domack
Sweet, Stephen	B-518-M	Andrew Klein
Sybert, David NMI	O-176-L/P	David Corbett
Tagg, Bruce Alexander	C-529-M	Michael Studinger
Tardona, Mary NMI	G-094-P	Zicheng Yu
Tatar, Joulien	A-127-M	Steven Barwick
Teply, Grant	A-149-S	John Kovac
Thompson, Andrew Robert	B-507-M	Diana Wall
Thoresen, Lars	B-006-N	George Watters
Tilton, Mary	B-518-M	Andrew Klein
Tinto, Kirsteen	C-529-M	Michael Studinger
Townley, Bryan Curtis	C-529-M	Michael Studinger
Tulaczyk, Slawomir M	C-528-M	Jill Mikucki
Turner, Justin David	G-078-M	Robert Kemerait
Tytgat, Guy Christian	T-396-M	Curt Szuberla
Vadman, Kara Jayne	C-527-N	Amy Ruth Leventer
Van Dijken, Gerrit	B-244-N	Kevin Arrigo
Van Horn, David	B-330-M	Cristina Takacs-Vesbach
Varsani, Arvind	B-031-M	David Ainley
Venkataramani, Karthik NM	A-106-M/S	C. Robert Clauer
Vicars, William none	O-233-M	Detlev Helmig
Vieregg, Abigail	A-149-S	John Kovac

Virginia, Ross	B-507-M	Diana Wall
Viso, Richard Ford	O-176-L/P	David Corbett
Vivancos, Sebastian	B-045-L/P	Hugh William Ducklow
Vos, Stephanie	B-002-N	Richard Aronson
Walsh, Jennifer	B-006-N	George Watters
Walsh, John Patrick	O-176-L/P	David Corbett
Wang, Zongbo NM	I-189-M	Prasad Gogineni
Ward, John Ennis	A-142-M	John Mitchell
Weisman, Isabelle Ellis	C-515-L	Eugene Domack
Weiss, Elliot	B-006-N	George Watters
Welch, Kathy	B-509-M	W. Berry Lyons
Welhouse, Lee	O-283-M	Matt Lazzara
Wells, Aaron Ray	I-189-M	Prasad Gogineni
Wendell, Edward	T-927-M	Bruce Thoman
Wesley, William Dean	A-145-M	Gerald Dwayne Orr
White-Gaynor, Austin nmi	G-079-M	Terry Wilson
Wiederwohl, Christina	C-527-N	Amy Ruth Leventer
Winberry, J. Paul	I-210-M	Howard Conway
Winslow, Luke	B-280-M	Peter Doran
Winslow, Luke Adam	B-511-M	Peter Doran
Wlostowski, Adam	B-507-M	Diana Wall
Wood, Tania	A-333-S	Francis Halzen
Xu, Zhonghua NM	A-106-M/S	C. Robert Clauer
Yan, Jie Bang	I-189-M	Prasad Gogineni
Yarnall, Michael	B-009-M	Jay Rotella
Yates, Brian Avery	C-529-M	Michael Studinger
Young, Abram	A-364-S	Craig Kulesa
Yungel, James Karl	C-529-M	Michael Studinger
Zhao, Jian	A-130-M	Xinzhao Chu
Zimmerman, Jr., Gary Robert	C-529-M	Michael Studinger

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Astrophysics and Geospace Sciences

Return to Index

Principal Investigator	Event No.	Project Title
Barwick, Steven	A-127-M	Development of hexagonal radio array for the ARIANNA ultra-high energy neutrino detector
Bristow, William	A-369-M/S	McMurdo and South Pole SuperDARN: Investigation of the ionospheric dynamics and magnetosphere-ionosphere coupling in Antarctica
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
Chu, Xinzhao	A-130-M	Lidar Investigation of middle and upper atmosphere temperature, composition, chemistry, and dynamics at McMurdo, Antarctica
Clauer, C.	A-106-M/S	Polar Experiment Network for Geospace Upper-atmosphere Investigations (PENGUIn): Interhemispheric investigations along the 40-degree magnetic meridian
Engebretson, Mark	A-102-M/S	Studies of solar wind - Magnetosphere interactions using observations of ULF waves at an extensive ground array at high latitudes
Evenson, Paul	A-118-S	Element composition of high-energy solar particles
Gerrard, Andrew	A-111-M/S	Synoptic geospace systems analysis utilizing instrumentation from South Pole and McMurdo Stations
Halzen, Francis	A-333-S	IceCube operations and maintenance
Hanany, Shaul	A-146-M	E & B Experiment (EBEX)

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Kovac, John	A-149-S	Imaging the beginning of time from the South Pole: Observations with the full SPUD array
Kulesa, Craig	A-364-S	High Elevation Antarctic Terahertz (HEAT) telescopes for Dome A and Ridge A
LaBelle, James	A-128-S	Outstanding Questions on Auroral Radiation Fine Structure
LaBelle, James	A-125-S	Application of the AGO network to energy transfer in the radiation belts and remote sensing of auroral plasma processes
Millan, Robyn	A-144-E	Balloon Array for RBSP Relativistic Electron Losses (BARREL)
Mitchell, John	A-142-M	Super Trans-Iron Galactic Element Recorder (SuperTIGER)
Moore, Anna	A-356-S	Analysis of the data from the Gattini Antarctic camera network
Moore, Robert	A-109-M/P/S	Antarctic ELF/VLF observations of Q-bursts, radio atmospherics, and energetic particle precipitation
Orr, Gerald	A-145-M	NASA Long Duration Balloon (LDB) support program
Romalis, Michael	A-103-S	Test of Lorentz invariance at the South Pole
Taylor, Michael	A-119-M/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper
Taylor, Michael	A-119-M/S	Development of an ANtarctic Gravity Wave Imager Network (ANGWIN) for collaborative mesospheric research
Wu, Qian	A-132-P	Thermospheric neutral wind observation in the Antarctica Peninsula

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Organisms and Ecosystems

Return to Index

Principal Investigator	Event No.	Project Title
Ainley, David	B-031-M	Adelie Penguin response to climate change at the individual, colony and metapopulation levels
Aronson, Richard	B-002-N	Climate change and predatory invasion of the Antarctic benthos
Arrigo, Kevin	B-244-N	Adaptive responses of Phaeocystis populations in Antarctic ecosystems
Bench, Shelley	B-018-P	PostDoctoral Research Fellowship
Burns, Jennifer	B-292-M	The cost of a new fur coat: Interactions between molt and reproduction in Weddell seals
Carpenter, Edward	B-012-M	Collaborative Research: Importance of heterotrophic and phototrophic N2 fixation in the McMurdo Dry Valleys on local, regional and landscape scales
Doran, Peter	B-511-M	McMurdo LTER - Lakes: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Doran, Peter	B-280-M	Habitability of Antarctic lakes and detectability of microbial life in icy environments by autonomous year-round instrumentation
Ducklow, Hugh	B-045-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, microbial ecology component
Fountain, Andrew	B-504-M	McMurdo LTER - Glaciers: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valleys LTER Program
Fraser, Bill	B-013-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

		space, apex predator component
Halanych, Kenneth	B-281-L	Genetic connectivity and biogeographic patterns of Antarctic benthic invertebrates
Hofmann, Gretchen	B-134-M	Ocean acidification seascape: linking natural variability and anthropogenic changes in pH and temperature to performance in calcifying Antarctic marine invertebrates
Klein, Andrew	B-518-M	Temporal variability in natural and anthropogenic disturbance of McMurdo Station
Koch, Paul	B-225-M	Exploring the vulnerability of Southern Ocean pinnipeds to climate change - an integrated approach
Kohut, Josh	B-005-P	Collaborative Research: Impacts of local oceanographic processes on Adélie penguin foraging ecology
Lyons, W. Berry	B-509-M	McMurdo LTER - Geochemistry: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Martinson, Doug	B-021-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, physical oceanography component
McKnight, Diane	B-506-M	McMurdo LTER - Streams: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Priscu, John	B-505-M	McMurdo LTER - Lakes: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Rotella, Jay	B-009-M	The demographic consequences of environmental variability and individual heterogeneity in life-history tactics of a long-lived Antarctic marine predator
Saba, Grace	B-068-P	Synergistic effects of elevated carbon dioxide and temperature on

		the metabolism, growth, and reproduction of Antarctic krill (Euphausia superba)
Schofield, Oscar	B-019-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, phytoplankton component
Steinberg, Deborah	B-020-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, zooplankton component
Takacs-Vesbach, Cristina	B-330-M	An integrated ecological investigation of McMurdo Dry Valley's active soil microbial communities
Todgham, Anne	B-207-M	Research in Undergraduate Institutions (RUI): Synergistic effects of ocean acidification and warming on larval development in Antarctic fishes
Wall, Diana	B-507-M	McMurdo LTER - Soils: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Watters, George	B-006-N	NOAA/AMLR Cruise
Yen, Jeannette	B-048-P	Ocean Acidification: Pteropod swimming behavior as a bioassay for ocean acidification

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Earth Sciences

Return to Index

Principal Investigator	Event No.	Project Title
Anderson, Kent	G-090-P/S	Global seismograph station at South Pole and Palmer Stations
Hansen, Samantha	G-061-M	CAREER: Deciphering the tectonic history of the Transantarctic Mountains and the Wilkes Subglacial Basin
Harvey, Ralph	G-058-M	Antarctic Search for Meteorites (ANSMET)
Kemerait, Robert	G-078-M	Dry Valley seismic project
Kyle, Phillip	G-081-M	Mount Erebus Volcano Observatory: Operations, Science and Outreach (MEVO-OSO)
Lamanna, Matthew	G-182-L	Late Cretaceous-Paleogene vertebrates from Antarctica: Implications for paleobiogeography, paleoenvironment, and extinction in Polar Gondwana
Levy, Joseph	G-080-M	Rapid landscape change in Garwood Valley: Monitoring buried glacier melt and exploring “Péwé’s Lost Lake”
Marchant, David	G-054-M	West Antarctic Ice Sheet stability, alpine glaciation, and climate variability: a terrestrial perspective from cosmogenic-nuclide dating in McMurdo Sound
Swanger, Kate	G-085-M	Multinuclide approach to systematically evaluate the scatter in surface exposure ages in Antarctica and to develop consistent alpine glacier chronologies
Wilson, Terry	G-079-M	POLENET Antarctica: Investigating links between geodynamics and ice sheets - Phase 2
Yu, Zicheng	G-094-P	Response of carbon accumulation in moss peatbanks to past warm

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

climates in the Antarctic Peninsula

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Glaciology

Return to Index

Principal Investigator	Event No.	Project Title
Aciego, Sarah	I-184-M	Climate controls on aerosol fluxes to Taylor Dome and Taylor Glacier
Conway, Howard	I-210-M	East Antarctic outlet glacier dynamics
Conway, Howard	I-209-M	Deglaciation of the Ross Sea Embayment - constraints from Roosevelt Island
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
Gogineni, Prasad	I-185-M	Center for Remote Sensing of Ice Sheets (CReSIS) - Unmanned Aerial System (UAS) operations
Hall, Brenda	I-196-M	Assessing the Antarctic contribution to sea-level changes during the last deglaciation: Constraints from Darwin Glacier
Petrenko, Vasilii	I-159-M	The Taylor Glacier, Antarctica, horizontal ice core: exploring changes in the natural methane budget in a warming world and expanding the paleo-archive
Saltzman, Eric	I-164-S	Collaborative Research: A 1,500-meter ice core from South Pole
Talghader, Joseph	I-172-M	Optical fabric and fiber logging of glacial ice

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Ocean and Atmospheric Sciences

Return to Index

Principal Investigator	Event No.	Project Title
Butler, James	O-257-M/S	South Pole monitoring for climatic change
Butler, James	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
Cassar, Nicolas	O-405-L	Physiological and ecosystem structure forcings on carbon fluxes in the Southern Ocean mixed layer
Corbett, David	O-176-L/P	Submarine groundwater and freshwater inputs along the Western Antarctic Peninsula
Girton, James	O-409-L	DIMES finestructure profiling floats: Analysis and enhancement of the EM-APEX array upstream and downstream of Drake Passage
Helmig, Detlev	O-233-M	Reactive gas chemistry in the Dome C snowpack and its influence on surface-layer chemistry and ice-core records
Lazzara, Matt	O-283-M	Antarctic Automatic Weather Station (AWS) program
Ledwell, James	O-124-N	Studies of turbulence and mixing in the Antarctic Circumpolar Current, a continuation of DIMES
Roberts, Gregory	O-215-L/P	In-situ observations of maritime sources/sinks of aerosol and cloud condensation nuclei at Palmer Station, Antarctica: Portable AERosol Observing System (PAEROS) pilot phase

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Integrated System Science

Return to Index

Principal Investigator	Event No.	Project Title
Domack, Eugene	C-515-L	Continuation of the LARISSA continuous GPS network in view of observed dynamic response to Antarctic Peninsula mass balance and required geologic constraints
Leventer, Amy	C-527-N	Totten Glacier System and the marine record of cryosphere-ocean dynamics
Mikucki, Jill	C-528-M	MIDGE: Minimally Invasive Direct Glacial Exploration of biogeochemistry, hydrology and glaciology of Blood Falls, McMurdo Dry Valleys
Rack, Frank	C-524-M	WISSARD borehole drill contractor
Rack, Frank	C-530-M	WISSARD Roving Drill
Schwartz, Susan	C-525-M	Investigating (un)stable sliding of Whillians Ice Stream and subglacial water dynamics using borehole seismology: A component of the Whillans Ice Stream Subglacial Access Research Drilling (WISSARD) Project
Studinger, Michael	C-529-M	Operation IceBridge
Tulaczyk, Slawomir	C-521-M	Integrative study of marine ice sheet stability and subglacial life habitats - Lake and Ice Stream Subglacial Access Research Drilling (LISSARD)

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Artists and Writers

Return to Index

Principal Investigator	Event No.	Project Title
Comstock, Allyson	W-492-P	Antarctica: Micro, macro and in-between
Martin, Jennifer	W-490-M	An ark of questions sent sailing south: Poetry from Antarctica
Surgent, April	W-489-P	21st Century Antarctica - The Science and Landscape of Palmer Station

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

USAP Station Index:

Amundsen-Scott South Pole Station

Return to Index

Principal Investigator	Event No.	Project Title
Anderson, Kent	G-090-P/S	Global seismograph station at South Pole and Palmer Stations
Bristow, William	A-369-M/S	McMurdo and South Pole SuperDARN: Investigation of the ionospheric dynamics and magnetosphere-ionosphere coupling in Antarctica
Butler, James	O-257-M/S	South Pole monitoring for climatic change
Butler, James	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
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
Clauer, C.	A-106-M/S	Polar Experiment Network for Geospace Upper-atmosphere Investigations (PENGUIn): Interhemispheric investigations along the 40-degree magnetic meridian
Engebretson, Mark	A-102-M/S	Studies of solar wind - Magnetosphere interactions using observations of ULF waves at an extensive ground array at high latitudes
Evenson, Paul	A-118-S	Element composition of high-energy solar particles
Gerrard, Andrew	A-111-M/S	Synoptic geospace systems analysis utilizing instrumentation from South Pole and McMurdo Stations
Halzen, Francis	A-333-S	IceCube operations and maintenance

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Kovac, John	A-149-S	Imaging the beginning of time from the South Pole: Observations with the full SPUD array
Kulesa, Craig	A-364-S	High Elevation Antarctic Terahertz (HEAT) telescopes for Dome A and Ridge A
LaBelle, James	A-128-S	Outstanding Questions on Auroral Radiation Fine Structure
LaBelle, James	A-125-S	Application of the AGO network to energy transfer in the radiation belts and remote sensing of auroral plasma processes
Moore, Anna	A-356-S	Analysis of the data from the Gattini Antarctic camera network
Moore, Robert	A-109-M/P/S	Antarctic ELF/VLF observations of Q-bursts, radio atmospherics, and energetic particle precipitation
Romalis, Michael	A-103-S	Test of Lorentz invariance at the South Pole
Saltzman, Eric	I-164-S	Collaborative Research: A 1,500-meter ice core from South Pole
Taylor, Michael	A-119-M/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper
Taylor, Michael	A-119-M/S	Development of an ANtarctic Gravity Wave Imager Network (ANGWIN) for collaborative mesospheric research

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

USAP Station Index:

McMurdo Station

Return to Index

Principal Investigator	Event No.	Project Title
Aciego, Sarah	I-184-M	Climate controls on aerosol fluxes to Taylor Dome and Taylor Glacier
Ainley, David	B-031-M	Adelie Penguin response to climate change at the individual, colony and metapopulation levels
Barna, Lynette	T-940-M	CRREL 09-10 activities
Barwick, Steven	A-127-M	Development of hexagonal radio array for the ARIANNA ultra-high energy neutrino detector
Bristow, William	A-369-M/S	McMurdo and South Pole SuperDARN: Investigation of the ionospheric dynamics and magnetosphere-ionosphere coupling in Antarctica
Burns, Jennifer	B-292-M	The cost of a new fur coat: Interactions between molt and reproduction in Weddell seals
Butler, James	O-257-M/S	South Pole monitoring for climatic change
Butler, James	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
Carpenter, Edward	B-012-M	Collaborative Research: Importance of heterotrophic and phototrophic N2 fixation in the McMurdo Dry Valleys on local, regional and landscape scales
Carpenter, Paul	T-299-M	IRIS/PASSCAL seismic support
Chu, Xinzhao	A-130-M	Lidar Investigation of middle and upper atmosphere temperature, composition, chemistry, and dynamics at McMurdo, Antarctica
Clauer, C.	A-106-M/S	Polar Experiment Network for

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

		Geospace Upper-atmosphere Investigations (PENGUIn): Interhemispheric investigations along the 40-degree magnetic meridian
Conway, Howard	I-210-M	East Antarctic outlet glacier dynamics
Conway, Howard	I-209-M	Deglaciation of the Ross Sea Embayment - constraints from Roosevelt Island
Doran, Peter	B-511-M	McMurdo LTER - Lakes: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Doran, Peter	B-280-M	Habitability of Antarctic lakes and detectability of microbial life in icy environments by autonomous year-round instrumentation
Engebretson, Mark	A-102-M/S	Studies of solar wind - Magnetosphere interactions using observations of ULF waves at an extensive ground array at high latitudes
Fountain, Andrew	B-504-M	McMurdo LTER - Glaciers: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valleys LTER Program
Gerrard, Andrew	A-111-M/S	Synoptic geospace systems analysis utilizing instrumentation from South Pole and McMurdo Stations
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
Gogineni, Prasad	I-185-M	Center for Remote Sensing of Ice Sheets (CReSIS) - Unmanned Aerial System (UAS) operations
Hall, Brenda	I-196-M	Assessing the Antarctic contribution to sea-level changes during the last deglaciation: Constraints from Darwin Glacier
Hanany, Shaul	A-146-M	E & B Experiment (EBEX)
Hansen, Samantha	G-061-M	CAREER: Deciphering the tectonic

		history of the Transantarctic Mountains and the Wilkes Subglacial Basin
Harvey, Ralph	G-058-M	Antarctic Search for Meteorites (ANSMET)
Helmig, Detlev	O-233-M	Reactive gas chemistry in the Dome C snowpack and its influence on surface-layer chemistry and ice-core records
Hofmann, Gretchen	B-134-M	Ocean acidification seascape: linking natural variability and anthropogenic changes in pH and temperature to performance in calcifying Antarctic marine invertebrates
Kemerait, Robert	G-078-M	Dry Valley seismic project
Klein, Andrew	B-518-M	Temporal variability in natural and anthropogenic disturbance of McMurdo Station
Koch, Paul	B-225-M	Exploring the vulnerability of Southern Ocean pinnipeds to climate change - an integrated approach
Kyle, Phillip	G-081-M	Mount Erebus Volcano Observatory: Operations, Science and Outreach (MEVO-OSO)
Lazzara, Matt	O-283-M	Antarctic Automatic Weather Station (AWS) program
Levy, Joseph	G-080-M	Rapid landscape change in Garwood Valley: Monitoring buried glacier melt and exploring “Péwé’s Lost Lake”
Lyons, W. Berry	B-509-M	McMurdo LTER - Geochemistry: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Marchant, David	G-054-M	West Antarctic Ice Sheet stability, alpine glaciation, and climate variability: a terrestrial perspective from cosmogenic-nuclide dating in McMurdo Sound
Martin, Jennifer	W-490-M	An ark of questions sent sailing south: Poetry from Antarctica
McKnight, Diane	B-506-M	McMurdo LTER - Streams: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry

		Valley LTER Program
Mikucki, Jill	C-528-M	MIDGE: Minimally Invasive Direct Glacial Exploration of biogeochemistry, hydrology and glaciology of Blood Falls, McMurdo Dry Valleys
Mitchell, John	A-142-M	Super Trans-Iron Galactic Element Recorder (SuperTIGER)
Moore, Robert	A-109-M/P/S	Antarctic ELF/VLF observations of Q-bursts, radio atmospherics, and energetic particle precipitation
Morin, Paul	T-434-M	The Polar Geospatial Information Center: Joint support
Orr, Gerald	A-145-M	NASA Long Duration Balloon (LDB) support program
Petrenko, Vasilii	I-159-M	The Taylor Glacier, Antarctica, horizontal ice core: exploring changes in the natural methane budget in a warming world and expanding the paleo-archive
Pettit, Joseph	T-295-M	UNAVCO GPS survey support
Priscu, John	B-505-M	McMurdo LTER - Lakes: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Rack, Frank	C-524-M	WISSARD borehole drill contractor
Rack, Frank	C-530-M	WISSARD Roving Drill
Rotella, Jay	B-009-M	The demographic consequences of environmental variability and individual heterogeneity in life-history tactics of a long-lived Antarctic marine predator
Schwartz, Susan	C-525-M	Investigating (un)stable sliding of Whillians Ice Stream and subglacial water dynamics using borehole seismology: A component of the Whillans Ice Stream Subglacial Access Research Drilling (WISSARD) Project
Studinger, Michael	C-529-M	Operation IceBridge
Swanger, Kate	G-085-M	Multinuclide approach to systematically evaluate the scatter in

		surface exposure ages in Antarctica and to develop consistent alpine glacier chronologies
Szuberla, Curt	T-396-M	Installation of a CTBT class infrasound station
Takacs-Vesbach, Cristina	B-330-M	An integrated ecological investigation of McMurdo Dry Valley's active soil microbial communities
Talghader, Joseph	I-172-M	Optical fabric and fiber logging of glacial ice
Taylor, Michael	A-119-M/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper
Taylor, Michael	A-119-M/S	Development of an ANtarctic Gravity Wave Imager Network (ANGWIN) for collaborative mesospheric research
Thoman, Bruce	T-927-M	NASA/McMurdo Ground Station (MG1)
Todgham, Anne	B-207-M	Research in Undergraduate Institutions (RUI): Synergistic effects of ocean acidification and warming on larval development in Antarctic fishes
Tulaczyk, Slawomir	C-521-M	Integrative study of marine ice sheet stability and subglacial life habitats - Lake and Ice Stream Subglacial Access Research Drilling (LISSARD)
Wall, Diana	B-507-M	McMurdo LTER - Soils: Increased connectivity in a polar desert resulting from climate warming: McMurdo Dry Valley LTER Program
Wilson, Terry	G-079-M	POLENET Antarctica: Investigating links between geodynamics and ice sheets - Phase 2

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

USAP Station Index:

Palmer Station

Return to Index

Principal Investigator	Event No.	Project Title
Anderson, Kent	G-090-P/S	Global seismograph station at South Pole and Palmer Stations
Bench, Shelley	B-018-P	PostDoctoral Research Fellowship
Comstock, Allyson	W-492-P	Antarctica: Micro, macro and in-between
Corbett, David	O-176-L/P	Submarine groundwater and freshwater inputs along the Western Antarctic Peninsula
Ducklow, Hugh	B-045-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, microbial ecology component
Fraser, Bill	B-013-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, apex predator component
Hosticka, Bouvard	T-998-P	Operation and maintenance of a CTBT radionuclide monitoring station at Palmer Station
Kohut, Josh	B-005-P	Collaborative Research: Impacts of local oceanographic processes on Adélie penguin foraging ecology
Moore, Robert	A-109-M/P/S	Antarctic ELF/VLF observations of Q-bursts, radio atmospherics, and energetic particle precipitation
Roberts, Gregory	O-215-L/P	In-situ observations of maritime sources/sinks of aerosol and cloud condensation nuclei at Palmer Station, Antarctica: Portable AERosol Observing System (PAEROS) pilot phase
Saba, Grace	B-068-P	Synergistic effects of elevated carbon dioxide and temperature on the metabolism, growth, and reproduction of Antarctic krill (Euphausia superba)

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Schofield, Oscar	B-019-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, phytoplankton component
Surgent, April	W-489-P	21st Century Antarctica - The Science and Landscape of Palmer Station
Wu, Qian	A-132-P	Thermospheric neutral wind observation in the Antarctica Peninsula
Yen, Jeannette	B-048-P	Ocean Acidification: Pteropod swimming behavior as a bioassay for ocean acidification
Yu, Zicheng	G-094-P	Response of carbon accumulation in moss peatbanks to past warm climates in the Antarctic Peninsula

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

USAP Station Index:

RVIB Nathaniel B. Palmer

Return to Index

Principal Investigator	Event No.	Project Title
Aronson, Richard	B-002-N	Climate change and predatory invasion of the Antarctic benthos
Arrigo, Kevin	B-244-N	Adaptive responses of Phaeocystis populations in Antarctic ecosystems
Ledwell, James	O-124-N	Studies of turbulence and mixing in the Antarctic Circumpolar Current, a continuation of DIMES
Leventer, Amy	C-527-N	Totten Glacier System and the marine record of cryosphere-ocean dynamics
Watters, George	B-006-N	NOAA/AMLR Cruise

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

USAP Station Index:

ARSV Laurence M. Gould

Return to Index

Principal Investigator	Event No.	Project Title
Cassar, Nicolas	O-405-L	Physiological and ecosystem structure forcings on carbon fluxes in the Southern Ocean mixed layer
Corbett, David	O-176-L/P	Submarine groundwater and freshwater inputs along the Western Antarctic Peninsula
Domack, Eugene	C-515-L	Continuation of the LARISSA continuous GPS network in view of observed dynamic response to Antarctic Peninsula mass balance and required geologic constraints
Ducklow, Hugh	B-045-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, microbial ecology component
Fraser, Bill	B-013-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, apex predator component
Girton, James	O-409-L	DIMES finestructure profiling floats: Analysis and enhancement of the EM-APEX array upstream and downstream of Drake Passage
Halanych, Kenneth	B-281-L	Genetic connectivity and biogeographic patterns of Antarctic benthic invertebrates
Lamanna, Matthew	G-182-L	Late Cretaceous-Paleogene vertebrates from Antarctica: Implications for paleobiogeography, paleoenvironment, and extinction in Polar Gondwana
Martinson, Doug	B-021-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, physical oceanography component
Roberts, Gregory	O-215-L/P	In-situ observations of maritime

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

		sources/sinks of aerosol and cloud condensation nuclei at Palmer Station, Antarctica: Portable AERosol Observing System (PAEROS) pilot phase
Schofield, Oscar	B-019-L/P	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, phytoplankton component
Steinberg, Deborah	B-020-L	Palmer Long Term Ecological Research (LTER): Looking back in time through marine ecosystem space, zooplankton component

Return to Index

SCIENCE PROGRAM INDEXES 2013-2014

USAP Station Index:

Special Projects

Return to Index

Principal Investigator	Event No.	Project Title
Millan, Robyn	A-144-E	Balloon Array for RBSP Relativistic Electron Losses (BARREL)

Return to Index

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.

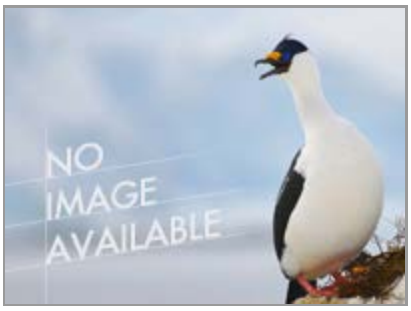
2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

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



Program Manager:
Dr. Charles Amsler

Event Number: B-031-M
NSF/PLR Award 0944411

ASC POC/Implementer:
Addie Coyac / Jessica Jenkins

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, Franklin, Inexpressible Islands / Capes Bird, Crozier, Royds

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 education program, including webisodes and PenguinScience.com.

Field Season Overview:

Eleven field team members will deploy camps to Capes Crozier and Royds,

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

and will make day trips to Cape Bird and, depending on sea ice conditions, Beaufort Island. The field work from late October to early February spans the Adelie nesting season. On foot, team members will look for penguins previously banded as chicks to collect data and log their breeding status. To investigate foraging as it affects breeding effort, researchers will deploy time-depth-recorders at each site. Computerized weighbridges will continue to log trip duration and food loads. This species of penguin does not mature until 3-8 years of age, thus, even after 15 years researchers are just beginning to see breeders among the birds banded as chicks. This project will also collaborate with Stacy Kim (B-174-M) and Walker Smith/Vern Asper (B-042) by attaching instruments to additional penguins.

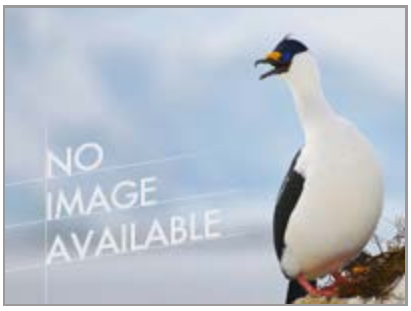
Deploying Team Members:

- David Ainley (PI)
- Katie Dugger (Co-PI)
- Megan Elrod
- Scott Jennings
- Peter Kappes
- Amelie Lescroel (Co-PI)
- Melanie Massaro (Co-PI)
- Jean Pennycook
- Anne Schmidt
- Alison Shilling
- Arvind Varsani

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Global Seismograph Station At South Pole And Palmer Stations



Program Manager:
Dr. Alexandra Isern

Event Number: G-090-P/S
NSF/EAR 1261681

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

Mr. Kent Anderson (Principal Investigator)
kent@iris.edu
http://www.iris.edu/hq/

United States Geological Survey
Albuquerque Seismological Labratory
Sandia Park, New Mexico

Supporting Stations: Palmer Station, South Pole Station
Research Locations: Terra Lab / Seismic Vault, Quiet Sector

Project Description:

The Incorporated Research Institutions for Seismology (IRIS) is a university consortium sponsored by the NSF and dedicated to the operation of scientific facilities for the acquisition, management and distribution of freely available seismic data. This project is a long-term study of seismicity and is part of IRIS's 120+ station Global Seismographic Network (GSN). Seismic stations at Palmer Station and at the Amundsen-Scott South Pole Station are named PMSA and QSPA, respectively. Recently, the South Pole seismic station was moved from the V1 vault (near the old dome site) to SPRESSO to reduce station related "cultural" noise. The move has made QSPA the most-quiet seismic station in the entire GSN. Lower background noise levels will allow researchers to see smaller events from further away and help identify and characterize Antarctic seismicity.

Field Season Overview:

Only routine maintenance will be performed this season. Research assistant training will be accomplished as required.

Return to Index

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.

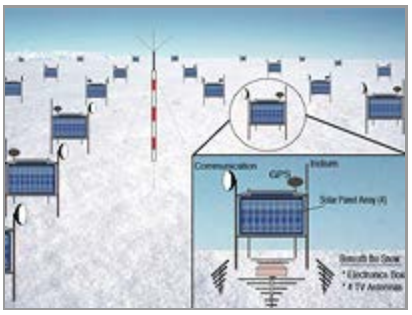
2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

Development Of Hexagonal Radio Array For The ARIANNA Ultra-High Energy Neutrino Detector



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-127-M
NSF/PLR Award 0970175 / 1126672

ASC POC/Implementer:
John Rand / Jessica Jenkins

Dr. Steven Barwick (Principal Investigator)
barwick@cosmic.ps.uci.edu
http://arianna.ps.uci.edu/

University of California Irvine
Department of Physics and Astronomy
Irvine, California

Supporting Stations: McMurdo Station
Research Locations: ARIANNA site at Moore's Bay

Project Description:

The idea of using a surface array of radio receivers to search for astrophysical sources has a long history. The ARIANNA concept utilizes the Ross Ice Shelf near the coast of Antarctica to increase the sensitivity to ultra-high-energy cosmogenic neutrinos by roughly an order of magnitude when compared to the sensitivity of existing detectors and those under construction. Therefore, ARIANNA can test a wide variety of scenarios for neutrino production and probe for physics beyond the standard model by measuring the neutrino cross-section at center of mass energies near 100 Tera-electron-Volts. ARIANNA capitalizes on several remarkable properties of the Ross Ice Shelf: Shelf ice is now measured to be relatively transparent to electromagnetic radiation at the radio frequencies of interest; and the water-ice boundary below the shelf behaves like a mirror that reflects radio signals from downgoing neutrinos back up to the surface antennas. The ability to operate continuously for nearly six months (or possibly more with the addition of wind power), the low energy threshold (~3x1017 electron-Volts), and a field of view of more than half the sky, combine to make ARIANNA a highly sensitive neutrino detector.

Field Season Overview:

Two field team members will deploy, with field assistance from tow Field Support and Training personnel, to the Moore's Bay site. They will raise

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

previously-cached equipment and stations, and swap electronics to reestablish the remote link.

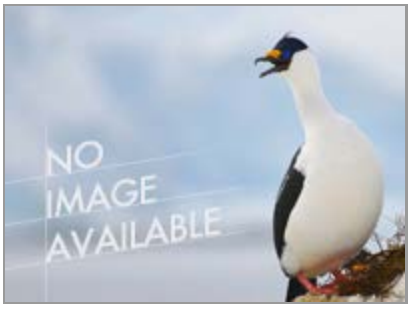
Deploying Team Members:

- Steven Barwick (PI)
- Corey Reed
- Joulien Tatar

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

McMurdo And South Pole SuperDARN: Investigation Of The Ionospheric Dynamics And Magnetosphere-Ionosphere Coupling In Antarctica



Program Manager:
Dr. Alexandra Isern

Event Number: A-369-M/S
NSF/PLR Award 0944270

ASC POC/Implementer:
Samina Ouda / Brian Johnson

Dr. William Bristow (Principal Investigator)
bill.bristow@gi.alaska.edu
http://SuperDARN.jhuapl.edu

University of Alaska Fairbanks
Geophysical Institute
Fairbanks, Alaska

Supporting Stations: McMurdo Station, South Pole Station
Research Locations: Near stations

Project Description:

The Super Dual Auroral Radar Network (SuperDARN) is a global international radar network of 22 installations observing high frequency (HF) bands between 8 and 22 MHz. Radar systems have been installed at McMurdo Station (2009-10) and South Pole Station (2011-12), extending the global-scale coverage in the southern hemisphere and helping answer questions about geomagnetic conjugacy of global magnetic storms and substorms and differences in the ionospheric plasma convection caused by the asymmetry of solar illumination in both hemispheres. The SuperDARN network, with its ability to observe global-scale convection with excellent temporal and spatial resolution, has proven to be the most powerful tool available for the ground-based research, allowing scientists to address the most fundamental and important questions of space physics. These data are also relevant to important societal issues such as space weather studies, and they enhance the usefulness of data from other instruments.

Field Season Overview:

Each austral summer researchers deploy to McMurdo and the South Pole to perform system maintenance such as inspecting the equipment, tightening guy wires and antennas, replacing shackles, re-leveling the radar poles, and updating/repairing the on-site computer system. Throughout the year

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

contract staff maintain system components and vehicular access to the array.

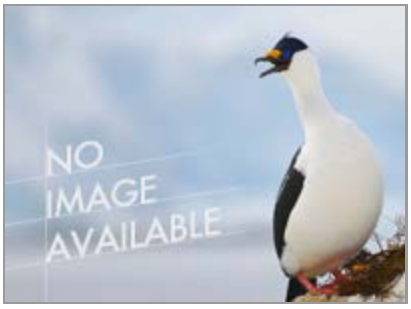
Deploying Team Members:

- William Bristow (PI)
- Alexander Morris
- Jeff Spaleta

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

South Pole Monitoring For Climatic Change



Program Manager:
Dr. Peter Milne

Event Number: O-257-M/S
NOAA/NSF Agreement

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

Dr. James Hall Butler (Principal Investigator)
James.H.Butler@noaa.gov
http://www.esrl.noaa.gov/gmd/

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

Supporting Stations: McMurdo Station, South Pole Station
Research Locations: Atmospheric Research Observatory (ARO)

Project Description:

At the South Pole, NOAA's Global Monitoring Division (GMD) collects year-round long-term measurements of trace atmospheric constituents that influence climate change. These measurements are part of NOAA's effort to determine and assess the long-term build-up of global pollutants in the atmosphere. The measurements are used for time-series analysis of multi-year data records that focus on stratospheric ozone depletion, trans-Antarctic transport and deposition, interplay of the trace gases and aerosols with solar and terrestrial radiation fluxes on the polar plateau, the magnitude of seasonal and temporal variations in greenhouse gases and the development of polar stratospheric clouds over Antarctica. Other objectives of the research are to determine the rate at which concentrations of these atmospheric constituents change and to examine the sources, sinks, distributions, budgets and trends. The data help climate modelers and diagnosticians determine how the rate of change of these parameters affect climate, particularly when the data are included in climate-model studies.

Field Season Overview:

Each austral summer, two project team members staff the Atmospheric Research Observatory (ARO). Other personnel deploy for shorter periods throughout the field season to perform upgrades and routine maintenance on the instruments. Over the austral winter, two NOAA personnel will remain on station to continue observations and measurements.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

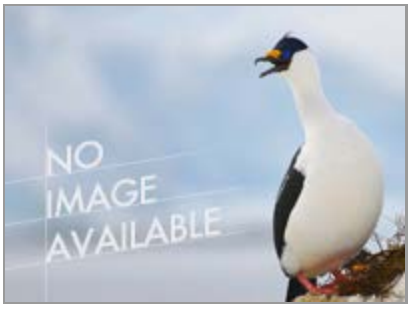
Deploying Team Members:

- Kelli-Ann Bliss
- Ross Burgener
- James Butler (PI)
- Joseph Phillips
- William Roth
- Sebastian Stewart

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

UV Measurements At McMurdo Station For The NOAA/Global Monitoring Division (GMD) Antarctic UV Network



Program Manager:
Dr. Peter Milne

Event Number: O-257-M/S
NOAA/NSF Agreement

ASC POC/Implementer:
Samina Ouda / Cara Sucher

Dr. James Hall Butler (Principal Investigator)
James.H.Butler@noaa.gov
http://www.esrl.noaa.gov/gmd/

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

Supporting Stations: McMurdo Station, South Pole Station
Research Locations: Arrival Heights

Project Description:

The National Oceanic and Atmospheric Administration (NOAA) Earth System Research Laboratory (ESRL) Global Monitoring Division (GMD) team will continue long-term measurements of ultra-violet (UV) radiation that influence climate and the ozone layer. The work at McMurdo Station is in conjunction with ongoing worldwide measurements of carbon dioxide, methane, carbon monoxide, aerosols, water vapor, surface and stratospheric ozone, chlorofluorocarbons and the ozone layer at South Pole and Palmer Stations. The measurements will be used for time-series analysis of multi-year data records that focus on stratospheric ozone depletion, trans-Antarctic transport and deposition, interplay of the trace gases aerosols with the solar and terrestrial radiation fluxes on the polar plateau and the magnitude of seasonal and temporal variations in greenhouse gases and the development of polar stratospheric clouds. Other objectives of this research are to determine the rate at which concentrations of these atmospheric constituents change and to examine the sources, sinks and budgets. Researchers will use the data to determine how the rate of change of these parameters affect climate, particularly when the data are included in climate-model studies in support of this project.

Field Season Overview:

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

The McMurdo Station research assistant (RA) will support the UV instrument located at Arrival Heights with daily checks, routine calibrations, and troubleshooting (as needed).

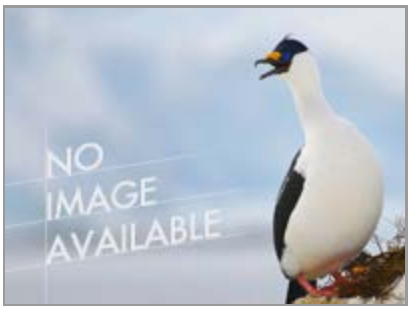
Deploying Team Members:

- James Butler (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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:
John Rand / Paul Sullivan

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:

Project team members will continue their operational support of astrophysical research at South Pole Station.

Deploying Team Members:

- Derek Aboltins
- Robert Pernic
- Robert Pernic

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

Cosmological Research With The 10-Meter South Pole Telescope

Program Manager:
Dr. Vladimir Papitashvili

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

ASC POC/Implementer:
Sune Tamm / Paul Sullivan

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

Project Description:

The South Pole Telescope (SPT) conducts cosmological research by measuring the intensity and polarization anisotropy of the cosmic microwave background (CMB) radiation. The first key project was to survey over 2,500 square degrees of the sky with high sensitivity in three wavelength bands centered at 90, 150 and 220 GHz. This survey was completed in November 2011. The goal of the project is to detect all galaxy clusters in this region of the sky through the spectral distortion they impart on the CMB. The distortion is called the Sunyaev-Zel'dovich effect. The observed effect has the remarkable property of being independent of the distance to the cluster. The resulting SPT catalog of galaxy clusters is being used 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. The second key project started in 2012 with the installation of an ultra-sensitive polarization receiver on the SPT. Through measurements of the polarization, researchers will determine the sum of the masses of the neutrinos and either detect or set stringent upper limits on the energy scale of inflation. The detection of the polarization of the background imprinted by inflationary gravitational waves would be an extraordinary achievement for understanding the origin of the Universe.

Field Season Overview:

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

This coming austral summer season for the SPT project will be focused primarily on maintenance and calibration. There are no new major upgrades planned.

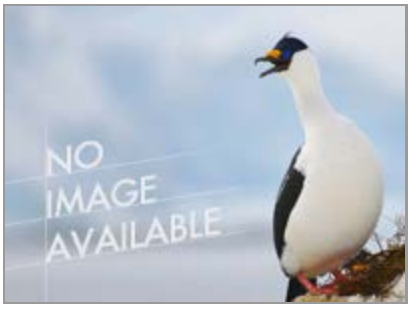
Deploying Team Members:

- Ken Aird
- Bradford Benson
- Lindsey Bleem
- John Carlstrom (PI)
- Thomas Crawford
- Wendeline Everett
- Jason Gallicchio
- Christopher Greer
- James Hrubes
- Nicholas Huang
- Erik Leitch
- Daniel Marrone
- Johanna Nagy
- Tyler Natoli
- John Ruhl (Co-PI)
- Benjamin Saliwanchik
- Kyle Story

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

IRIS/PASSCAL Seismic Support



Program Manager:
Dr. Alexandra Isern

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

ASC POC/Implementer:
Leslie Blank / Elizabeth Kauffman

Mr. Paul Carpenter (Principal Investigator)
pcarpenter@passcal.nmt.edu
http://www.passcal.nmt.edu/content/polar

New Mexico Institute of Mining and Technology
IRIS/PASSCAL Instrument Center
Socorro, New Mexico

Supporting Stations: McMurdo Station
Research Locations: As required to support NSF-funded projects

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:

Each year, PASSCAL supports a variety of NSF-funded science projects while also developing cold station deployment strategies, collaborating with vendors to develop and test equipment rated for -55°C / -67°F, building an equipment pool, and creating a repository for cold station techniques. This year, some of the projects PASSCAL will support include: Susan Schwartz (C-525-M), Terry Wilson/POLENET (G-079), Phil Kyle/MEVO III (G-081-M), Howard Conway (I-210-M).

Deploying Team Members:

- Paul Carpenter (PI)
- Dean Childs

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.

2013-2014 Field Season

Other Information:

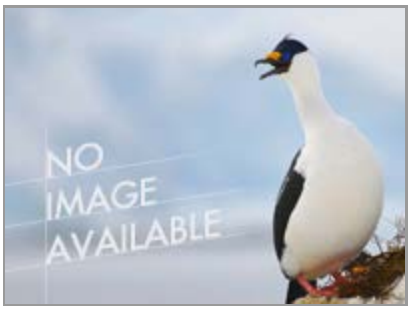
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Jason Hebert (Team Leader)
- Tim Parker

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Physiological And Ecosystem Structure Forcings On Carbon Fluxes In The Southern Ocean Mixed Layer



Program Manager:
Dr. Peter Milne

Event Number: O-405-L
NSF/PLR Award 1043339

ASC POC/Implementer:
Samina Ouda / Adam Jenkins

Dr. Nicolas Cassar (Principal Investigator)
nicolas.cassar@duke.edu
http://www.nicholas.duke.edu/people/faculty/cassar/projects.htm

Duke University
Nicholas School of Environment
Durham, North Carolina

Supporting Stations: ARSV Laurence M. Gould
Research Locations: LTER study site

Project Description:

This project will advance our understanding of Southern Ocean biogeochemistry by investigating some of the physiological and ecosystem mechanisms governing the interannual variability in mixed layer carbon fluxes in the Southern Ocean. More specifically, researchers will address the following postulates: (1) the well documented influence of iron on primary production reverberates onto carbon export production in the Southern Ocean; (2) carbon export production and efficiency are not dependent on the presence of diatoms in the Southern Ocean; (3) grazers enhance carbon export production and efficiency in some regions of the Southern Ocean.

Field Season Overview:

During the annual LTER cruises, LMG14-01, one project participant will install the system and sail the cruise to monitor the equipment. The system comprises an equilibrator inlet mass spectrometer, underway transmissometer, flow cytometer, and FRRF (Fast Repetition Rate Fluorometer). At the end of the cruise the project participant will remove the sampling package from the vessel.

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Lidar Investigation Of Middle And Upper Atmosphere Temperature, Composition, Chemistry, And Dynamics At McMurdo, Antarctica

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-130-M
NSF/PLR Award 0839091

ASC POC/Implementer:
Judy Shiple / Cara Sucher

Dr. Xinzhao Chu (Principal Investigator)
xinzhao.chu@colorado.edu
http://cires.colorado.edu/science/groups/chu/projects/mcmurdo.html

University of Colorado Boulder
CIRES
Boulder, Colorado

Supporting Stations: McMurdo Station
Research Locations: Arrival Heights

Project Description:

This project continues the operation of the Fe Boltzmann lidar installed in the Antarctica New Zealand (ANZ) lab at Arrival Heights near McMurdo Station. The initial instrument installation took place during the 2010-11 summer season. Science objectives include: (1) Exploring the recently discovered thermosphere Fe layers to at least 155 kilometers, deriving neutral temperatures from these layers, and developing a model to quantitatively explain the observations; (2) Developing the climatology of gravity wave potential energy from the lower atmosphere to the middle atmosphere and lower thermosphere, investigating wave dissipation, and characterizing high frequency and inertial gravity waves by combining lidar, radar and imager data with modeling; (3) Studying the mechanisms behind the inter-hemispheric difference and latitudinal dependence of PMC characteristics, exploring the summer-time extreme Fe events and their possible link to polar mesospheric clouds (PMCs), aurora particle precipitation and meteor smoke particles; (4) Developing the climatology of temperature from the surface to 110 kilometers, characterizing its diurnal, seasonal and inter-annual variations, and exploring various mechanisms that affect the thermal balance of the polar atmosphere on both long and short time scales; and (5) Developing the climatology of the mesospheric Fe layers, including their chemical vertical flux, characterize the diurnal, seasonal, inter-annual and

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

solar cycle variations of the Fe layers, and developing a comprehensive model that accurately reproduces the observations.

Field Season Overview:

The four-member team will collect lidar data in both summer and winter seasons -- only one lidar scientist will over winter. The team will refurbish and maintain the lidar system to its optimum status.

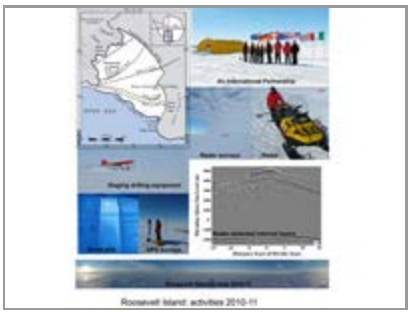
Deploying Team Members:

- Cao Chen
- Xinzhao Chu (PI)
- Jian Zhao

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Deglaciation Of The Ross Sea Embayment - Constraints From Roosevelt Island



Program Manager:
Dr. Julie Palais

Event Number: I-209-M
NSF/PLR Award 0944307

ASC POC/Implementer:
John Rand / Elizabeth Kauffman

Dr. Howard Conway (Principal Investigator)
conway@ess.washington.edu
http://www.ess.washington.edu/Surface/Glaciology/projects/ross_sea_history/

University of Washington
Earth and Space Sciences
Seattle, Washington

Supporting Stations: McMurdo Station
Research Locations: Roosevelt Island

Project Description:

This international ice core drilling project on Roosevelt Island is a partnership with New Zealand, UK, Denmark, Germany and China. Researchers seek to understand past, present and future environmental changes in the Ross Sea sector of West Antarctica. The scientific objectives are to determine histories of climate and ice thickness for Roosevelt Island, and to develop an updated model of the configuration and thickness of the ice in the Ross Sea Embayment during the last glacial maximum. The project's New Zealand partners have started drilling a 750-meter ice core using their new intermediate-depth drill. They expect to complete the drilling in early January 2013. After drilling is complete, researchers will conduct borehole logging measurements and geophysical measurements to characterize spatial variations in ice thickness and surface velocities across the island.

Field Season Overview:

Last season the New Zealand partners completed drilling a 763-meter ice core to the bed. After drilling was complete, efforts by collaborators to get to the island to conduct borehole logging and repeat measurements of vertical position of internal layers were thwarted by bad weather. During the coming season, two field team members will make another attempt to reach the island, at which time they will: (1) remeasure internal layers using BAS phase-sensitive radar to calculate vertical velocities. These measurements will give a direct estimate of thinning; (2) log the

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

borehole (profiles of temperature, sonic velocity and optical stratigraphy).

Deploying Team Members:

- David Clemens-Sewall
- Howard Conway (PI)
- Robert Hawley (Co-PI)
- Richard Hindmarsh

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Submarine Groundwater And Freshwater Inputs Along The Western Antarctic Peninsula

Program Manager:
Dr. Peter Milne

Event Number: O-176-L/P
NSF/PLR Award 1142090

ASC POC/Implementer:
Samina Ouda

Dr. David Corbett (Principal Investigator)
corbettd@ecu.edu
http://ecusstorm.blogspot.com/

East Carolina University
Department of Geological Sciences
Greenville, North Carolina

Supporting Stations: ARSV Laurence M. Gould, Palmer Station
Research Locations: Anvers Island / Western Antarctic Peninsula

Project Description:

This project seeks to determine: (1) submarine groundwater discharge (SGD) fluxes to nearshore environments of the Western Antarctic Peninsula (WAP); (2) the relative contribution of iron and nutrients from this source to the receiving waters compared to fresh meltwater; and (3) the rate of across-shelf mixing that potentially introduce iron and other constituents to offshore waters. The WAP coastal environment provides a unique opportunity to investigate a previously unmeasured source of iron and nutrients to coastal waters and further our understanding of glacial melting and the land-sea interactions that can be applicable to other polar and alpine regions. Researchers will conduct direct and indirect measurements to quantify SGD, discern freshwater flow, quantify iron and nutrient fluxes, and measure offshore transport and mixing.

Field Season Overview:

Fieldwork for this study will be conducted near Palmer Station on the Western Antarctic Peninsula from January to March. Based on an initial survey of 20-30 sites, subsets of 15-20 sampling locations will be set up as shore-normal transects and sampled weekly throughout the field campaign.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Researchers will also collect interstitial water along the shorezone adjacent to the water sampling area. Porewater samples will be collected at 10, 30, 100 centimeter depths, and to maximum penetration near the waterline where sediments allow penetration of the sampling mechanism. In addition, the field team will deploy a “seepage meter” nearshore to measure groundwater discharge directly. Most of the samples will be analyzed on station and some will be returned to the home institution.

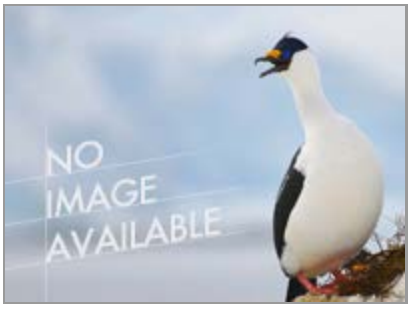
Deploying Team Members:

- David Corbett (PI)
- Jared Crenshaw
- David Hawkins
- Kimberly Null (Co-PI)
- Leigha Peterson
- Richard Peterson
- David Sybert
- Richard Viso
- John Walsh

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Continuation Of The LARISSA Continuous GPS Network In View Of Observed Dynamic Response To Antarctic Peninsula Mass Balance And Required Geologic Constraints



Program Manager:
Dr. Lisa Clough

Event Number: C-515-L
NSF/PLR Award 1143981

ASC POC/Implementer:
Adam Jenkins

Dr. Eugene Domack (Principal Investigator)
edomack@hamilton.edu
http://www.hamilton.edu/larissa/

Hamilton College
Geology
Clinton, New York

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

Project Description:

This project's research objectives are as follows: (1) Upgrade existing continuous GPS (cGPS) facility at Hugo Island (Santa Claus Rock) to fully evaluate the bedrock uplift rate at this far field site and to make sure the data transmission is continuous through the low-light winter season of this strongly maritime station site; (2) Expand the spatial coverage of cGPS stations (vertical uplift constraints) along the northern Antarctic Peninsula and add to them to the existing LARISSA (POLENET) network; (3) Evaluate the deglacial history (radiocarbon chronology) from marine sediment records obtained from the western drainage of the Bruce Plateau Ice Dome, by collecting cores along the Graham Land Coast and Gerlache Strait; and (4) Expand the paleoenvironmental utility of marine proxies for paleotemperature as derived from biomarker compounds and constrained calibration of the proxies from modern settings.

Field Season Overview:

Eight participants will deploy onboard LMG13-11 for five science days of ship time aboard the ARSV Laurence M. Gould. Their tasking includes installing new cGPS stations and upgrading existing ones, obtain sediment cores (Kasten and jumbo pisten) in the Hugo Island Trough, in the vicinity of

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Barilari Bay, and in the basins between the Palmer Deep and Grandidier Channel. In addition they will complete a yo-yo camera transect at a few of the coring sites, and will collect water samples using a McLean pump and CTD.

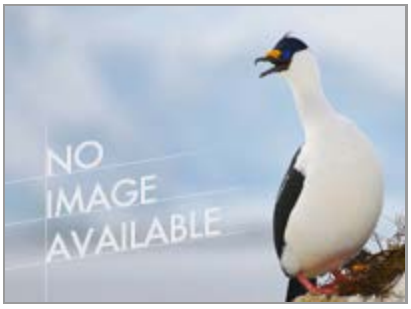
Deploying Team Members:

- Theodore Clements
- Eugene Domack (PI)
- Brad Rosenheim
- Amelia Shevenell
- Tasha Snow
- Rebecca Straw
- Christina Subt
- Isabelle Weisman

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

McMurdo LTER - Lakes: Increased Connectivity In A Polar Desert Resulting From Climate Warming: McMurdo Dry Valley LTER Program



Program Manager:
Dr. Lisa Clough

Event Number: B-511-M
NSF/PLR Award 1115245

ASC POC/Implementer:
Sune Tamm / Cara Sucher

Dr. Peter Doran (Principal Investigator)
pdoran@uic.edu
http://www.mcmlter.org

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

Supporting Stations: McMurdo Station
Research Locations: Dry Valleys

Project Description:

In 1980, the NSF funded the US Long Term Ecological Research (LTER) Network, a collaborative effort involving more than 1,800 scientists and students. The McMurdo LTER is one of 26 sites that investigates ecological processes over long temporal and broad spatial scales. The McMurdo LTER program is an inter-disciplinary and multi-disciplinary study of the aquatic and terrestrial ecosystems in the ice-free McMurdo Dry Valleys. This six-year award cycle comprises seven collaborative projects: Andrew Fountain B-504, John Priscu B-505, Diane McKnight B-506, Diana Wall B-507, Jeb Barrett, B-508, Berry Lyons B-509, and Peter Doran B-511. This project is the "Lakes 2" component of the McMurdo LTER. Its primary focus is the physical limnology of the McMurdo Dry Valley lakes. This year's goals are: (1) to upgrade and maintain long-term automated lake monitoring equipment; (2) carry out manual lake hydrologic balance measurements (lake level and ablation); (3) measure the movement of surface ice using high-precision GPS; (4) characterize signatures and patterns of benthic productivity (using SCUBA); and (5) collect sediment and water samples for a suite of geochemical experiments.

Field Season Overview:

Three participants will be based at the established field camps—Fryxell,

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.

2013-2014 Field Season
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Bonney, Hoare—and make day trips by helicopter to Wright and Victoria Valleys. With UNAVCO's assistance, they will also survey established ablation stakes in the Taylor Valley.

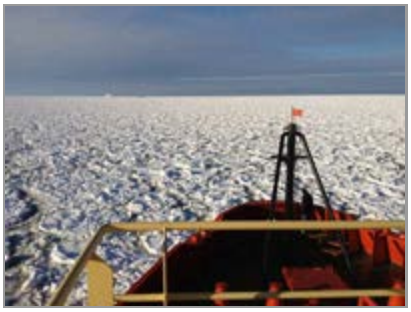
Deploying Team Members:

- Kyle Cronin
- Peter Doran (PI)
- Peter Doran (PI)
- Hilary Dugan (Team Leader)
- Luke Winslow

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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



Program Manager:
Dr. Charles Amsler

Event Number: B-045-L/P
NSF/PLR Award 0823101

ASC POC/Implementer:
Samina Ouda / Adam Jenkins

Dr. Hugh William Ducklow (Principal Investigator)
hducklow@ldeo.columbia.edu
http://pal.lternet.edu/

Columbia University
Lamont Doherty Earth Observatory
Palisades, New York

Supporting Stations: ARSV Laurence M. Gould, Palmer Station
Research Locations: LTER Study Area / Palmer Station

Project Description:

Microorganisms form an important ecosystem component at the base of Antarctic foodwebs and catalyze critical biogeochemical transformations in the carbon, nitrogen and other elemental cycles. This project documents long-term trends variability of bulk bacterial and Archaeal biomass and production rates in space and time. Researchers seek to understand the effects of climate change and ecosystem response on dissolved oxygen, organic and inorganic carbon—key biogeochemical properties. The Southern Ocean is an important sink for atmospheric carbon dioxide and studies of the metabolically active gases can clarify the linkages among biological and physical processes affecting oxygen storage. Microbial oxidation of dissolved organic compounds is an important flow in marine ecosystems and provides a link between microbial functioning and oxygen/carbon dioxide cycles.

Field Season Overview:

At Palmer Station the group will continue to sample the Thorium-234 deficit at a reduced level (weekly samples). They will perform several incubation experiments to test specific hypotheses about microbial processes and organic matter cycling. Project participants will also sail onboard the annual 28-day LTER cruise onboard the LMG from January 1 to February 15th. Vessel-based activities include collecting samples by trawling, conducting

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

multiple CTD casts, deploying gliders and servicing five physical oceanographic moorings. A sediment trap mooring will be recovered and re-deployed at the LTER site near Hugo Island. Three- to five-day field camps will take place on Avian and Charcot Islands. Zodiac support is required for deploying to these field sites, as time and ice conditions permit. During the time at process stations, Zodiac support will be allocated for glider operations and to deploy satellite tags on baleen whales, collect biopsy samples, and individual photo-ID data. Two fully-equipped radioisotope vans will be used for C14 and for 3H.

Deploying Team Members:

- Collins James
- Fiona Jevon
- Sebastian Vivancos

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Studies Of Solar Wind - Magnetosphere Interactions Using Observations Of ULF Waves At An Extensive Ground Array At High Latitudes

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-102-M/S
NSF/PLR Award 1142045

ASC POC/Implementer:
Samina Ouda / Cara Sucher / Paul Sullivan

Dr. Mark J Engebretson (Principal Investigator)
engebret@augsburg.edu
http://space.augsburg.edu

Augsburg College
Department of Physics
Minneapolis, Minnesota

Supporting Stations: McMurdo Station, South Pole Station
Research Locations: Arrival Heights / Cusp Lab

Project Description:

This project is a continuation of current studies using search coil magnetometers already installed and operating at South Pole Station's Cusp Lab and Arrival Heights at McMurdo Station, as well as at Halley (a UK base in Antarctica) and two sites in the Arctic. Researchers use time-series data from magnetometers at these and other Antarctic sites (including the PENGUIn Automated Geophysical Observatories), often in conjunction with data from other Arrival Heights instruments, to study the dynamics of the Earth's ionosphere and magnetosphere.

Field Season Overview:

No project participants deploy. Staff Research Associates (RAs) perform routine monitoring of the equipment and computers.

Return to Index

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.

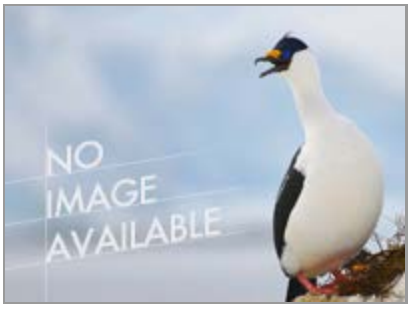
2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

Element Composition Of High-Energy Solar Particles



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-118-S
NSF/PLR Award 0838839

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

Dr. Paul Evenson (Principal Investigator)
evenson@udel.edu
http://neutronm.bartol.udel.edu

University of Delaware
Physics and Astronomy
Newark, Delaware

Supporting Stations: South Pole Station
Research Locations: B2 Science Building

Project Description:

This project is part of the University of Delaware's Bartol Research Institute neutron monitor program. One of the program's 11 monitors is installed at the South Pole. This season, researchers will focus on enhancing the ability of IceTop—the surface component of the IceCube neutrino observatory—to determine element composition of solar energetic particles in the energy range of 1-10 Giga-electron-Volts (GeV). Using many components of the former South Pole neutron monitor, researchers will construct an enhanced suite of neutron detectors whose response functions (primarily due to hadrons) have a different dependence on energy and element composition from those of IceTop (primarily due to photons and leptons).

Field Season Overview:

One participant will deploy to test and repair the detectors as needed. Upgraded firmware will be installed in the recording system to increase data value by adding "multiplicity" recording and by synchronizing the data stream directly to GPS time.

Deploying Team Members:

- Paul Evenson (PI)

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.

2013-2014 Field Season

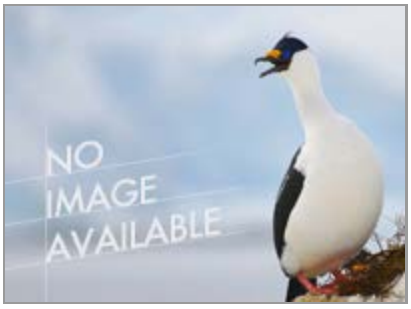
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

McMurdo LTER - Glaciers: Increased Connectivity In A Polar Desert Resulting From Climate Warming: McMurdo Dry Valleys LTER Program



Program Manager:
Dr. Lisa Clough

Event Number: B-504-M
NSF/PLR Award 1115245

ASC POC/Implementer:
Sune Tamm / Cara Sucher

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

Portland State University
Geology
Portland, Oregon

Supporting Stations: McMurdo Station
Research Locations: Dry Valleys

Project Description:

In 1980, the National Science Foundation (NSF) funded the US Long Term Ecological Research (LTER) Network, a collaborative effort involving more than 1,800 scientists and students. The McMurdo LTER is one of 26 sites that investigates ecological processes over long temporal and broad spatial scales. The McMurdo Station LTER program is an inter-disciplinary and multi-disciplinary study of the aquatic and terrestrial ecosystems in the ice-free McMurdo Dry Valleys. This six-year award cycle comprises seven collaborative projects: Andrew Fountain B-504, John Priscu B-505, Diane McKnight B-506, Diana Wall B-507, Jeb Barrett, B-508, Berry Lyons B-509, and Peter Doran B-511. This project is the “glaciers and meteorology” component of the McMurdo LTER. Researchers will continue measurements of physical properties of Dry Valley glaciers and meteorology, with special emphasis on LTER core research areas.

Field Season Overview:

Our support requirements are similar to previous seasons. We will occupy the Lake Hoare camp from Nov 4 to Jan 30. We will make day trips to the Commonwealth, Howard, Canada, and Taylor glaciers to conduct mass balance measurements and biological studies. Day trips will also be made to various meteorological stations in Taylor, Wright, Victoria, Garwood and

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Miers valleys. Several sensors and dataloggers on the meteorological stations will be swapped out and sent back to the manufacture for recalibration as in previous seasons. The replacement meteorological sensors and dataloggers will remain in the field for 2 to 5 years. Day trips will also be made to Budda Lake in Garwood Valley to monitor the hydrologic conditions. Day trips will be made to upper Taylor, Wright, and Victoria Valleys to acquire glacier repeat photographs at established locations.

Deploying Team Members:

- Hassan Basagic
- Andrew Fountain (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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

Program Manager:
Dr. Lisa Clough

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

ASC POC/Implementer:
Samina Ouda / Jamee Johnson

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: LTER Study Site / Palmer Station

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:

Based at Palmer Station from October to April, field team members will use Zodiacs to make day trips and possible overnights within the local boating area. 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. In the lab, researchers will process GIS and telemetry data and analyze diet samples. During LTER's annual cruise aboard the LMG, the "birders" group will establish a field camp of several days duration on Avian Island to census

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

and map Adélie Penguin colonies, obtain diet samples and instrument birds with satellite transmitters and dive-depth recorders. Onboard the vessel they will conduct seabird observations from the bridge. If the conditions and logistics allow, a field party may disembark at stops between Anvers Island and Marguerite Bay to conduct penguin diet sampling.

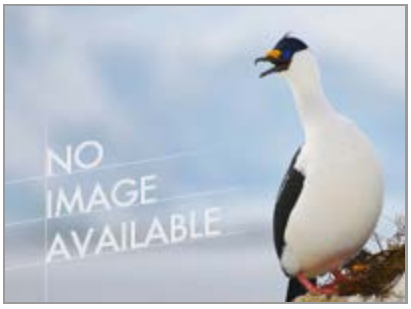
Deploying Team Members:

- Shawn Farry
- Bill Fraser (PI)
- Donna Patterson-Fraser

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

DIMES Finestructure Profiling Floats: Analysis And Enhancement Of The EM-APEX Array Upstream And Downstream Of Drake Passage



Program Manager:
Dr. Peter Milne

Event Number: O-409-L
NSF/OCE Award 1129564

ASC POC/Implementer:
Addie Coyac

Dr. James Bannister Girton (Principal Investigator)
girton@apl.washington.edu
http://dimes.ucsd.edu

University of Washington
Seattle, Washington

Supporting Stations: ARSV Laurence M. Gould
Research Locations: Drake Passage / Scotia Sea

Project Description:

Southern Ocean mixing has the potential to play an important role in the Meridional Overturning Circulation, but considerable uncertainty still exists as to the locations and processes responsible for the most mixing. The DIMES (Diapycnal and Isopycnal Mixing Experiment in the Southern Ocean) tracer release, together with 10 EM-APEX profiling floats (an Argo float with Sanford-type electromagnetic velocity measurement) and ship microstructure surveys, has quantified the mixing in the southeast Pacific Ocean west of the Drake Passage, revealing modestly elevated mixing due to wind-generated near-inertial waves, but has yet to extend fully into the high-energy environments of Drake Passage and the Scotia Sea. The shear measurements of the EM-APEX have proven a valuable tool for the characterization of the Southern Ocean's internal wave field (the "finestructure" seen in velocity and density profiles with wavelengths between 10 and 1000 meters). This inclusion of shear is particularly necessary given the predominance of near-inertial waves with relatively weak signature in density, i.e., high shear-strain ratios. The combination of high-quality shear and density profiles over the upper 2000 meters and sustained duration makes the EM-APEX an economical choice for extending these types of measurements into the less well-sampled regions and times of the year.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Field Season Overview:

This project will deploy 5 EM-APEX profiling floats to extend the coverage of the current observational array within Drake Passage and the Scotia Sea and fill gaps in the seasonal cycle.

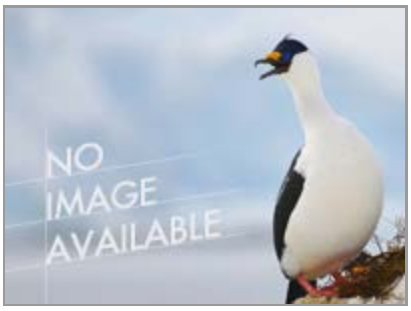
Deploying Team Members:

- James Girton (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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



Program Manager:
Dr. Julie Palais

Event Number: I-189-M
NSF/PLR Award 0852697

ASC POC/Implementer:
Leslie Blank

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: McMurdo Station airfield, Whillans and Bindschadler ice streams

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

Field Season Overview:

A team of six people will install the CReSIS radar equipment on a Basler aircraft, including the ultra-wideband VHF/UHF radar system and fuselage-mounted antenna array, the Snow Radar, the Ku-band Altimeter, and potentially a Google-provided digital camera. A six-section Rac tent equipped with heaters, AC power, internet, and telephone access will be setup at the Sea Ice Runway for use by the team primarily during aircraft configuration. After completing the equipment installation, the team will conduct check flights in the vicinity of McMurdo Station to ensure that all systems are working properly. In late November, the I-189 team and any cargo that was not installed on the Basler will deploy on an LC-130 aircraft

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

to the WISSARD SLW field camp. They will conduct airborne-radar survey flights over the Whillans and Bindschadler Ice Streams as well as data processing activities from the field camp. The team will conduct approximately 16 survey flights. In late December, the I-189 team will return on an LC-130 aircraft to McMurdo Station (Pegasus).

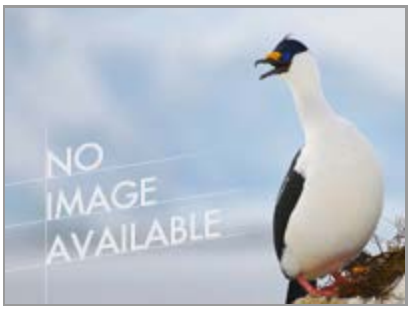
Deploying Team Members:

- Carlton Leuschen (Co-PI)
- John Paden
- Fernando Rodriguez-Morales
- Zongbo Wang
- Aaron Wells
- Jie Yan

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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



Program Manager:
Dr. Julie Palais

Event Number: I-188-M
NSF/PLR Award 0852697

ASC POC/Implementer:
Leslie Blank

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: Siple Coast Ice Streams

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:

A three-person team will fly from the main Cresis camp on Whillans Ice Stream (B) to various locations on the Ross Ice Shelf and grounded ice sites. The radar system will be used to accurately measure the ice thickness, and then the same sites will be re-measured after a few weeks. At each site a seismic line will be occupied to determine water thickness. Time on site will be a few hours. In between these week-long periods of flying the I-188 team will conduct ground based seismic and radar work around the main CReSIS camp.

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.

2013-2014 Field Season

Other Information:

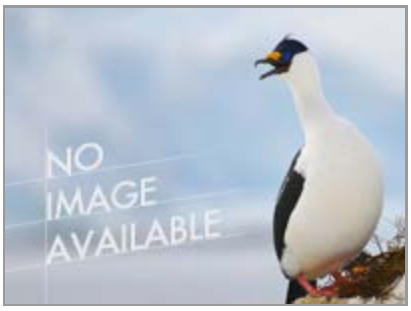
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Sridhar Anandakrishnan (Co-PI)
- Peter Burkett

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Center For Remote Sensing Of Ice Sheets (CReSIS) - Unmanned Aerial System (UAS) Operations



Program Manager:
Dr. Julie Palais

Event Number: I-185-M
NSF/PLR Award 0852697

ASC POC/Implementer:
Leslie Blank

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: Subglacial Lake Whillans area

Project Description:

Fine-resolution, Unmanned Aerial System (UAS) ice-penetrating radar surveys of the Siple Coast ice streams, most notably Whillans (B), are the focus of the Center for Remote Sensing of Ice Sheets (CReSIS) airborne missions in 2013. The goal of these measurements is to improve bed and surface topographic maps, leading to a more accurate assessment of the hydropotential field. Previous airborne-radar surveys from which bed conditions were measured years ago likely have large uncertainties because of the less accurate navigational data available at that time. By flying new lines with closer spacing that also cross these historic survey lines, researchers can examine important bed features in great detail and use the old data to expand our analysis.

Field Season Overview:

The six-person team will travel by LC-130 to the CReSIS SLW field camp in west Antarctica. They will conduct test flights with the Yak-54 UAS (unmanned aerial system) and potentially with the Meridian UAS. The flight test program begins with line-of-sight (LOS) flights to confirm the proper operation of the aircraft system. The team will then conduct airborne-radar survey flights with the Yak-54 UAS of science targets on the Whillans Ice Stream within line-of-sight from the CReSIS SLW field camp, focusing first on targets within a 5 mile radius, but moving toward the goal of over-the-horizon (OTH) flights up to a 10 mile radius. The team may also conduct

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

airborne-radar survey flights with the Meridian UAS of science targets on Whillans within 5, 10, and 50 miles from the field camp, starting with LOS flights and moving to OTH flights. To later process the radar data, the team will make use of the differential GPS data from the GPS base station at camp.

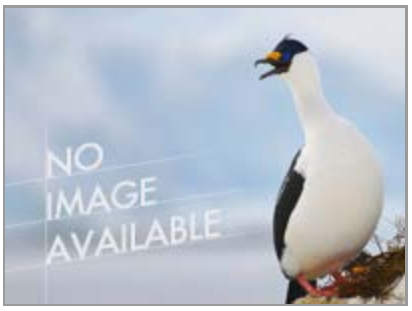
Deploying Team Members:

- Nicholas Brown
- Richard Hale (Co-PI)
- Shahriar Keshmiri (Co-PI)
- Ryan Lykins
- Thomas Stastny

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Genetic Connectivity And Biogeographic Patterns Of Antarctic Benthic Invertebrates



Program Manager:
Dr. Lisa Clough

Event Number: B-281-L
NSF/PLR Award 1043745

ASC POC/Implementer:
Adam Jenkins

Dr. Kenneth Halanych (Principal Investigator)
ken@auburn.edu
http://www.auburn.edu/antarctica/

Auburn University
Auburn, Alabama

Supporting Stations: ARSV Laurence M. Gould
Research Locations: Western Antarctic Peninsula, Bellingshausen Sea

Project Description:

The overarching goal of this project is to provide an evolutionary understanding of how marine benthic organisms (including their larvae) are genetically structured and physically distributed in the Western Antarctic. This information will have direct implications for understanding past and future range shifts of organisms. In particular, researchers will examine larval distributions and assess if distributions are consistent with patterns of genetic connectivity within Antarctic waters. To this end, they will employ an integrative approach that focuses on the genetic signatures of historical gene flow or isolation.

Field Season Overview:

Field team members will sail on the ARSV Laurence M. Gould from Punta Arenas, Chile to Marguerite Bay and the Bellingshausen Sea. They will conduct sampling along the ice edge using a Blake trawl, an Agassiz trawl, a rock dredge and a box corer. They will also use a Yo-Yo camera to conduct bottom transects.

Deploying Team Members:

- Kenneth Halanych (PI)
- Andrew Mahon (Co-PI)

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.

2013-2014 Field Season

Other Information:

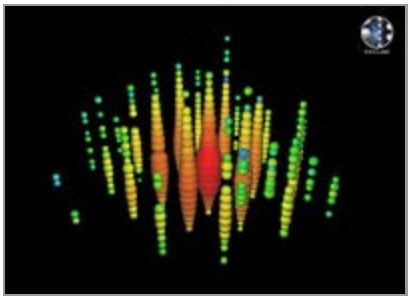
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Scott Santos (Co-PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

IceCube Operations And Maintenance



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-333-S
NSF/PLR Award 0937462

ASC POC/Implementer:
Judy Shiple / Leah Street / Paul Sullivan

Dr. Francis Halzen (Principal Investigator)
halzen@icecube.wisc.edu
http://icecube.wisc.edu

University of Wisconsin Madison
Physics Department
Madison, Wisconsin

Supporting Stations: South Pole Station
Research Locations: Ice Cube Counting Laboratory

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:

Field team member will deploy to Amundsen-Scott South Pole Station. On-Ice activities for the 2013-14 austral summer season include maintenance and operations improvements to the existing infrastructure. This work will take place primarily in the IceCube Counting Laboratory (ICL).

Deploying Team Members:

- Gonzalo Arevalo
- Ralf Auer
- Vladimir Brik
- Obed Castillo
- Michael DuVernois
- Benjamin Eberhardt

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Jacob Feinzeig
- David Glowacki
- Kael Hanson
- John Kelley
- Donald La Dieu
- Andrew Laundrie
- John Richards
- Mike Richman
- James Roth
- Perry Sandstrom
- Tania Wood

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

E & B Experiment (EBEX)

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-146-M
NASA/NSF Agreement

ASC POC/Implementer:
John Rand / Brian Johnson

Dr. Shaul Hanany (Principal Investigator)
hanany@umn.edu
http://www.physics.umn.edu/cosmology/ebex

University of Minnesota
Minneapolis, Minnesota

Supporting Stations: McMurdo Station
Research Locations: LDB Facility at Williams Field

Project Description:

EBEX (E & B Experiment) is a balloon-borne polarimeter designed to measure the intensity and polarization of the cosmic microwave background (CMB) radiation. EBEX will search for signals from the birth of the Universe and from gravitational bending of CMB radiation as it traverses the Universe enroute to the telescope. Measurements of the polarization of the CMB could probe an inflationary epoch that took place shortly after the big bang and significantly improve constraints on the values of several cosmological parameters. EBEX will also provide critical information about the level of polarized galactic dust that will be necessary for future CMB polarization experiments.

Field Season Overview:

NASA flew this payload during the 2012-13 field season. Support this year is for payload recovery. A crew of four will deploy to Antarctica to retrieve the balloon payload from it's remote landing site and return it to McMurdo Williams Field, where it will be prepared for shipment back to North America.

Deploying Team Members:

- Asad Aboobaker
- Michele Limon

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Antarctic Search For Meteorites (ANSMET)

Program Manager:
Dr. Mark Kurz

Event Number: G-058-M
NASA/NSF Agreement

ASC POC/Implementer:
Sune Tamm / Meghan Walker

Dr. Ralph Harvey (Principal Investigator)
rph@cwru.edu
http://www.case.edu/ansmet

Case Western Reserve University
Department of Geological Sciences
Cleveland, Ohio

Supporting Stations: McMurdo Station
Research Locations: Miller Range

Project Description:

Since 1976, the Antarctic Search for Meteorites (ANSMET) has found more than 17,000 specimens. Meteorites do not fall preferentially on Antarctica; they're just easier to find on the white snow- and ice-scapes and because the ice transport and ablation process leads to accumulation in certain areas. One of those areas is the extreme southern end of the Transantarctic Mountains. This year, the ANSMET reconnaissance team will explore the Graves Nunataks and Upper Robison Glacier region and the Amundsen and Devil's Glacier region. Spanning about 100 kilometers from end to end, these areas are about 200 kilometers from South Pole Station and about 900 kilometers from McMurdo Station.

Field Season Overview:

Eight field team members will live in Scott tents and conduct searches on snowmobiles. LC130 will take the team and its gear Central Trans Antarctic Mountain (CTAM) camp and then they will be shuttled by Twin Otter out to Miller Range. Once in the field, the team will generally be self-sufficient, with at least two resupply flights in mid-season. The field season is expected to last about six weeks.

Deploying Team Members:

- Stephen Ballou

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.

2013-2014 Field Season

Other Information:

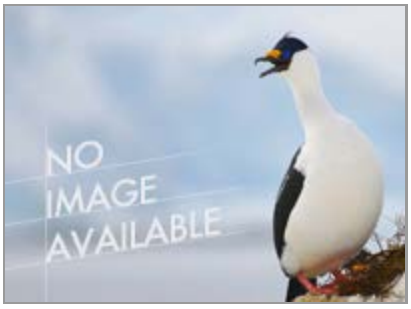
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Barbara Cohen
- Ralph Harvey (PI)
- Manavi Jadhav
- James Karner (Co-PI)
- Alexander Meshik
- Jani Radebaugh
- John Schutt

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Ocean Acidification Seascape: Linking Natural Variability And Anthropogenic Changes In PH And Temperature To Performance In Calcifying Antarctic Marine Invertebrates



Program Manager:
Dr. Charles Amsler

Event Number: B-134-M
NSF/PLR Award 1246202

ASC POC/Implementer:
Samina Ouda / Cara Sucher

Dr. Gretchen Hofmann (Principal Investigator)
hofmann@lifesci.ucsb.edu
http://hofmannlab.msi.ucsb.edu/

University of California Santa Barbara
Department of Ecology, Evolution, Marine Biology
Santa Barbara, California

Supporting Stations: McMurdo Station
Research Locations: Cape Evans / McMurdo Jetty

Project Description:

The researcher's objective this season is to retrieve and re-deploy SeaFET sensors at field site locations in McMurdo Sound. These sensors continuously record seawater pH and were deployed last December by USAP divers. The replacement sensors will record until next austral summer field season when they will again be replaced.

Field Season Overview:

Our field requirements will be minimal this season: we are only sending one person to deal with the sensors. This individual will need to work with the divers and accompany them onto the sea ice in order to facilitate the sensor swap. We will need some access to bench space so that the sensors can be assembled and tested. The preparation process also requires that we submerge them in water for a few days before deployment so access to a seawater table to a tank will be needed.

Deploying Team Members:

- Lydia Kapsenberg

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.

2013-2014 Field Season

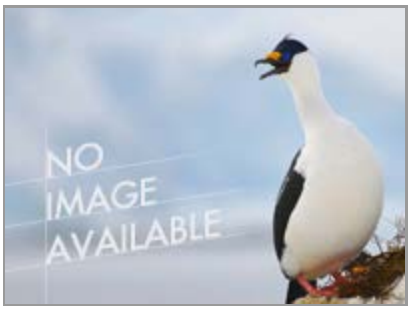
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Operation And Maintenance Of A CTBT Radionuclide Monitoring Station At Palmer Station



Program Manager:
Mr. Pat Smith

Event Number: T-998-P
NSF/OPP CTBTo MOA

ASC POC/Implementer:
Philip Spindler / Samina Ouda

Mr. Bouvard NMI Hosticka (Principal Investigator)
bh@virginia.edu
http://www.ctbto.org

University of Virginia
Charlottesville, Virginia

Supporting Stations: Palmer Station
Research Locations:

Project Description:

This project services and calibrates the automated radionuclide air-particulate monitoring system in the International Monitoring Station (IMS) building (Terra Lab) at Palmer station.

Field Season Overview:

We require continuing local support by the Palmer Station RA for the installed monitoring equipment as well as one site visit per year of an engineer or scientist for maintenance and upgrades to the equipment. Logistical support involves shipping supplies such as filter media and replacement equipment to the station as well as sending the samples on a quarterly basis to Vienna Austria. There are occasionally single samples that must be sent to a laboratory elsewhere is the world for reanalysis. The Annual supplies consist of about 50 pounds of filter media. We do not need to send UPS batteries to the station this year

Deploying Team Members:

- Bouvard Hosticka (PI)

Return to Index

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.

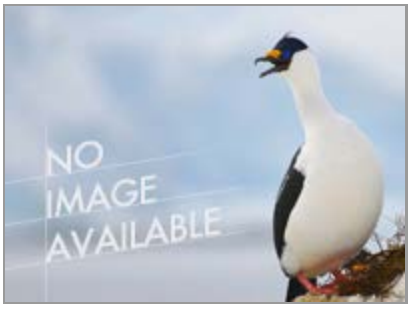
2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

Dry Valley Seismic Project



Program Manager:
Dr. Mark Kurz

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

ASC POC/Implementer:
John Rand / Jessica Jenkins

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:

Participants will travel by helicopter to field camps at Bull Pass and Mount Newall where they will refuel the diesel generators, perform annual engine, electrical, and technical, maintenance and inspections

Deploying Team Members:

- William Bach (Team Leader)
- Erik Cornelison
- Austin Dohm
- Derek Schler
- Nathan Shaw
- Justin Turner

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.

2013-2014 Field Season

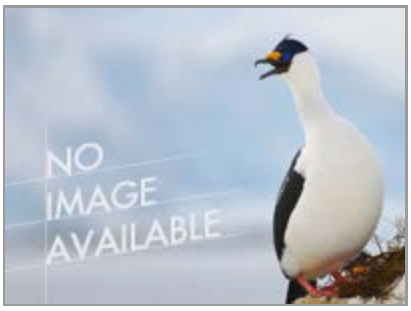
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Temporal Variability In Natural And Anthropogenic Disturbance Of McMurdo Station



Program Manager:
Dr. Polly Penhale

Event Number: B-518-M
NSF Agreement

ASC POC/Implementer:
Addie Coyac / Cara Sucher

Dr. Andrew Klein (Principal Investigator)
klein@geog.tamu.edu
http://antarctica.geog.tamu.edu

Texas A & M University
Department of Geography
College Station, Texas

Supporting Stations: McMurdo Station
Research Locations: McMurdo Station local sites

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

Field Season Overview:

Field team members will be based in McMurdo and travel to local sites to take measurements, record observations, and take samples. They will have

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

support from UNAVCO for a backpack GPS unit, from contract divers for sample collecting, from MEC for pooled vehicle use, and from Crary Lab for space in which to perform toxicity tests, a staging area, and office space.

Deploying Team Members:

- Andrew Klein (PI)
- Terence Palmer
- Stephen Sweet
- Mary Tilton

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Imaging The Beginning Of Time From The South Pole: Observations With The Full SPUD Array

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-149-S
NSF/PLR Award 1145172

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

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

Harvard University
Cambridge, Massachusetts

Supporting Stations: South Pole Station
Research Locations: MAPO (Martin A. Pomerantz Observatory)

Project Description:

SPUD (Small Polarimeter Uprade for DASI) is a next-generation instrument following on from the BICEP (Background Imaging of Cosmic Extragalactic Polarization) and BICEP2 program. It places multiple receivers similar to BICEP2 on the telescope mount originally built for the Degree Angular Scale Interferometer (DASI) experiment. The research team's objective is the same as BICEP2 - to attempt to measure B-mode polarization caused by gravity waves spawned in the first tiny fraction of a second after the big bang by the process of "inflation." Inflation is the favored cosmogenic model, and finding direct "smoking gun" evidence for it is one of the highest priorities in cosmology today. SPUD increases sensitivity over BICEP2 by increasing the number of detectors and by expanding to other frequencies to identify and mitigate possible foreground contamination.

Field Season Overview:

This season a team of 15 will conduct season-ending calibrations on the receivers. All five receivers will then be taken down to the lab and serviced. In mid November a sixth receiver will arrive on station to replace an existing one. The other four existing receivers will be disassembled and a subtle optical problem which has recently been identified will be addressed.

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.

2013-2014 Field Season

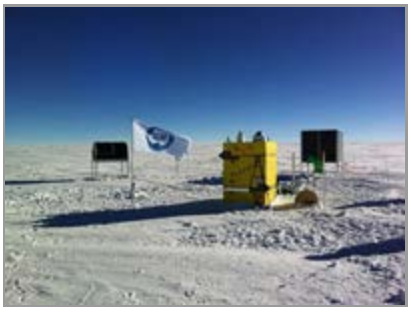
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Zeeshan Ahmed
- Colin Bischoff
- Immanuel Buder
- Eric Bullock
- Stefan Fliescher
- Howard Hui
- Kirit Karkare
- John Kovac (PI)
- Martin Lueker
- Hien Nguyen
- Clement Pryke (Co-PI)
- Robert Schwarz
- Sarah Stokes
- Grant Teply
- Abigail Vieregg

Return to Index

High Elevation Antarctic Terahertz (HEAT) Telescopes For Dome A And Ridge A



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-364-S
NSF/PLR Award 0944335

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

Dr. Craig Kulesa (Principal Investigator)
ckulesa@email.arizona.edu
http://soral.as.arizona.edu/heat/

University of Arizona Tucson
Steward Observatory
Tucson, Arizona

Supporting Stations: South Pole Station
Research Locations: Ridge A

Project Description:

This project is a joint US/Australian venture to build and deploy a fully automated, 0.6-meter terahertz astronomical observatory for remote operation at Ridge A – the highest elevation on the Antarctic Plateau. High Elevation Antarctic Terahertz (HEAT) will observe in the 350 micron (0.8 THz) through 150 micron (2 THz) atmospheric windows, the latter of which is unique to Ridge A. HEAT will initiate a Galactic Plane survey of atomic carbon, ionized carbon and carbon monoxide to explore the Galaxy-wide evolution of gas and stars, the formation and destruction of interstellar clouds and the dynamics of star-forming regions. This will be the largest survey of its kind and will serve as a pathfinder for future astronomical observatories on the Plateau. The telescope will be mounted on top of the Australian University of New South Wales' PLATeau Observatory (PLATO) module that provide housing for the instrument's electronics and diesel engines used to generate electrical power during winter observations. PLATO and the telescope will operate autonomously for over a year at a time, with commands and data being transmitted from and to the home institutions via Iridium satellites daily.

Field Season Overview:

This austral summer researchers will deploy the second generation HEAT telescope and refuel and refurbish the Plateau Observatory (PLATO). The

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

field party of American and Australian grantees will be based at Amundsen-Scott South Pole Station where they will acclimate while assembling and testing the new instrument. A lesser number of team members will travel to Ridge A by Twin Otter for a 2-4 day field deployment intended to maximize the probability of success given the remoteness of the site, attention to safety, and accounting for difficult working conditions at altitude.

Deploying Team Members:

- Craig Kulesa (PI)
- David Lesser
- Abram Young

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Mount Erebus Volcano Observatory: Operations, Science And Outreach (MEVO-OSO)

Program Manager:
Dr. Alexandra Isern

Event Number: G-081-M
NSF/PLR Award 1142083

ASC POC/Implementer:
John Rand / Jessica Jenkins

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 is the most-active volcano in Antarctica. It is unique in containing a persistent convecting lava lake of anorthoclase phonolite magma. Degassing of the lake and underlying magmatic system emits volcanic gases into the pristine Antarctic atmosphere. Because of the excellent access and the nature of the small Strombolian eruptions, Mount Erebus has become a model volcano for volcanological studies. This project continues long-term surveillance using geophysical, geodetic and geochemical observatories and measures the seismicity, infrasound, gas emissions and deformation using GPS observations of the volcano.

Field Season Overview:

In mid November researchers will service, by helicopter, an array of five seismometers installed around the flanks of Erebus and on Mount Bird. A large team will occupy the Lower Erebus Hut (LEH) for four weeks and use it as a base of operation for work on Erebus and surrounds. A tent camp to accommodate acclimatization will be established at Fang Glacier. Skidoos will be used for travel in the summit area of Erebus.

Deploying Team Members:

- Timothy Burton

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.

2013-2014 Field Season

Other Information:

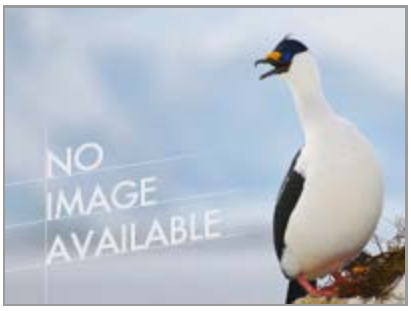
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Aaron Curtis
- Phillip Kyle (PI)
- Kenneth Mankoff
- Kevin Mickus
- Clive Oppenheimer (Co-PI)
- Nial Peters
- Emily Randall

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Outstanding Questions On Auroral Radiation Fine Structure



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-128-S
NSF/PLR Award 1043230

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

Dr. James LaBelle (Principal Investigator)
jlabelle@einstein.dartmouth.edu
http://www.dartmouth.edu/~spacephy/

Dartmouth College
Department of Physics & Astronomy
Hanover, New Hampshire

Supporting Stations: South Pole Station
Research Locations: B2 Science Building / V8 vault

Project Description:

Energetic plasma interacting with the geomagnetic field in the near-Earth space (geospace) environment emits electromagnetic waves across the radio spectrum. Ground-based measurements of these waves are used as diagnostic tools to investigate various processes in geospace. This investigation takes advantage of an existing network of radio receivers at AGO sites (Weatherwax A-112) located from -70 to -85 degrees of invariant geomagnetic latitude and operating in the frequency range from extra-low to high frequencies. The Antarctic continent is ideally suited for these types of natural radio-wave experiments since it is largely devoid of such anthropogenic electromagnetic interference as power-line harmonics and radio-frequency broadcast transmissions. Researchers will focus on studies of three geophysically important plasma waves. Chorus waves are believed to be a major driver of radiation belt electron acceleration and loss. The other two waves, auroral hiss and auroral kilometric radiation (AKR), are generated in the auroral acceleration region and have the potential to be used for remote sensing of this complex and poorly understood near-Earth region.

Field Season Overview:

For the direction-finding receiver, data collection occurs during the austral winter from March to September. Using the Internet, it is controlled remotely

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.

2013-2014 Field Season

Other Information:

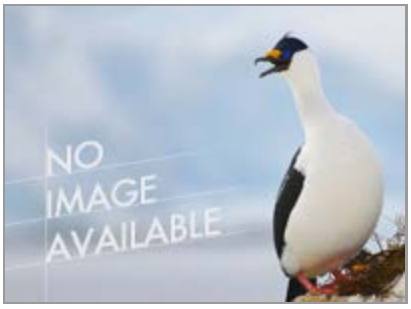
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

from Dartmouth. The swept frequency receiver collects data year-round. This instrument automatically transfers its data to the central server at South Pole for onward transfer to the US. The contract Research Associate (RA) monitors and maintains the equipment locally.

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Application Of The AGO Network To Energy Transfer In The Radiation Belts And Remote Sensing Of Auroral Plasma Processes



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-125-S
NSF/PLR Award 1141817

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

Dr. James LaBelle (Principal Investigator)
jlabelle@einstein.dartmouth.edu
http://www.dartmouth.edu/~spacephy/labelle_group

Dartmouth College
Department of Physics & Astronomy
Hanover, New Hampshire

Supporting Stations: South Pole Station
Research Locations: AGO sites

Project Description:

This project addresses questions about energy transfer in the Earth's radiation belts and auroral plasma physics. Energetic plasma interacting with the geomagnetic field in the near-Earth space (geospace) environment emits electromagnetic waves across the radio spectrum, and ground-based measurements of these waves are used as diagnostic tools to investigate various processes in geospace. This investigation takes advantage of an existing network of radio receivers at AGO sites (Weatherwax A-112) located from -70 to -85 degrees of invariant geomagnetic latitude and operating in the frequency range from extra-low to high frequencies. The Antarctic continent is ideally suited for these types of natural radio wave experiments since it is largely devoid of anthropogenic electromagnetic interference such as power line harmonics and radio frequency broadcast transmissions. The project will focus on studies of three geophysically important plasma waves: Chorus waves, auroral hiss and auroral kilometric radiation (AKR). Chorus waves are believed to be a major driver of radiation belt electron acceleration and loss. The auroral hiss and AKR waves are generated in the auroral acceleration region and have the potential to be used for remote sensing of this complex and poorly understood near-Earth region.

Field Season Overview:

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

No science personnel will deploy for this project this season. On-station science technicians will continue to support instrument calibration and data collection.

Return to Index

Antarctic Automatic Weather Station (AWS) Program

Program Manager:
Dr. Peter Milne

Event Number: O-283-M
NSF/PLR Award 1245663

ASC POC/Implementer:
John Rand / Elizabeth Kauffman

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: AWS sites

Project Description:

The Antarctic Automatic Weather Station (AWS) network is the largest in the Antarctic and has the broadest spatial coverage. As the AWS program reaches its 32nd year, the primary focus is measuring Antarctica's surface climatology using the lengthy datasets (20- to 30-years in some cases) collected by the stations. A second focus is an investigation of the surface wind regime of the Ross Ice Shelf. In the Antarctic, short, observational records and large spacing between available observations has limited our ability to observe and detect climate change. The AWS network is now capable of providing critical observational records that will allow researchers to assess the near-surface climate of the Antarctic and begin to identify signs of climate change in the Antarctic. AWS measurements also provide the verification for satellite studies and model forecasts.

Field Season Overview:

This year a field party of four will deploy to McMurdo Station to visit and repair stations on the Ross Ice Shelf, in West Antarctica and in the local McMurdo area. Three stations in West Antarctica may be removed. The continued transition of local McMurdo stations to Freewave radio modems will help reduce data telemetry costs. This project collaborates with other

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

NSF grantees as well as other international programs. The team visits sites that report problems or cease transmitting during the austral winter. They receive support from riggers, fixed-wing and helicopter operations.

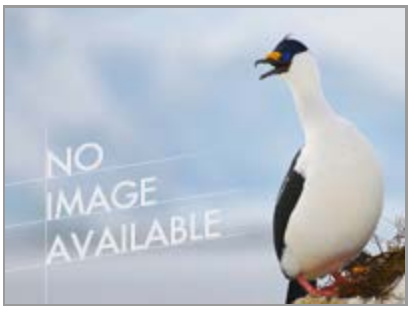
Deploying Team Members:

- John Cassano (Co-PI)
- David Mikolajczyk
- Melissa Richards
- Lee Welhouse (Team Leader)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Studies Of Turbulence And Mixing In The Antarctic Circumpolar Current, A Continuation Of DIMES



Program Manager:
Dr. Peter Milne

Event Number: O-124-N
NSF/OCE Award 1232962

ASC POC/Implementer:
Addie Coyac

Dr. James Robert Ledwell (Principal Investigator)
jledwell@whoi.edu
http://dimes.ucsd.edu/

Woods Hole Oceanographic Institution
Dpt. of Applied Ocean Physics & Engineering
Woods Hole, Massachusetts

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: Drake Passage / Shackleton Fracture Zone

Project Description:

The objective of this project is to sample a tracer that was released in the Antarctic Circumpolar Current on a surface of constant neutral density near 58 degrees S Latitude, 106 degrees W Longitude in 2009. The tracer is making its way through the Drake Passage, into the Scotia Sea, and beyond into the Argentine Basin as it spreads horizontally and vertically. The ultimate objective of the tracer experiment is to measure this spreading. The depth of the tracer cloud varies from about 2,000 meters to the north of the Subantarctic Front to less than 300 meters along the Antarctic continental slope. The tracer is trifluoromethyl sulfur pentafluoride and is analyzed in seawater samples on board the RV/IB Nathaniel B. Palmer using a gas chromatograph with electron capture detector.

Field Season Overview:

Researchers will sail on the R/V Nathaniel B. Palmer on a 20-day expedition. We will occupy approximately 25-50 hydrographic sample stations along the Phoenix Ridge and Shackleton Fracture Zone. Their sample locations will be adapted to occur within the frontal zones of Drake Passage. They will conduct numerous conductivity-temperature-depth (CTD) casts at various stations and will employ an autonomous deep microstructure profiler (DMP). At each station, they will also use the NBP's multibeam system to examine the seafloor topography.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

McMurdo LTER - Geochemistry: Increased Connectivity In A Polar Desert Resulting From Climate Warming: McMurdo Dry Valley LTER Program

Program Manager:
Dr. Lisa Clough

Event Number: B-509-M
NSF/PLR Award 1115245

ASC POC/Implementer:
Sune Tamm / Cara Sucher

Dr. W. Berry Lyons (Principal Investigator)
lyons.142@osu.edu
http://mcmlter.org

Ohio State University
Byrd Polar Research Center
Columbus, Ohio

Supporting Stations: McMurdo Station
Research Locations: Dry Valleys

Project Description:

In 1980, the National Science Foundation (NSF) funded the US Long Term Ecological Research (LTER) Network, a collaborative effort involving more than 1,800 scientists and students. The McMurdo LTER is one of 26 sites that investigates ecological processes over long temporal and broad spatial scales. The McMurdo LTER program is an inter-disciplinary and multi-disciplinary study of the aquatic and terrestrial ecosystems in the ice-free McMurdo Dry Valleys. This six-year award cycle comprises seven collaborative projects: Andrew Fountain B-504, John Priscu B-505, Diane McKnight B-506, Diana Wall B-507, Jeb Barrett, B-508, Berry Lyons B-509, and Peter Doran B-511. This project is the “geochemistry” component of the McMurdo LTER. Researchers monitor the inorganic geochemistry of waters and solid samples collected from the glaciers, streams, ponds, lakes and landscape of the Dry Valleys. They continue to study the upland seeps and ponds to gain a better understanding of their hydrologic and geochemical controls.

Field Season Overview:

Field team members will collect water, snow, and sediment samples. The sampling will be done on foot or by taking day trips by helicopter from McMurdo or Lake Hoare to the sampling sites. They will work with the limno

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.

2013-2014 Field Season
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

and stream teams at Lakes Hoare, Bonney, F6, and Fryxell. At upland pond sites within the Dry Valleys team members will collect additional water samples. They will return to Crary Lab to perform chemical analysis of lake, stream, glacier, and other samples.

Deploying Team Members:

- Christopher Gardner
- W. Berry Lyons (PI)
- Kathy Welch (Team Leader)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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:
Samina Ouda / 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: LTER Study Site / Palmer Station

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:

During the annual LTER cruise aboard the ARSV Laurence M. Gould this group will conduct standard hydrographic surveys with the Conductivity Temperature Depth (CTD) Rosette. In addition, three physical oceanographic moorings will be recovered, serviced and redeployed.

Deploying Team Members:

- Hugh Ducklow
- Darren McKee

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

McMurdo LTER - Streams: Increased Connectivity In A Polar Desert Resulting From Climate Warming: McMurdo Dry Valley LTER Program

Program Manager:
Dr. Lisa Clough

Event Number: B-506-M
NSF/PLR Award 1115245

ASC POC/Implementer:
Sune Tamm / Cara Sucher

Dr. Diane McKnight (Principal Investigator)
diane.mcknight@colorado.edu
http://www.mcmlter.org/

University of Colorado Boulder
Institute of Arctic and Alpine Research (INSTAAR)
Boulder, Colorado

Supporting Stations: McMurdo Station
Research Locations: F6 / Garwood and Wright Valleys / Lakes Bonney, Fryxell, Hoare, Miers

Project Description:

In 1980, the National Science Foundation (NSF) funded the US Long Term Ecological Research (LTER) Network, a collaborative effort involving more than 1,800 scientists and students. The McMurdo LTER is one of 26 sites that investigates ecological processes over long temporal and broad spatial scales. The MCM LTER program is an inter-disciplinary and multi-disciplinary study of the aquatic and terrestrial ecosystems in the ice-free McMurdo Dry Valleys. This six-year award cycle comprises seven collaborative projects: Andrew Fountain B-504, John Priscu B-505, Diane McKnight B-506, Diana Wall B-507, Jeb Barrett, B-508, Berry Lyons B-509, and Peter Doran B-511. This project is the “streams” component of the MCM LTER. Researchers operate a network of 16 stream flow gauges, collect water quality samples from 30 streams and make hydrologic measurements.

Field Season Overview:

Seven participants will be the primary occupants of the F6 field camp. Most monitoring will take place in Taylor Valley, with monitoring continuing in Wright and Miers Valleys. New gauging sites and algal monitoring transects will be established in Miers and Garwood Valleys. Team members will continue to upgrade temperature and specific conductance probes at several

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

gauges in order to minimize the loss of data collected during the season. Activities to relocate upstream gauging sites that are at risk of being submerged due to lake level rise will be conducted for Aiken Creek. An Iridium based telemetry network makes real time data available for three lakes, seven streams, and 13 meteorological stations. This year two Iridium base stations and additional remote data loggers will be added. The team will continue to measure lake levels at Lakes Joyce, House, Vida, Vanda, and Don Juan Pond, visit 16 stream sites to collect algal mat and water quality samples, and conduct LIDAR surveys.

In addition to the typical busy schedule of the MCMLTER, the NSF Site Review Committee will be deploying to the field for a routine review of the MCMLTER's progress and goals.

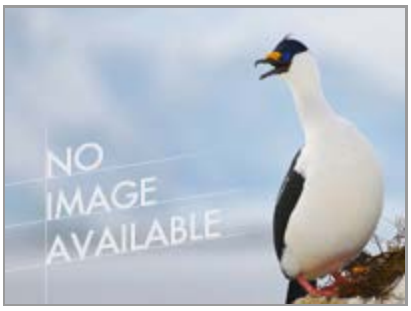
Deploying Team Members:

- Steven Crisp
- Chris Jaros
- Alia Khan
- Alexandra Mass
- Diane McKnight (PI)
- Aneliya Sakaeva

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Balloon Array For RBSP Relativistic Electron Losses (BARREL)



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-144-E
NASA/NSF Agreement

ASC POC/Implementer:
John Rand / Brian Johnson

Dr. Robyn Millan (Principal Investigator)
robyn.millan@dartmouth.edu
http://www.dartmouth.edu/~barrel

Dartmouth College
Physics and Astronomy
Hanover, New Hampshire

Supporting Stations: Special Project
Research Locations: SANAE IV (South Africa) and Halley VI (UK)

Project Description:

Balloon Array for RBSP Relativistic Electron Losses (BARREL) is a multiple-balloon investigation that will study electron losses from Earth's Van Allen Radiation Belts. Atmospheric losses of relativistic electrons play an important role in radiation belt dynamics. Precipitation into the atmosphere may even completely deplete the radiation belts during the main phase of some geomagnetic storms. BARREL is the first "Living with a Star Geospace Mission of Opportunity" and will support NASA's Radiation Belt Storm Probes (RBSP) mission. Researchers will address the following science objectives: (1) Determine the total electron loss rate by simultaneously measuring relativistic electron precipitation over a range of local times; (2) Directly test models of wave-particle interactions by combining precipitation measurements with simultaneous RBSP in situ wave and energetic particle measurements; (3) Determine the relative importance of different classes of precipitation and their associated precipitation mechanisms for different magnetic activity levels; and (4) Determine the spatial extent and spatial structure of precipitation.

Field Season Overview:

Field team members will launch a total of 20 small (~20 kg) balloon payloads from the South African base SANAE IV, and from the British base Halley VI, between December 15, 2013 and February 15, 2014. All personnel and

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

cargo will be transported through the British and South African Antarctic programs.

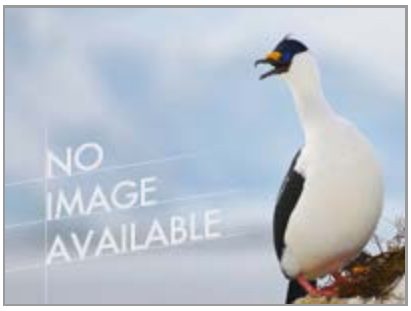
Deploying Team Members:

- Brett Anderson
- Nicholas Lavers
- Michael McCarthy (Co-PI)
- Robyn Millan (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Super Trans-Iron Galactic Element Recorder (SuperTIGER)



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-142-M
NASA/NSF Agreement

ASC POC/Implementer:
John Rand / Brian Johnson

Dr. John Mitchell (Principal Investigator)
john.w.mitchell@nasa.gov
http://physics.wustl.edu/supertiger/

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland

Supporting Stations: McMurdo Station
Research Locations: Long-Duration Balloon (LDB) Facility at Williams Field

Project Description:

Super-TIGER builds on the heritage of the smaller Trans-Iron Galactic Element Recorder (TIGER) flown from Williams Field in 2001 and 2003. This next generation version is a large-area instrument that will measure the elemental abundances of cosmic rays from Zinc to Molybdenum. The instrument is capable of detecting an unprecedented combination of individual-element resolution and statistical precision. These spectra will permit a sensitive test of the hypothesis that microquasars or other phenomena could superpose spectral features on the otherwise smooth energy spectra previously measured with less statistical accuracy.

Field Season Overview:

NASA flew this payload during the 2012-13 field season. Support this year is for payload recovery.

Deploying Team Members:

- Thomas Hams (Co-PI)
- John Mitchell (PI)
- John Ward

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Antarctic ELF/VLF Observations Of Q-Bursts, Radio Atmospherics, And Energetic Particle Precipitation

Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-109-M/P/S
NSF/PLR Award 1246275

ASC POC/Implementer:
Samina Ouda / Cara Sucher / Paul Sullivan

Dr. Robert C Moore (Principal Investigator)
moore@ece.ufl.edu
http://www.vlf.ece.ufl.edu/Antarctica/

University of Florida
Gainesville, Florida

Supporting Stations: McMurdo Station, Palmer Station, South Pole Station
Research Locations: Arrival Heights / Cusp Lab / Terra Lab

Project Description:

Extremely Low Frequency/Very Low Frequency (ELF/VLF) observations at McMurdo, South Pole, and Palmer Stations provide a deeper understanding of lightning and its effects on the Earth's inner radiation belt. Lightning source currents are estimated or directly measured by experimental observations of individual natural and rocket-triggered lightning flashes in North America. Together, the North American and Antarctic datasets are used to experimentally identify and analyze the components of lightning and the effects of lightning that are observed in the Antarctic, more than 10,000 kilometers distant. This project directly supports the continued operation of the ELF/VLF radiometers at all three US Antarctic research stations. At Arrival Heights, the radiometer has operated continuously for nearly 25 years, providing a unique resource for long-baseline ELF/VLF noise measurements, Schumann resonance observations, and global climate change parameterization via global lightning detection. The recently upgraded data acquisition system continuously records ELF and VLF data streams and provides real-time data processing and access via the Internet. Researchers in north-central Florida use the data for coordinated lightning-related experiments.

Field Season Overview:

This season, researchers will continue to continuously record ELF/VLF data

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

and provide real-time data processing and access via the Internet, when available, in support of coordinated lightning-related experiments to be performed in North-Central Florida. Minor support will be provided on station throughout the year by contract research associates. Field team members will conduct extensive noise surveys at both McMurdo and South Pole stations. The existing VLF antennas at Palmer Station will be removed from the glacier and relocated to the “backyard” at Palmer Station or to Bonaparte Point with support from the riggers on station in April 2014.

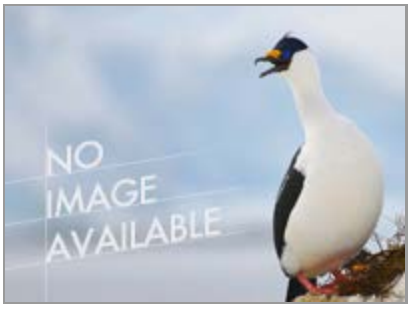
Deploying Team Members:

- Daniel Kotovsky (Team Leader)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

The Polar Geospatial Information Center: Joint Support



Program Manager:
Dr. Alexandra Isern

Event Number: T-434-M
NSF/PLR 1043681

ASC POC/Implementer:
John Rand / Brian Johnson

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

University of Minnesota
Geology & Geophysics
St. Paul, Minnesota

Supporting Stations: McMurdo Station
Research Locations: Ice roads / town roads / Dry Valley boundaries

Project Description:

The Polar Geospatial Center (PGC) was founded in 2007 as the Antarctic Geospatial Information Center (AGIC, funded by NSF) and has since expanded to include both polar regions. PGC provides geospatial support in the form of mapping, data delivery and GIS analysis to science and logistics communities of the NSF's arctic and antarctic research programs. Deploying PGC technicians collect ground-control points to calibrate imagery, gather satellite and aerial imagery from a variety of national and international sources and provide results to science-project grantees in geographic information systems (GIS) data formats, maps and paper documents.

Field Season Overview:

This season, three particilants will deploy, with a maximum of two in McMurdo at the same time. Early-season field work will require the use of snowmobiles to travel along the sea ice roads to gather Streetview data and control points. Later-season work will require helicopter support (day trips) to locations north and south of the Dry Valleys, and some locations on Ross Island.

Deploying Team Members:

- Bradley Herried
- Cole Kelleher

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.

2013-2014 Field Season

Other Information:

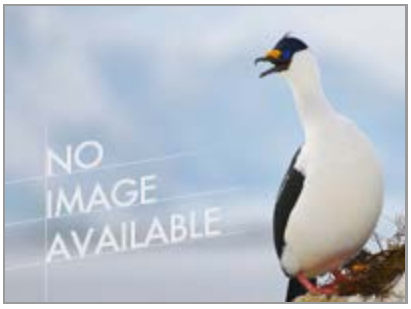
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- William Risse

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

NASA Long Duration Balloon (LDB) Support Program



Program Manager:
Dr. Vladimir Papitashvili

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

ASC POC/Implementer:
John Rand / Brian Johnson

Mr. Gerald Dwayne Orr (Principal Investigator)
Dwayne.Orr@csbf.nasa.gov
http://www.csbf.nasa.gov

Columbia Scientific Balloon Facility
Palestine, Texas

Supporting Stations: McMurdo Station
Research Locations: LDB Facility at 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:

The project teams are housed at McMurdo and commute to the Williams Field launch facility. Balloons are rigged and payloads are prepared in advance so they can launch as soon as weather and wind patterns permit. Upon termination of the flights, recovery teams use fixed-wing and/or helicopter support to retrieve the instrument and its parachute. A contract camp manager, equipment operator, cook and general assistant (GA) are assigned to the facility. Each year, the prime contractor's facility maintenance division sets up and takes down the camp buildings. The operations division prepares the launch pad, maintains the roads, and services the generators.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

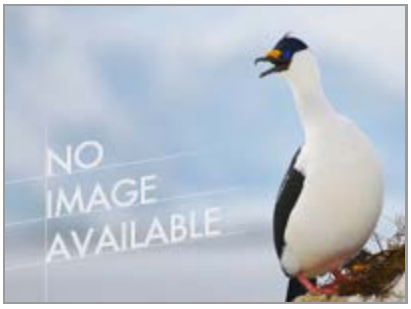
Deploying Team Members:

- Alexander Beange
- Curtis Frazier
- Gerald Gregg
- Otto Masters
- Gerald Orr (PI)
- Jacob Richard
- Alexander Smith
- William Wesley

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

UNAVCO GPS Survey Support



Program Manager:
Dr. Alexandra Isern

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

ASC POC/Implementer:
Leslie Blank / Elizabeth Kauffman

Mr. Joseph R Pettit (Principal Investigator)
pettit@unavco.org
http://facility.unavco.org/project_support/polar/

UNAVCO
Boulder, Colorado

Supporting Stations: McMurdo Station
Research Locations: Crary Lab / field sites

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:

This field season, two to four UNAVCO staffers will be based at McMurdo Station throughout the austral summer. They provide technical and field engineering support, and manage the UNAVCO equipment pool. Field team members will occasionally travel to field locations as project support requirements dictate. Detailed logistical support is arranged directly between UNAVCO and the science project team

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.

2013-2014 Field Season

Other Information:

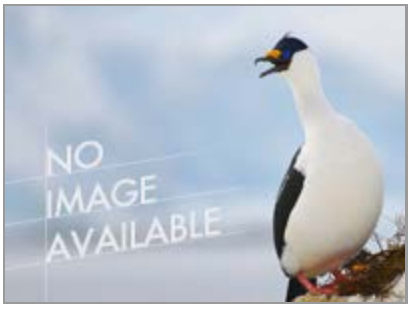
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Nicolas Bayou
- Brendan Hodge
- Thomas Nylen
- Marianne Okal
- Joseph Pettit (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

McMurdo LTER - Lakes: Increased Connectivity In A Polar Desert Resulting From Climate Warming: McMurdo Dry Valley LTER Program



Program Manager:
Dr. Lisa Clough

Event Number: B-505-M
NSF/PLR Award 1115245

ASC POC/Implementer:
Sune Tamm / Cara Sucher

Dr. John Priscu (Principal Investigator)
jpriscu@montana.edu
http://www.mcmlter.org/index.html

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

Supporting Stations: McMurdo Station
Research Locations: Dry Valleys

Project Description:

In 1980, the National Science Foundation (NSF) funded the US Long Term Ecological Research (LTER) Network, a collaborative effort involving more than 1,800 scientists and students. The McMurdo LTER is one of 26 sites that investigates ecological processes over long temporal and broad spatial scales. The McMurdo LTER program is an inter-disciplinary and multi-disciplinary study of the aquatic and terrestrial ecosystems in the ice-free McMurdo Dry Valleys. This six-year award cycle comprises seven collaborative projects: Andrew Fountain B-504, John Priscu B-505, Diane McKnight B-506, Diana Wall B-507, Jeb Barrett, B-508, Berry Lyons B-509, and Peter Doran B-511. This project is the “Lakes 1” component of the McMurdo LTER. Researchers will continue their long-term measurements of biological, chemical, and physical limnological properties of dry valley lakes and lake ice, with special emphasis on LTER core research areas.

Field Season Overview:

Five participants will make routine lake measurements, peridocally occupying field camps at Lakes Bonney, Hoare and Fryxell from early November to early January. Sediment traps will be retrieved and re-deployed in East and West Bonney between mid-November and mid-December. They will camp for at least five nights at Lake Miers to measure biological, chemical, and

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.

2013-2014 Field Season
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

physical limnological properties. Team members will visit the ice edge or an ice hole in McMurdo Sound to calibrate the Seabird CTD (conductivity/temperature/depth) instrument. Other work sites may include, depending on logistics and weather, Blood Falls, the Canada Glacier, and Don Juan Pond.

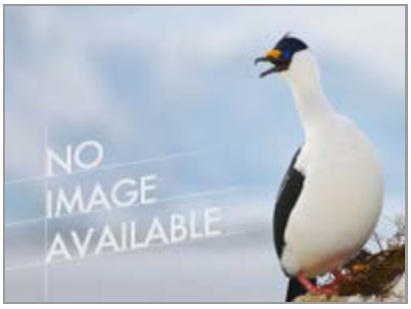
Deploying Team Members:

- Amy Chiuchiolo (Team Leader)
- Justin Lawrence
- Yongqin Liu

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

WISSARD Borehole Drill Contractor



Program Manager:
Dr. Lisa Clough

Event Number: C-524-M
Subaward to NSF/PLR Awards
0839142, 0839107, 08389

ASC POC/Implementer:
Chad Naughton / Matthew Kippenhan

Dr. Frank Rack (Principal Investigator)
frack2@unl.edu
http://www.wissard.org

University of Nebraska Lincoln
Department of Geosciences
Lincoln, Nebraska

Supporting Stations: McMurdo Station
Research Locations: Subglacial Lake Whillans

Project Description:

The aim of the Whillans Ice Stream Subglacial Access Research Drilling (WISSARD) project is to drill into the hydrological system beneath the Whillans Ice Stream at three different locales: Into subglacial Lake Whillans at the top of the system; into the subglacial river/stream between the lake and the grounding line; and into the ocean beneath where the Whillans Ice Stream flows into the Ross Ice Shelf. This campaign will require three field seasons: During the first month of the 2012-13 field season, the drill system was tested on the McMurdo Ice Shelf. Later that season, the system was traversed to the top of the Whillans Ice Stream to begin penetration into subglacial Lake Whillans. The drill system was left on site and the rest of the project will be carried out over the next two field seasons.

Field Season Overview:

The 2013-14 season will consist of a return to Subglacial Lake Whillans for more sampling of the subglacial environment at a new location. The hot water drill (HWD) and the Launch and Recovery System (LARS) will be traversed to the new location from their current winter storage site at SLW. Once at the new location, the HWD, LARS and science labs will be set up and drilling and sampling of SLW will commence.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Daren Blythe
- Chad Carpenter
- Dennis Duling (Team Leader)
- Dar Gibson
- Frank Rack (PI)
- Graham Roberts

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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

Program Manager:
Dr. Charles Amsler

Event Number: B-009-M
NSF/PLR Award 1141326

ASC POC/Implementer:
Addie Coyac / Cara Sucher

Dr. Jay Rotella (Principal Investigator)
rotella@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 Camp

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. 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:

Seven participants will deploy to McMurdo and then to their field camp at Big Razorback Island. All pups born within Erebus Bay will be marked during the early field season (October-November) with a smaller effort to mark adults that have not been marked previously. After pupping is finished, the team will conduct population-wide surveys of marked and unmarked seals in Erebus Bay. A sample of adults and pups will be physically weighed, tissue sampled, and 40-day temperature loggers will be deployed on a small number of pups. These data will be correlated with a variety of maternal traits and environmental metrics. The field team will use helicopter support

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

for population counts and reconnaissance flights over the study area and to look for tagged seals outside their study area.

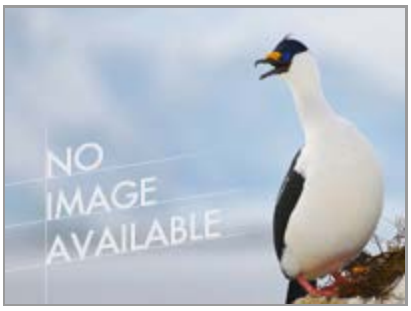
Deploying Team Members:

- Thierry Chambert (Team Leader)
- Joel Forrest
- Robert Garrott (Co-PI)
- John Paterson
- Darren Roberts
- Jay Rotella (PI)
- Brandi Skone
- Michael Yarnall

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Collaborative Research: A 1,500-Meter Ice Core From South Pole



Program Manager:
Dr. Julie Palais

Event Number: I-164-S
NSF/PLR Award 1142517

ASC POC/Implementer:
John Rand / Paul Sullivan

Dr. Eric S Saltzman (Principal Investigator)
esaltzma@uci.edu
http://spicecore.org/

University of California Irvine
Earth System Science
Irvine, California

Supporting Stations: South Pole Station
Research Locations: Field sites near South Pole Station

Project Description:

The South Pole Ice Core (SPICE Core) project will collect a 1500-meter ice core from a site within five kilometers of the South Pole Station. The ice core will provide an environmental record spanning approximately 40,000 years that will be used to investigate the magnitude and timing of changes in climate and climate forcing through time. The target of 40,000 years spans the transition from the peak of the last glacial period when ice sheets were at their maximum extent — referred to as the Last Glacial Maximum — to the present warm period (the Holocene) called an interglacial period. Collecting an ice core from the South Pole will provide researchers with one of the best trace gas records possible due to the very cold temperatures and low impurity levels at the South Pole, both of which enable more accurate measurement of gases that exist at very low concentrations.

Field Season Overview:

This season, researchers will select the drill site location and do some site preparation activities. Actual drilling will not start until the 2014-15 field season.

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

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:
Samina Ouda / 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: LTER Study Site / Palmer Station

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:

Project participants will sail onboard the annual 28-day LTER cruise onboard the Laurence M. Gould (LMG) from January 1 to February 15th. Vessel-based activities include three net tows per station: One tow with a one-meter square net to a depth of 300 meters and one or two tows with a two-meter net to a depth of 120 meters. The 1-meter MOCNESS will be used to sample discrete depth horizons at the process study stations, and possibly a few of the regular grid stations. The Biosonics acoustic towfish will be deployed at the Process Study Stations to detect krill aggregations. Live zooplankton will be maintained and experimental vessels kept at cool temperatures using

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

constantly flowing seawater into the aquaria. Microzooplankton grazing ("dilution") experiments will be conducted in on-deck incubators.

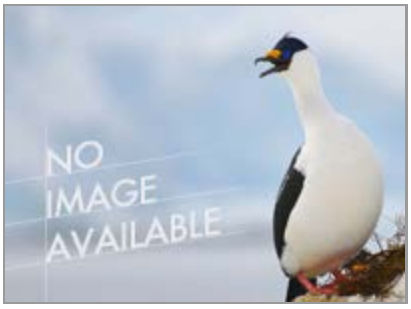
Deploying Team Members:

- Joseph Cope
- Miram Gleiber
- Dominique Paxton
- Bruce Pfirrmann
- Kate Ruck

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Operation IceBridge



Program Manager:
Ms. Jessie Crain

Event Number: C-529-M
NASA/NSF Agreement

ASC POC/Implementer:
Chad Naughton / Kevin Gibbons

Dr. Michael Studinger (Principal Investigator)
michael.studinger@nasa.gov
http://www.nasa.gov/icebridge

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland

Supporting Stations: McMurdo Station
Research Locations: Sea Ice Runway

Project Description:

Operation IceBridge makes airborne altimetry, radar and other geophysical measurements to monitor and characterize the cryosphere. Icebridge data will improve knowledge of the contribution of the major Arctic and Antarctic ice sheets and sea ice to sea-level rise. Major goals include: (1) make airborne altimetry measurements of ice sheets and sea ice to extend and improve the observations begun by ICESat; (2) link measurements made by historical airborne laser altimeters, ICESat, ICESat-2 and CryoSat-2 to allow accurate comparison and production of a long-term, ice-altimetry record; (3) monitor key, rapidly changing areas of Arctic and Antarctic ice to maintain a long-term observation record; and (4) provide data to improve understanding of ice dynamics and better constrain predictive models of sea-level rise and sea-ice cover conditions.

Field Season Overview:

Up to 45 team members will deploy to McMurdo Station in the austral summer season. They will conduct aerial surveys using their own P-3 NASA aircraft, equipped with several geophysical instuments, including laser altimeters, radar systems, digital cameras, a gravimeter, a magnetometer, and several GPS units. IceBridge will operate from the Sea Ice runway and is planning to fly every day, weather permitting. The general flight length is between 8-10 hours.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

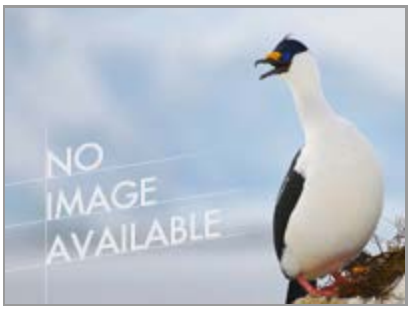
Deploying Team Members:

- Michael Anderson
- Jefferson Beck
- Todd Brophy
- Bethany Burton
- Bruno Camps-Raga
- Jeffery Chandler
- Kevin Charles
- James Cochran
- Shane Dover
- Matthew Elder
- Brian Farley
- Eric Fraim
- George Hale
- Christy Hansen (Co-PI)
- Robert Harpold
- James Jacobson, Jr
- Kyle Krabill
- Matthew Linkswiler
- Serdar Manizade
- Catherine Martin
- Craig McMahon
- Justin Miller
- Kevin Moore
- Sean O'Rourke
- Robbie Russell
- Michael Singer
- John Sonntag
- Michael Studinger (PI)
- Theresa Stumpf
- Bruce Tagg
- Kirsteen Tinto
- Bryan Townley
- Brian Yates
- James Yungel
- Gary Zimmerman, Jr.

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

21st Century Antarctica - The Science And Landscape Of Palmer Station



Program Manager:
Mr. Peter West

Event Number: W-489-P
NSF/PLR Award 1158885

ASC POC/Implementer:
Samina Ouda

Ms. April Surgent (Principal Investigator)
surgent_april@hotmail.com
http://www.aprilsurgent.com

Port Townsend, Washington

Supporting Stations: Palmer Station
Research Locations: Palmer Station and surrounding area

Project Description:

The objective of this project is to gather information about the scientific research, unique biology and rapid climate change occurring at the Antarctic Peninsula and Southern Ocean. Close observations of the climate, landscape, fauna, oceanography and ecology along with the scientists and their respective research, will be used to gain first-hand knowledge about the region. Findings gathered while at Palmer Station will be used to produce a didactic body of artwork aimed at conveying a new understanding of the Antarctic Peninsula and scientific research happening there.

Field Season Overview:

The artist will travel on the ARSV Laurence M. Gould to Palmer Station. There, she will accrue first-hand impressions of the climate, landscape, fauna, oceanography and ecology, and will observe and interact with science teams. Detailed documentations of the findings will be recorded in daily log entries, drawings, photographs, watercolor paintings, small engravings, audio field recordings, interviews with scientists and blog entires.

Deploying Team Members:

- April Surgent (PI)

Return to Index

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.

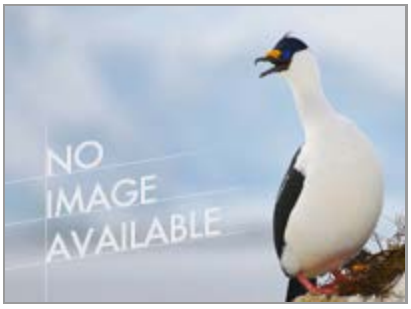
2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

Installation Of A CTBT Class Infrasound Station



Program Manager:
Ms. Jessie Crain

Event Number: T-396-M
NSF/CTBT MOA

ASC POC/Implementer:
John Rand / Cara Sucher

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

Project Description:

From 1976 to 1985, the Geophysical Institute at the University of Alaska Fairbanks operated an infrasonic array at Windless Bight on the Ross Ice Shelf. The area is unique for its very low wind levels, making it an excellent site for Antarctic infrasound detection. In 2001, a modern array was installed and has operated since then. Infrasonic waves are long-wavelength, low-frequency acoustic waves that are below the frequency range of human hearing. They can be detected on the Earth's surface by an array of specialized microphones operating in the passband from 0.02 to 10 Hertz. Infrasound propagates with little attenuation over great distances from many different natural and man-made sources. Natural sources include volcano eruptions, winds over distant mountain ranges, large storms at sea, aurora, meteors, earthquakes and avalanches. Human-caused sources are large explosions. The installation at Windless Bight is part of the joint US and Comprehensive Nuclear Test Ban Treaty Organization Infrasound Array.

Field Season Overview:

Six participants will deploy and camp at Windless Bight. Support entails tracked vehicles, a small camp erected by Science Construction, fuel, and year around storage space. Over the winter, a contract Research Associate (RA) monitors and maintains the installation.

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.

2013-2014 Field Season

Other Information:

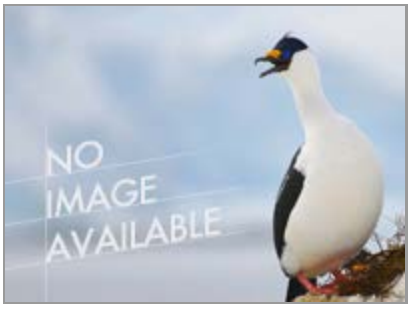
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Don Byrd
- Kit Dawson
- Jay Helmericks (Team Leader)
- Brian Lawson
- Kathleen Lawson
- Guy Tytgat

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-119-M/S
NSF/PLR Award 1045356

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

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: McMurdo Station, South Pole Station
Research Locations: B2 Science Building

Project Description:

The Antarctic Gravity Wave Imaging Network (ANGWIN) is a cooperative effort of six international Antarctic programs to collect continent-wide gravity wave measurements. The network will capitalize on existing optical and radar measurement capabilities at McMurdo, South Pole, and six other research stations including Halley (UK), Syowa (Japan), Davis (Australia), Rothera (UK) and Ferraz (Brazil). Infrared (IR) all-sky mesospheric OH (hydroxyl) imagers will be installed at Davis, McMurdo, and Halley Stations, creating an unprecedented capability for studying gravity wave properties at each site. Researchers will use the network to quantify the properties, variability and momentum fluxes of short-period (less than one hour) mesospheric gravity waves and their dominant sources and effects over the Antarctic continent.

Field Season Overview:

During the 2013-14 summer period, deploying field team members plan to service the camera, optics, filter wheel, and computer and update-acquisition software.

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.

2013-2014 Field Season

Other Information:

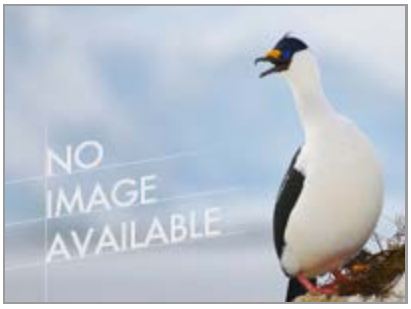
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Pierre-Dominique Pautet
- Michael Taylor (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Development Of An ANtarctic Gravity Wave Imager Network (ANGWIN) For Collaborative Mesospheric Research



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-119-M/S
NSF/PLR Award 1045356

ASC POC/Implementer:
Samina Ouda / Cara Sucher

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: McMurdo Station, South Pole Station
Research Locations: Arrival Heights (ASPA 122)

Project Description:

The primary goal of this research is to quantify the properties, variability and momentum fluxes of short-period (less than an hour) mesospheric gravity waves and their dominant sources and effects over Antarctica. To achieve this, researchers plan to implement an ANtarctic Gravity Wave Imaging Network (ANGWIN) that will provide an exceptional capability for investigating mesospheric gravity waves over selected regions around the Antarctic continent and deep in the interior, essentially creating continent-wide coverage of gravity-wave measurements. The specific research goals are: (1) Exploit one of the world's most intense gravity wave sources, the Antarctic Peninsula, to investigate the effects of orographic forcing on mesospheric dynamics; (2) Quantify longitudinal variations in mesospheric gravity wave activity and propagation headings around Antarctica and associated momentum flux variability; (3) Investigate the propagation and ducting of gravity waves capable of traveling large distances over the Antarctic continent; and (4) Identify dominant wave sources using combined instrument data sets together with state-of-the-art ray techniques.

Field Season Overview:

Field team members will visit the Arrival Heights facility in January 2014 to service their equipment. After that, they will travel to South Pole station to

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

service equipment for their companion project (A-119-S). The collected data will be made available on the research team's website along with existing South Pole data.

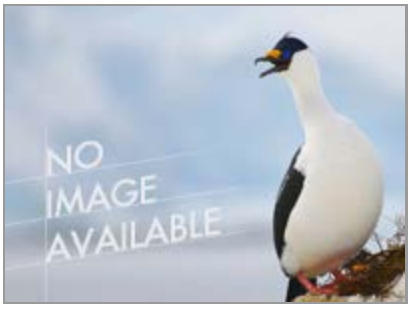
Deploying Team Members:

- Pierre-Dominique Pautet
- Michael Taylor (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

NASA/McMurdo Ground Station (MG1)



Program Manager:
Mr. Pat Smith

Event Number: T-927-M
NASA/NSF Agreement

ASC POC/Implementer:
John Rand / August Stoten

Mr. Bruce Thoman (Principal Investigator)
bruce.e.thoman@nasa.gov
http://scp.gsfc.nasa.gov/gn/

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland

Supporting Stations: McMurdo Station
Research Locations: Above McMurdo Station

Project Description:

NASA's McMurdo Ground Station (MG1) is a 10-meter antenna housed in a white radome visible on the hill above McMurdo Station. It is used primarily for data recovery from polar orbiting science satellites, both of NASA and of foreign entities (esp. where NASA has a hosted instrument on-board a foreign satellite). MG1 provides launch and early operations phase (LEOP) support for launches from Vandenberg AFB for satellite missions that require downrange telemetry support from McMurdo. MG1 also provides telemetry and command for satellite housekeeping and recovery from satellite operational emergencies. MG1 provides data recovery for the EUMETSAT MetOp polar weather satellite constellation, in collaboration with NOAA National Environmental Satellite and Data Information Service, which reduces by a factor of 2 the time latency for data ingest into U.S. and European weather forecasting models, improving forecasting accuracies.

Field Season Overview:

Members of the field team will begin deploying to McMurdo Station in early October with additional members arriving in January and February. Technicians will track a variety of satellites, monitor launches, and collect and forward data. Two members of the team will work at McMurdo Station through the austral winter. Data will be recorded on site and shipped to NASA facilities for processing. Some data will be transmitted to NASA facilities over dedicated Internet links.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

During critical launch support activities, e.g., countdown, liftoff, and the first several orbits of new spacecraft, the researchers will need voice and network communications with support personnel ready for quick response.

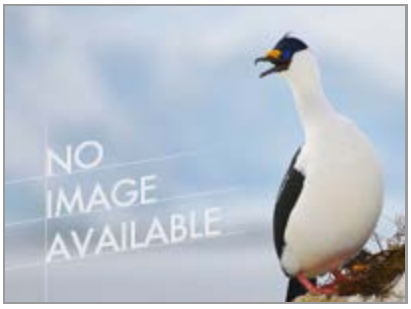
Deploying Team Members:

- William Kambarn
- Nickolas Sinkola
- Edward Wendell

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Integrative Study Of Marine Ice Sheet Stability And Subglacial Life Habitats - Lake And Ice Stream Subglacial Access Research Drilling (LISSARD)



Program Manager:
Dr. Lisa Clough

Event Number: C-521-M
NSF/PLR Award 0839142

ASC POC/Implementer:
Chad Naughton / Matthew Kippenhan

Dr. Slawomir M Tulaczyk (Principal Investigator)
tulaczyk@pmc.ucsc.edu
http://www.wissard.org/

University of California Santa Cruz
Earth Sciences
Santa Cruz, California

Supporting Stations: McMurdo Station
Research Locations: Subglacial Lake Whillans

Project Description:

Because of their unknown effects on ice sheet stability for global warming scenarios, understanding subglacial lakes is a high priority for US and international research communities. LISSARD's primary science goals are to: (1) provide observational bases for improving computer models of ice sheet mass balance and stability; (2) reconstruct the history of West Antarctica's ice sheet and ice stream stability from records of basal water and ice flow variability contained in subglacial sediments, porewater, lake water, and basal accreted ice; and (3) provide a background understanding of subglacial lake environments to benefit collaborative projects (Powell C-522-M and Priscu C-523-M). Researchers will use an unprecedented synthesis of approaches including remote sensing, surface geophysics, borehole measurements, and sampling.

Field Season Overview:

Due to repercussions from the government shutdown, the WISSARD Hot Water Drill campaign at the Grounding Zone has been deferred. However, a combined field team of 7-8 participants from Schwartz (C-525-M) and Tulaczyk (C-521-M) will deploy to SLW/CReSIS camp via LC-130 in mid December and will exist as their own self-supported mobile field team focusing on multiple geophysical installations accessed via snowmobile in the

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Whillans Ice Stream area. In early January the combined C-521/C-525 field team will rendezvous at SLW/CReSIS with five University of Nebraska Drillers (C-524/C-530) and some supplemental science personnel, who will have arrived via fixed-wing aircraft, and with the WISSARD traverse, who will have transported the roving drill and associated camp equipment out to the site. Members of the WISSARD traverse will deliver the team and equipment to Roving Site 1A. As opposed to the original plan, where the WISSARD traverse would not stay with the team and would only provide transportation as required, the plan is now to have the WISSARD traverse stay on site and provide needed support during drilling/science operations. Once operations are completed at Roving Site 1A, the traverse team, drillers, and grantees will move as a group to Roving Site 1B, 2A, and 2B respectively. Estimated duration at each site will be approximately three days. The WISSARD traverse will ultimately bring the drillers and science team back to the CReSIS camp at SLW where they will return to McMurdo via fixed-wing aircraft during the last week of January. The WISSARD traverse will then traverse the roving drill and associated camp equipment back to McMurdo.

Deploying Team Members:

- Marci Beitch
- Robin Bolsey
- Carolyn Branecky
- Neil Foley
- Helen Fricker
- Kenneth Mankoff
- Daniel Sampson
- Jeffrey Severinghaus
- Matthew Siegfried
- Slawomir Tulaczyk (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

McMurdo LTER - Soils: Increased Connectivity In A Polar Desert Resulting From Climate Warming: McMurdo Dry Valley LTER Program

Program Manager:
Dr. Lisa Clough

Event Number: B-507-M
NSF/PLR Award 1115245

ASC POC/Implementer:
Sune Tamm / Cara Sucher

Dr. Diana Wall (Principal Investigator)
diana.wall@colostate.edu
http://wp.natsci.colostate.edu/walllab/

Colorado State University
Natural Resource Ecology Laboratory
Fort Collins, Colorado

Supporting Stations: McMurdo Station
Research Locations: Dry Valleys / Lakes Bonney, Fryxell, Hoare

Project Description:

In 1980, the National Science Foundation (NSF) funded the US Long Term Ecological Research (LTER) Network, a collaborative effort involving more than 1,800 scientists and students. The McMurdo LTER is one of 26 sites that investigates ecological processes over long temporal and broad spatial scales. The McMurdo LTER program is an inter-disciplinary and multi-disciplinary study of the aquatic and terrestrial ecosystems in the ice-free McMurdo Dry Valleys. This six-year award cycle comprises seven collaborative projects: Andrew Fountain B-504, John Priscu B-505, Diane McKnight B-506, Diana Wall B-507, Jeb Barrett, B-508, Berry Lyons B-509, and Peter Doran B-511. This project is the “soils” component of the McMurdo LTER. Researchers maintain (through application of water and nutrients), monitor (soil moisture and temperature) and sample (soils) in their long-term experimental plots near Lakes Fryxell, Hoare and Bonney. The project aims to determine the impacts of natural factors and those associated with potential climate change on the abundance, distribution and diversity of soil biota.

Field Season Overview:

Ten participants will make one-to-seven-day trips to the dry valleys where they monitor, maintain, and sample long-term experiments, as well as sample

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

soils to support developing work on the N and P cycles, turnover of organic matter, and moss-soil interactions in the field. Between trips to the field, team members return to Crary Lab for sample processing and initial analysis, and to perform incubation assays on selected soils.

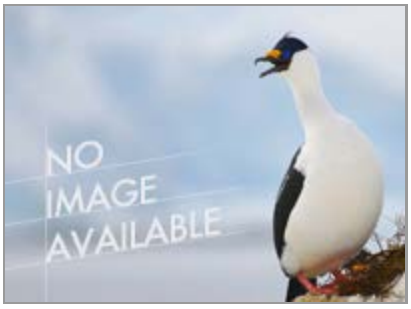
Deploying Team Members:

- Byron Adams (Team Leader)
- John Barrett (Team Leader)
- Michael Gooseff (Team Leader)
- Ruth Heindel
- Matthew Knox
- Eric Sokol
- Andrew Thompson
- Ross Virginia (Co-PI)
- Diana Wall (PI)
- Adam Wlostowski

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

NOAA/AMLR Cruise



Program Manager:
Dr. Charles Amsler

Event Number: B-006-N
NOAA/NSF Agreement

ASC POC/Implementer:
Adam Jenkins

Dr. George Watters (Principal Investigator)
george.watters@noaa.gov
http://swfsc.noaa.gov/textblock.aspx?id=551&ParentMenuId=42

National Oceanic and Atmospheric Administration
La Jolla, California

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: Elephant Island

Project Description:

NOAA Fisheries' AMLR (Antarctic Marine Living Resources) Program supports the development of US policy regarding the conservation and management of the marine living resources in the Southern Ocean. For the past 25 years the AMLR field program has been conducted in the vicinity of Elephant Island, the South Shetland Islands, and the Antarctic Peninsula during the austral summer. This austral winter, researchers will conduct an 18-day shakedown cruise to test US AMLR sampling protocols and procedures during the winter and in the sea ice. Ultimately, these protocols and procedures will be adapted and applied in future winter surveys.

Field Season Overview:

Field team members will deploy onboard NPB 13-09 in August. They will conduct a bio-acoustic, oceanographic and net-based krill survey in the vicinity of the Elephant Island to map meso-scale features of water mass structure, phytoplankton biomass and productivity, zooplankton and bacterioplankton composition, and the dispersion and population demography of krill during mid-winter.

Deploying Team Members:

- Anthony Cossio
- Adrian Dahood-Fritz
-

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

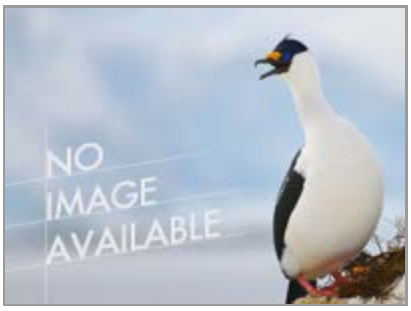
Kimberly Dietrich

- Ryan Driscoll
- Alison Murray
- Rachel Pound
- Christian Reiss (Co-PI)
- Kate Richerson
- Jarrod Santora
- Lars Thoresen
- Jennifer Walsh
- George Watters (PI)
- Elliot Weiss

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

POLENET Antarctica: Investigating Links Between Geodynamics And Ice Sheets - Phase 2



Program Manager:
Dr. Mark Kurz

Event Number: G-079-M
NSF/PLR Award 1249631

ASC POC/Implementer:
John Rand / Elizabeth Kauffman

Dr. Terry Wilson (Principal Investigator)
twilson@mps.ohio-state.edu
http://www.polenet.org

Ohio State University
Geological Sciences and Byrd Polar
Columbus, Ohio

Supporting Stations: McMurdo Station
Research Locations: West Antarctica

Project Description:

Phase 2 of the Antarctic-POLENET project (ANET) will continue and expand GPS and seismic studies to advance understanding of geodynamic processes and their influence on the West Antarctic Ice Sheet. The ANET instrumentation deployed during Phase 1 will be augmented by nine new remote continuous GPS stations, to be deployed in collaboration with UK and Italian partners. In partnership with UK colleagues, a high-resolution crustal and mantle seismic array will also traverse the deep subglacial basins underlying the catchments of the glacio-dynamically critical Pine Island and Thwaites Glacier regions, where crust and mantle structure are poorly resolved. Absolute gravity data will provide important independent data on crustal uplift and mass change, helping discriminate rebound driven by modern versus ancient ice-mass change. The integrated geodetic and geophysical data will allow testing of key hypotheses about the history and dynamics of the West Antarctic Ice Sheet and interactions with the solid Earth beneath. The behavior of the polar ice sheets has immense societal impact because of its potential to affect sea level. Both the viscoelastic response of the solid earth, constraining mass change since the Last Glacial Maximum, and the elastic response, resulting from mass change within the last few decades, can be modeled from continuous GPS measurements together with earth properties derived from the seismic data. These ice mass change estimates will allow better estimates of the contribution of the

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Antarctic ice sheets to global sea level change.

Field Season Overview:

In the 2013-14 field season, (year 1 of Phase 2), will consist of both servicing of existing GPS/seismic stations and installation of a small number of 'backbone' stations at new locations. Work planned for this season will be carried out using Twin Otter support from South Pole Station, the ALE Camp at Union Glacier, and McMurdo Station. Each of the 7 seismic stations located on the ice sheet of the East Antarctic Plateau must have the lithium battery packs replaced to operate for an additional 2 years. These stations will be serviced from South Pole Station. The ALE camp at Union Glacier will be used as a hub to service 7-8 existing stations and to install 5 new GPS with 2 co-located seismic instruments at critical locations around the Weddell Embayment. To reach the most distant locations, 2 new fuel caches deployed by LC-130 airdrop are required at 'Pillow Knob' (site of fuel airdrops in prior seasons) and 'June Carter Cache'. These are mission-critical and need to be timed to coincide with field team work in these regions. McMurdo Station will be the hub for servicing 7-8 existing stations (using Twin Otter and helo flight support), and installing 1 GPS station in the Transantarctic Mountains near Mt Bumstead. No campaign is planned for the Amundsen Embayment of Marie Byrd Land sectors of West Antarctic, however: a) If aircraft time and camp operations permit, a very short-duration visit to WAIS-Divide Camp would allow servicing of two key sites; and b) we hope to piggy-back on Ross Ice Shelf seismic project resources and personnel to service the Mt Patterson and Mt Sidley sites from Siple Dome. Coordinated work with the Italian Antarctic program (PNRA) is planned for northern Victoria Land. Using Italian aircraft, and working with Italian team members, 3 GPS systems will be installed at existing GPS monuments from our partner VLNDEF project. The POLENET team will need fixed-wing transport for 1-2 team members and GPS equipment to Mario Zuchelli Station and return to McMurdo Station.

Priority for site visits is: 1A) New installation, 1B) Sites that are not fully operational; Sites that have not been visited in 2 years; and sites where upgrades were not fully completed last season, and 2) Sites (fully functioning) needing minor maintenance and/or visits to acquire seismic data. We note that the number of sites in category 1B (not fully operational) is likely to change in the next 6 months, prior to commencement of the field season, and we request flexibility in our site visit plans to cover this eventuality.

The scope of absolute gravity measurements for this field season is not clearly defined at this point. Our French collaborators have decided to postpone planned measurements from Palmer Station until the 2014-15 season. Our partners at the NOAA/National Geodetic Survey may provide an A-10 and technician to make absolute gravity measurements, but only from McMurdo in the late part of the season. This part of the program is still being coordinated by Larry Hothem, USGS, and Vicki Childers, NGS.

There is a continued need for dedicated weather forecasting across an extensive portion of East and West Antarctica during our field work, as provided by OPP-SPAWAR.

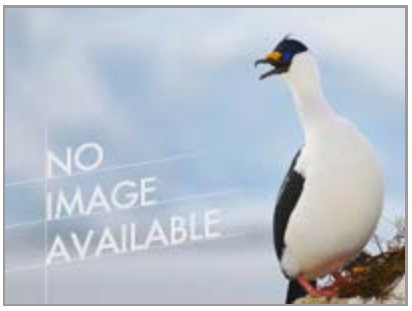
Deploying Team Members:

- Aubreya Adams
- Paul Carpenter
- Jie Chen
- Erica Emry
- Eric Kendrick
- Andrew Lloyd
- J.R. Roberts
- Michael Roberts
- Loren Rosenbeck
- David Saddler
- Patrick Shore
- Austin White-Gaynor
- Terry Wilson (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Thermospheric Neutral Wind Observation In The Antarctica Peninsula



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-132-P
NSF/PLR Award 0839119

ASC POC/Implementer:
Samina Ouda

Dr. Qian Wu (Principal Investigator)
qwu@ucar.edu
http://fpi.hao.ucar.edu

University Corporation for Atmospheric Research, UCAR/NCAR
Boulder, Colorado

Supporting Stations: Palmer Station
Research Locations: Terra Lab

Project Description:

This Palmer Station research project is a collaboration with Australian scientists who have Fabry-Perot interferometer (FPI) instruments at the Australian Mawson and Davis Stations to jointly analyze the neutral wind and temperature data to address the following issues: (1) Thermospheric neutral wind effect on the Weddell Sea Anomaly; (2) Lower thermosphere wind effect on shuttle plume drift; (3) Non-migrating tides in the mesosphere and lower thermosphere; and (4) Geomagnetic effect on the thermospheric wind.

Field Season Overview:

Two field team members will service the instrument at Palmer Station each year. The Palmer Station site is part of a larger project that includes FPI instruments at Mawson and Davis Stations operated by the Australian Antarctic program.

Deploying Team Members:

- Qian Wu (PI)

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Ocean and Atmospheric Sciences

Return to Index

Principal Investigator	Event No.	Project Title
Butler, James	O-257-M/S	South Pole monitoring for climatic change
Butler, James	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
Cassar, Nicolas	O-405-L	Physiological and ecosystem structure forcings on carbon fluxes in the Southern Ocean mixed layer
Corbett, David	O-176-L/P	Submarine groundwater and freshwater inputs along the Western Antarctic Peninsula
Girton, James	O-409-L	DIMES finestructure profiling floats: Analysis and enhancement of the EM-APEX array upstream and downstream of Drake Passage
Helmig, Detlev	O-233-M	Reactive gas chemistry in the Dome C snowpack and its influence on surface-layer chemistry and ice-core records
Lazzara, Matt	O-283-M	Antarctic Automatic Weather Station (AWS) program
Ledwell, James	O-124-N	Studies of turbulence and mixing in the Antarctic Circumpolar Current, a continuation of DIMES
Roberts, Gregory	O-215-L/P	In-situ observations of maritime sources/sinks of aerosol and cloud condensation nuclei at Palmer Station, Antarctica: Portable AERosol Observing System (PAEROS) pilot phase

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROGRAM INDEXES 2013-2014

USAP Program Index:

Technical Event

Return to Index

Principal Investigator	Event No.	Project Title
Barna, Lynette	T-940-M	CRREL 09-10 activities
Carpenter, Paul	T-299-M	IRIS/PASSCAL seismic support
Hosticka, Bouvard	T-998-P	Operation and maintenance of a CTBT radionuclide monitoring station at Palmer Station
Morin, Paul	T-434-M	The Polar Geospatial Information Center: Joint support
Pettit, Joseph	T-295-M	UNAVCO GPS survey support
Szuberla, Curt	T-396-M	Installation of a CTBT class infrasound station
Thoman, Bruce	T-927-M	NASA/McMurdo Ground Station (MG1)

Return to Index

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.

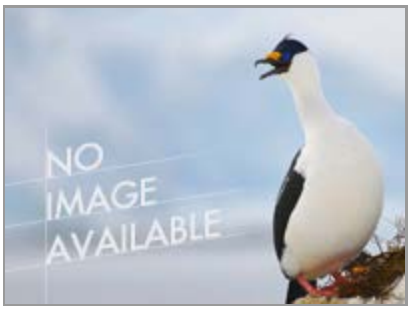
2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

Climate Controls On Aerosol Fluxes To Taylor Dome And Taylor Glacier



Program Manager:
Dr. Julie Palais

Event Number: I-184-M
NSF/PLR Award 1246702

ASC POC/Implementer:
John Rand / Jessica Jenkins

Dr. Sarah Aciego (Principal Investigator)
aciego@umich.edu

University of Michigan
Department of Geological Sciences
Ann Arbor, Michigan

Supporting Stations: McMurdo Station
Research Locations: Taylor Glacier

Project Description:

The primary objective of this proposal is to apply high-precision geochemical techniques to the Taylor Dome ice core and the high-volume, high-resolution horizontal ice core at Taylor Glacier to: (1) deconvolve regional versus global aerosol flux sources; (2) determine if the changing climate and weather in the Ross Sea region from the Last Glacial Maximum (LGM) 21,000 years ago through the Preboreal Holocene is recorded by aerosol compositional changes; and (3) provide a discretized record of southern hemisphere dust through the Younger Dryas and Antarctic Cold Reversal. The researchers will use ice from the Taylor Dome core and exposed ice from Taylor Glacier to measure variations in the isotopic composition of strontium (Sr), neodymium (Nd) and hafnium (Hf), trace element concentrations, major anions and cations and dust-size data in order to assign provenance of dust within the ice. The resulting provenance information will be used to investigate the dust flux response to large, rapid regional and global (hemispheric) climate changes on a millenia scale. Researchers will also collect large-sized samples of known age based on the methane and oxygen isotope composition of the trapped gases.

Field Season Overview:

A team of five will fly to the camp at lower Taylor Glacier where they will share facilities and the use of a blue ice drill with another project (Petrenko, I-159) for approximately 30 days. They will then traverse from the lower

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

camp site to a site higher up on the glacier and continue sampling. At both sites they will be collecting drill cores; 50 large (100 pound) samples will be collected from the lower site and 10 from the upper site

Deploying Team Members:

- Sarah Aarons
- Sarah Aciego (PI)
- Carli Arendt
- Michael Jayred
- Luca Lanci

Return to Index

Climate Change And Predatory Invasion Of The Antarctic Benthos

Program Manager:
Dr. Lisa Clough

Event Number: B-002-N
NSF/PLR Award 1141877

ASC POC/Implementer:
Adam Jenkins

Dr. Richard Aronson (Principal Investigator)
raronson@fit.edu

Florida Institute of Technology
Melbourne, Florida

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: Marguerite Bay

Project Description:

The Antarctic benthos, living at the lower thermal limit to marine life, serves as a natural laboratory for understanding the impacts of climate change on marine systems in general. The endemic marine fauna of Antarctica currently lacks the durophagous (skeleton-breaking) predators that structure benthic food webs in nearshore habitats at tropical, temperate and Arctic latitudes. A cooling trend beginning about 41 million years ago in the Eocene eliminated modern bony fish, crabs, lobsters, and other benthic walking forms, and almost all modern sharks, rays, and skates from Antarctic waters. Since that time, the benthos has evolved toward an archaic, quasi-Paleozoic community structure in the absence of that upper trophic level. Now, climate change appears destined to reconfigure subtidal marine communities in Antarctica. Rapid warming of the Southern Ocean is removing physiological barriers to the reinvasion of durophagous predators, and the larval and adult stages of crabs are reappearing. The goal of this study is to assess the status, viability and ecological impacts of populations of potentially invading, predatory king crabs in the Bellingshausen Sea. The data will provide a baseline for large-scale, long-term monitoring programs to track benthic assemblages in Antarctica over the coming decades of climate change.

Field Season Overview:

On this cruise field team members will use a towed-camera vehicle to record

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

benthic transects on the continental shelf at various depths. The quality of these images will be high enough to identify, size, and enumerate king crabs and any other decapods to the species level. Once crabs are located, the science party will deploy five bottom lines with 10 baited traps each. Upon retrieval, each living crab will be sexed and measured. After the crabs are inspected externally for parasites and, for females, reproductive state, their stomachs will be removed for dietary analysis. Following removal of the stomachs, the crabs will be frozen and shipped to the home institution for further analysis.

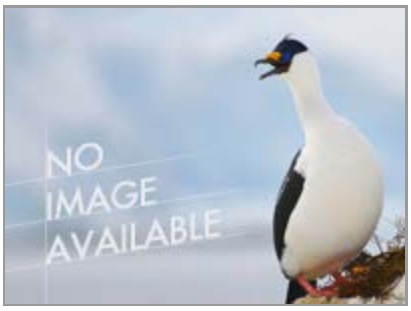
Deploying Team Members:

- Margaret Amsler
- Cecilia Brothers
- Daniel Ellis
- Kathryn Smith
- Stephanie Vos

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Adaptive Responses Of Phaeocystis Populations In Antarctic Ecosystems



Program Manager:
Dr. Charles Amsler

Event Number: B-244-N
NSF/PLR Award 1142018

ASC POC/Implementer:
Adam Jenkins

Dr. Kevin Arrigo (Principal Investigator)
arrigo@stanford.edu

Stanford University
Geophysics
Stanford, California

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

Project Description:

Researcher's objectives are to use a combination of field and laboratory-based studies to identify the environmental factors that control the distribution of the unicellular algae, Phaeocystis antarctica, in the Southern Ocean and to identify the specific adaptive responses to these environmental factors.

Field Season Overview:

Field team members will sail on the R/V Nathaniel B. Palmer from Punta Arenas, Chile to collect water samples from the Ross Sea Polynya. While underway, they will sample open ocean waters of the Antarctic Circumpolar Current. Researchers will also conduct shipboard sampling and incubations in deck incubators under trace metal clean conditions to assess the factors that control the growth of Phaeocystis antarctica in different locations. They will take samples from the water column and conduct incubations for both physiological properties as well as genomic characteristics and diversity.

Deploying Team Members:

- Anne-Carlijn Alderkamp
- Tom Delmont
- Bethany Jenkins

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Patrick Laan
- Katelyn Lewis
- Anton Post
- Gerrit Van Dijken

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

CRREL 09-10 Activities

Program Manager:
Mr. George Blaisdell

Event Number: T-940-M
NSF Agreement

ASC POC/Implementer:
Brian Johnson / John Rand

Ms. Lynette Anne Barna (Principal Investigator)
Lynette.A.Barna@usace.army.mil

US Army Cold Regions Research & Engineering Lab
CRREL-SI
Hanover, New Hampshire

Supporting Stations: McMurdo Station
Research Locations:

Project Description:

There are several objectives expected for the T-940 activities during the 2013-14 Antarctic Field Season. We expect to be advised which projects will be funded in mid to late-August. The potential projects include engineering and basic research in support of the following: South Pole Traverse (SPoT); Support to McMurdo Airfields Improvements (SMAI); Under-Ice Exploration of SBT (SBT); South Pole Station Operations (SPSO); Sea-Ice Thickness Survey (SITS); Snow Road GPR Robotic Survey (GPR); Albedo Surveys on Pegasus Runway Using a Robot (ASPRR); Development of Fleet Management Plan (DFMP); Drainage Solutions Implementation (DSI); South Pole Utility Tunnel Maintenance (SPUTM); and McMurdo Master Planning - Drainage Study (MCMMP-DS)

More specific objectives for these projects are:

South Pole Traverse (SPoT): CRREL POC: James Lever 1) Assess route safety in areas where crevasses may be present by GPR and physical characterization. 2) Continued tests of a prototype cargo sled 3) Continued tests for sled performance and mobility improvements. 4) Experiments for Autonomous Guided Traverse Vehicles.

Support to McM Airfield CRREL POC: Chris Hiemstra & TJ Melendy 1) Ice/snow core surveys betweeen Pegasus and Mile Post 7 on Pegasus road

Fleet Management CRREL POC: TJ Melendy 1) Heavy equipment analysis

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

South Pole Station Operations (SPSO): CRREL POC: Lynette Barna 1) Work with NSF's Dick Armstrong and CRREL contractor John Rand on specified South Pole operations issues.

Field Season Overview:

Deployments: 6 - 1 team member; early season for SPoT, SITS, GPR, ASPRR. - 4 team members, late-season for SMAI, DFMP, DSI, SPUTM, MCMMP-DS & SPSO. - 1 team members, mid-season for SBT.

ASC POCs: ALL: Brian Johnson

Primary NSF POC: Mr. George Blaisdell

There are several needs for the 2013-14 season. Since certain items may be required for different projects (i.e. a truck may be needed for both SPoT and other projects), project identifiers are included in this overview, as well as in each section, with the specific items:

We will need access to trucks, tracked vehicles and snow mobilies (SMAI, SR&T, SAC, SPoT). Surveying support is requested for various tasks (minimal time expected). South-bound cargo will need to be com-air shipped to ChCh.

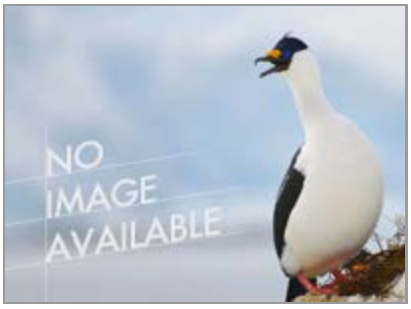
Deploying Team Members:

- Lynette Barna (PI)
- Zoe Courville
- Zoe Courville
- Terry Melendy, Jr.

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

PostDoctoral Research Fellowship



Program Manager:
Dr. Charles Amsler

Event Number: B-018-P
NSF/PLR Award 1204266

ASC POC/Implementer:
Samina Ouda / Jamee Johnson

Dr. Shelley R Bench (Principal Investigator)
shellierb@gmail.com

Stanford University
Environmental Earth System Science
San Jose, California

Supporting Stations: Palmer Station
Research Locations: Station B / Palmer Lab

Project Description:

The West Antarctic Peninsula (WAP) is undergoing some of the most dramatic warming on the globe, with correspondingly rapid ecosystem changes. Research, especially from work carried out by the Palmer LTER program, has shown that resulting changes are occurring to phytoplankton of the Western Antarctic Peninsula waters, but few details are known about species composition and metabolic activity. The objective of this three-year project is to develop microarrays that can be used by the scientific community in coming years to assess changes to community composition and gene expression. The microarrays will be based on high-throughput sequencing of samples collected in the first year. The goal this year is to collect high-biomass and high-quality phytoplankton samples for DNA and RNA sequencing. In order to capture the intra-annual community changes, samples will be collected by filtering off-shore water at regular intervals throughout the entire season (October to April).

Field Season Overview:

One field team member will collect water samples once or twice weekly from 10m depth. Most sampling will be done at a single offshore station using a submersible pump or Go-Flo bottles from a Zodiac inflatable boat. Samples will be collected twice weekly. In addition, samples will be collected from a subset of stations in the sampling grid during the annual LTER cruise on the ARSV Laurence M. Gould. While on station, the PI will train other scientists on station in the collection and processing protocols, so sampling can

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

continue once weekly while the PI is on the LTER cruise and for the last few weeks of the field season.

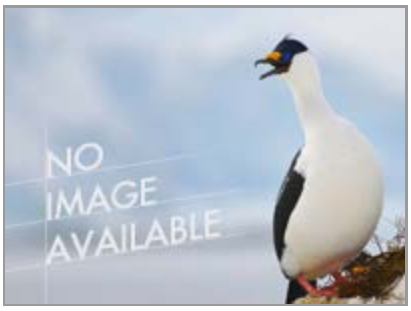
Deploying Team Members:

- Shelley Bench (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

The Cost Of A New Fur Coat: Interactions Between Molt And Reproduction In Weddell Seals



Program Manager:
Dr. Charles Amsler

Event Number: B-292-M
NSF/PLR Award 1246463

ASC POC/Implementer:
Sune Tamm / Cara Sucher

Dr. Jennifer Burns (Principal Investigator)
jmburns@uaa.alaska.edu

University of Alaska Anchorage
Anchorage, Alaska

Supporting Stations: McMurdo Station
Research Locations: Big Razorback Island, Hutton Cliffs, McMurdo Sound, Ross Ice Shelf, Scott Base

Project Description:

Researchers will determine mechanisms linking Weddel seal reproduction and molt timing and how late-summer condition impacts next season's reproductive success. They will assess physiological condition (lipid stores, hormone profiles) at the reproductive period's end, monitor behavioral patterns (diving activity, diet) between reproduction and molt and assess physiological condition and pregnancy status during molting. By targeting known-age females with various prior reproductive timing, these measurements can be used to assess whether molt timing is more responsive to hormonal or energy indices. By targeting females early and late in the molt cycle, researchers will characterize the molting process histologically and physiologically, and gather new and important data on factors influencing the onset of active gestation and/or miscarriage rates. The data will provide baseline values for models predicting the impacts of changing climate and food availability during the austral summer on molt timing and future reproductive success. Through collaboration with B-009-M (Rotella), molt status will be linked to reproductive performance. The data will be used to generate state-dependent hierarchical data, stage-projection matrix, and/or energetic models.

Field Season Overview:

There are two parts to this project's field efforts: assessment of animal condition at the end of lactation, and again during the molt. Therefore they

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

plan to deploy twice during summer 2013-2014.

During the first deployment, field team members will be based out of McMurdo Station and will take daily trips onto the sea ice by snow-machine, with gear towed in sleds, to locate specific adult female Weddell seals, measure their health and condition, and equip them with tags that will monitor diving patterns and aid in relocation. Researchers hope to handle 15-24 adult females. The work will be focused around the breeding colonies within Erebus Bay. During the second deployment, they will return to McMurdo in order to relocate animals handled earlier, and to assess their reproductive condition and health status.

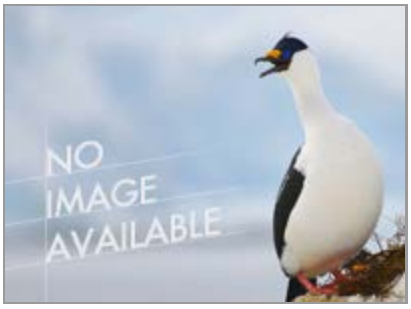
Deploying Team Members:

- Gregg Adams
- Roxanne Beltran
- Rachel Berngartt
- Jennifer Burns (PI)
- Amy Kirkham
- Linnea Pearson
- Julie Richmond
- Patrick Robinson
- Michelle Shero

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Collaborative Research: Importance Of Heterotrophic And Phototrophic N2 Fixation In The McMurdo Dry Valleys On Local, Regional And Landscape Scales



Program Manager:
Dr. Charles Amsler

Event Number: B-012-M
NSF/PLR Award 1246373

ASC POC/Implementer:
Samina Ouda / Meghan Walker

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

San Francisco State University
Romberg Tiburon Center
Tiburon, California

Supporting Stations: McMurdo Station
Research Locations: Taylor Valley

Project Description:

Researchers will study the microbial ecology of the hyporheic and associated arid soils in various McMurdo Dry Valley systems. They hope to study the biogeochemistry of these sites and the activity, composition and distribution of the nitrogen-fixing communities. Ultimately, they would like to map the distribution of these communities throughout the valley ecosystem, via a landscape model, and extrapolate their influence on total nitrogen budgets.

Field Season Overview:

Five team members will camp for three weeks in the Taylor Valley in a shared camp with the New Zealand Terrestrial Antarctic Biocomplexity Survey (nzTABS) program. They will sample wet regions in the valley by foot and by helicopter. They will also set up a small overnight camp in the Victoria Valley, which will be accessed by helicopter.

Deploying Team Members:

- Kathryn Coyne
- Troy Gunderson
- Andrew Kalmbach
- Jill Sohm (Co-PI)

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.

2013-2014 Field Season

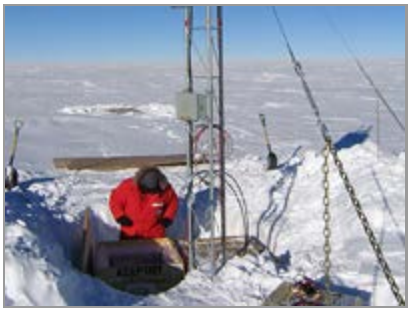
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Polar Experiment Network For Geospace Upper-Atmosphere Investigations (PENGUIn): Interhemispheric Investigations Along The 40-Degree Magnetic Meridian



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-106-M/S
NSF/PLR Award 1243398

ASC POC/Implementer:
Judy Shiple / Paul Sullivan

Dr. C. Robert Clauer (Principal Investigator)
rclauer@vt.edu

Virginia Tech
Hampton, Virginia

Supporting Stations: McMurdo Station, South Pole Station
Research Locations: Antarctic Plateau

Project Description:

The solar wind-magnetosphere-ionosphere system and the space weather it controls is a complex and dynamic environment that affect critical infrastructure such as satellite communications and power grids. To forecast, and thus adapt to, the effects of weather events, researchers must develop accurate geomagnetic models of the Sun-Earth environment. The northern hemisphere is relatively well instrumented. However, the southern hemisphere is not. Over the course of four years, this project will establish a chain of Autonomous Adaptive Low-Power Instrument Platforms (AAL-PIP) along the 40-degree magnetic meridian. This chain of instruments will obtain measurements conjugate to the west coast of Greenland for the investigation of interhemispheric electrodynamic coupling.

Field Season Overview:

Currently at South Pole Station, two AAL-PIP systems (Sys2 and Sys4) are installed and one system (Sys6) is packed for remote field deployment. The two installed systems will be updated with a new fluxgate sensor and repaired electronics, and will remain on site for another year. In addition, a new sensor and electronics will be shipped to Pole and will be installed by the field members.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Karthik Venkataramani
- Zhonghua Xu (Team Leader)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Antarctica: Micro, Macro And In-Between

Program Manager:
Mr. Peter West

Event Number: W-492-P
NSF/PLR Award 1158882

ASC POC/Implementer:
Samina Ouda

Ms. Allyson Comstock (Principal Investigator)
allysoncomstock@gmail.com

Opelika, Alabama

Supporting Stations: Palmer Station
Research Locations: Palmer Station and surrounding area

Project Description:

The artist, expanding on her earlier collaboration with Palmer Station researcher Dr. James McClintock (B-027-P), will gather material to produce two photographic triptychs (a work of art divided into three sections, or three carved panels, which are hinged together and can be folded shut or displayed open). She will take additional photographs of the Antarctic landscape by making trips on land and on water. While on station she will view and learn about the research being conducted, with the goal of establishing additional collaborative relationships with other Palmer Station researchers.

Field Season Overview:

The artist will travel to and from Palmer Station on the ARSV Laurence M. Gould. She will photograph areas surrounding the station that can be accessed on foot, as well as visiting as many areas by Zodiac as time and space allows. She also hopes to observe the research being conducted on station and explore possible collaborative relationships with the various researchers.

Deploying Team Members:

- Allyson Comstock (PI)

Return to Index

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.

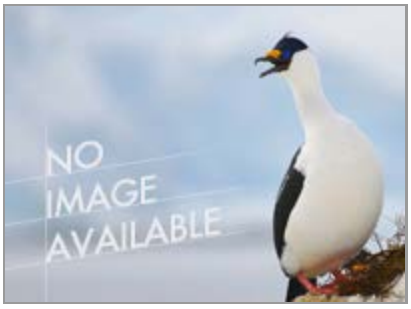
2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

East Antarctic Outlet Glacier Dynamics



Program Manager:
Dr. Julie Palais

Event Number: I-210-M
NSF/PLR Award 1141866

ASC POC/Implementer:
John Rand / Elizabeth Kauffman

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

University of Washington
Earth and Space Sciences
Seattle, Washington

Supporting Stations: McMurdo Station
Research Locations: Beardmore Glacier

Project Description:

Researchers will conduct a suite of experiments to study spatial and temporal variations of basal conditions beneath Beardmore Glacier, an East Antarctic outlet glacier that discharges into the Ross Sea Embayment. Measurements include: (1) airborne and surface-based radar to map the ice thickness and geometry of the sub-glacial trough; and (2) active and passive seismic experiments, together with ground-based radar and GPS measurements to map spatial and temporal variations of conditions at the ice-bed interface. The observational data will be used to constrain dynamic models of glacier flow.

Field Season Overview:

Team members will conduct airborne and ground-based radar, seismic and GPS measurements on Beardmore Glacier. Ground-based measurements this season will focus on the downstream end of the glacier near the grounding line. They will conduct active and passive seismic experiments and will collect about 100 km of gridded radar data.

Deploying Team Members:

- Howard Conway (PI)
- Maurice Conway
- Michelle Koutnik

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.

2013-2014 Field Season

Other Information:

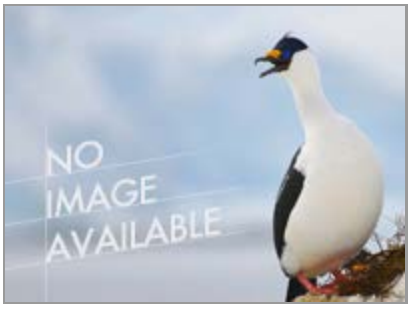
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- J. Paul Winberry (Co-PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Habitability Of Antarctic Lakes And Detectability Of Microbial Life In Icy Environments By Autonomous Year-Round Instrumentation



Program Manager:
Dr. Lisa Clough

Event Number: B-280-M
NSF/PLR Award 1340905

ASC POC/Implementer:
Samina Ouda / Cara Sucher

Dr. Peter Doran (Principal Investigator)
pdoran@uic.edu

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

Supporting Stations: McMurdo Station
Research Locations: Lakes Bonney, Fryxell, Hoare

Project Description:

Researchers will deploy autonomous instrumentation in selected lakes of Taylor Valley, Antarctica, to collect the first below-ice suite of physical, chemical and biological data during the polar night. Their proposed research will test the overarching hypothesis that the winter darkness induces a cascade of physiological changes that alters the biodiversity and functional roles of autotrophic and heterotrophic microplankton within the lakes.

Field Season Overview:

LTER camp staff will deploy Autonomous Lake Profiling and Sampling (ALPS) stations in both the east and west lobes of Lake Bonney. These stations will add to existing Long-Term Ecological Research (LTER) monitoring equipment and will consist of ice-tethered profilers, phytoplankton samplers, and remote-access samplers, along with requisite power and communication. The stations will operate year-round.

Deploying Team Members:

- Luke Winslow

Return to Index

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.

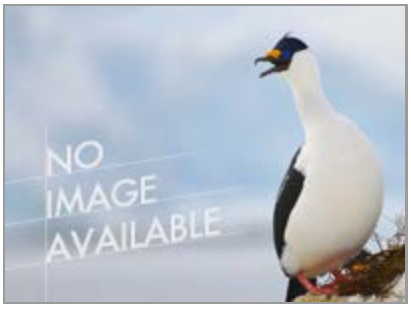
2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

Synoptic Geospace Systems Analysis Utilizing Instrumentation From South Pole And McMurdo Stations



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-111-M/S
NSF/PLR Award 1247975

ASC POC/Implementer:
Samina Ouda / Cara Sucher / Paul Sullivan

Dr. Andrew Gerrard (Principal Investigator)
gerrard@njit.edu

New Jersey Institute of Technology
Department of Physics
Newark, New Jersey

Supporting Stations: McMurdo Station, South Pole Station
Research Locations: Arrival Heights / Atmospheric Research Observatory / Cusp Lab

Project Description:

The ionosphere-thermosphere-magnetosphere (ITM) region of Earth's atmosphere, which is part of the larger geospace environment, is the portal through which the solar wind can enter and impact our planetary system. Though space weather research over the past decades has greatly increased our understanding of a wide variety of phenomena associated with ITM physics, the sum of these individual processes occurring in the geospace environment does not replicate the rich diversity and scope of this complex region. Thus, a more holistic approach to ITM research is necessary, one that integrates clustered instrumentation at multiple locations to simultaneously look at the interactions within the entire system. Using coordinated and collaborative instrumentation currently installed in Antarctica, researchers with this project will study interrelated ITM phenomena observed at high latitudes with the goal of better understanding the energy transfer and modulation of the geospace system.

Field Season Overview:

Deploying field team members will conduct a site inspection and identify locations for instrumentation installation during the 2014-15 field season. Two persons will be sent from New Jersey Institue of Technology to test a new data acquisition system at McMurdo Station and inspect siting locations

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

for the ELF and proton magnetometer vault. Two other persons from Kyoto University will inspect the site for the all-sky imager at McMurdo.

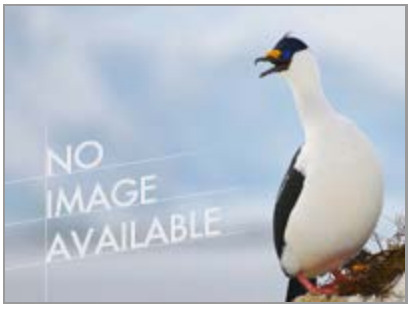
Deploying Team Members:

- Gilbert Jeffer
- Bob Melville

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Assessing The Antarctic Contribution To Sea-Level Changes During The Last Deglaciation: Constraints From Darwin Glacier



Program Manager:
Dr. Julie Palais

Event Number: I-196-M
NSF/PLR Award 1246170

ASC POC/Implementer:
John Rand / Meghan Walker

Dr. Brenda Hall (Principal Investigator)
brendah@maine.edu

The University of Maine
Inst for Quat./Climate Stud. and Dept of Geol Sci
Orono, Maine

Supporting Stations: McMurdo Station
Research Locations: Diamond Hill / Lake Wellman

Project Description:

Researchers will reconstruct past changes in the Darwin/Hatherton Glacier system to develop a record of ice extent and thickness in the Ross Sea during the last glacial maximum and subsequent deglaciation. They will map glacial deposits in the mountains adjacent to the glaciers and collect samples of rocks and fossil algae for radiocarbon and cosmogenic surface-exposure dating. They will integrate the data with an ice-flow model to develop a better understanding of the behavior of the Antarctic Ice Sheet during the last glacial cycle and its contribution to global sea level.

Field Season Overview:

Field team members will operate out of a small tent camp at Darwin/Hatherton Glacier. Camp put in will be by Twin Otter aircraft and helicopter. Due to the distance to Darwin Glacier, fuel caching and two helicopters will be allocated for the helicopter operations. At the end of the season samples will be prepared for shipment at in Crary Lab and then shipped to the home institution.

Deploying Team Members:

- Brenda Hall (PI)
- Trevor Hillebrand

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.

2013-2014 Field Season

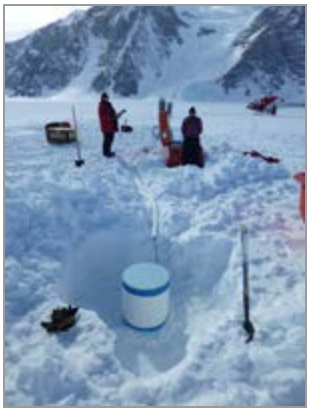
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Courtney King
- John Stone (Co-PI)

Return to Index

CAREER: Deciphering The Tectonic History Of The Transantarctic Mountains And The Wilkes Subglacial Basin



Program Manager:
Dr. Mark Kurz

Event Number: G-061-M
NSF/PLR Award 1148982

ASC POC/Implementer:
Leslie Blank / Elizabeth Kauffman

Dr. Samantha Hansen (Principal Investigator)
shansen@geo.ua.edu

University of Alabama Tuscaloosa
Department of Geological Sciences
Tuscaloosa, Alabama

Supporting Stations: McMurdo Station
Research Locations: Terra Nova Bay

Project Description:

An understanding of the tectonic development of Antarctica requires characterization of the seismic structure beneath the Transantarctic Mountains (TAMs) and the Wilkes Subglacial Basin (WSB). Current constraints on the crustal thickness and seismic velocity structure beneath the TAMs and the WSB are limited, leading to uncertainties over competing geodynamic models. To broaden the investigation of this region, a new 15-station seismic deployment, the Transantarctic Mountains Northern Network (TAMNNET), is being installed across the northern TAMs and the WSB. The study will address four fundamental questions: (1) How variable is the crustal structure beneath the TAMs? (2) Is the WSB characterized by thin crust and thick sedimentary layers? (3) How do seismic velocities vary along strike beneath the TAMs? And (4) How did the TAMs and the WSB originate and how does their formation relate to the geologic history of Antarctica? Data from TAMNNET will be combined with that from other previous and ongoing seismic initiatives and will be analyzed using proven modeling techniques to generate an unprecedented image of the seismic structure beneath the TAMs and the WSB.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Field Season Overview:

During this, the second year of the five-year TAMNNET project, researchers will service and collect data from previously-installed polar seismic equipment from IRIS-PASSCAL at 15 locations across the northern Transantarctic Mountains and the East Antarctic plateau. Research sites will be accessed by Twin Otter aircraft. The Italian and Korean Antarctic programs may also provide some logistical support.

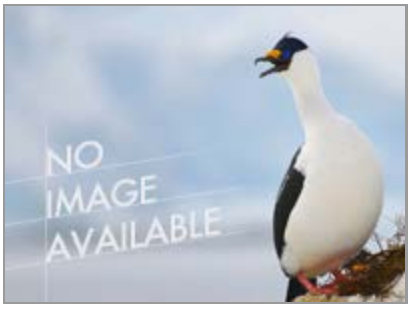
Deploying Team Members:

- Brian DuBay
- Jordan Graw
- Samantha Hansen (PI)
- Lindsey Kenyon

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Reactive Gas Chemistry In The Dome C Snowpack And Its Influence On Surface-Layer Chemistry And Ice-Core Records



Program Manager:
Dr. Peter Milne

Event Number: O-233-M
NSF/PLR Award 1142145

ASC POC/Implementer:
Leslie Blank / Elizabeth Kauffman

Dr. Detlev Helmig (Principal Investigator)
detlev.helmig@colorado.edu

University of Colorado Boulder
INSTAAR
Boulder, Colorado

Supporting Stations: McMurdo Station
Research Locations: Dome C

Project Description:

This US-French collaborative project will investigate snow photochemical processes, their influence on surface exchanges, and the potential impact of this chemistry on the conservation of atmospheric composition in ice cores. It entails the installation and operation of an air sampling system for the continuous, year-round sampling and analysis of snow interstitial air (SIA) drawn from within the snowpack and from the above-snow atmospheric surface layer at Dome C. Over two summers and one winter, the sensors will collect data on highly vertically resolved continuous ozone, carbon monoxide, carbon dioxide, and gasesous elemental mercury (GEM) chemical gradient from within the snowpack to two meters depth and from three above-surface inlets representing the lowest 10 meters of the atmosphere at Dome C.

Field Season Overview:

As early as possible in the 2013-14 field season, four participants will deploy to Dome C to continue their air sampling work. At the end of the season they will remove their instrumentation before before Dome C closes for the winter.

Deploying Team Members:

- Detlev Helmig (PI)

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.

2013-2014 Field Season

Other Information:

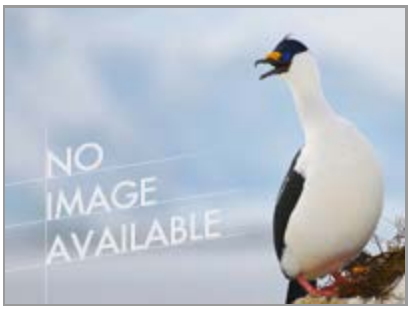
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Joel Savarino (Co-PI)
- William Vicars

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Exploring The Vulnerability Of Southern Ocean Pinnipeds To Climate Change - An Integrated Approach



Program Manager:
Dr. Charles Amsler

Event Number: B-225-M
NSF/PLR Award 1142108

ASC POC/Implementer:
Samina Ouda / Jessica Jenkins

Dr. Paul Koch (Principal Investigator)
plkoch@ucsc.edu

University of California Santa Cruz
Santa Cruz, California

Supporting Stations: McMurdo Station
Research Locations: Bull Pass / Convoy Range / Don Juan Pond / Explorers Cove / Garwood Valley / Goodspeed Glacier / Kolich Point / Balham, Lower Marshall, McKelvey, Victoria Valleys / Lake Vanda

Project Description:

This project will investigate the response of seals in the Ross Sea to climate change over the past several thousand years. This work follows on the researcher's recent southern elephant seals project and involves examining the population structure and paleoecology of seal groups in the Ross Sea, past and present. The target species are southern elephant, crabeater, Weddell, and leopard seals, each of which has specific climate, diet and habitat preferences. Researchers will use genetic, isotopic, and chronologic data to develop an integrated understanding of the response of these mammals to major climate cooling that occurred in the Holocene beginning about a thousand years ago. Specific research objectives include locating, sampling, and identifying mummified seal remains in the Dry Valleys region (including coastal Royal Society Range, the Victoria Land Coast, and parts of the Convoy Range). Samples will be returned to the US for ancient DNA, isotopic, and radiocarbon analyses.

Field Season Overview:

Three participants will establish and work out of an independent tent camp in the Dry Valleys. Team members will move the camp once per season. They will make foot traverses and helicopter-supported day-trips from camp to locate and sample mummified seal remains.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

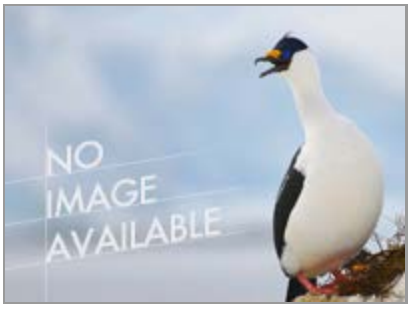
Deploying Team Members:

- Scott Braddock
- Emily Brault
- Paul Koch (PI)
- Jonathan Nye
- Jillian Pelto

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Collaborative Research: Impacts Of Local Oceanographic Processes On Adélie Penguin Foraging Ecology



Program Manager:
Dr. Charles Amsler

Event Number: B-005-P
NSF/PLR Award 1327248

ASC POC/Implementer:
Samina Ouda / Jamee Johnson

Dr. Josh Kohut (Principal Investigator)
kohut@marine.rutgers.edu

Rutgers University
Institute for Marine & Coastal Sciences
New Brunswick, New Jersey

Supporting Stations: Palmer Station
Research Locations: Palmer Deep

Project Description:

The application of innovative ocean observing and animal telemetry technology over Palmer Deep (Western Antarctic Peninsula; WAP) is leading to new understanding, and also to many new questions related to polar ecosystem processes and their control by bio-physical interactions in the polar environment. This multi-platform field study will investigate the impact of coastal physical processes (e.g. tides, currents, upwelling events, sea-ice) on Adélie penguin foraging ecology in the vicinity of Palmer Deep, off Anvers Island, WAP. Guided by real-time surface convergence and divergences based on remotely sensed surface current maps derived from a coastal network of High Frequency Radars (HFRs), a multidisciplinary research team will adaptively sample the distribution of phytoplankton and zooplankton, which influence Adélie penguin foraging ecology, to understand how local oceanographic processes structure the ecosystem.

Field Season Overview:

Field team members will sail to Palmer Station on the ARSV Laurence M. Gould. During the transit to station they will deploy a mooring that will remain in place and collect data for 12 months. Once on station, they will deploy a single High Frequency Radar (HFR) site, scout for specific HFR sites for next year on Joubin and Wauwermans Islands, conduct Zodiac-based acoustic surveys and net sampling over fixed grid to determine Antarctic krill

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

distribution patterns and densities.

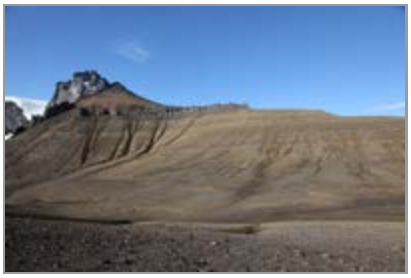
Deploying Team Members:

- Kim Bernard (Co-PI)
- Josh Kohut (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Late Cretaceous-Paleogene Vertebrates From Antarctica: Implications For Paleobiogeography, Paleoenvironment, And Extinction In Polar Gondwana



Program Manager:
Dr. Mark Kurz

Event Number: G-182-L
NSF/PLR Award 1142129

ASC POC/Implementer:
Addie Coyac / Cara Ferrier

Dr. Matthew Lamanna (Principal Investigator)
lamannam@carnegiemnh.org

Pittsburgh, Pennsylvania

Supporting Stations: ARSV Laurence M. Gould
Research Locations: Seymour and Vega Islands

Project Description:

This project will locate and collect vertebrate fossils (primarily those of fishes, marine reptiles, non-avian dinosaurs, birds and mammals) in late Cretaceous through Paleogene deposits on islands in the James Ross Island Group in the Antarctic Peninsula. Material recovered will have implications for understanding the role of the Antarctic Peninsula in the dispersal of vertebrates between West Antarctica and southernmost South America at the end of the Mesozoic and the beginning of the Cenozoic eras. Depending on the specific discoveries made, significant new light may be shed on the evolution, faunal dynamics, and/or paleobiogeography of such important vertebrate groups as non-avian dinosaurs, crown clade birds and therian mammals in the critical interval that brackets the Cretaceous-Paleogene boundary. Geological (i.e., stratigraphic, sedimentological, geochronological, and taphonomic) and paleobotanical work is also planned, to place vertebrate finds into accurate and detailed temporal and paleoenvironmental contexts.

Field Season Overview:

Field team members will sail on the ARSV Laurence M. Gould to field camp sites on the Antactic Peninsula and neighboring islands. Scientific activities will entail exploring for and collecting fossils and geological samples using hand tools (e.g., rock hammers, picks, shovels, sample bags, dry and wet screens). More than halfway through the 2014 season, the LMG will support a series of up to three one-day paleontological and geological reconnaissance visits to other localities within the James Ross Island Group.

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Time and climatic conditions permitting, all project participants will likely visit Ula Point on northeastern James Ross Island; some team members may also survey False Island Point on southeastern Vega Island and/or Devil Island off the northern shore of Vega. At the conclusion of the field season, any recovered fossils, concentrate (resulting from screening activities), and/or geologic samples will be taken to South America and then shipped to the home institution.

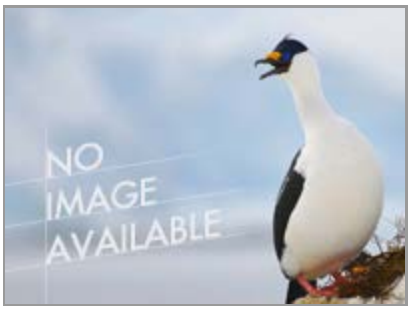
Deploying Team Members:

- Kerin Claeson
- Julia Clarke (Co-PI)
- Jane Francis
- Zubair Jinnah
- Matthew Lamanna (PI)
- Joshua Lively
- Eric Lund
- Ross MacPhee (Co-PI)
- Patrick O'Connor (Co-PI)
- Steven Salisbury
- Joseph Sertich

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Totten Glacier System And The Marine Record Of Cryosphere-Ocean Dynamics



Program Manager:
Dr. Lisa Clough

Event Number: C-527-N
NSF/PLR Award 1143836

ASC POC/Implementer:
Adam Jenkins

Dr. Amy Ruth Leventer (Principal Investigator)
aleventer@colgate.edu

Colgate University
Department of Geology
Hamilton, New York

Supporting Stations: RV/IB Nathaniel B. Palmer
Research Locations: Wilkes Land Shelf

Project Description:

The overall objective is a reconnaissance survey of the Totten Glacier System region, including the Moscow University Ice Shelf to: (1) evaluate the recent behavior of the glacial system, based on seafloor morphology, sub-bottom profiling, high-resolution seismic imaging and marine sediment core evaluation; (2) to elucidate the longer-term role of the Totten Glacier as it responded to late Quaternary changes in climate and sea level; and (3) assess present-day physical oceanographic and particulate dynamic processes associated with the Totten Glacier tongue and the deep basins surrounding it. If time and conditions allow, researchers will sample alternate work areas such as secondary targets along the Wilkes Land Margin and Oates Coast, including the nearby Mertz Trough, and Frost, George V and Cook Glacier systems, potentially reaching the Shackleton Ice Shelf system (Denman Glacier) to complement the over-arching objectives of this project by providing concrete west-east transit targets that will contribute to the knowledge of the sedimentary record of subglacial melt water outflow and the time of ice retreat from the Wilkes Land Margin.

Field Season Overview:

The field team will depart from Hobart, Tasmania on the RV/IB Nathaniel B. Palmer (NBP). This is an interdisciplinary project with marine geology and geophysics, and physical oceanographic objectives planned. Researchers will obtain sea floor samples using a Smith-McIntyre Grab Sampler,

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Megacorer, Kasten core, a Jumbo piston corer, and a box dredge. They will use a YoYo camera, and towed benthic camera "Mud Scud" to obtain sea floor images.

Geophysical data will be collected using the NBP's sub-bottom profiler (3.5 kHz/8.3 kw), Bathy 2000W (12 kHz) and EM 120 Multibeam systems (12 kHz). The systems will collect geophysical, stratigraphic, and bathymetric data. They will also collect multichannel seismic data using generator inductor (GI) seismic sound sources and a 100 meter long, 24-channel streamer.

Physical oceanographic data will be collected using a conductivity temperature depth (CTD) rosette, and the use of a lowered acoustic doppler current profiler (ADCP).

Deploying Team Members:

- Glenn Clark
- Paul Clark
- Eugene Domack (Co-PI)
- Rodrigo Fernandez
- Bruce Frederick
- Jamin Greenbaum
- Michelle Guitard
- Sean Gulick (Co-PI)
- Bruce Huber (Co-PI)
- Amy Leventer (PI)
- Alejandro Orsi (Co-PI)
- Alix Post
- Steffen Saustrup
- Amelia Shevenell
- Catherine Smith
- Tasha Snow
- Krista Soderlund
- Kara Vadman
- Christina Wiederwohl

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Rapid Landscape Change In Garwood Valley: Monitoring Buried Glacier Melt And Exploring "Péwé's Lost Lake"

Program Manager:
Dr. Mark Kurz

Event Number: G-080-M
NSF/PLR Award 1212307

ASC POC/Implementer:
John Rand / Jessica Jenkins

Dr. Joseph Levy (Principal Investigator)
joe.levy@utexas.edu

University of Texas Austin
Corvallis, Oregon

Supporting Stations: McMurdo Station
Research Locations: Garwood Valley

Project Description:

This field work has three objectives: (1) Buried Ice Inventory: Comprehensively map and sample the buried ice record present in Garwood Valley in three spatial dimensions, distinguishing buried glacier ice from interbedded river ice; (2) Buried Ice Loss: Quantify the current rate of buried ice removal where ice is exposed, being eroded by the Garwood River, or being removed through thermokarst formation; and (3) Paleo-Landscape Change: Map the sedimentary sequence overlying the buried ice, and extract datable material for environmental change-rate calculations. The work entails extensive mapping and sampling activities throughout the valley and neighboring coastal sites. An autonomous meteorological station will be deployed and maintained throughout the duration of the project, including over the winter.

Field Season Overview:

A three-person team will deploy to Garwood Valley during January of 2014 to establish a tent camp for about two weeks. The camp will serve as a base for installing meteorological station instruments and for collecting soil samples and shallow ice cores, conducting surface mapping, and conducting day trips by helicopter to proximal coastal sites to map paleo-ice flow paths based on geological evidence.

Deploying Team Members:

- James Dickson

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.

2013-2014 Field Season

Other Information:

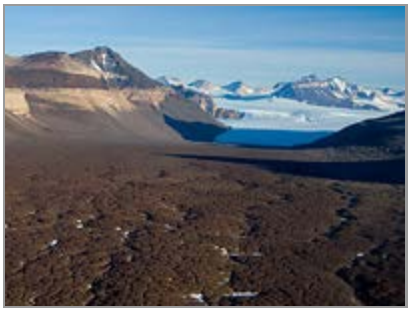
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Shannon Hibbard
- Kelly Hugghes
- Joseph Levy (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

West Antarctic Ice Sheet Stability, Alpine Glaciation, And Climate Variability: A Terrestrial Perspective From Cosmogenic-Nuclide Dating In McMurdo Sound



Program Manager:
Dr. Mark Kurz

Event Number: G-054-M
NSF/PLR Award 1246316

ASC POC/Implementer:
Judy Shiple / Meghan Walker

Dr. David R Marchant (Principal Investigator)
marchant@bu.edu

Boston University
Department of Earth Sciences
Boston, Massachusetts

Supporting Stations: McMurdo Station
Research Locations: Mount Discovery / Brown Peninsula / Black Island

Project Description:

This project will develop high-resolution maps of drifts deposited from grounded marine-based ice and alpine glaciers on islands and peninsulas in McMurdo Sound. In addition, the researchers will acquire multi-clast/multi-nuclide cosmogenic analyses of these mapped drift sheets and alpine moraines and use regional climate modeling to shed light on the range of possible environmental conditions in the McMurdo region during periods of grounded-ice expansion and recession. The researchers will also make use of geological records for ice sheet and alpine glacier fluctuations preserved on the flanks of Mount Discovery, Black Island, and Brown Peninsula. Drifts deposited from grounded, marine-based ice will yield spatial constraints for former advances and retreats of the West Antarctic Ice Sheet. Moraines from alpine glaciers, hypothesized to be of interglacial origin, could yield a first-order record of hydrologic change in the region. Synthesizing the field data, the team proposes to improve the resolution of existing regional-scale climate models for the Ross Embayment. The overall approach and anticipated results will provide the first steps towards linking the marine and terrestrial records in this critical sector of Antarctica.

Field Season Overview:

Two field team member from the Marchant group will deploy and work collaboratively field team members from Dr. Kate Swanger's team (G-085).

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

The Swanger-Marchant combined teams will work together in the Dry Valleys until mid-January, at which time the Swanger-led team will return to McMurdo Station. The remaining Marchant team will remain in the field and move immediately to Mount Discovery, where they will work for the remainder of the season to collect cosmogenic-nuclide samples.

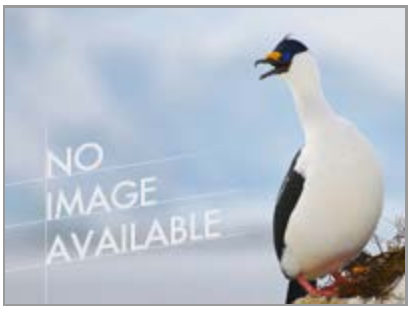
Deploying Team Members:

- David Marchant (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

An Ark Of Questions Sent Sailing South: Poetry From Antarctica



Program Manager:
Mr. Peter West

Event Number: W-490-M
NSF/PLR Award 1158710

ASC POC/Implementer:
Cara Sucher

Ms. Jennifer Martin (Principal Investigator)
jynnne@gmail.com

Brooklyn, New York

Supporting Stations: McMurdo Station
Research Locations: Various locations

Project Description:

The poet will travel with and observe field teams to compile impressions, sensations, textures and scientific vernacular for use in writing original works of poetry. Individual poems resulting from this time in Antarctica will be considered by various national and international literary magazines.

Field Season Overview:

As time and space allows, the artist will travel by helicopter to the Dry Valleys to observe and interact with scientists. She may also make a day trip to the South Pole.

Deploying Team Members:

- Jennifer Martin (PI)

Return to Index

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

SCIENCE PROJECT DETAILS 2013-2014

MIDGE: Minimally Invasive Direct Glacial Exploration Of Biogeochemistry, Hydrology And Glaciology Of Blood Falls, McMurdo Dry Valleys

Program Manager:
Dr. Lisa Clough

Event Number: C-528-M
NSF/PLR Award 1144178

ASC POC/Implementer:
Sune Tamm / Jessica Jenkins

Dr. Jill Mikucki (Principal Investigator)
jmikucki@utk.edu

University of Tennessee
Microbiology
Knoxville, Tennessee

Supporting Stations: McMurdo Station
Research Locations: Blood Falls / Lakes Fryxell and Hoare

Project Description:

This collaborative project will integrate geophysical measurements, molecular microbial ecology and geochemical analyses to explore a unique Antarctic subglacial system known as Blood Falls. Blood Falls is a hypersaline, subglacial brine that supports an active microbial community. The subglacial brine is released from a crevasse at the surface of the Taylor Glacier providing an accessible portal into an Antarctic subglacial ecosystem. Recent geochemical and molecular analyses support a marine source for the salts and microorganisms in Blood Falls. The last time marine waters inundated this part of the McMurdo Dry Valleys was during the Late Tertiary, which suggests the brine is ancient. Still, no direct samples have been collected from the subglacial source to Blood Falls, and little is known about the origin of this brine or the amount of time it has been sealed below Taylor Glacier. It remains unclear what triggers the episodic release of brine exclusively at the Blood Falls crevasse or the extent to which the brine is altered as it makes its way to the surface. MIDGE aims to determine the mechanism of brine release at Blood Falls, evaluate changes in the geochemistry and the microbial community within the englacial conduit, and assess if Blood Falls waters have a distinct impact on the Taylor Glacier thermal and stress state.

Field Season Overview:

A total of 12 participants will deploy by helicopter from McMurdo Station to

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

the Dry Valleys. The team will be divided into a geophysics team and a MIDGE testing team. The MIDGE team will camp at Lake Hoare and will make daily hikes to Canada Glacier to conduct tests of the MIDGE probe. The team will also make day-trips to Blood Falls for sampling, and some of them will stay on at Blood Falls to conduct a survey of the Blood Falls crack.

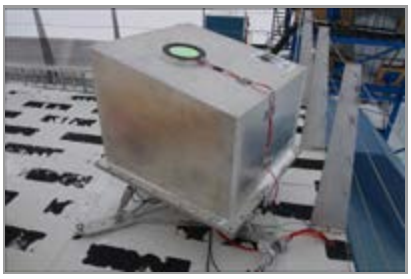
Deploying Team Members:

- Jessica Badgeley
- Christina Carr
- Michelle Chua
- Bernd Dachwald
- Clemens Espe
- Marco Feldmann
- Gero Francke
- Jill Mikucki (PI)
- Erin Pettit (Co-PI)
- Slawomir Tulaczyk (Co-PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Analysis Of The Data From The Gattini Antarctic Camera Network



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-356-S
NSF/PLR Award 0839136

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

Dr. Anna Moore (Principal Investigator)
amoore@astro.caltech.edu

California Institute of Technology
Astronomy
Pasadena, California

Supporting Stations: South Pole Station
Research Locations: Dark Sector

Project Description:

The Gattini network consists of three cameras located at the high-altitude Antarctic sites Dome C, Dome A, and South Pole. These star transit cameras monitor wide areas of the southern sky, taking an image every five to 15 minutes throughout the entire Antarctic winter season. The network has been in operation since the 2006 austral winter season, collecting data sets totalling in excess of three Terabytes. The project's data reduction and analysis effort will focus on two distinct areas: (1) Obtaining photometric light curves of the brightest and most interesting long-period variable stars in the southern sky, which have known parallaxes and other parameters and are unique stars with no counterparts in the Kepler spacecraft field; and (2) Producing astronomical site testing results that are critical for validating high-altitude Antarctic sites to allow planning of future large astronomical facilities.

Field Season Overview:

The Gattini-SP instrument has been operational since February 2011. Project researchers controlled the camera from their home institutions. This year, one field team member will deploy to Amundsen-Scott South Pole Station to decomission and retrograde all instrumentation.

Deploying Team Members:

- Christopher Martin
- Anna Moore (PI)

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.

2013-2014 Field Season

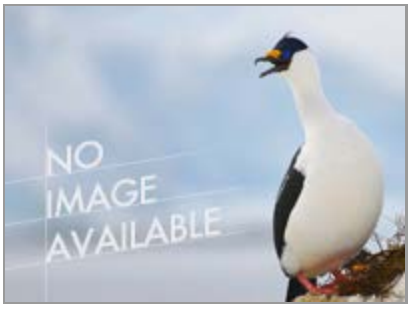
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

The Taylor Glacier, Antarctica, Horizontal Ice Core: Exploring Changes In The Natural Methane Budget In A Warming World And Expanding The Paleo-Archive



Program Manager:
Dr. Julie Palais

Event Number: I-159-M
NSF/PLR Award 1245659

ASC POC/Implementer:
John Rand / Jessica Jenkins

Dr. Vasilii Victorovich Petrenko (Principal Investigator)
vpetrenk@z.rochester.edu

University of Rochester
Rochester, New York

Supporting Stations: McMurdo Station
Research Locations: Taylor Glacier

Project Description:

The objective of this project is to continue the use of the Taylor Glacier ice ablation area for paleoenvironmental studies and to expand the understanding of the surface-ice stratigraphy. Researchers will examine the methane record, cosmogenic 14C, variations of CO2, nitrous oxide and their isotopes, and will continue age-mapping of the ice. In addition, they will conduct pilot studies of new tracers, filter meltwater for extraterrestrial dust and organic material and perform on-site methane isotopic analyses.

Field Season Overview:

A science team of eight persons will camp on Taylor Glacier for two months. They will drill at numerous locations on the glacier to depths up to 70 meters. Large-diameter cores will be extracted and melted on-site, from which the released air will be captured and transported to home institutions for further analysis. In addition, numerous smaller-diameter core will be drilled at various locations on the glacier. A small quantity of ice will also be shipped to the home institution.

Deploying Team Members:

- Daniel Baggenstos
- Thomas Bauska

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.

2013-2014 Field Season

Other Information:

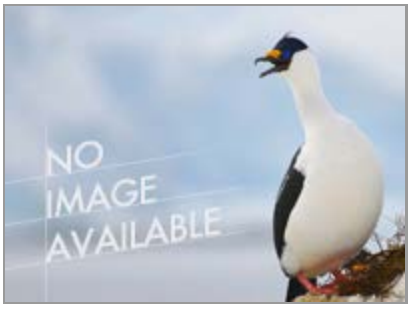
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Michael Dyonisius

- Benjamin Hmiel
- Chandra Llewellyn
- Avery Palardy
- Vasilii Petrenko (PI)

Return to Index

WISSARD Roving Drill



Program Manager:
Dr. Lisa Clough

Event Number: C-530-M
NSF/PLR Award 1346249

ASC POC/Implementer:
Jessica Jenkins / Matthew Kippenhan

Dr. Frank Rack (Principal Investigator)
frack2@unl.edu

University of Nebraska Lincoln
Department of Geosciences
Lincoln, Nebraska

Supporting Stations: McMurdo Station
Research Locations: Subglacial Lake Whillans

Project Description:

The roving drill will enable attainment of the research goals defined in Projects C-525 (Schwartz) and C-521 (Tulaczyk) by drilling into the Whillans Ice Stream at multiple locations.

Field Season Overview:

Three drillers from University of Nebraska-Lincoln (UNL) will deploy to McMurdo near station opening in mid-October to complete the build of the roving drill started last season under the WISSARD Borehole Drill Contractor project (C-524). The roving drill will then be loaded onto the WISSARD traverse to the Subglacial Lake Whillans (SLW) site leaving MCM in late November. Soon after the arrival of the traverse at the SLW site, these drillers (with the potential addition of a fourth driller depending on assessed personnel needs at that time) will fly to SLW and ready the roving drill for transport to the first pair of drill locations about 40 km away. WISSARD traverse personnel will transport the drill and its operators to the first drill location and drop it and the drill crew off to begin operations. To reach the second hole at this site, approximately 1 km from the first one, support from the CReSIS camp will be needed for towing/transport as the WISSARD traverse crew will be occupied with readying the main WISSARD drill for transport to the Grounding Zone (GZ). Once the holes and science are complete at the first site (Site A), the roving drill will be towed to the second site (Site B) either by CReSIS vehicles or WISSARD traverse vehicles, depending on when the Site A science is completed. Depending on the state

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

of the respective roving drill and WISSARD schedules, the roving drill crew will either begin operations at Site B or go to GZ to help set up the WISSARD main drill. (Note that we are expecting to make use of two tractors from CReSIS once it closes, as well as the CReSIS mechanic/operator.) Once Site B science is done, the roving drill will be moved to the main GZ camp to drill to the bottom of the ice sheet to obtain basal ice cores. Once this is done the drill will be prepared for traverse back to McMurdo from GZ. The roving drill crew will also help winterize the main WISSARD drill and prepare any WISSARD drill components needing major servicing for traverse back to MCM; they will fly back to MCM with the bulk of the WISSARD team in late January.

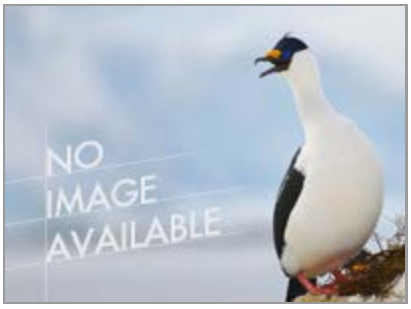
Deploying Team Members:

- Daren Blythe
- Dennis Duling (Team Leader)
- Dar Gibson

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

In-Situ Observations Of Maritime Sources/Sinks Of Aerosol And Cloud Condensation Nuclei At Palmer Station, Antarctica: Portable AERosol Observing System (PAEROS) Pilot Phase



Program Manager:
Dr. Peter Milne

Event Number: O-215-L/P
NSF/PLR Award 1246152

ASC POC/Implementer:
Samina Ouda

Dr. Gregory C Roberts (Principal Investigator)
gcroberts@ucsd.edu

University of California San Diego
Scripps Institution of Oceanography
La Jolla, California

Supporting Stations: ARSV Laurence M. Gould, Palmer Station
Research Locations: Western Antarctic Peninsula

Project Description:

This project will deploy a miniaturized aerosol package (PAEROS) at Palmer Station to measure aerosol physical properties, cloud condensation nuclei (CCN), radiative fluxes and meteorological parameters. Research objectives include: (1) to identify sources and sinks of aerosol and CCN properties of the Southern Ocean with respect to atmospheric conditions, e.g., wind speed, back trajectories, solar fluxes and cloud cover; (2) determine the contribution of sources, e.g., sea salt, biogenic, to remote marine aerosol using the observed physico-chemical aerosol properties; (3) compare marine aerosol properties to those originating from the Antarctic plateau to better understand processes related to particle formation and the evolution of aerosol and CCN in Antarctica; and (4) demonstrate the technical capability of PAEROS by operating the observing system in a harsh environment at a remote location.

Field Season Overview:

Two field team members will sail from Punta Arenas, Chile on the ARSV Laurence M. Gould (LMG) to Palmer Station. While on the LMG they will mount a miniaturized aerosol package (PAEROS) instrument to the rails of the vessel that will collect a data set during Southern Ocean transects. They will install a similar instrument at Palmer Station. While on station they will

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

instruct a research assistant on how to perform weekly routine maintenance on the instrument, and to copy and send data sets back to their home institution.

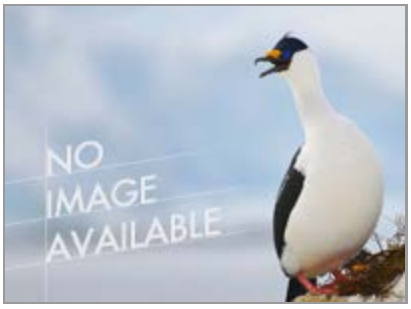
Deploying Team Members:

- Craig Corrigan
- Gregory Roberts (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Test Of Lorentz Invariance At The South Pole



Program Manager:
Dr. Vladimir Papitashvili

Event Number: A-103-S
NSF/PLR Award 1142032

ASC POC/Implementer:
Samina Ouda / Paul Sullivan

Dr. Michael V Romalis (Principal Investigator)
romalis@princeton.edu

Princeton University
Princeton, New Jersey

Supporting Stations: South Pole Station
Research Locations: Cryogen Facility

Project Description:

This project will test Lorentz invariance by placing an atomic spin sensor at the South Pole, where it will be unaffected by Earth rotation. The experiment will constrain several possible forms of Lorentz violation in the sensitivity range where the effects of quantum gravity can be expected, improving existing limits by a factor of 103. The goal for the season is to use the experience of operating the Lorentz violation experiment at the South Pole to further improve its sensitivity. The two current sources of uncertainty are random noise and systematic drifts. Some of this noise is intrinsic to the apparatus and some is caused by environmental disturbances. Researchers plan to address both sources of noise by making upgrades to the apparatus and by mitigating environmental effects.

Field Season Overview:

Field team members will make hardware upgrades to the apparatus and train a research assistant on its operation.

Deploying Team Members:

- Morgan Hedges
- Michael Romalis (PI)
- Marc Smiciklas

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Synergistic Effects Of Elevated Carbon Dioxide And Temperature On The Metabolism, Growth, And Reproduction Of Antarctic Krill (Euphausia Superba)

Program Manager:
Dr. Charles Amsler

Event Number: B-068-P
NSF/PLR Award 1246293

ASC POC/Implementer:
Samina Ouda / Jamee Johnson

Dr. Grace Saba (Principal Investigator)
saba@marine.rutgers.edu

Rutgers University
Institute for Marine & Coastal Sciences
Burlington, New Jersey

Supporting Stations: Palmer Station
Research Locations: Palmer Lab

Project Description:

Field team members will conduct prolonged exposure experiments with Antarctic krill (Euphausia superba) to pinpoint the underlying physiological mechanisms of carbon dioxide- and temperature-induced responses, determine potential costs of increased energetic demand at elevated carbon dioxide levels, determine potential acclimation of krill to high carbon dioxide and temperature, and understand the associated feedbacks on the ecosystem and biogeochemical cycles. The goals of the study are: (1) To examine the independent and synergistic effects of carbon dioxide and temperature on acid-base regulation and metabolic physiology of adult Antarctic krill; and (2) Determine potential costs in growth and reproduction of Antarctic krill due to the increased energetic demand of acid-base regulation to compensate for elevated carbon dioxide.

Field Season Overview:

Researchers will conduct CO2 perturbation experiments at Palmer Station using on-site aquarium tanks, a large walk-in incubator, and laboratory space for running real-time carbonate chemistry samples. This year their work will focus on the independent and synergistic effects of CO2 and temperature on metabolism of adult krill. Krill will be collected in the Palmer region by Dr. Deborah Steinberg's group aboard the ARSV Laurence M. Gould at the beginning and end of the annual Long Term Ecological

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Research (LTER) cruise.

Deploying Team Members:

- Abigail Bockus
- Ryan Fantasia
- Grace Saba (PI)
- Brad Seibel (Co-PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

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

Program Manager:
Dr. Lisa Clough

Event Number: B-019-L/P
NSF/PLR Award 0823101

ASC POC/Implementer:
Samina Ouda / Jamee Johnson

Dr. Oscar Schofield (Principal Investigator)
oscar@marine.rutgers.edu

Rutgers University
Institute for Marine & Coastal Sciences
New Brunswick, New Jersey

Supporting Stations: ARSV Laurence M. Gould, Palmer Station
Research Locations: LTER Study Site / Palmer Station

Project Description:

Long Term Ecological Research (LTER) researchers seek to understand how changes in phytoplankton dynamics, such as an increase in fresh water due to melting ice, propagate through the ecosystem, ultimately affecting fish, seabirds, and marine mammals. Because photosynthesis is driven by sunlight, characterizing the quality and quantity of light available for use by phytoplankton is important. Researchers will deploy a wide range of sensors to measure these optical properties, which, in turn, will help understand the underlying role of light variability in phytoplankton dynamics. In addition to their role at the base of the marine ecosystem, the fate of phytoplankton biomass is important to understanding climate change feedback. By conducting experiments to study phytoplankton physiology, researchers hope to develop a clear picture of the fate of phytoplankton biomass once it enters the Antarctic ecosystem.

Field Season Overview:

Field team members will (1) Maintain the phytoplankton Palmer time series measurements at LTER stations B and E. The time series consists of water collection for HPLC, 14C productivities, and chlorophyll a measurements. These measurements are complemented with a full array of multi- and hypersectral optical measurements. Efforts will focus on resolving both the apparent and inherent optical properties. The optics will be complemented by

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

CTD measurements; (2) Expand glider operations to fly four gliders: One FIRe glider, one ADCP glider, and a backscatter glider. These gliders are 200-meter vessel class. One deep 1000-meter glider will be launched and flown to Rothera base; (3) Work with Debbie Steinberg's LTER team, to calibrate the glider ADCP instruments using live zooplankton (krill, salps, etc.) maintained at Palmer Project participants will also sail onboard the annual 28-day LTER cruise onboard the Laurence M. Gould (LMG) from January 1 to February 15th. Vessel-based activities include collecting samples by trawling, conducting multiple CTD casts, deploying gliders and servicing five physical oceanographic moorings. A sediment trap mooring will be recovered and re-deployed at the LTER site near Hugo Island. Three- to five-day field camps will take place on Avian and Charcot Islands. Zodiac support is required for deploying to these field sites, as time and ice conditions permit. During the time at process stations, Zodiac support will be allocated for glider operations and to deploy satellite tags on baleen whales, collect biopsy samples, and individual photo-ID data. Two fully-equipped radioisotope vans will be used for C14 and for 3H (tritium).

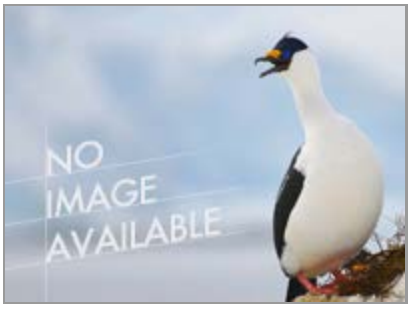
Deploying Team Members:

- Nicole Couto
- Travis Miles
- Oscar Schofield (PI)
- Philip Sontag

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Investigating (Un)Stable Sliding Of Whillians Ice Stream And Subglacial Water Dynamics Using Borehole Seismology: A Component Of The Whillans Ice Stream Subglacial Access Research Drilling (WISSARD) Project



Program Manager:
Dr. Lisa Clough

Event Number: C-525-M
NSF/PLR Award 1043784

ASC POC/Implementer:
Chad Naughton / Matthew Kippenhan

Dr. Susan Schwartz (Principal Investigator)
ssschwartz@pmc.ucsc.edu

University of California Santa Cruz
Earth Sciences
Santa Cruz, California

Supporting Stations: McMurdo Station
Research Locations: Subglacial Lake Whillans

Project Description:

A component of WISSARD, this project focuses on deployment of a surface passive seismic network and an array of borehole seismometers on Whillans Ice Stream (WIS), in the vicinity of Subglacial Lake Whillans (SLW). The seismic data will help to reveal the role of subglacial hydrology in controlling temporal variability of ice stream dynamics and mass balance. Specifically, borehole seismology will allow basal earthquakes and seismic signals generated by subglacial hydrology to be recorded and studied that are orders of magnitude smaller and have a more complete frequency content than possible using surface instrumentation alone. Determination of the source characteristics of basal events will permit the role of small asperities or 'sticky spots' in controlling basal motion to be assessed. The study area experiences large changes in ice velocity in response to tidally triggered stick-slip cycles of WIS and periodic filling and draining of SLW, allowing the characteristics of basal motion during fast and slow ice movement and subglacial lake inflow, outflow, and quiescence to be compared.

Field Season Overview:

Due to repercussions from the government shutdown the WISSARD Hot Water Drill campaign at the Grounding Zone has been deferred. However, a combined field team of 7-8 participants from Schwartz (C-525-M) and

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Tulaczyk (C-521-M/0839142) will deploy to SLW/CReSIS camp via LC-130 in mid December and will exist as their own self-supported mobile field team focusing on multiple geophysical installations accessed via snowmobile in the Whillans Ice Stream area. In early January the combined C-521/C-525 field team will rendezvous at SLW/Cresis with five University of Nebraska Drillers (C-524/C-530) and some supplemental science personnel, who will have arrived via fixed-wing aircraft, and the ASC WISSARD traverse, who will have transported the roving drill and associated camp equipment out to the site. Members of the WISSARD traverse will deliver the team/equipment to Roving Site 1A. As opposed to the original plan, where the WISSARD traverse would not stay with the team and would only provide transportation as required, the plan is now to have the WISSARD traverse stay on site and provide needed support during drilling/science operations. Once operations are completed at Roving Site 1A the traverse team, drillers, and grantees will move as a group to Roving Site 1B, 2A, and 2B respectively. Estimated duration at each site will be approximately three days. The WISSARD traverse will ultimately bring the drillers and science team back to the CReSIS camp at SLW where they will return to McMurdo via fixed wing during the last week of January. The WISSARD traverse will then traverse the roving drill and associated camp equipment back to McMurdo. Refer to the Rack C-530-M RSP for details on the roving drill logistics and the Tulaczyk C-521-M RSP for details related to the shared component of the C-525-M fieldwork.

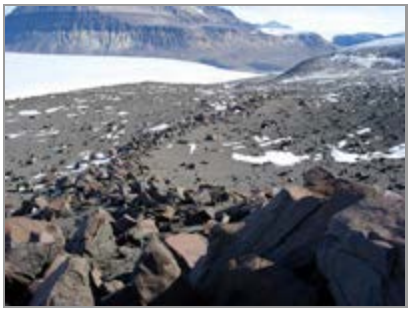
Deploying Team Members:

- Grace Barcheck
- Susan Schwartz (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Multinuclide Approach To Systematically Evaluate The Scatter In Surface Exposure Ages In Antarctica And To Develop Consistent Alpine Glacier Chronologies



Program Manager:
Dr. Mark Kurz

Event Number: G-085-M
NSF/PLR Award 1043724

ASC POC/Implementer:
Sune Tamm / Meghan Walker

Dr. Kate Swanger (Principal Investigator)
Kate_Swanger@uml.edu

University of Massachusetts
Lowell, Massachusetts

Supporting Stations: McMurdo Station
Research Locations: Dry Valleys / Olympus Range / Stocking Glacier

Project Description:

By combining a multinuclide approach, detailed field experiments, glacial geologic mapping, rock-mechanics studies and climate modeling, researchers plan to investigate the impact of polar surface processes (weathering, burial by cold-based glaciers) on the application of cosmogenic exposure dating. The project has two specific goals: (1) generate an alpine glacier chronology as a robust record of regional climate variation in the McMurdo Sound region over the past few million years; and (2) evaluate effects of weathering, burial and pre-exposure on exposure ages in polar deserts. To achieve these research goals, the field team plans to gather rock samples for exposure dating from multiple alpine moraine systems in Taylor and Wright valleys, the western Olympus Range and Quartermain Range. They will also gather samples from glaciers in Taylor and Wright valleys in order to address pre-exposure of rock samples and will perform in-situ experiments and analyses designed to quantify present-day weathering processes and rates in each location. In addition, they will gather meteorology data from each location for use in rock-weathering models.

Field Season Overview:

Five field team members will set up remote camps at four locations in the Dry Valleys, remaining at each location for about 12 days. They will conduct helicopter-supported fieldwork in the lower Taylor Valley, Pearse Valley, and Wright Valley, where they will retrieve data from long-term meteorologic

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

stations, as well as complete retrieval of weathering and meteorological equipment for short term monitoring sites.

Deploying Team Members:

- Christopher Ford
- Catherine Radonic
- Kate Swanger (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

An Integrated Ecological Investigation Of McMurdo Dry Valley's Active Soil Microbial Communities

Program Manager:
Dr. Charles Amsler

Event Number: B-330-M
NSF/PLR Award 1142102

ASC POC/Implementer:
Sune Tamm / Cara Sucher

Dr. Cristina Takacs-Vesbach (Principal Investigator)
cvesbach@unm.edu

University of New Mexico
Albuquerque, New Mexico

Supporting Stations: McMurdo Station
Research Locations: Taylor and Wright Valleys

Project Description:

Because the McMurdo Dry Valley (MDV) soil bacterial community this is a microbially dominated system, knowing what fraction of the microbial diversity of the region is active and what functional role it plays is critical to understanding the ecology of the MDV. Equipped with recent advances in molecular microbial ecology techniques including highly sensitive techniques like pyrosequencing and stable isotope probing, researchers can now directly study the active members of a community, even in a low biomass system like the MDV. This project will investigate the active portion of the MDV bacterial community using an integrated molecular ecology approach to (1) identify active members; (2) determine their metabolic functions in situ; and (3) develop a habitat suitability model describing the abiotic controls on bacterial activity. The overall objective of this project will be to identify active members of the Dry Valley soil microbial community and determine their ecological role.

Field Season Overview:

Six participants will deploy to Taylor and Wright Valleys to establish soil sampling and experimental plots. Plots will be established prior to melt so that temporal variations in microbial community composition and function can be monitored. In situ manipulative experiments will be conducted each year to directly test the effect of increased carbon and moisture on microbial activity, diversity, and function. Major activities include flying to and from established field camps and plots, and walking to sampling sites whenever

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.

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

possible.

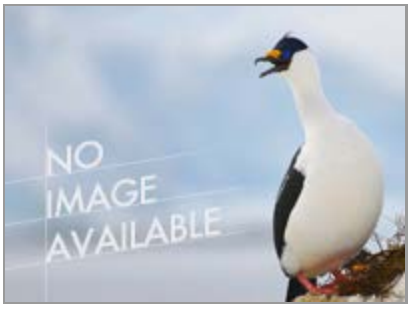
Deploying Team Members:

- Heather Buelow
- Justin Kendhammer
- Egbert Schwartz (Co-PI)
- Cristina Takacs-Vesbach (PI)
- David Van Horn (Co-PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Optical Fabric And Fiber Logging Of Glacial Ice



Program Manager:
Dr. Julie Palais

Event Number: I-172-M
NSF/PLR Award 1142010

ASC POC/Implementer:
John Rand / Jessica Jenkins

Dr. Joseph John Talghader (Principal Investigator)
joey@umn.edu

University of Minnesota
Minneapolis, Minnesota

Supporting Stations: McMurdo Station
Research Locations: Siple Dome / West Antarctic Ice Sheet (WAIS) Divide

Project Description:

The research team has two primary goals for this project: (1) to introduce fiber-optic based tools that circumvent the need to have power supplies, laser sources, optics, detectors and electronic processing capabilities mounted on the unit that descends into the borehole, thus keeping most of the system weight, size, and complexity on the surface; (2) add some level of fabric measurement capability to borehole logging tools using polarized light backscattered from the borehole ice and analyzed using polarization-sensitive optics.

Field Season Overview:

Researchers will travel to WAIS Divide to test borehole logging instruments. They will have one fiber-based instrument whose purpose is to compare the quality of data taken to the optical dust logger which another researcher will deploy in the main WAIS Divide borehole. They will also have another optical instrument that will attempt to measure average fabric and grain size. Since the project is one of technology development, the most important work can be done in the secondary borehole holes at WAIS rather than the primary, but if there is open space in the schedule, they may also test their fiber tool in the main hole.

Deploying Team Members:

- Ryan Bay (Co-PI)

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.

2013-2014 Field Season

Other Information:

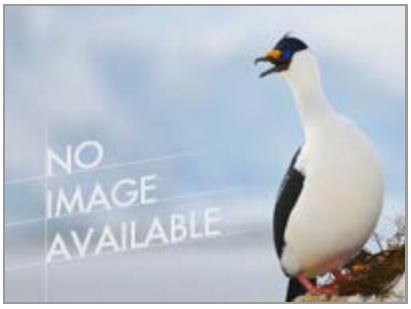
- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

- Wing Shan Chan
- Joseph Talghader (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Research In Undergraduate Institutions (RUI): Synergistic Effects Of Ocean Acidification And Warming On Larval Development In Antarctic Fishes



Program Manager:
Dr. Charles Amsler

Event Number: B-207-M
NSF/PLR Award 1142122

ASC POC/Implementer:
Samina Ouda / Cara Sucher

Dr. Anne Elizabeth Todgham (Principal Investigator)
todgham@sfsu.edu

San Francisco State University
San Francisco, California

Supporting Stations: McMurdo Station
Research Locations: McMurdo Sea Ice

Project Description:

The primary goal of this group is to understand the interaction of ocean acidification and the projected rise in mean sea surface temperature on the physiological performance, growth and development of early life history stages (eggs, larvae and juveniles) of Notothenioids, the dominant fish of the Antarctic marine ecosystem.

Field Season Overview:

The field team will be making daily to twice daily trips on the sea ice where they will erect fish huts and use a Reed Drill to drill 8 to 10 holes through which they will fish with traps. In addition, ASC divers will collect fish and fish eggs for further study in the Crary Lab. Some samples will be returned to the home institution.

Deploying Team Members:

- Brittany Bjelde
- Erin Flynn
- Amanda Kelley
- Nathan Miller
- Anne Todgham (PI)

Project Indexes

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Project Web Sites

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

2013-2014 Field Season

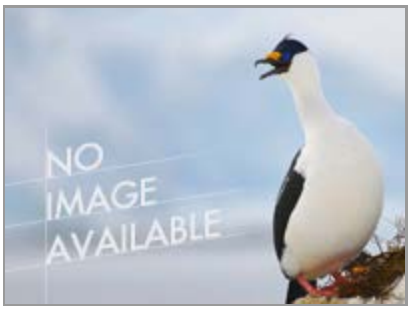
Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Ocean Acidification: Pteropod Swimming Behavior As A Bioassay For Ocean Acidification



Program Manager:
Dr. Charles Amsler

Event Number: B-048-P
NSF/PLR Award 1246296

ASC POC/Implementer:
Addie Coyac / Jamee Johnson

Dr. Jeannette Yen (Principal Investigator)
jeannette.yen@biology.gatech.edu

Georgia Institute of Technology
School of Biology
Atlanta, Georgia

Supporting Stations: Palmer Station
Research Locations: LTER Study Area / Palmer Aquarium

Project Description:

Researchers seek to develop a biological assay (bioassay) for ocean acidification based on the swimming behavior of a key sentinel of ocean acidification, thecosome pteropods. Pteropods are responsible for more than 40 percent of the community grazing impact in the Southern Ocean and are capable of capturing in their mucus feeding nets 63 percent of the total zooplankton in the Ross Sea. Reduced survivorship of pteropods is likely to have a strong affect on the aquatic ecosystem. With ocean acidification, the pteropod shell will thin because the aragonite is so soluble. With a behavioral bioassay, researchers expect to see a change in the frequency of the flapping parapodia and the wobble of the swimming organism. Since behavioral data can be gathered immediately, this bioassay may provide early warning of the impending onset of ocean acidification effects on this important member of the plankton.

Field Season Overview:

We plan to compare the swimming responses of temperate vs polar living specimens of Limacina helicina. We will bring our optical systems to Palmer Station and The Kings Bay Marine Station, Norway, to collect the data on living polar pteropods. Our optical system requires vibration isolation (cement floor is fine) and temperature control. It occupies a 3'x3' x4' (height) volume of space. Imaging from the 4 cameras will be collected digitally on a computer. Collections of live zooplankton from the R/W Gould can be made

Project Indexes

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Project Web Sites

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2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

prior to coming into Palmer station along the PAL LTER 600 line (which is straight out from Palmer Station). If the RV Pt. Sur is available, collections also are possible from this coastal vessel. Specimens also have been collected using beakers from zodiacs further south in quite shallow water near Avian Island. Temperate species will be shipped overnight to us at Georgia Tech from colleagues on the west coast of the US (San Diego?mark Ohman, Santa Barbara?Alice Alldredege, Oregon?Bill Peterson).

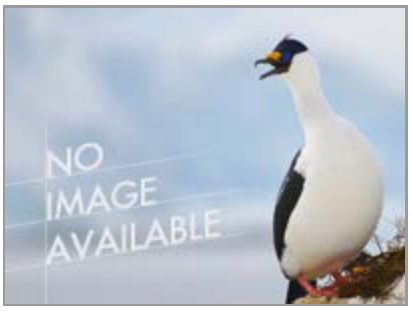
Deploying Team Members:

- Deepak Adhikari
- Rajat Mittal (Co-PI)
- Jeannette Yen (PI)

Return to Index

SCIENCE PROJECT DETAILS 2013-2014

Response Of Carbon Accumulation In Moss Peatbanks To Past Warm Climates In The Antarctic Peninsula



Program Manager:
Dr. Mark Kurz

Event Number: G-094-P
NSF/PLR Award 1246190

ASC POC/Implementer:
Samina Ouda

Dr. Zicheng Yu (Principal Investigator)
ziy2@lehigh.edu

Lehigh University
Bethlehem, Pennsylvania

Supporting Stations: Palmer Station
Research Locations: Western Antarctic Peninsula / Litchfield and Galindez Islands

Project Description:

This project will assess response of carbon accumulation in moss peatbanks to climate changes in the last 1,000 years in the Antarctic Peninsula (AP). The overall goal is to document the formation ages and temporal changes in these peat-forming ecosystems in response to climate warming and ice retreat in an ice-dominated region. To that end, researchers will target the most recent preindustrial warm period, the Medieval Warm Period about 800 years ago, and the recent and ongoing warming interval over the last several decades. The high-resolution time series of ecosystem and climate changes that they will develop will help put the observed recent changes into a long-term context, and help bridge process-level understanding across decadal, centennial and millennial time scales. The researcher's approach is to evaluate the outcomes of past “natural climate warming experiments” that have occurred on the Antarctic Peninsula to better understand polar ecosystem responses to climate change in the past and future.

Field Season Overview:

Four field team members will sail to the Antarctic Peninsula on the ARSV Laurence M. Gould. They will spend part of their time at Palmer Station, and part at the Ukraine station, Vernadsky. They will use Zodiacs to observe and collect moss, peat and other samples from Litchfield, Galindez, and various other islands. Samples will be returned to the home institution for further study.

Project Indexes

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Project Web Sites

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

2013-2014 Field Season

Other Information:

- Home Page
- Station Schedules
- Air Operations
- Staffed Field Camps
- Event Numbering System

Deploying Team Members:

- David Beilman (Co-PI)
- Julie Loisel
- Mary Tardona
- Zicheng Yu (PI)

Return to Index