

SCIENCE PLANNING SUMMARY

UNITED STATES ANTARCTIC PROGRAM

2020-2021



Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

Find more information about 2020-2021 USAP projects by viewing project web sites.

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2020-2021 USAP Field Season

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■ USAP Program Indexes

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Dr. Robert Moore, Program Director
- [Organisms and Ecosystems](#)
Dr. Karla Heidelberg, Program Director
- [Earth Sciences](#)
Dr. Michael Jackson, Program Director
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Dr. Paul Cutler, Program Director
- [Ocean and Atmospheric Sciences](#)
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Dr. Michael Jackson, Program Director
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Ms. Elizabeth Rom; Program Director

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Project Indexes

Project Web Sites

Principal Investigator/Link	Event No.	Project Title
Anderson, Kent	T-299-M/S	IRIS/PASSCAL seismic support
Bristow, William	A-369-M/S	Antarctic and Conjugate Research Using SuperDARN
Bristow, William	A-369-M/S	Antarctic and conjugate research using SuperDARN
Butler, James Hall	O-257-M/S	South Pole monitoring for climatic change - U.S. Department of Commerce NOAA Global Monitoring Division (GMD)
Butler, James Hall	O-264-P	Collection of atmospheric air for the NOAA/GMD worldwide flask-sampling network
Conde, Mark Gerard	A-343-M/S	High-resolution mapping of thermospheric wind and temperature fields near the equatorward edge of the Antarctic polar cap
Costa, Daniel Paul	B-232-L	Foraging ecology and physiology of the leopard seal
Gooseff, Michael N	C-506-M	McMurdo LTER – Streams/Geochemistry: Ecosystem response to amplified landscape connectivity in the McMurdo Dry Valleys, Antarctica
Harris, Mark	T-927-M	NASA / McMurdo Ground Station (MG1)
Kovac, John	A-149-S	Imaging the beginning of time from the South Pole: The next stage of the BICEP program
LaBelle, James	A-128-S	Earth's Electromagnetic Environment: Advancing Recent Discoveries in Auroral Plasma Radio Emission Research
Rotella, Jay	B-009-M	The consequences of maternal effects and environmental conditions on offspring success in an Antarctic predator
Schofield, Oscar	C-019-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity,

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ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem

Taylor, Michael

A-119-M/P/S

Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper

Taylor, Michael J

A-119-M/P/S

Investigating Wave-Driven Mesospheric Dynamics over South Pole Using an Advanced Mesospheric Temperature Mapper

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2020-2021 USAP Field Season

Station and Vessel Schedules

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

Opening Dates

	Austral Summer Openings		Austral Winter Openings
	Operational	Science	
McMurdo (Early Season*)	19 Aug 2020	22 Aug 2020 19 Sep 2020	24 Feb 2021
McMurdo (Mainbody)	30 Sep 2020	2 Oct 2020	
South Pole	4 Nov 2020	4 Nov 2020	15 Feb 2021
Palmer	2 Dec 2020	20 Apr 2021	11 Apr 2021
Research Vessels	Vessels Operate Year-Round (Find Vessel Schedules)		

*A limited number of science projects deploy early

Estimated Population

	Summer	Winter
McMurdo	850 (weekly average) 2,300 (total)	180 (winter total)
South Pole	62 (weekly average) 62 (total)	42 (winter total)
Palmer	23 (weekly average)	
RV/IB* NBP	45 science and staff	
ARSV** LMG	Capacity per cruise: 27 science and staff Capacity per transit to/from Palmer Station: 37 science and staff with two berthing vans.	

*RV/IB, Research Vessel/Icebreaker

**ARSV, Antarctic Research Support Vessel

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2020-2021 USAP Field Season

Air Operations

McMurdo Station

McMurdo-based aircraft, including helicopters, fixed wing aircraft, and uncrewed aircraft systems (UAS) will continue to support USAP researchers and program logistical functions.

Helicopters

Air Center Helicopters, Inc.

[Air Center Helicopters, Inc. \(ACHI\)](#) is contracted by the NSF to operate two helicopters this season in support of approved research and operational efforts in the vicinity of McMurdo Station. Missions typically take place in McMurdo Sound, the McMurdo Dry Valleys, the Royal Society Range, Ross Ice Shelf, and Ross Island regions and will be supported by light (Astar B3es) and/or medium (Bell 412) airframes.

Antarctica New Zealand (ANZ) will not be contracting Astar B3s from Southern Lakes Helicopters (SLH) this season, per usual, so USAP aircraft are slated to provide several NSF-approved quid pro quo missions in support of ANZ's 2020-21 field science program as supportable throughout the season.



Fixed Wing Aircraft

New York Air National Guard (ANG)

No intracontinental LC-130 Hercules flights are planned this season. [The New York Air National Guard 109th Airwing](#) will stage three LC-130s out of Christchurch, NZ during the planned intercontinental mission gap, in the event that off-continent emergency response is required.

Kenn Borek Air

[Kenn Borek Air](#) will provide two DHC6 Twin Otters and one DC3 Basler aircraft in support of USAP operations on continent. Planned missions will primarily support South Pole station and West Antarctic field camps.

Uncrewed Aircraft Systems

There will be limited UAS operating in the McMurdo area and deep field this season. NIWC Air Traffic Control and ASC Aviation Ops will advise aircraft of all UAS activities and deconflict airspace, as required.

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2020-2021 USAP Field Season

Staffed Field Camps

During the 2020-21 field season ASC will operate one field camp with resident staff to provide logistical and operational assistance to support site maintenance efforts. Additionally, two ASC support teams will utilize temporary camps to complete site maintenance and recovery efforts.

WAIS Divide Field Camp (WSD)

891 Nautical Miles From McMurdo Station

79° 29.000' S 112° 5.000' W

The WAIS Divide field camp with six resident staff will act as a regional aviation hub for West Antarctica. The WAIS camp will support the continued maintenance of WAIS Divide infrastructure as well as the transit of two ASC field maintenance teams (MIST and CIST) to forward field sites. The combined 14-person team also support the maintenance of G-079 POLENET installations.



Margin Interim Support Team (MIST)

The four person MIST field team will support instrument recovery and maintenance for a Thwaites Glacier science project: [C-446-M \(Tulaczyk-TIME\)](#). They will work primarily on the Thwaites Glacier's eastern shear margin (ESM). The team will include three ASC staff and one IRIS-PASSCAL technician.

Coastal Interim Support Team (CIST)

The four person CIST field team will support instrument recovery and maintenance for Thwaites Glacier science projects: [C-444-M, \(Holland-MELT\)](#), [C-445-M \(Pettit-TARSAN\)](#), [C-446-M \(Tulaczyk-TIME\)](#). They will work primarily in the Thwaites Glacier grounding zone (GZDS) and may reposition to support the MIST team at the eastern shear margin. The team will include three ASC staff and one UNAVCO technician.

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2020-2021 USAP Field Season Event Numbering System

Every USAP project is assigned a unique event number consisting of three parts: A prefix indicating the USAP program funding the effort, a project number, and a suffix denoting the location where field work will take place. If field work takes place at more than one location the event number will indicate this with multiple suffixes separated by a slash.

Sample Event Number

A – **100** – **M**

In the example above, the project would be funded by the Astrophysics and Geospace Sciences program, have a project number of 100, and would consist of field work to be performed at or near McMurdo Station.

Program Prefixes

Prefix	USAP Program
A	Astrophysics and Geospace Sciences Dr. Robert Moore, Program Director
B	Organisms and Ecosystems Dr. Karla Heidelberg, Program Director
C	Integrated System Science TBD
G	Earth Sciences Dr. Michael Jackson, Program Director
I	Glaciology Dr. Paul Cutler, Program Director
O	Oceans and Atmospheric Sciences Dr. Peter Milne, Program Director
Y	Education and Outreach Ms. Elizabeth Rom; Program Director
D	Antarctic Instrumentation & Research Facilities Dr. Michael Jackson, Program Director
T	Technical Event
X	Other Science Events

Location Suffixes

Suffix	Supporting Location
M	McMurdo Station

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P

Palmer Station

S

South Pole Station

N

RV/IB* Nathaniel B. Palmer

L

ARSV** Laurence M. Gould

E

Special Projects Supported by the USAP
(e.g., Investigators working with other national Antarctic programs)

**RV/IB, Research Vessel/Icebreaker*

***ARSV, Antarctic Research Support Vessel*



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Principal Investigator Index

Principal Investigator	Event No.	Project Title
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Anderson, Kent	T-299-M/S	IRIS/PASSCAL seismic support
Ballard, Grant	B-040-M	Does nest density matter? Using novel technology to collect whole-colony data on Adelie penguins
Bart, Philip	G-431-N	Unpinning of the Ross Ice Shelf from Ross Bank
Bernard, Kim Sarah	B-459-L/P	The omnivore's dilemma: The effect of autumn diet on winter physiology and condition of juvenile Antarctic krill
Bristow, William	A-369-M/S	Antarctic and Conjugate Research Using SuperDARN
Bristow, William	A-369-M/S	Antarctic and conjugate research using SuperDARN
Butler, James Hall	O-257-M/S	South Pole monitoring for climatic change - U.S. Department of Commerce NOAA Global Monitoring Division (GMD)
Butler, James Hall	O-264-P	Collection of atmospheric air for the NOAA/GMD worldwide flask-sampling network
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-379-S	Cosmological research with the 10-meter South Pole Telescope
Chu, Xinzhaoh	A-123-M	Simultaneous Na Doppler and Fe Boltzmann LiDAR observations and modeling of the middle and upper atmosphere at McMurdo, Antarctica
Conde, Mark Gerard	A-343-M/S	High-resolution mapping of thermospheric wind and temperature fields near the equatorward edge of the Antarctic polar cap

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Costa, Daniel Paul	B-232-L	Foraging ecology and physiology of the leopard seal
Courville, Zoe R	T-940-M	Cold Regions Research and Engineering Laboratory (CRREL) activities
Dolk, Shaun R	X-592-L/N	NOAA's Global Drifter Program (GDP)
Friedlaender, Ari Seth	C-024-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Gerrard, Andrew	A-111-M/P/S	The next generation of Geospace research facilities at South Pole and McMurdo Stations
Gooseff, Michael N	C-506-M	McMurdo LTER – Streams/Geochemistry: Ecosystem response to amplified landscape connectivity in the McMurdo Dry Valleys, Antarctica
Halanych, Kenneth	B-305-N	Collaborative Research: Have trans-antarctic dispersal corridors impacted Antarctic marine biodiversity?
Halzen, Francis	A-333-S	Management and operations of the IceCube Neutrino Observatory 2016-2021
Hanson, Kael Dylan	A-334-M/S	IceCube Gen2 Phase 1; an IceCube extension for precision neutrino physics and astrophysics
Harris, Mark	T-927-M	NASA / McMurdo Ground Station (MG1)
Helmericks, Jay Gregory	T-396-M	Operation and maintenance of a CTBT class infrasound array at Windless Bight
Holland, David	C-444-M	Melting at Thwaites grounding zone and its control on sea level (THWAITES-MELT)
Hummon, Julia M	T-933-L/N	University of Hawaii Data Acquisition System (UHDAS) support
Kemerait, Robert C	G-078-M	Dry Valley seismic project
Kocot, Kevin M	B-237-N	CAREER: Revolutionizing Biodiversity and Systematics Research on Aplacophora (Mollusca) and Training the Next Generation of Invertebrate Systematists
Kohut, Josh	B-005-L	Physical mechanisms driving food web focusing on Antarctic biological hotspots

Kovac, John	A-149-S	Imaging the beginning of time from the South Pole: The next stage of the BICEP program
Krause, Douglas John	X-591-L	Cape Shirreff
Kromer, Edward Paul	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Kromer, Edward Paul	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
LaBelle, James	A-128-S	Earth's Electromagnetic Environment: Advancing Recent Discoveries in Auroral Plasma Radio Emission Research
Moffat, Carlos F	C-021-L	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Munley, William Gregory, Jr.	T-961-M	Joint Polar Satellite System (JPSS)
Munro, David Russel	O-214-L/N	Investigating biogeochemical fluxes and linkages to climate change with multi-scale observations in the Drake Passage
Palo, Scott	A-284-M	Lower thermospheric science using new meteor radar at McMurdo Station
Pettit, Erin	C-445-M	Thwaites-Amundsen Regional Survey and Network (TARSAN) integrating atmosphere-ice-ocean processes affecting the sub-ice-shelf environment
Pettit, Joseph R	T-295-M	UNAVCO GPS, TLS, UAV survey support
Rand, John L	T-998-P	Operation and maintenance of a CTBT radionuclide monitoring station at Palmer Station
Rotella, Jay	B-009-M	The consequences of maternal effects and environmental conditions on offspring success in an Antarctic predator
Sanders, Robert	B-303-L	Diversity and ecological impacts of Antarctic mixotrophic phytoplankton
Sarmiento, Jorge I	O-271-N	Southern Ocean Carbon and climate Observations and Modeling (SOCCOM)
Schofield, Oscar	C-013-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-

		ice influenced pelagic ecosystem
Schofield, Oscar	C-019-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-021-L	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-045-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Seunarine, Surujhdeo	A-118-S	Element Composition of High-Energy Solar Particles
Smith, Jeremiah R	T-926-M	Department of Interior Office of Aircraft Services
Steinberg, Deborah	C-020-L	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Taylor, Michael	A-119-M/P/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper
Taylor, Michael J	A-119-M/P/S	Investigating Wave-Driven Mesospheric Dynamics over South Pole Using an Advanced Mesospheric Temperature Mapper
Tulaczyk, Slawek M	C-446-M	TIME - Thwaites Interdisciplinary Margin Evolution - The role of shear margin dynamics in the future evolution of Thwaites Drainage Basin
Watters, George	B-006-L	NOAA / AMLR

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Deploying Team Members Index

Team Member	Event No.	Principal Investigator
Anderson, Adam NMI	A-379-S	John Carlstrom
Archipley, Melanie Ann	A-379-S	John Carlstrom
Armstrong, Madeline Noell	B-305-N	Kenneth Halanych
Armstrong, Madeline Noell	B-305-N	Kenneth Halanych
Armstrong, Madeline Noell	B-305-N	Kenneth Halanych
Batts, Ashley Elizabeth	B-305-N	Kenneth Halanych
Batts, Ashley Elizabeth	B-305-N	Kenneth Halanych
Batts, Ashley Elizabeth	B-305-N	Kenneth Halanych
Bayou, Nicolas NM	T-295-M	Joseph R Pettit
Bayou, Nicolas NM	T-295-M	Joseph R Pettit
Bayou, Nicolas NM	T-295-M	Joseph R Pettit
Bender, Amy Nicole	A-379-S	John Carlstrom
Benson, Bradford Adam	A-379-S	John Carlstrom
Bolsey, Robin Jack	C-446-M	Slawek M Tulaczyk
Bolsey, Robin Jack	C-446-M	Slawek M Tulaczyk
Bolsey, Robin Jack	C-446-M	Slawek M Tulaczyk
Booth, Adam D	C-446-M	Slawek M Tulaczyk
Booth, Adam D	C-446-M	Slawek M Tulaczyk
Booth, Adam D	C-446-M	Slawek M Tulaczyk
Booth, John Francis	O-257-M/S	James Hall Butler
Booth, John Francis	O-257-M/S	James Hall Butler
Booth, John Francis	O-257-M/S	James Hall Butler
Bottensek, Marcus Ramone	G-078-M	Robert C Kemerait
Bottensek, Marcus Ramone	G-078-M	Robert C Kemerait
Bottensek, Marcus Ramone	G-078-M	Robert C Kemerait

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Bradford, Jaren NMI	G-431-N	Philip Bart
Bradford, Jaren NMI	G-431-N	Philip Bart
Bradford, Jaren NMI	G-431-N	Philip Bart
Brandt, Edgar Anthony	T-961-M	William Gregory, Jr. Munley
Brandt, Edgar Anthony	T-961-M	William Gregory, Jr. Munley
Brandt, Edgar Anthony	T-961-M	William Gregory, Jr. Munley
Carrillo, Carlos David	T-961-M	William Gregory, Jr. Munley
Carrillo, Carlos David	T-961-M	William Gregory, Jr. Munley
Carrillo, Carlos David	T-961-M	William Gregory, Jr. Munley
Chandler, Joshua Michael	T-926-M	Jeremiah R Smith
Chandler, Joshua Michael	T-926-M	Jeremiah R Smith
Chandler, Joshua Michael	T-926-M	Jeremiah R Smith
Chavez, Renato Francisco Borras	B-232-L	Daniel Paul Costa
Cheshire IV, James Ross	A-149-S	John Kovac
Cobo Llovo, Maria del Carmen NMI	B-237-N	Kevin M Kocot
Cobo Llovo, Maria del Carmen NMI	B-237-N	Kevin M Kocot
Cobo Llovo, Maria del Carmen NMI	B-237-N	Kevin M Kocot
Conroy, John	C-020-L	Deborah Steinberg
Conroy, John	C-020-L	Deborah Steinberg
Conroy, John	C-020-L	Deborah Steinberg
Cornelison, James Allen	A-149-S	John Kovac
Cossio, Anthony Michael	B-006-L	George Watters
Cotten, Rex	T-927-M	Mark Harris
Cotten, Rex	T-927-M	Mark Harris
Cotten, Rex	T-927-M	Mark Harris
Cox, Jennifer NMI	T-927-M	Mark Harris
Cox, Jennifer NMI	T-927-M	Mark Harris
Cox, Jennifer NMI	T-927-M	Mark Harris
Crain, Jessie L	T-396-M	Jay Gregory Helmericks

Cutter, George Randy	B-006-L	George Watters
Danielson, Matthew Alexander	G-431-N	Philip Bart
Danielson, Matthew Alexander	G-431-N	Philip Bart
Danielson, Matthew Alexander	G-431-N	Philip Bart
David, Kyle Theodore	B-305-N	Kenneth Halanych
David, Kyle Theodore	B-305-N	Kenneth Halanych
David, Kyle Theodore	B-305-N	Kenneth Halanych
DeCicco, Matthew R	T-961-M	William Gregory, Jr. Munley
DeCicco, Matthew R	T-961-M	William Gregory, Jr. Munley
DeCicco, Matthew R	T-961-M	William Gregory, Jr. Munley
Dibert, Karia Radha	A-379-S	John Carlstrom
Dierickx, Marion Inge	A-149-S	John Kovac
Diljohn, Fawaaz NMI	T-961-M	William Gregory, Jr. Munley
Diljohn, Fawaaz NMI	T-961-M	William Gregory, Jr. Munley
Diljohn, Fawaaz NMI	T-961-M	William Gregory, Jr. Munley
Escalona, Victor Froilan	B-459-L/P	Kim Sarah Bernard
Estrada, Evan Andrew	G-078-M	Robert C Kemerait
Estrada, Evan Andrew	G-078-M	Robert C Kemerait
Estrada, Evan Andrew	G-078-M	Robert C Kemerait
Everett, Wendeline Bray	A-379-S	John Carlstrom
Fatigoni, Sofia NMI	A-149-S	John Kovac
Ferguson, Kyle Russell	A-379-S	John Carlstrom
Gast, Rebecca	B-303-L	Robert Sanders
Gast, Rebecca	B-303-L	Robert Sanders
Gast, Rebecca	B-303-L	Robert Sanders
Gedney, Marisa Perez	O-257-M/S	James Hall Butler
Gedney, Marisa Perez	O-257-M/S	James Hall Butler
Gedney, Marisa Perez	O-257-M/S	James Hall Butler
Goebel, Michael Edward	B-232-L	Daniel Paul Costa
Goldfinger, David Charles	A-149-S	John Kovac

Gonzalez, Lucia F	C-446-M	Slawek M Tulaczyk
Gonzalez, Lucia F	C-446-M	Slawek M Tulaczyk
Gonzalez, Lucia F	C-446-M	Slawek M Tulaczyk
Grattepanche, Jean-David NMI	B-303-L	Robert Sanders
Grattepanche, Jean-David NMI	B-303-L	Robert Sanders
Grattepanche, Jean-David NMI	B-303-L	Robert Sanders
Grimes, Candace Jennifer	B-305-N	Kenneth Halanych
Grimes, Candace Jennifer	B-305-N	Kenneth Halanych
Grimes, Candace Jennifer	B-305-N	Kenneth Halanych
Gualtieri, Riccardo NMI	A-379-S	John Carlstrom
Guns, Sam Tom	A-379-S	John Carlstrom
Harris, Leila E	B-303-L	Robert Sanders
Harris, Leila E	B-303-L	Robert Sanders
Harris, Leila E	B-303-L	Robert Sanders
Hinke, Jefferson	X-591-L	Douglas John Krause
Hinke, Jefferson	X-591-L	Douglas John Krause
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Holland, Timothy Jani	O-257-M/S	James Hall Butler
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Holland, Timothy Jani	O-257-M/S	James Hall Butler
Holzapfel, William L	A-379-S	John Carlstrom
Hosticka, Bouvard	T-998-P	John L Rand
Huang, Nicholas Dickey	A-379-S	John Carlstrom
Jandreau, Jackson NMI	A-123-M	Xinzhao Chu
Jeffrey, Wade H	B-303-L	Robert Sanders
Jeffrey, Wade H	B-303-L	Robert Sanders
Jeffrey, Wade H	B-303-L	Robert Sanders

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Kaip, Galen	C-446-M	Slawek M Tulaczyk
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Karplus, Marianne Sherman	C-446-M	Slawek M Tulaczyk
Karplus, Marianne Sherman	C-446-M	Slawek M Tulaczyk
Karplus, Marianne Sherman	C-446-M	Slawek M Tulaczyk
Kim, Junhan NMI	A-379-S	John Carlstrom
Knight, Colby NMI	G-431-N	Philip Bart
Knight, Colby NMI	G-431-N	Philip Bart
Knight, Colby NMI	G-431-N	Philip Bart
Kratochvil, Matthew Edward	G-431-N	Philip Bart
Kratochvil, Matthew Edward	G-431-N	Philip Bart
Kratochvil, Matthew Edward	G-431-N	Philip Bart
Kromer, Edward	G-090-M/P/S	Kent Anderson
Kromer, Edward	G-090-M/P/S	Kent Anderson
Kromer, Edward	G-090-M/P/S	Kent Anderson
Kromer, Edward P	G-090-M/P/S	Kent Anderson
Kromer, Edward P	G-090-M/P/S	Kent Anderson
Kromer, Edward P	G-090-M/P/S	Kent Anderson
Kromer, Edward Paul	G-090-M/P/S	Kent Anderson
Kromer, Edward Paul	G-090-M/P/S	Kent Anderson
Kromer, Edward Paul	G-090-M/P/S	Kent Anderson
Landgraf, Victoria Grace	T-927-M	Mark Harris
Landgraf, Victoria Grace	T-927-M	Mark Harris
Landgraf, Victoria Grace	T-927-M	Mark Harris

Lau, King NMI	A-149-S	John Kovac
Learman, Deric R	B-305-N	Kenneth Halanych
Learman, Deric R	B-305-N	Kenneth Halanych
Learman, Deric R	B-305-N	Kenneth Halanych
Levinson, Parker McCosh	B-040-M	Grant Ballard
Lindsey, Ben Robert	G-431-N	Philip Bart
Lindsey, Ben Robert	G-431-N	Philip Bart
Lindsey, Ben Robert	G-431-N	Philip Bart
Lowenstein, Daniel Patton	C-045-L/P	Oscar Schofield
Lowenstein, Daniel Patton	C-045-L/P	Oscar Schofield
Lowenstein, Daniel Patton	C-045-L/P	Oscar Schofield
Macdonald, Kaitlin R	B-009-M	Jay Rotella
MacKie, Emma Mickey	C-446-M	Slawek M Tulaczyk
MacKie, Emma Mickey	C-446-M	Slawek M Tulaczyk
MacKie, Emma Mickey	C-446-M	Slawek M Tulaczyk
Mahon, Andrew	B-305-N	Kenneth Halanych
Mahon, Andrew	B-305-N	Kenneth Halanych
Mahon, Andrew	B-305-N	Kenneth Halanych
Maiti, Kanchan NMI	G-431-N	Philip Bart
Maiti, Kanchan NMI	G-431-N	Philip Bart
Maiti, Kanchan NMI	G-431-N	Philip Bart
Marrone, Daniel P.	A-379-S	John Carlstrom
McDonald, William Bartelle	B-009-M	Jay Rotella
Mclaughlin, Emily Laura	B-237-N	Kevin M Kocot
Mclaughlin, Emily Laura	B-237-N	Kevin M Kocot
Mclaughlin, Emily Laura	B-237-N	Kevin M Kocot
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Meyers, John Stephen	T-299-M/S	Kent Anderson
Meyers, John Stephen	T-299-M/S	Kent Anderson
Minutolo, Lorenzo NMI	A-149-S	John Kovac
Mohamed, Ahmed Mohamed	A-149-S	John Kovac

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Moncelsi, Lorenzo NMI	A-149-S	John Kovac
Nakata, Norimitsu NMI	C-446-M	Slawek M Tulaczyk
Nakata, Norimitsu NMI	C-446-M	Slawek M Tulaczyk
Nakata, Norimitsu NMI	C-446-M	Slawek M Tulaczyk
Newberger, Tim	O-214-L/N	David Russel Munro
Newberger, Tim	O-214-L/N	David Russel Munro
Newberger, Tim	O-214-L/N	David Russel Munro
Noor, Nusrat Jahan	B-305-N	Kenneth Halanych
Noor, Nusrat Jahan	B-305-N	Kenneth Halanych
Noor, Nusrat Jahan	B-305-N	Kenneth Halanych
Paradis, Hannah Elizabeth	G-431-N	Philip Bart
Pernic, David	A-379-S	John Carlstrom
Pomraning, Dale	G-078-M	Robert C Kemerait
Pomraning, Dale	G-078-M	Robert C Kemerait
Pomraning, Dale	G-078-M	Robert C Kemerait
Prakash, Arunima NMI	A-123-M	Xinzhao Chu
Prothro, Lindsay O'Neal	G-431-N	Philip Bart
Prothro, Lindsay O'Neal	G-431-N	Philip Bart
Prothro, Lindsay O'Neal	G-431-N	Philip Bart
Pryke, Clement NMI	A-149-S	John Kovac
Rahlin, Alexandra S	A-379-S	John Carlstrom
Redak, Caitlin Ann	B-305-N	Kenneth Halanych
Redak, Caitlin Ann	B-305-N	Kenneth Halanych
Redak, Caitlin Ann	B-305-N	Kenneth Halanych
Reiss, Christian Stefan	B-006-L	George Watters
Roberts, Darren Tyler	C-013-L/P	Oscar Schofield
Roberts, Megan Elizabeth	C-013-L/P	Oscar Schofield
Roberts, Nickellaus Gerald	B-237-N	Kevin M Kocot
Roberts, Nickellaus Gerald	B-237-N	Kevin M Kocot

Roberts, Nickellaus Gerald	B-237-N	Kevin M Kocot
Rosenheim, Brad E.	G-431-N	Philip Bart
Rosenheim, Brad E.	G-431-N	Philip Bart
Rosenheim, Brad E.	G-431-N	Philip Bart
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Samaniego, Joseph Isaac	O-257-M/S	James Hall Butler
Samaniego, Joseph Isaac	O-257-M/S	James Hall Butler
Schillaci, Alessandro NMI	A-149-S	John Kovac
Schmidt, Anne Elizabeth	B-040-M	Grant Ballard
Schmitt, Benjamin Louis	A-149-S	John Kovac
Schofield, Oscar	C-021-L	Oscar Schofield
Schofield, Oscar	C-021-L	Oscar Schofield
Schofield, Oscar	C-021-L	Oscar Schofield
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Sinkola, Nickolas	T-927-M	Mark Harris
Sivils, Anna Deborah	G-431-N	Philip Bart
Sivils, Anna Deborah	G-431-N	Philip Bart
Sivils, Anna Deborah	G-431-N	Philip Bart
Smith, Emma C	C-446-M	Slawek M Tulaczyk
Smith, Emma C	C-446-M	Slawek M Tulaczyk
Smith, Emma C	C-446-M	Slawek M Tulaczyk
Steinbach, Bryan Andreas	A-149-S	John Kovac
Steinke, Kristen Brooke	B-459-L/P	Kim Sarah Bernard
Stephen, Judith Lorraine	A-379-S	John Carlstrom
Stone, Robert B	G-078-M	Robert C Kemerait
Stone, Robert B	G-078-M	Robert C Kemerait
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Tassia, Michael G	B-305-N	Kenneth Halanych
Tassia, Michael G	B-305-N	Kenneth Halanych
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Trumble, Stephen John	B-232-L	Daniel Paul Costa
Vankova, Irena NMI	C-444-M	David Holland
Vankova, Irena NMI	C-444-M	David Holland
Vankova, Irena NMI	C-444-M	David Holland
Varney, Rebecca Michelle	B-237-N	Kevin M Kocot
Varney, Rebecca Michelle	B-237-N	Kevin M Kocot
Varney, Rebecca Michelle	B-237-N	Kevin M Kocot
Voss, Nicholas Michael	G-090-M/P/S	Kent Anderson
Voss, Nicholas Michael	G-090-M/P/S	Kent Anderson
Voss, Nicholas Michael	G-090-M/P/S	Kent Anderson
Waits, Damien Scott	B-305-N	Kenneth Halanych
Waits, Damien Scott	B-305-N	Kenneth Halanych
Waits, Damien Scott	B-305-N	Kenneth Halanych
Wang, David NMI	X-591-L	Douglas John Krause
Wang, David NMI	X-591-L	Douglas John Krause
Wang, David NMI	X-591-L	Douglas John Krause
Welch, Kathy	C-506-M	Michael N Gooseff
Welch, Kathy	C-506-M	Michael N Gooseff
Welch, Kathy	C-506-M	Michael N Gooseff
Wendell, Edward	T-927-M	Mark Harris
Wendell, Edward	T-927-M	Mark Harris
Wendell, Edward	T-927-M	Mark Harris
Winkelman, Andrew Thomas	T-396-M	Jay Gregory Helmericks
Wolter, Sonja Elena	O-214-L/N	David Russel Munro
Wolter, Sonja Elena	O-214-L/N	David Russel Munro
Wolter, Sonja Elena	O-214-L/N	David Russel Munro
Wright, Anna Thrane	C-506-M	Michael N Gooseff
Wright, Anna Thrane	C-506-M	Michael N Gooseff
Wright, Anna Thrane	C-506-M	Michael N Gooseff

Yap-Chiongco, Meghan Kathleen	B-237-N	Kevin M Kocot
Yap-Chiongco, Meghan Kathleen	B-237-N	Kevin M Kocot
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Yeager, Benjamin Adam	C-444-M	David Holland
Yeager, Benjamin Adam	C-444-M	David Holland
Yeager, Benjamin Adam	C-444-M	David Holland
Young, Matthew Rowan	A-379-S	John Carlstrom
Young, Rachel Elizabeth	C-019-L/P	Oscar Schofield
Young, Rachel Elizabeth	C-019-L/P	Oscar Schofield
Young, Rachel Elizabeth	C-019-L/P	Oscar Schofield
Young, Tun Jan nmi	C-446-M	Slawek M Tulaczyk
Young, Tun Jan nmi	C-446-M	Slawek M Tulaczyk
Young, Tun Jan nmi	C-446-M	Slawek M Tulaczyk
Zehnpfennig, Jessica Renee	B-305-N	Kenneth Halanych
Zehnpfennig, Jessica Renee	B-305-N	Kenneth Halanych
Zehnpfennig, Jessica Renee	B-305-N	Kenneth Halanych
Zhang, Cheng NMI	A-149-S	John Kovac
Zhang, Silvia NMI	A-149-S	John Kovac

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Alaska Fairbanks, University of	A-343-M/S	Conde, Mark
Antarctic Support Contract	T-998-P	Rand, John
Auburn University	B-305-N	Halanych, Kenneth
California Santa Cruz, University of	C-024-L/P	Friedlaender, Ari
California Santa Cruz, University of	B-232-L	Costa, Daniel
California Santa Cruz, University of	C-446-M	Tulaczyk, Slawek
Chicago, University of	A-379-S	Carlstrom, John
Colorado Boulder, University of	O-214-L/N	Munro, David
Colorado Boulder, University of	A-284-M	Palo, Scott
Colorado Boulder, University of	C-506-M	Gooseff, Michael
Colorado Boulder, University of	A-123-M	Chu, Xinzhao
Dartmouth College	A-128-S	LaBelle, James
Delaware, University of	C-021-L	Moffat, Carlos
Harvard University	A-149-S	Kovac, John
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Incorporated Research Institutions for Seismology	G-090-M/P/S	Anderson, Kent
Incorporated Research Institutions for Seismology	G-090-M/P/S	Anderson, Kent
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Louisiana State University Baton Rouge	G-431-N	Bart, Philip
Montana State University Bozeman	B-009-M	Rotella, Jay
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National Oceanic and Atmospheric Administration	O-264-P	Butler, James
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National Oceanic and Atmospheric Administration	X-592-L/N	Dolk, Shaun
National Oceanic and Atmospheric Administration	X-591-L	Krause, Douglas
New Jersey Institute of Technology	A-111-M/P/S	Gerrard, Andrew
New York University	C-444-M	Holland, David
Oregon State University	B-459-L/P	Bernard, Kim
Oregon State University	C-445-M	Pettit, Erin
Pennsylvania State University	A-369-M/S	Bristow, William
Pennsylvania State University	A-369-M/S	Bristow, William
Point Reyes Bird Observatory	B-040-M	Ballard, Grant
Princeton University	O-271-N	Sarmiento, Jorge
Rutgers University	C-013-L/P	Schofield, Oscar
Rutgers University	C-019-L/P	Schofield, Oscar
Rutgers University	C-021-L	Schofield, Oscar
Rutgers University	C-045-L/P	Schofield, Oscar
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United States Air Force	G-078-M	Kemerait, Robert
United States Department of the Interior	T-926-M	Smith, Jeremiah
United States Geological Survey	G-090-M/P/S	Kromer, Edward
United States Geological Survey	G-090-M/P/S	Kromer, Edward
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Utah State University	A-119-M/P/S	Taylor, Michael
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019	C-019-L/P	Schofield, Oscar
020	C-020-L	Steinberg, Deborah
021	C-021-L	Moffat, Carlos
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024	C-024-L/P	Friedlaender, Ari
040	B-040-M	Ballard, Grant
045	C-045-L/P	Schofield, Oscar
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090	G-090-M/P/S	Anderson, Kent
090	G-090-M/P/S	Anderson, Kent
090	G-090-M/P/S	Kromer, Edward
090	G-090-M/P/S	Kromer, Edward
111	A-111-M/P/S	Gerrard, Andrew
118	A-118-S	Seunarine, Surujhdeo
119	A-119-M/P/S	Taylor, Michael
119	A-119-M/P/S	Taylor, Michael
123	A-123-M	Chu, Xinzhaoh
128	A-128-S	LaBelle, James
149	A-149-S	Kovac, John
214	O-214-L/N	Munro, David
232	B-232-L	Costa, Daniel

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257	O-257-M/S	Butler, James
264	O-264-P	Butler, James
271	O-271-N	Sarmiento, Jorge
284	A-284-M	Palo, Scott
295	T-295-M	Pettit, Joseph
299	T-299-M/S	Anderson, Kent
303	B-303-L	Sanders, Robert
305	B-305-N	Halanych, Kenneth
333	A-333-S	Halzen, Francis
334	A-334-M/S	Hanson, Kael
343	A-343-M/S	Conde, Mark
369	A-369-M/S	Bristow, William
369	A-369-M/S	Bristow, William
379	A-379-S	Carlstrom, John
396	T-396-M	Helmericks, Jay
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444	C-444-M	Holland, David
445	C-445-M	Pettit, Erin
446	C-446-M	Tulaczyk, Slawek
459	B-459-L/P	Bernard, Kim
506	C-506-M	Gooseff, Michael
591	X-591-L	Krause, Douglas
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933	T-933-L/N	Hummon, Julia
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Principal Investigator	Event No.	Project Title
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Harris, Mark	T-927-M	NASA / McMurdo Ground Station (MG1)
Helmericks, Jay	T-396-M	Operation and maintenance of a CTBT class infrasound array at Windless Bight
Hummon, Julia	T-933-L/N	University of Hawaii Data Acquisition System (UHDAS) support
Munley, William	T-961-M	Joint Polar Satellite System (JPSS)
Pettit, Joseph	T-295-M	UNAVCO GPS, TLS, UAV survey support
Rand, John	T-998-P	Operation and maintenance of a CTBT radionuclide monitoring station at Palmer Station
Smith, Jeremiah	T-926-M	Department of Interior Office of Aircraft Services

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Krause, Douglas	X-591-L	Cape Shirreff

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Principal Investigator	Event No.	Project Title
Bristow, William	A-369-M/S	Antarctic and Conjugate Research Using SuperDARN
Bristow, William	A-369-M/S	Antarctic and conjugate research using SuperDARN
Carlstrom, John	A-379-S	Cosmological research with the 10-meter South Pole Telescope
Chu, Xinzhao	A-123-M	Simultaneous Na Doppler and Fe Boltzmann LiDAR observations and modeling of the middle and upper atmosphere at McMurdo, Antarctica
Conde, Mark	A-343-M/S	High-resolution mapping of thermospheric wind and temperature fields near the equatorward edge of the Antarctic polar cap
Gerrard, Andrew	A-111-M/P/S	The next generation of Geospace research facilities at South Pole and McMurdo Stations
Halzen, Francis	A-333-S	Management and operations of the IceCube Neutrino Observatory 2016-2021
Hanson, Kael	A-334-M/S	IceCube Gen2 Phase 1; an IceCube extension for precision neutrino physics and astrophysics
Kovac, John	A-149-S	Imaging the beginning of time from the South Pole: The next stage of the BICEP program
LaBelle, James	A-128-S	Earth's Electromagnetic Environment: Advancing Recent Discoveries in Auroral Plasma Radio Emission Research
Palo, Scott	A-284-M	Lower thermospheric science using new meteor radar at McMurdo Station
Seunarine, Surujhdeo	A-118-S	Element Composition of High-Energy Solar Particles
Taylor, Michael	A-119-M/P/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper

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Taylor, Michael

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M/P/S

Investigating Wave-Driven
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Pole Using an Advanced Mesospheric
Temperature Mapper

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USAP Program Index Organisms and Ecosystems

Principal Investigator	Event No.	Project Title
Ballard, Grant	B-040-M	Does nest density matter? Using novel technology to collect whole-colony data on Adelie penguins
Bernard, Kim	B-459-L/P	The omnivore's dilemma: The effect of autumn diet on winter physiology and condition of juvenile Antarctic krill
Costa, Daniel	B-232-L	Foraging ecology and physiology of the leopard seal
Halanych, Kenneth	B-305-N	Collaborative Research: Have trans-antarctic dispersal corridors impacted Antarctic marine biodiversity?
Kocot, Kevin	B-237-N	CAREER: Revolutionizing Biodiversity and Systematics Research on Aplacophora (Mollusca) and Training the Next Generation of Invertebrate Systematists
Kohut, Josh	B-005-L	Physical mechanisms driving food web focusing on Antarctic biological hotspots
Rotella, Jay	B-009-M	The consequences of maternal effects and environmental conditions on offspring success in an Antarctic predator
Sanders, Robert	B-303-L	Diversity and ecological impacts of Antarctic mixotrophic phytoplankton
Watters, George	B-006-L	NOAA / AMLR

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USAP Program Index Earth Sciences

Principal Investigator	Event No.	Project Title
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Bart, Philip	G-431-N	Unpinning of the Ross Ice Shelf from Ross Bank
Kemerait, Robert	G-078-M	Dry Valley seismic project
Kromer, Edward	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Kromer, Edward	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations

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USAP Program Index Ocean and Atmospheric Sciences

Principal Investigator	Event No.	Project Title
Butler, James	O-257-M/S	South Pole monitoring for climatic change - U.S. Department of Commerce NOAA Global Monitoring Division (GMD)
Butler, James	O-264-P	Collection of atmospheric air for the NOAA/GMD worldwide flask-sampling network
Butler, James	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
Munro, David	O-214-L/N	Investigating biogeochemical fluxes and linkages to climate change with multi-scale observations in the Drake Passage
Sarmiento, Jorge	O-271-N	Southern Ocean Carbon and climate Observations and Modeling (SOCCOM)

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Gooseff, Michael	C-506-M	McMurdo LTER – Streams/Geochemistry: Ecosystem response to amplified landscape connectivity in the McMurdo Dry Valleys, Antarctica
Holland, David	C-444-M	Melting at Thwaites grounding zone and its control on sea level (THWAITES-MELT)
Moffat, Carlos	C-021-L	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Pettit, Erin	C-445-M	Thwaites-Amundsen Regional Survey and Network (TARSAN) integrating atmosphere-ice-ocean processes affecting the sub-ice-shelf environment
Schofield, Oscar	C-013-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-019-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-021-L	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-045-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem

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Steinberg, Deborah

[C-020-L](#)

Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem

Tulaczyk, Slawek

[C-446-M](#)

TIME - Thwaites Interdisciplinary Margin Evolution - The role of shear margin dynamics in the future evolution of Thwaites Drainage Basin

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Antarctic Instrumentation & Research Facilities

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USAP Program Index

Education and Outreach

Principal Investigator

Event No.

Project Title

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USAP Station Index Amundsen-Scott South Pole Station

Principal Investigator	Event No.	Project Title
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Anderson, Kent	T-299-M/S	IRIS/PASSCAL seismic support
Bristow, William	A-369-M/S	Antarctic and Conjugate Research Using SuperDARN
Bristow, William	A-369-M/S	Antarctic and conjugate research using SuperDARN
Butler, James	O-257-M/S	South Pole monitoring for climatic change - U.S. Department of Commerce NOAA Global Monitoring Division (GMD)
Butler, James	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
Carlstrom, John	A-379-S	Cosmological research with the 10-meter South Pole Telescope
Conde, Mark	A-343-M/S	High-resolution mapping of thermospheric wind and temperature fields near the equatorward edge of the Antarctic polar cap
Gerrard, Andrew	A-111-M/P/S	The next generation of Geospace research facilities at South Pole and McMurdo Stations
Halzen, Francis	A-333-S	Management and operations of the IceCube Neutrino Observatory 2016-2021
Hanson, Kael	A-334-M/S	IceCube Gen2 Phase 1; an IceCube extension for precision neutrino physics and astrophysics
Kovac, John	A-149-S	Imaging the beginning of time from the South Pole: The next stage of the BICEP program
Kromer, Edward	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations

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Kromer, Edward	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
LaBelle, James	A-128-S	Earth's Electromagnetic Environment: Advancing Recent Discoveries in Auroral Plasma Radio Emission Research
Seunarine, Surujhdeo	A-118-S	Element Composition of High-Energy Solar Particles
Taylor, Michael	A-119-M/P/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper
Taylor, Michael	A-119-M/P/S	Investigating Wave-Driven Mesospheric Dynamics over South Pole Using an Advanced Mesospheric Temperature Mapper

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2020-2021 USAP Field Season

Project Indexes

USAP Station Index

McMurdo Station

Principal Investigator	Event No.	Project Title
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Anderson, Kent	T-299-M/S	IRIS/PASSCAL seismic support
Ballard, Grant	B-040-M	Does nest density matter? Using novel technology to collect whole-colony data on Adelie penguins
Bristow, William	A-369-M/S	Antarctic and Conjugate Research Using SuperDARN
Bristow, William	A-369-M/S	Antarctic and conjugate research using SuperDARN
Butler, James	O-257-M/S	South Pole monitoring for climatic change - U.S. Department of Commerce NOAA Global Monitoring Division (GMD)
Butler, James	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
Chu, Xinzhaoh	A-123-M	Simultaneous Na Doppler and Fe Boltzmann LiDAR observations and modeling of the middle and upper atmosphere at McMurdo, Antarctica
Conde, Mark	A-343-M/S	High-resolution mapping of thermospheric wind and temperature fields near the equatorward edge of the Antarctic polar cap
Courville, Zoe	T-940-M	Cold Regions Research and Engineering Laboratory (CRREL) activities
Gerrard, Andrew	A-111-M/P/S	The next generation of Geospace research facilities at South Pole and McMurdo Stations
Gooseff, Michael	C-506-M	McMurdo LTER – Streams/Geochemistry: Ecosystem response to amplified landscape connectivity in the McMurdo Dry Valleys, Antarctica



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Project Web Sites

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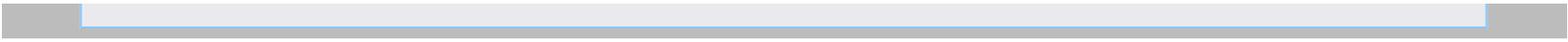


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Hanson, Kael	A-334-M/S	IceCube Gen2 Phase 1; an IceCube extension for precision neutrino physics and astrophysics
Harris, Mark	T-927-M	NASA / McMurdo Ground Station (MG1)
Helmericks, Jay	T-396-M	Operation and maintenance of a CTBT class infrasound array at Windless Bight
Holland, David	C-444-M	Melting at Thwaites grounding zone and its control on sea level (THWAITES-MELT)
Kemerait, Robert	G-078-M	Dry Valley seismic project
Kromer, Edward	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Kromer, Edward	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Munley, William	T-961-M	Joint Polar Satellite System (JPSS)
Palo, Scott	A-284-M	Lower thermospheric science using new meteor radar at McMurdo Station
Pettit, Erin	C-445-M	Thwaites-Amundsen Regional Survey and Network (TARSAN) integrating atmosphere-ice-ocean processes affecting the sub-ice-shelf environment
Pettit, Joseph	T-295-M	UNAVCO GPS, TLS, UAV survey support
Rotella, Jay	B-009-M	The consequences of maternal effects and environmental conditions on offspring success in an Antarctic predator
Smith, Jeremiah	T-926-M	Department of Interior Office of Aircraft Services
Taylor, Michael	A-119-M/P/S	Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper
Taylor, Michael	A-119-M/P/S	Investigating Wave-Driven Mesospheric Dynamics over South Pole Using an Advanced Mesospheric Temperature Mapper
Tulaczyk, Slawek	C-446-M	TIME - Thwaites Interdisciplinary Margin Evolution - The role of shear margin dynamics in the future evolution of Thwaites Drainage Basin





USAP Station Index

Palmer Station

Principal Investigator	Event No.	Project Title
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Anderson, Kent	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Bernard, Kim	B-459-L/P	The omnivore's dilemma: The effect of autumn diet on winter physiology and condition of juvenile Antarctic krill
Butler, James	O-264-P	Collection of atmospheric air for the NOAA/GMD worldwide flask-sampling network
Friedlaender, Ari	C-024-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Gerrard, Andrew	A-111-M/P/S	The next generation of Geospace research facilities at South Pole and McMurdo Stations
Kromer, Edward	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Kromer, Edward	G-090-M/P/S	Global seismograph station at South Pole, Scott Base, and Palmer stations
Rand, John	T-998-P	Operation and maintenance of a CTBT radionuclide monitoring station at Palmer Station
Schofield, Oscar	C-013-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-019-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-045-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem

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Taylor, Michael

[A-119-M/P/S](#)

Investigating wave-driven Mesospheric dynamics over South Pole using an advanced Mesospheric temperature mapper

Taylor, Michael

[A-119-M/P/S](#)

Investigating Wave-Driven Mesospheric Dynamics over South Pole Using an Advanced Mesospheric Temperature Mapper

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2020-2021 USAP Field Season

Project Indexes

USAP Station Index

RVIB Nathaniel B. Palmer

Principal Investigator	Event No.	Project Title
Bart, Philip	G-431-N	Unpinning of the Ross Ice Shelf from Ross Bank
Dolk, Shaun	X-592-L/N	NOAA's Global Drifter Program (GDP)
Halanych, Kenneth	B-305-N	Collaborative Research: Have trans-antarctic dispersal corridors impacted Antarctic marine biodiversity?
Hummon, Julia	T-933-L/N	University of Hawaii Data Acquisition System (UHDAS) support
Kocot, Kevin	B-237-N	CAREER: Revolutionizing Biodiversity and Systematics Research on Aplacophora (Mollusca) and Training the Next Generation of Invertebrate Systematists
Munro, David	O-214-L/N	Investigating biogeochemical fluxes and linkages to climate change with multi-scale observations in the Drake Passage
Sarmiento, Jorge	O-271-N	Southern Ocean Carbon and climate Observations and Modeling (SOCCOM)

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USAP Station Index

ARSV Laurence M. Gould

Principal Investigator	Event No.	Project Title
Bernard, Kim	B-459-L/P	The omnivore's dilemma: The effect of autumn diet on winter physiology and condition of juvenile Antarctic krill
Costa, Daniel	B-232-L	Foraging ecology and physiology of the leopard seal
Dolk, Shaun	X-592-L/N	NOAA's Global Drifter Program (GDP)
Friedlaender, Ari	C-024-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Hummon, Julia	T-933-L/N	University of Hawaii Data Acquisition System (UHDAS) support
Kohut, Josh	B-005-L	Physical mechanisms driving food web focusing on Antarctic biological hotspots
Krause, Douglas	X-591-L	Cape Shirreff
Moffat, Carlos	C-021-L	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Munro, David	O-214-L/N	Investigating biogeochemical fluxes and linkages to climate change with multi-scale observations in the Drake Passage
Sanders, Robert	B-303-L	Diversity and ecological impacts of Antarctic mixotrophic phytoplankton
Schofield, Oscar	C-013-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-019-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem

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Schofield, Oscar	C-021-L	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Schofield, Oscar	C-045-L/P	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Steinberg, Deborah	C-020-L	Palmer, Antarctica Long-Term Ecological Research (LTER): Land-shelf-ocean connectivity, ecosystem resilience and transformation in a sea-ice influenced pelagic ecosystem
Watters, George	B-006-L	NOAA / AMLR

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2020-2021 USAP Field Season

Project Detail

Project Title

IRIS/PASSCAL Seismic Support

Summary

Event Number:

T-299-M/S
NSF EAR 1724509

Program Manager:

Dr. Michael Jackson

ASC POC/Implementer:

John Rand / Elizabeth Kauffman / Paul Sullivan / Sheryl Seagraves



Principal Investigator(s)

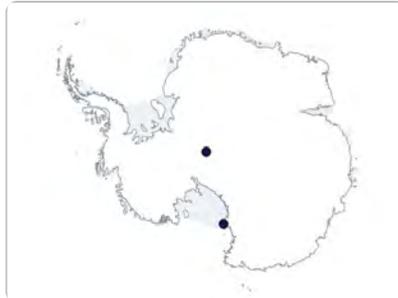
Mr. Kent Anderson

kent@iris.edu

Incorporated Research Institutions for Seismology
Socorro, New Mexico

Project Web Site:

<http://www.passcal.nmt.edu/content/polar>



Location

Supporting Stations: McMurdo Station, South Pole Station

Research Locations: McMurdo Station, South Pole Station

Description

The IRIS Program for Array Seismic Studies of the Continental Lithosphere (PASSCAL) Instrument Center supports NSF/OPP-funded projects. PASSCAL provides OPP support through: 1) equipment testing as it arrives on continent and rapid deployment to the field; 2) training to researchers; 3) on-continent instrument troubleshooting, performance evaluation, and data QC; 4) assisting researchers with data backup and archiving; and 5) field support, including installation and maintenance as required. Each year, the facility provides instrumentation and support to NSF-funded seismological projects while also developing cold-station deployment strategies, collaborating with vendors to develop and test equipment rated -55° C / -67° F, building an equipment pool, and creating a cold-station techniques repository. The team has been tasked by NSF with installing and maintaining a five-station permanent network on Mount Erebus (see T-312).

Field Season Overview

Due to the COVID-19 pandemic impacts, only one participant will deploy in 2020-21 to provide support of Thwaites project instrumentation and equipment recovery and sustainment activities.

Deploying Team Members

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- John Meyers
- John Meyers

- John Meyers



Project Title

Antarctic And Conjugate Research Using SuperDARN

Summary

Event Number:

A-369-M/S
NSF/OPP Award 1443504

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

John Rand / Paul Sullivan / Sheryl Seagraves



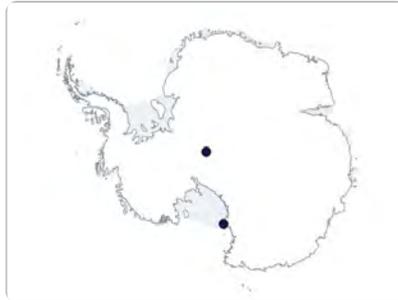
Principal Investigator(s)

Dr. William Bristow

wab5217@psu.edu
Pennsylvania State University
Fairbanks, Alaska

Project Web Site:

<http://superdarn.gi.alaska.edu>



Location

Supporting Stations: McMurdo Station, South Pole Station

Research Locations: Arrival Heights, B2 Laboratory, Near Field

Description

The Super Dual Auroral Radar Network (SuperDARN) is a global international radar network of 32 installations observing high-frequency (HF) bands between eight and 22 MHz. These systems help answer questions about the geomagnetic conjugacy of global magnetic storms and substorms and the differences in ionospheric plasma convection caused by the asymmetry of solar illumination in both hemispheres. The SuperDARN network can observe global-scale convection with excellent temporal and spatial resolution, which makes it a powerful tool for ground-based research, enabling scientists to address fundamental and important questions of space physics. The data it acquires are also relevant to space-weather studies and enhance the usefulness of data from other instruments.

Field Season Overview

The instrumentation for this project consists of receivers and transmitters located at the Arrival Heights ASPA adjacent to McMurdo Station and in the quiet sector adjacent to South Pole Station. The equipment runs continuously year-round, essentially autonomously, with only limited intervention required by personnel onsite and by the researchers via the internet. Due to the COVID-19 pandemic impacts, no participants will deploy to service the equipment in 2020-21. Onsite Research Associates will provide monitoring, troubleshooting, and the collection and forwarding of data at each site as needed throughout the year.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

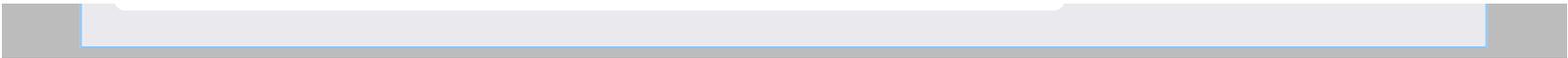
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2020-2021 USAP Field Season

Project Detail

Project Title

Antarctic And Conjugate Research Using SuperDARN

Summary

Event Number:

A-369-M/S
NSF/OPP Award 1443504

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

John Rand / Elizabeth Kauffman



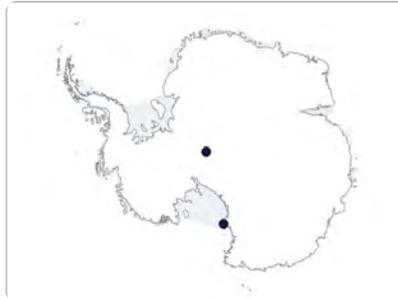
Principal Investigator(s)

Dr. William Bristow

wab5217@psu.edu
Pennsylvania State University
Fairbanks, Alaska

Project Web Site:

<http://superdarn.gi.alaska.edu>



Location

Supporting Stations: McMurdo Station, South Pole Station

Research Locations: Arrival Heights / Antenna Field

Description

The Super Dual Auroral Radar Network (SuperDARN) is a global international radar network of 32 installations observing high-frequency (HF) bands between eight and 22 MHz. These systems help answer questions about the geomagnetic conjugacy of global magnetic storms and substorms and the differences in ionospheric plasma convection caused by the asymmetry of solar illumination in both hemispheres. The SuperDARN network can observe global-scale convection with excellent temporal and spatial resolution, which makes it a powerful tool for ground-based research, enabling scientists to address fundamental and important questions of space physics. The data it acquires are also relevant to space-weather studies and enhance the usefulness of data from other instruments.

Field Season Overview

The instrumentation for this project consists of receivers and transmitters located at the Arrival Heights Antarctic Specially Protected Area (ASPA) adjacent to McMurdo Station and in the quiet sector adjacent to South Pole Station. The equipment runs continuously year-round, essentially autonomously, with only limited intervention required by personnel onsite and by the researchers via the internet. Due to the COVID-19 pandemic, no participants will deploy to service the equipment this season. Onsite Research Associates will provide monitoring, troubleshooting, and the collection and forwarding of data at each site as needed throughout the year.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

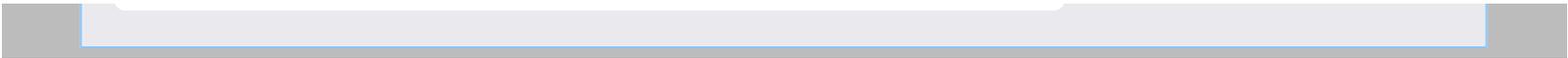
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2020-2021 USAP Field Season

Project Detail

Project Title

South Pole Monitoring For Climatic Change - U.S. Department Of Commerce NOAA Global Monitoring Division (GMD)

Summary

Event Number:

O-257-M/S
NSF / NOAA Agreement

Program Manager:

Dr. Peter Milne

ASC POC/Implementer:

John Rand / Paul Sullivan / Sheryl Seagraves

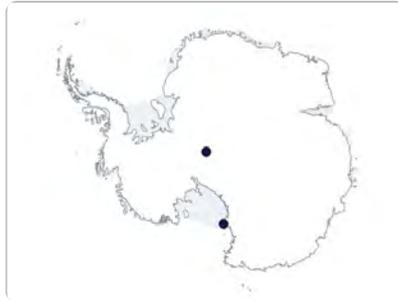


Principal Investigator(s)

Dr. James Hall Butler

james.h.butler@noaa.gov

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



Project Web Site:

<http://www.esrl.noaa.gov/gmd/>

Location

Supporting Stations: McMurdo Station, South Pole Station

Research Locations: Near field, Atmospheric Research Observatory

Description

The National Oceanic and Atmospheric Administration (NOAA) Earth System Research Laboratory Global Monitoring Division (ESRL-GMD) will continue long-term measurements of ultra-violet (UV) radiation that influences climate and the ozone layer. The observations are made in conjunction with ongoing worldwide measurements of carbon dioxide, methane, carbon monoxide, aerosols, water vapor, surface and stratospheric ozone, chlorofluorocarbons, and the ozone layer. The measurements are used for time-series analysis of multi-year data focusing 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; the magnitude of seasonal and temporal variations in greenhouse gases; and the development of polar stratospheric clouds over Antarctica.

Field Season Overview

DEPLOYING At South Pole, this project operates a variety of instruments located in the Atmospheric Research Observatory (ARO) and mounted on an adjacent tower, in addition to launching weather balloons daily. The equipment runs continuously year-round, and is operated and maintained by deployed NOAA personnel. Due to the COVID-19 pandemic impacts, only two grantees will deploy for the 2020-21 summer and winter seasons and one member of the winter 2020 team will remain into the summer to conduct training. Access to the tower has been restricted due to a lean it has developed.

Project Indexes

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Deploying Team Members

- John Booth
- John Booth
- John Booth
- Marisa Gedney
- Marisa Gedney
- Marisa Gedney
- Timothy Holland
- Timothy Holland
- Timothy Holland
- Joseph Samaniego
- Joseph Samaniego
- Joseph Samaniego



2020-2021 USAP Field Season

Project Detail

Project Title

Collection Of Atmospheric Air For The NOAA/GMD Worldwide Flask-Sampling Network

Summary

Event Number:

O-264-P
NSF/NOAA Agreement

Program Manager:

Dr. Peter Milne

ASC POC/Implementer:

John Rand / Jamee Johnson



Principal Investigator(s)

Dr. James Hall Butler

james.h.butler@noaa.gov

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

Project Web Site:

<http://www.esrl.noaa.gov/gmd/>



Location

Supporting Stations: Palmer Station

Research Locations: Palmer Station

Description

The National Oceanographic and Atmospheric Administration (NOAA) Global Monitoring Division (GMD) team will continue long-term measurements of trace constituents that influence climate and the ozone layer. The work done at Palmer Station is in conjunction with the ongoing worldwide measurements of carbon dioxide, methane, carbon monoxide, aerosols, water vapor, surface and stratospheric ozone, chlorofluorocarbons, and the ozone layer. This is part of NOAA's effort to determine and assess long-term buildup of global pollutants in the atmosphere. Measurements will be used for time-series analysis of multi-year data records that focus on the stratospheric ozone depletion; trans-Antarctic transport and deposition; interplay of trace-gas aerosols with polar plateau solar and terrestrial radiation fluxes; magnitude of seasonal and temporal variations in greenhouse gases; and polar stratospheric cloud development over Antarctica.

Field Season Overview

The Palmer Station Research Assistant will provide year-round support for the UV monitoring instruments. Typically there are site visits by one NOAA UV instrument technician every two years. Additionally, the RA performs Scripps, CCGG, and Halocarbon and other Atmospheric Trace Gasses (HATS) air sampling. Due to the COVID-19 pandemic impacts, visits scheduled for 2020-21 have been deferred to a later date.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

Find more information about 2020-2021 USAP projects by viewing project web sites.

More Information

Additional information pertaining to the 2020-2021 Field Season.

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2020-2021 USAP Field Season

Project Detail

Project Title

High-Resolution Mapping Of Thermospheric Wind And Temperature Fields Near The Equatorward Edge Of The Antarctic Polar Cap

Summary

Event Number:

A-343-M/S
NSF/OPP Award 1341545

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

John Rand / Elizabeth Kauffman / Paul Sullivan / Sheryl Seagraves



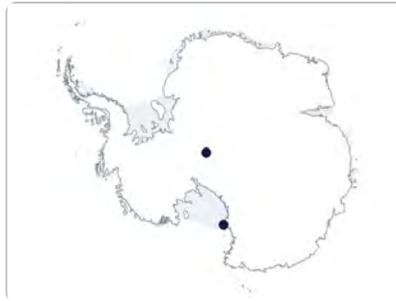
Principal Investigator(s)

Dr. Mark Gerard Conde

mgconde@alaska.edu
University of Alaska Fairbanks
Physics Department
Fairbanks, Alaska

Project Web Site:

http://sdi_server.gi.alaska.edu/sdiweb/index.asp



Location

Supporting Stations: McMurdo Station, South Pole Station

Research Locations: Arrival Heights, Near Field, B2 Laboratory

Description

This project operates and maintains all-sky imaging Fabry-Perot spectrometers at McMurdo Station and South Pole Station to map the wind and temperature fields that occur in the thermosphere above Antarctica. Data collected from these instruments will be used to test the hypothesis that the thermosphere's most dynamic weather occurs in latitudes just poleward of the boundary between the auroral oval and the polar cap.

Field Season Overview

The instrumentation for this project is located in the Arrival Heights Lab at McMurdo Station and on the B2 Lab mezzanine at South Pole. The systems run continuously during the dark periods of winter, essentially autonomously, with only limited intervention required by personnel onsite and by the researchers via the internet. Due to the COVID-19 pandemic impacts, no participants will deploy to service the equipment this season. An onsite Research Associate will put the equipment into operation during the winter months, take them out of operation in the Spring, and provide monitoring, troubleshooting, and the collection and forwarding of data as needed throughout the year.

Deploying Team Members

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

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- Mark Conde (PI)



Project Title

Foraging Ecology And Physiology Of The Leopard Seal

Summary

Event Number:

B-232-L
NSF/OPP Award 1644256

Program Manager:

Dr. Peter Milne

ASC POC/Implementer:

Samina Ouda / Cara Ferrier



Principal Investigator(s)

Dr. Daniel Paul Costa

costa@ucsc.edu
University of California Santa Cruz
Dept of Ecology & Evolutionary Bio
Santa Cruz, California

Project Web Site:

<http://costa.eeb.ucsc.edu/research/field?season?blogs/>



Location

Supporting Stations: ARSV Laurence M. Gould

Research Locations: Cape Shirreff

Description

This project will examine the physiology and behavior of leopard seals in an effort to determine their ability to respond to potential changes in their habitat. Using satellite tracking devices, the research team will examine the movement and diving behavior of leopard seals and couple this information with measurements of their physiological capacity. The project will determine whether leopard seals—who feed on a diverse range of prey—are built differently than their deep-diving relatives, Weddell seals and elephant seals, which feed on fish and squid.

Field Season Overview

A team of five will travel on the ARSV Laurence M. Gould to the Cape Shirreff field camp, where they will reside for about five weeks. The team will dart up to 11 Leopard seals per season on land using a Tele-inject air gun darting system. The darts will contain an anesthetic. Once the anesthetic has taken effect and the seal is secured by a net, additional anesthesia will be administered by isoflurane gas. This will allow the team to collect physiological and foraging samples, and allow them to attach instruments to the seals using quick-setting marine epoxy. While sedated, the animals will also be flipper tagged, sexed, measured and their body conditions estimated using morphometrics. Analysis of tissue and blood samples will be conducted later at the scientist's home institutions. Tag recovery will be attempted every season.

Project Indexes

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Deploying Team Members

- Renato Chavez
- Daniel Costa (PI)
- Michael Goebel
- Shane Kanatous
- Stephen Trumble



2020-2021 USAP Field Season

Project Detail

Project Title

McMurdo LTER – Streams/Geochemistry: Ecosystem Response To Amplified Landscape Connectivity In The McMurdo Dry Valleys, Antarctica

Summary

Event Number:

C-506-M
NSF/OPP Award 1637708

Program Manager:

Dr. Jennifer Burns

ASC POC/Implementer:

Jenny Cunningham / Elizabeth Kauffman



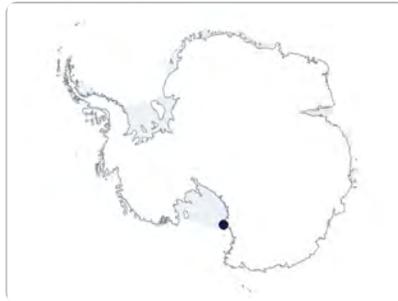
Principal Investigator(s)

Dr. Michael N Gooseff

michael.gooseff@colorado.edu
University of Colorado Boulder
Institute of Arctic and Alpine Research
Boulder, Colorado

Project Web Site:

<http://mcmilter.org>



Location

Supporting Stations: McMurdo Station
Research Locations: Dry Valleys

Description

Initially funded in 1980, the U.S. LTER network is a collaborative effort of more than 1,800 scientists and students. The McMurdo LTER program is a multi-disciplinary aquatic and terrestrial ecosystems study in the McMurdo Dry Valleys. It is one of 26 LTER sites where researchers study ecological processes over long temporal and broad spatial scales. Streams component researchers will continue to operate a network of 16 stream-flow gauges, collect water quality samples from 30 streams, and make hydrologic measurements. This six-year award cycle is comprised of seven collaborative projects: C-504-M (Gooseff), C-505-M (Priscu), C-506-M (Gooseff), C-507-M (Adams), C-508-M (Takacs-Vesbach), C-509-M (Gooseff), and C-511-M (Doran).

Field Season Overview

Science participants will not deploy this season. Antarctic Support Contract personnel may perform maintenance on some key stream gauges and on a data telemetry system in the Dry Valleys.

Deploying Team Members

- Kathy Welch
- Anna Wright

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

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- Kathy Welch
- Kathy Welch

- Anna Wright
- Anna Wright



2020-2021 USAP Field Season

Project Detail

Project Title

NASA / McMurdo Ground Station (MG1)

Summary

Event Number:

T-927-M

NSF / NASA Agreement

Program Manager:

Mr. Pat Smith

ASC POC/Implementer:

John Rand / Sheryl Seagraves



Principal Investigator(s)

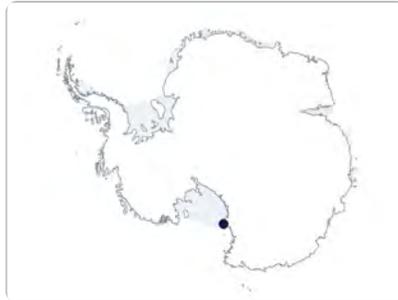
Mr. Mark Harris

mark.a.harris@nasa.gov

National Aeronautics and Space Administration

Wallops Flight Facility

Wallops Island, Virginia



Project Web Site:

<http://www.nasa.gov/directorates/heo/scan/services/networks/nen>

Location

Supporting Stations: McMurdo Station

Research Locations: McMurdo Station

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. MG1 also provides launch and early operations phase (LEOP) support for launches from Vandenberg Air Force Base involving satellite missions that require downrange telemetry support; telemetry and command for satellite housekeeping, and recovery from satellite operational emergencies; and, in collaboration with the National Oceanic and Atmospheric Administration (NOAA) National Environmental Satellite and Data Information Service, data recovery for the EUMETSAT MetOp polar weather satellite constellation. NASA also has established a McMurdo Tracking and Data Relay Satellite (TDRS) Relay System (MTRS) ground terminal, located at Crater Hill, for high-speed data transfers of data collected via MG1. MTRS uses high-inclination TDRS satellites visible above the local horizon. All operations are conducted in compliance with the Antarctic Treaty.

Field Season Overview

The MG1 activity is a year-round effort for which two NASA engineers are deployed to McMurdo Station to operate and maintain the systems. Due to COVID restrictions, no additional maintenance activity will take place in 2020-21. Summer and Winter crews will swap in August and again in February.

Project Indexes

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Deploying Team Members

- Rex Cotten
- Rex Cotten
- Rex Cotten
- Jennifer Cox
- Jennifer Cox
- Jennifer Cox
- Victoria Landgraf
- Victoria Landgraf
- Victoria Landgraf
- Nickolas Sinkola
- Nickolas Sinkola
- Nickolas Sinkola
- Edward Wendell
- Edward Wendell
- Edward Wendell



2020-2021 USAP Field Season

Project Detail

Project Title

Imaging The Beginning Of Time From The South Pole: The Next Stage Of The BICEP Program

Summary

Event Number:

A-149-S
NSF/OPP Award 1638957

Program Manager:

Dr. Vladimir Papitashvili

ASC POC/Implementer:

Paul Sullivan / Sheryl Seagraves / Leah Street



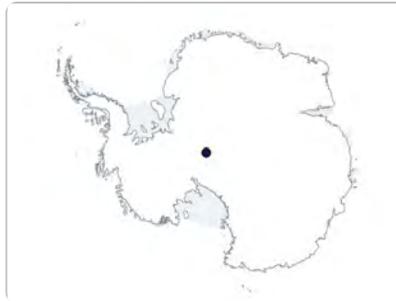
Principal Investigator(s)

Dr. John Kovac

jmkovac@cfa.harvard.edu
Harvard University
Department of Astronomy
Cambridge, Massachusetts

Project Web Site:

<http://bicepkeck.org>



Location

Supporting Stations: South Pole Station

Research Locations: Dark Sector.

Description

This project continues the Background Imaging of Cosmic Extragalactic Polarization (BICEP)/Keck/BICEP3 program of observing cosmic microwave background (CMB) polarization while also initiating the phased upgrade to the new BICEP array. This upgrade follows the tradition of improving upon the previous generation's detectors housed in the mounts originally built for the Degree Angular Scale Interferometer (DASI), then subsequently used by the Small Polarimeter Upgrade for DASI (SPUD) and, most recently, the Keck Array.

Field Season Overview

DEPLOYING This season the science team will focus on the second phase of the BICEP Array deployment. Four winterover grantees will deploy to be trained by the current winterover staff on tasking to maintain the telescopes. This reduction in staff and tasking is being directed by NSF in response to the COVID-19 pandemic.

Deploying Team Members

- James Cheshire IV
- James Cornelison
- Ahmed Mohamed
- Lorenzo Moncelsi

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

Find more information about 2020-2021 USAP projects by viewing project web sites.

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- Marion Dierickx
- Sofia Fatigoni
- David Goldfinger
- John Kovac (PI)
- King Lau
- Lorenzo Minutolo

- Clement Pryke
- Alessandro Schillaci
- Benjamin Schmitt
- Bryan Steinbach
- Cheng Zhang
- Silvia Zhang



Project Title

Earth's Electromagnetic Environment: Advancing Recent Discoveries In Auroral Plasma Radio Emission Research

Summary

Event Number:

A-128-S
NSF/OPP Award 1911335

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

John Rand / Paul Sullivan / Sheryl Seagraves



Principal Investigator(s)

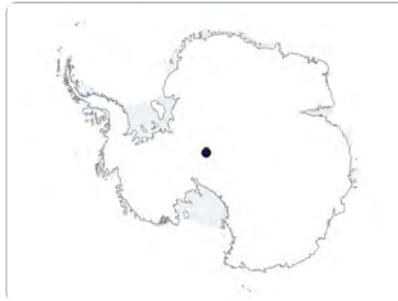
Dr. James LaBelle

jlabelle@aristotle.dartmouth.edu

Dartmouth College
Department of Physics & Astronomy
Hanover, New Hampshire

Project Web Site:

http://www.dartmouth.edu/~spacephy/labelle_group/



Location

Supporting Stations: South Pole Station

Research Locations: B2 Laboratory, Near Field

Description

This project operates instruments at South Pole Station to answer outstanding questions raised by the discovery of correlations between auroral kilometric radiation (AKR) observed 200,000 kilometers above Earth and AKR-like signals observed simultaneously at South Pole Station. The higher electron cyclotron harmonic radiation is polarized, which suggests a different and possibly nonlinear generation mechanism. These phenomena are best observed, and in most cases can only be observed, from Antarctica, making the South Pole a perfect location for this research.

Field Season Overview

The instrumentation for this project is located in the B2 Lab and V8 vault. It runs continuously year-round, essentially autonomously, with only limited intervention required by personnel onsite and by the science party via the internet. Field deployments by project personnel are not typically required and none will deploy during the 2020-21 season. An onsite Research Associate will provide monitoring, troubleshooting, and the collection and forwarding of data as needed throughout the year.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

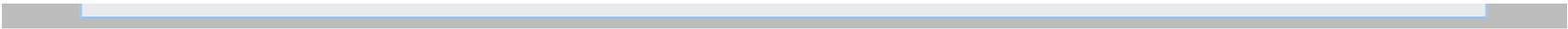
Project Web Sites

Find more information about 2020-2021 USAP projects by viewing project web sites.

More Information

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2020-2021 USAP Field Season

Project Detail

Project Title

The Consequences Of Maternal Effects And Environmental Conditions On Offspring Success In An Antarctic Predator

Summary

Event Number:

B-009-M
NSF/OPP Award 1640481

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

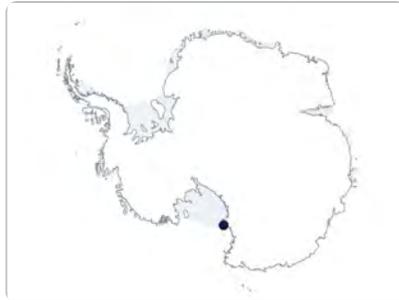
Jenny Cunningham / Elizabeth Kauffman



Principal Investigator(s)

Dr. Jay Rotella

rotella@montana.edu
Montana State University Bozeman
Ecology
Bozeman, Montana



Project Web Site:

<http://www.montana.edu/weddellseals/>

Location

Supporting Stations: McMurdo Station

Research Locations: Erebus Bay

Description

The consequences of variation in maternal effects on the ability of offspring to survive, reproduce, and contribute to future generations has rarely been evaluated in polar marine mammals. This is because of inadequate data on the survival and reproductive outcomes of offspring born in diverse environmental conditions to mothers with known and diverse sets of traits. This project will evaluate the survival and reproductive consequences of early-life environmental conditions and offspring traits related to maternal attributes (e.g. birth date, birth mass, weaning mass, and swimming behavior) in a population of individually marked Weddell seals in the Ross Sea.

Field Season Overview

Three participants will deploy to McMurdo in early October 2020 and will redeploy in mid-December 2020. The team will make day trips from McMurdo to the Sea Ice to find, tag, and weigh seal pups with their mothers. They will work out of two "Apple" shelters placed near Big Razorback Island and Turtle Rock. The team will also make four to five helicopter trips to survey seal colonies and locate pups.

Deploying Team Members

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

Find more information about 2020-2021 USAP projects by viewing project web sites.

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■ Kaitlin Macdonald

■ William McDonald



2020-2021 USAP Field Season

Project Detail

Project Title

Palmer, Antarctica Long-Term Ecological Research (LTER): Land-Shelf-Ocean Connectivity, Ecosystem Resilience And Transformation In A Sea-Ice Influenced Pelagic Ecosystem

Summary

Event Number:

C-019-L/P
NSF/OPP Award 1440435

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

Samina Ouda / Bruce Felix / Jamee Johnson



Principal Investigator(s)

Dr. Oscar Schofield

oscar@marine.rutgers.edu
Rutgers University
Institute for Marine & Coastal Sciences
New Brunswick, New Jersey

Project Web Site:

<http://pal.lter.net>



Location

Supporting Stations: ARSV Laurence M. Gould, Palmer Station

Research Locations: Palmer Station, ARSV Laurence M Gould

Description

Palmer Long-Term Ecological Research (PAL-LTER) started in 1990 to address the hypothesis that the annual sea ice cycle may be the major determinant of spatial/temporal changes in the structure and function of Antarctic marine communities. Research now includes bacteria, viruses, phytoplankton, krill, macrozooplankton, penguins, seabirds, and marine mammals. The PAL-LTER model traces the effects of changing climate and the extent, duration, and seasonality of sea ice on ecosystem composition and dynamics in the Western Antarctic Peninsula, where satellite observations over the past 35 years indicate the average duration of sea ice cover is now about 90 days shorter. Six collaborative projects on the ARSV Laurence M. Gould cruise and at Palmer Station will use moorings, numerical modeling, oceanographic cruises, and environmental sampling to address core hypotheses.

Field Season Overview

Due to COVID-19 restrictions, the annual LTER cruise has been cancelled. One member of the phytoplankton team (C-019-L) will, however, deploy to Palmer Station. The science team plans on conducting repeated sampling with the conductivity temperature depth (CTD) rosette and the grantee-supplied bio-optical profiling instruments deployed at CTD stations. Sediment trap recovery and Swarm mooring recovery is also planned for this season.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

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The specific requirements of the C-019-P group include one person at Palmer Station in mid October through mid April. Field sampling and lab work for this season includes maintaining the phytoplankton Palmer time series measurements and Station E, and conducting water sampling one day per week. The science team will perform acoustic surveys two days per week. They will also perform CTD casts during these surveys. The team will perform a few simple incubation experiments using cubitainers/carboys in an outside tank on the aquarium deck.

Deploying Team Members

- Oscar Schofield (PI)
- Rachel Young
- Rachel Young
- Rachel Young



Project Title

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

Summary

Event Number:

A-119-M/P/S
NSF/OPP Award 1443730

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

John Rand / Elizabeth Kauffman



Principal Investigator(s)

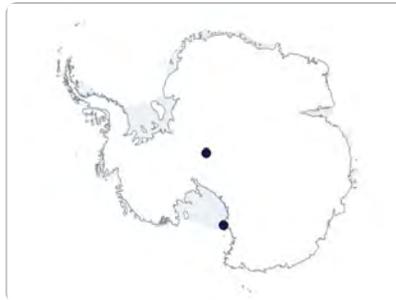
Dr. Michael Taylor

mike.taylor@usu.edu

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

Project Web Site:

<http://digitalcommons.usu.edu/ail/>



Location

Supporting Stations: McMurdo Station,
Palmer Station, South Pole Station

Research Locations: Arrival Heights

Description

The Antarctic Gravity Wave Imaging Network (ANGWIN) is a cooperative effort between six international Antarctic programs to collect continent-wide gravity wave measurements. This network capitalizes on existing optical and radar measurement capabilities at McMurdo, South Pole, and six other research stations: Halley (UK), Syowa (Japan), Davis (Australia), Rothera (UK), and Ferraz (Brazil). Infrared (IR) all-sky mesospheric hydroxyl (OH) imagers are installed at Davis, McMurdo, and Halley stations. The network quantifies the properties, variability, and momentum fluxes of short-period mesospheric gravity waves and their dominant sources and effects over the Antarctic continent. Measurements at South Pole focus on quantifying the temperature signatures of gravity waves deep within the polar vortex and complementing the ANGWIN sites around the continent.

Field Season Overview

The instruments for this project, an all-sky airglow imager and an Advanced Mesospheric Temperature Mapper (AMTM), are located in the Arrival Heights Lab at McMurdo Station. They run continuously during the dark periods of winter, essentially autonomously, with only limited intervention required by onsite ASC personnel and by the science party via the internet. Due to the COVID-19 pandemic, no participants will deploy to service the equipment this season. An onsite Research Associate will put the instruments into operation during the winter months, take them out of operation in the Spring, and provide

Project Indexes

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monitoring, troubleshooting, and the collection and forwarding of data as needed throughout the year.



Project Title

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

Summary

Event Number:

A-119-M/P/S
NSF/OPP Award 1443730

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

John Rand / Paul Sullivan / Sheryl Seagraves

Principal Investigator(s)

Dr. Michael J Taylor

mike.taylor@usu.edu
Utah State University
Center for Atmospheric and Space Sciences
Logan, Utah

Project Web Site:

<http://digitalcommons.usu.edu/ail/>

Location

Supporting Stations: McMurdo Station,
Palmer Station, South Pole Station

Research Locations: B2 Mezzanine

Description

The Antarctic Gravity Wave Imaging Network (ANGWIN) is a cooperative effort between six international Antarctic programs to collect continent-wide gravity wave measurements. This network capitalizes on existing optical and radar measurement capabilities at McMurdo, South Pole, and six other research stations: Halley (UK), Syowa (Japan), Davis (Australia), Rothera (UK), and Ferraz (Brazil). Infrared (IR) all-sky mesospheric hydroxyl (OH) imagers are installed at Davis, McMurdo, and Halley stations. The network quantifies the properties, variability, and momentum fluxes of short-period mesospheric gravity waves and their dominant sources and effects over the Antarctic continent. Measurements at South Pole focus on quantifying the temperature signatures of gravity waves deep within the polar vortex and complementing the ANGWIN sites around the continent.

Field Season Overview

The instruments for this project, an all-sky airglow imager and an Advanced Mesospheric Temperature Mapper (AMTM), are located on the B2 mezzanine at South Pole Station. They run continuously during the dark periods of winter, essentially autonomously, with only limited intervention required by personnel onsite and by the science party via the internet. Due to COVID-19, no participants will deploy to service the equipment this season. An onsite Research Associate will put the instruments into operation during the winter months, take them out of operation in the spring, and provide monitoring,

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

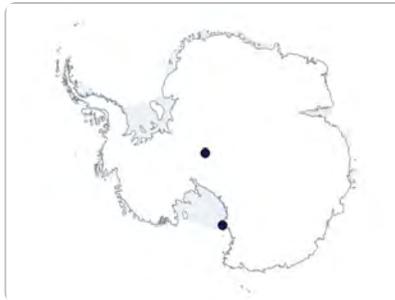
Project Web Sites

Find more information about 2020-2021 USAP projects by viewing project web sites.

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troubleshooting, and the collection and forwarding of data as needed throughout the year.



Project Title

TIME - Thwaites Interdisciplinary Margin Evolution - The Role Of Shear Margin Dynamics In The Future Evolution Of Thwaites Drainage Basin

Summary

Event Number:

C-446-M
NSF/OPP Award 1739027 / NERC Award
NE/S006788/1

Program Manager:

Dr. Paul Cutler

ASC POC/Implementer:

Judy Shiple / Leslie Blank



Principal Investigator(s)

Dr. Slawek M Tulaczyk

stulaczy@ucsc.edu
University of California Santa Cruz
Earth Sciences
Santa Cruz, California

Dr. Poul Christoffersen

pc350@cam.ac.uk
Cambridge University
Scott Polar Research Institute
Cambridge, United Kingdom

Location

Supporting Stations: McMurdo Station
Research Locations: Eastern Shear Margin

Description

The Thwaites Interdisciplinary Margin Evolution (TIME) project will test the overarching hypothesis that shear-margin dynamics may exert powerful control over the evolution of ice flow in the Thwaites Drainage Basin. The work will combine geophysical data collection on the Eastern Shear Margin (ESM) of Thwaites Glacier with shear margin modeling and basin-scale numerical investigations of future sea-level contributions. Field work includes instrument installations, active seismic experiments, and radar surveys.

Field Season Overview

This season the team will flag or reset passive seismic, radar, and GPS instrumentation installed at four separate field locations in the eastern shear margin of Thwaites Glacier during the 2019-20 field season, and collect repeat campaign-style GPS measurements at designated locations. The NSF priority for science support tasking in West Antarctica in 2020-21 is to manage or recover scientific instruments to maintain their viability for future seasons. This scope of work will be accomplished by ASC contractor staff and one technician provided by UNAVCO and PASSCAL agencies utilizing existing fuel inventories established in West Antarctica during the 2019-20 field season.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

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Deploying Team Members

- Robin Bolsey
- Robin Bolsey
- Robin Bolsey
- Adam Booth (Co-PI)
- Adam Booth (Co-PI)
- Adam Booth (Co-PI)
- Lucia Gonzalez
- Lucia Gonzalez
- Lucia Gonzalez
- Galen Kaip (Co-PI)
- Galen Kaip (Co-PI)
- Galen Kaip (Co-PI)
- Marianne Karplus (Team Leader)
- Marianne Karplus (Team Leader)
- Marianne Karplus (Team Leader)
- Emma MacKie
- Emma MacKie
- Emma MacKie
- Norimitsu Nakata (Co-PI)
- Norimitsu Nakata (Co-PI)
- Norimitsu Nakata (Co-PI)
- Emma Smith
- Emma Smith
- Emma Smith
- Tun Jan Young (Team Leader)
- Tun Jan Young (Team Leader)
- Tun Jan Young (Team Leader)



2020-2021 USAP Field Season

Project Detail

Project Title

Melting At Thwaites Grounding Zone And Its Control On Sea Level (THWAITES-MELT)

Summary

Event Number:

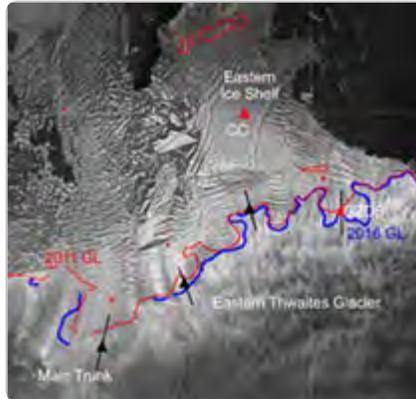
C-444-M
NSF/OPP Award 1739003 / NERC Award
NE/S006656/1

Program Manager:

Dr. Paul Cutler

ASC POC/Implementer:

Samina Ouda / Leslie Blank



Principal Investigator(s)

Dr. David Holland

dmh4@nyu.edu
New York University
Department of Earth Sciences
New York, New York

Dr. Keith Nicholls

kwni@bas.ac.uk
British Antarctic Survey
Polar Oceans Team
Cambridge, United Kingdom



Location

Supporting Stations: McMurdo Station

Research Locations: Thwaites Ice Shelf. The Eastern Ice Shelf (Grounding Zone)

Description

Thwaites Glacier is a primary contributor to sea-level rise, and its flow is accelerating in response to reduced buttressing from a floating ice shelf, which is thinning due to ocean-driven melting from below. Thus, the degree to which sea-level rise will occur depends largely on the ice-ocean interaction beneath Antarctic ice shelves. Researchers will use autonomous sensors to monitor the ice and the ocean beneath the ice shelf in the critical area of the grounding line. They will also use airborne radar flights to study ice flow, seismic surveys to study the ocean floor under the ice shelf, and a remotely operated vehicle to examine the water beneath the shelf. Ocean moorings will monitor ocean conditions for a year or more. Ground-based, phase-sensitive radar will monitor the basal melt rate.

Field Season Overview

This season the team will flag or recover radar and GPS instrumentation that was installed in a 5 km area of the grounding zone of the eastern ice shelf of Thwaites Glacier during the 2019-2020 field season. Tasking specific to instrumentation installed in and around the two boreholes drilled in 2019-20 includes recovering data and resetting instruments installed at the downstream borehole site, and removing instruments and collecting fiber-optic

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Distributed Temperature System (DTS) measurements and raising the DTS cable at the upstream borehole. The NSF priority for science support tasking in West Antarctica in 2020-21 is to manage or recover scientific instruments to maintain their viability for future seasons. This scope of work will be accomplished by ASC contractor staff and one technician provided by UNAVCO and PASSCAL agencies utilizing existing fuel inventories established in West Antarctica during the 2019-20 field season.

Deploying Team Members

- Irena Vankova
- Irena Vankova
- Irena Vankova
- Benjamin Yeager
- Benjamin Yeager
- Benjamin Yeager



USAP Program Index Ocean and Atmospheric Sciences

Principal Investigator	Event No.	Project Title
Butler, James	O-257-M/S	South Pole monitoring for climatic change - U.S. Department of Commerce NOAA Global Monitoring Division (GMD)
Butler, James	O-264-P	Collection of atmospheric air for the NOAA/GMD worldwide flask-sampling network
Butler, James	O-257-M/S	UV measurements at McMurdo Station for the NOAA/Global Monitoring Division (GMD) Antarctic UV network
Munro, David	O-214-L/N	Investigating biogeochemical fluxes and linkages to climate change with multi-scale observations in the Drake Passage
Sarmiento, Jorge	O-271-N	Southern Ocean Carbon and climate Observations and Modeling (SOCCOM)

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Project Title

Global Seismograph Station At South Pole, Scott Base, And Palmer Stations

Summary

Event Number:

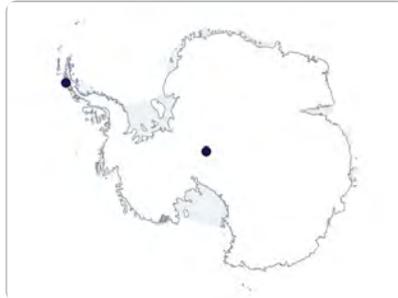
G-090-M/P/S
NSF EAR 1724509

Program Manager:

Dr. Michael Jackson

ASC POC/Implementer:

John Rand / Elizabeth Kauffman / Jamee Johnson / Paul Sullivan / Sheryl Seagraves



Principal Investigator(s)

Mr. Kent Anderson

kent@iris.edu

Incorporated Research Institutions for Seismology
Socorro, New Mexico

Location

Supporting Stations: McMurdo Station, Palmer Station, South Pole Station

Research Locations: South Pole and Palmer Stations

Description

The United States Geological Survey's Albuquerque Seismological Laboratory (USGS-ASL), in collaboration with the NSF-sponsored Incorporated Research Institutions for Seismology consortium's portable network's instrumentation center (IRIS-PASSCAL) maintains and operates seismometers at South Pole (in the SPRESSO vault) and Palmer Station (at the Terra Lab). In addition, the ASL equipment engineers will provide service to other installed seismometers, such as two USAP seismometers located at New Zealand's Scott Base. The data from these instruments is provided to a number of data archives and real-time users world-wide.

Field Season Overview

The instrumentation for this project runs continuously, year-round, essentially autonomously, with only limited intervention required by personnel onsite and by the equipment operators via the internet. Due to the COVID-19 pandemic impacts, no participants will deploy to service the equipment in 2020-21, and work that was scheduled to replace the instruments at Palmer Station has been deferred to a later date. Onsite Research Associates will provide monitoring, troubleshooting, and the collection and forwarding of data at each site as needed throughout the year.

Deploying Team Members

■ Edward Kromer (PI)

■ Edward Kromer (PI)

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- Edward Kromer (PI)

- Edward Kromer (PI)
- Edward Kromer (PI)
- Edward Kromer (PI)
- Nicholas Voss
- Nicholas Voss
- Nicholas Voss



Project Title

Does Nest Density Matter? Using Novel Technology To Collect Whole-Colony Data On Adelie Penguins

Summary

Event Number:

B-040-M
NSF/OPP Award 1834986

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

Jenny Cunningham / Elizabeth Kauffman



Principal Investigator(s)

Dr. Grant Ballard

gballard@pointblue.org
Point Reyes Bird Observatory
Petaluma, California



Location

Supporting Stations: McMurdo Station

Research Locations: Cape Crozier and Cape Royds

Description

In the Ross Sea region, one of the largest Adelie penguin colonies in the world is growing quickly despite signs of negative density dependence. Building on a long-term biologging and demographic dataset, this team will integrate the role of environmental factors with information on penguin foraging behavior, diet, growth and survival at both Cape Crozier and Cape Royds. Data will be used to evaluate how early-life conditions and penguin behavior relate to penguin energetics and population size. Results from this study will enhance scientific understanding and conservation of sea ice ecosystems.

Field Season Overview

Due to the COVID-19 pandemic impacts, a reduced team of two participants will deploy in November and will stay at Cape Crozier from late November to late January to continue long-term monitoring of the penguin colony there. Monitoring activities will include identifying previously marked penguins, collecting data on breeding behavior, and banding new penguin chicks. Four to five day trips will be made by helicopter to Cape Royds conduct some monitoring activities in the colony there, and the team will fly unmanned aerial vehicles (UAVs) to survey the colonies at both locations.

Deploying Team Members

- Grant Ballard (PI)
- Anne Schmidt
- Parker Levinson

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

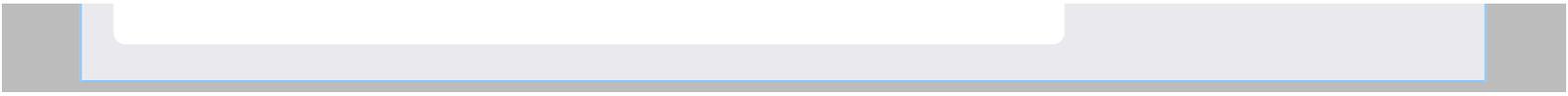
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Project Title

Unpinning Of The Ross Ice Shelf From Ross Bank

Summary

Event Number:

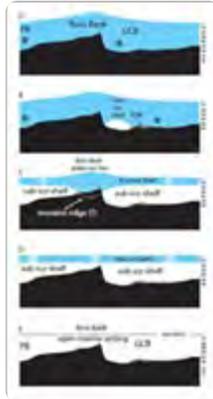
G-431-N
NSF / OPP Award 1841136

Program Manager:

Dr. Michael Jackson

ASC POC/Implementer:

Rachel Shackelford / Jamee Johnson



Principal Investigator(s)

Dr. Philip Bart

pbart@lsu.edu

Louisiana State University Baton Rouge
Department of Geology and Geophysics
Baton Rouge, Louisiana



Location

Supporting Stations: RV/IB Nathaniel B. Palmer

Research Locations: RV/IB Nathaniel B. Palmer

Description

This team will investigate the how, why and when the Ross Ice Shelf (RIS) unpinning from Ross Bank to assess ice sheet and ice shelf behavior during a recent unpinning event. Previous studies have estimated the timing of West Antarctic Ice Sheet flow changes that occurred during the past millennia based on changes in the pattern of flow stripes and rift tracks preserved on the RIS. Ongoing studies of a recently completed ice core by the Roosevelt Island Climate Evolution project are likely to provide a high-resolution record of atmospheric and ice-surface elevation changes. It is equally important to understanding the past ice shelf dynamics around Ross Bank, an essential part for determining the past behavior of RIS and the future susceptibility and response of unpinning. As such, the Ross Bank study will provide some of the needed ground truth proof for any physical or numerical model prediction of cause and effect relationships associated with ice-shelf unpinning. Activities during two cruises to the Ross Sea include seismic surveying, multibeam, and Kasten and Jumbo Piston cores. In addition to the scientific broader impacts on ice sheet dynamics and sea level rise, this study provides the opportunity to train four graduate and four undergraduate students on geophysical- and geological-data acquisition, processing, sampling, interpretation and presentation. The Louisiana State University (LSU) team will share the results with local schools and the public.

Field Season Overview

The science team will deploy to the Ross Bank and Pennell Basin areas on the RV/IB Nathaniel B. Palmer (NBP) for two cruises in January to March of 2021. The science team will embark and disembark the ship at Lyttelton, New Zealand. There will be a short port

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call at McMurdo Station in between the two cruises. The first cruise will comprise ten science days for seismic surveys, and potentially simultaneous, multibeam surveys. After departing McMurdo Station, the second 16-day cruise will conduct multibeam surveys of Ross Bank. Four science days will be used to collect samples from selected stations at Ross Bank. Seafloor imagery via the Yo-Yo Camera and companion baseline water-column analyses with conductivity temperature depth (CTD) casts and plankton tows will be co-acquired. The scientific party will edit and process the multibeam bathymetry and seismic data onboard.

Deploying Team Members

- Philip Bart (PI)
- Philip Bart (PI)
- Philip Bart (PI)
- Jaren Bradford
- Jaren Bradford
- Jaren Bradford
- Matthew Danielson
- Matthew Danielson
- Matthew Danielson
- Colby Knight
- Colby Knight
- Colby Knight
- Matthew Kratochvil
- Matthew Kratochvil
- Matthew Kratochvil
- Ben Lindsey
- Ben Lindsey
- Ben Lindsey
- Kanchan Maiti
- Kanchan Maiti
- Kanchan Maiti
- Hannah Paradis
- Lindsay Prothro
- Lindsay Prothro
- Lindsay Prothro
- Brad Rosenheim
- Brad Rosenheim
- Brad Rosenheim
- Anna Sivils
- Anna Sivils
- Anna Sivils



2020-2021 USAP Field Season

Project Detail

Project Title

The Omnivore's Dilemma: The Effect Of Autumn Diet On Winter Physiology And Condition Of Juvenile Antarctic Krill

Summary

Event Number:

B-459-L/P
NSF/OPP Award 1753101

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

Rachel Shackelford / Jamee Johnson



Principal Investigator(s)

Dr. Kim Sarah Bernard

kbernard@coas.oregonstate.edu

Oregon State University
College of Oceanic and Atmospheric
Sciences
Corvallis, Oregon



Location

Supporting Stations: ARSV Laurence M. Gould, Palmer Station

Research Locations: Palmer Station, Bransfeld or Gerlache Straits

Description

Antarctic krill are essential in the Southern Ocean for supporting marine mammals, seabirds, and fishes. Antarctic krill are also a target species for industrial fisheries. The success of Antarctic krill populations is largely determined by the ability of their young to survive the long, dark winter when food is scarce. To survive the winter, young krill must have a high-quality diet in autumn. However, warming in certain parts of Antarctica is changing the dynamics and quality of the polar food web, resulting in a shift in the available food type. This project will study how warming is affecting young krill survival. The results derived from this work will contribute to the development of improved bioenergetic, population, and ecosystem models and will advance current scientific understanding of this critical Antarctic species.

Field Season Overview

Three team members will deploy people to Palmer Station on the station turnover cruise this season, to be joined by a fourth team member at a later date. They will collect krill from the waters off Palmer Station and will conduct in situ sampling of local krill populations. Sampling may be conducted from the ARSV Laurence M. Gould, from a SOLAS skiff using small dipnets to scrape the underside of ice floes or, if the sea ice has formed and is safe to work on, they may also collect samples through holes cut in the ice.

Deploying Team Members

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- Kim Bernard (PI)
- Victor Escalona

- Kristen Steinke



2020-2021 USAP Field Season

Project Detail

Project Title

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

Summary

Event Number:

O-257-M/S

NSF / NOAA Agreement

Program Manager:

Dr. Peter Milne

ASC POC/Implementer:

John Rand / Elizabeth Kauffman



Principal Investigator(s)

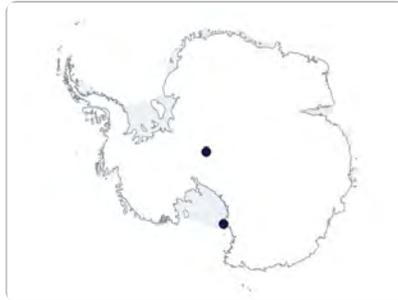
Dr. James Hall Butler

james.h.butler@noaa.gov

National Oceanic and Atmospheric Administration

Global Monitoring Division (GMD)

Boulder, Colorado



Location

Supporting Stations: McMurdo Station, South Pole Station

Research Locations: Near Field, Arrival Heights

Description

The National Oceanic and Atmospheric Administration (NOAA) Earth System Research Laboratory (ESRL) GMD will continue long-term measurements of ultra-violet (UV) radiation that influences climate and the ozone layer. The McMurdo Station work 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. The measurements will be used for time-series analysis of multi-year data focusing 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; the magnitude of seasonal and temporal variations in greenhouse gases; and the development of polar stratospheric clouds over Antarctica.

Field Season Overview

At McMurdo Station, NOAA operates a high resolution UV spectroradiometer at the Arrival Heights Lab. The equipment runs continuously during the dark periods of winter, essentially autonomously, with only limited intervention required by personnel onsite or by the researchers via the internet. Service visits are scheduled biennially, with no visit scheduled during 2020-21. An onsite Research Associate will put the equipment into operation during the winter months, take it out of operation in the austral spring, and provide monitoring, troubleshooting, and the collection and forwarding of data as needed throughout the year.

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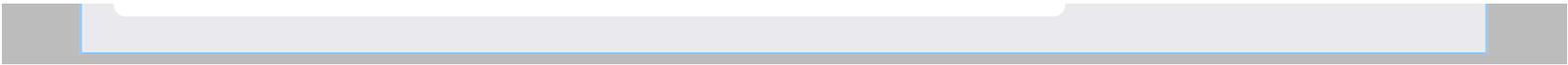
Project Web Sites

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Project Title

Cosmological Research With The 10-Meter South Pole Telescope

Summary

Event Number:

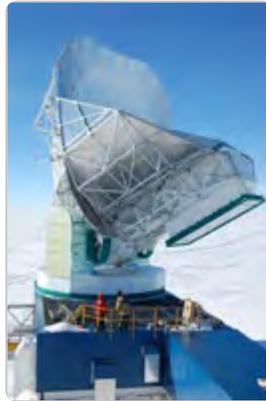
A-379-S
NSF/OPP Award 1852617

Program Manager:

Dr. Vladimir Papitashvili

ASC POC/Implementer:

Paul Sullivan / Sheryl Seagraves / Leah Street

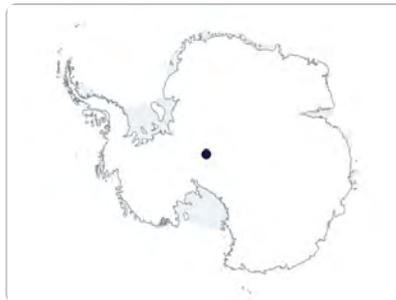


Principal Investigator(s)

Dr. John Carlstrom

jc@kicp.uchicago.edu

University of Chicago
Astronomy and Astrophysics
Chicago, Illinois



Location

Supporting Stations: South Pole Station
Research Locations: Dark Sector Lab (DSL)
located in the Dark Sector.

Description

The South Pole Telescope (SPT) aids cosmological research by measuring the intensity and polarization anisotropy of the cosmic microwave background (CMB) radiation. The project's goal is to detect all galaxy clusters in this region of the sky through the spectral distortion they impart on the CMB. Called the Sunyaev-Zel'dovich effect, it has the remarkable property of being independent of the distance to the cluster. The second key project started in 2012 with the installation of an ultra-sensitive polarization receiver. Through measurements of the polarization, researchers can determine the sum of the masses of the neutrinos and either detect or set stringent upper limits on the energy scale of inflation.

Field Season Overview

During the 2020-21 summer and winter austral seasons, two winter over grantees will deploy along with the machinist to perform routine maintenance on the telescope and perform machine shop services. The reduced numbers are in response to NSF guidance limiting personnel due to the COVID-19 virus. The current winter overs will remain on station to train the arriving personnel. A maximum of six SPT grantees will be on station.

Deploying Team Members

- Adam Anderson
- William Holzapfel

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Melanie Archipley

- Amy Bender
- Bradford Benson
- Karia Dibert
- Wendeline Everett
- Kyle Ferguson
- Riccardo Gualtieri
- Sam Guns

Nicholas Huang

- Junhan Kim
- Daniel Marrone
- David Pernic
- Alexandra Rahlin
- Judith Stephen
- Matthew Young



2020-2021 USAP Field Season

Project Detail

Project Title

Simultaneous Na Doppler And Fe Boltzmann LiDAR Observations And Modeling Of The Middle And Upper Atmosphere At McMurdo, Antarctica

Summary

Event Number:

A-123-M
NSF/OPP Award 1443726

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

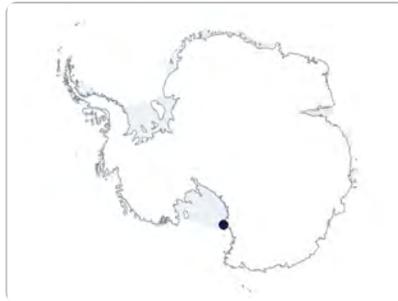
John Rand / Richard Dean



Principal Investigator(s)

Dr. Xinzhao Chu

xinzhao.chu@colorado.edu
University of Colorado Boulder
CIRES
Boulder, Colorado



Location

Supporting Stations: McMurdo Station

Research Locations: Antarctica New Zealand Lab C at Arrival Heights

Description

Researchers on this project operate two narrow-band, multi-frequency Doppler LiDARs at McMurdo Station. These LiDARs can make high-resolution observations of winds and temperatures in the middle and upper atmosphere. Simultaneous observations by the two instruments - a sodium (Na) LiDAR and an iron (Fe) Boltzmann LiDAR - provide unprecedented levels of detail to characterize atmospheric conditions. The observations provide critical data to address key science challenges associated with the space-atmosphere interaction region, and in particular in the sparsely observed high-latitude southern hemisphere.

A major observational goal of this LiDAR campaign is to cover at least one solar cycle (11-12 years) in Antarctica, thereby enabling many frontier space-atmosphere science explorations. To this end, the instruments have been hosted by the Antarctica New Zealand (ANZ) program in their Arrival Heights laboratory since late 2010 (and since 2017 in the case of the Na Doppler instrument), and have operated simultaneously year-round, weather permitting. The 2020-21 season will be the 11th season of the LiDAR campaign at Arrival Heights.

Field Season Overview

Due to the COVID-19 pandemic, 2020-21 field plans for this project are in flux. Under consideration are plans to deploy three participants during the summer, two of which would remain on station during winter 2021. In addition, the two winter 2020 researchers would remain on station for the the bulk of the 2020-21 austral summer season. Should these plans not come to fruition, the equipment will be shut down sometime during the 2021-21

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austral summer and there will be no winter 2021 operations.

Deploying Team Members

- Xinzhao Chu (PI)
- Jackson Jandreau
- Arunima Prakash



Project Title

Cold Regions Research And Engineering Laboratory (CRREL) Activities

Summary

Event Number:

T-940-M

NSF Agreement

Program Manager:

Ms. Margaret Knuth

ASC POC/Implementer:

Samina Ouda / Jessica Palen



Principal Investigator(s)

Dr. Zoe R Courville

Zoe.R.Courville@usace.army.mil

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



Location

Supporting Stations: McMurdo Station

Research Locations: McMurdo Shear Zone
Camp

Description

The Cold Regions Research and Engineering Laboratory (CRREL) activities encompass engineering and basic research in support of a variety of projects at both McMurdo and South Pole Stations. At McMurdo Station, CRREL supports ground-penetrating radar (GPR) work with the South Pole Traverse (SPoT) and support for the McMurdo Station airfields. CRREL also provides general engineering analysis for projects at McMurdo and South Pole Stations.

Field Season Overview

Fieldwork will be conducted at the current McMurdo Shear Zone camp as a part of the South Pole Traverse (SPoT) route. One person will deploy along with SPoT personnel for approximately one to three weeks to conduct GPR surveys of the route.

Deploying Team Members

- Zoe Courville (PI)
- Zoe Courville (PI)
- Zoe Courville (PI)

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2020-2021 USAP Field Season

Project Detail

Project Title

NOAA's Global Drifter Program (GDP)

Summary

Event Number:

X-592-L/N

NSF / NOAA Agreement

Program Manager:

Dr. Peter Milne

ASC POC/Implementer:

Rachel Shackelford / Bruce Felix



Principal Investigator(s)

Dr. Shaun R Dolk

shaun.dolk@noaa.gov

National Oceanic and Atmospheric Administration
Physical Oceanography Division
Miami, Florida



Location

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

Research Locations: Drake Passage

Description

The Global Drifter Program (GDP) is the principal component of the Global Surface Drifting Buoy Array, a branch of NOAA's Global Ocean Observing System (GOOS) and a scientific project of the Data Buoy Cooperation Panel (DBCP). Its objectives are: (1) to maintain a global 5x5 degree array of 1,250 ARGOS-tracked surface drifting buoys to meet the need for an accurate and globally dense set of in-situ observations of mixed-layer currents, sea-surface temperature, atmospheric pressure, winds, and salinity; and (2) to provide a data processing system for scientific use of these data. These data support short-term climate predictions as well as climate research and monitoring.

Field Season Overview

For ARSV Laurence M. Gould (LMG) cruises, one drifter will be deployed by ASC technicians during each crossing of the Drake Passage (one southbound and one northbound). ASC technicians will also deploy drifting buoys while underway onboard the RV/IB Nathaniel B. Palmer (NBP) during various cruises throughout the year.

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Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

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2020-2021 USAP Field Season

Project Detail

Project Title

Palmer, Antarctica Long-Term Ecological Research (LTER): Land-Shelf-Ocean Connectivity, Ecosystem Resilience And Transformation In A Sea-Ice Influenced Pelagic Ecosystem

Summary

Event Number:

C-024-L/P
NSF/OPP Award 1440435

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

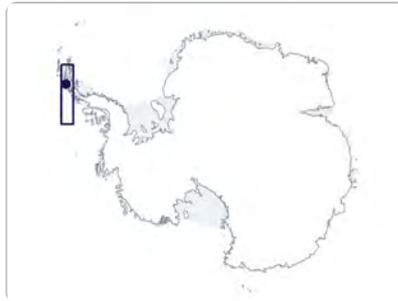
Samina Ouda / Jamee Johnson / Bruce Felix



Principal Investigator(s)

Dr. Ari Seth Friedlaender

ari.friedlaender@ucsc.edu
University of California Santa Cruz
Institute of Marine Sciences
Santa Cruz, California



Location

Supporting Stations: ARSV Laurence M. Gould, Palmer Station

Research Locations: Palmer Station

Description

Palmer Long-Term Ecological Research (PAL-LTER) started in 1990 to address the hypothesis that the annual sea ice cycle may be the major determinant of spatial/temporal changes in the structure and function of Antarctic marine communities. Research now includes bacteria, viruses, phytoplankton, krill, macrozooplankton, penguins, seabirds, and marine mammals. The PAL-LTER model traces the effects of changing climate, and the extent, duration, and seasonality of sea ice on ecosystem composition and dynamics in the Western Antarctic Peninsula, where satellite observations over the past 35 years indicate the average duration of sea ice cover is now about 90 days shorter. Six collaborative projects deploy on January's ARSV Laurence M. Gould cruise and/or to Palmer Station. Team members use moorings, numerical modeling, oceanographic cruises, and environmental sampling to address core hypotheses.

Field Season Overview

Due to the cancellation of the annual LTER cruise this season, there will be no deployments for this project. Instead, two deploying personnel from C-013-L/P will conduct visual surveys for whales and collect biopsy samples throughout the season.

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2020-2021 USAP Field Season

Project Detail

Project Title

The Next Generation Of Geospace Research Facilities At South Pole And McMurdo Stations

Summary

Event Number:

A-111-M/P/S
NSF/OPP Award 1643700

Program Manager:

Dr. Vladimir Papitashvili

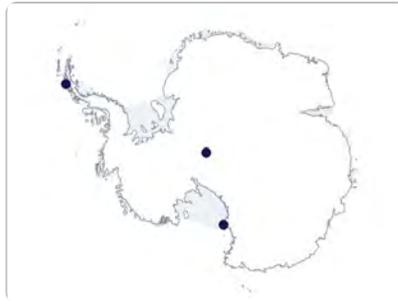
ASC POC/Implementer:

John Rand / Elizabeth Kauffman / Jamee Johnson / Paul Sullivan / Sheryl Seagraves

Principal Investigator(s)

Dr. Andrew Gerrard

gerrard@njit.edu
New Jersey Institute of Technology
Department of Physics
Newark, New Jersey



Location

Supporting Stations: McMurdo Station, Palmer Station, South Pole Station

Research Locations: Field Local, Arrival Heights, Terra Lab

Description

The geomagnetic field protects life on Earth from geomagnetic storms and coronal mass ejections. These events could also affect satellites and disrupt communication with ground stations. The polar caps are specific areas around the geomagnetic poles where geomagnetic field lines are open and directly interact with the interplanetary magnetic field. There are many Geospace-monitoring stations over the northern polar cap but far fewer on the southern polar cap. This project integrates clustered instrumentation at all three USAP stations to examine solar-wind interactions within the entire Geospace system. Instruments include ground-based fluxgate and search-coil magnetometers, extremely low frequency (ELF) and very-low-frequency (VLF) receivers, imaging and broadband riometers, sky-looking optical systems, and GPS scintillation-rated receivers.

Field Season Overview

Due to COVID19, there will be no additional activities at McMurdo or South Pole Station and activities will proceed as usual. At Palmer Station there will be no additional activities. The team plans to run the fluxgate magnetometer and VLF as they have in past years.

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Project Web Sites

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2020-2021 USAP Field Season

Project Detail

Project Title

Collaborative Research: Have Trans-Antarctic Dispersal Corridors Impacted Antarctic Marine Biodiversity?

Summary

Event Number:

B-305-N
NSF/OPP Award 1916661

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

David Rivera / Jamee Johnson



Principal Investigator(s)

Dr. Kenneth Halanych

ken@auburn.edu

Auburn University
Auburn, Alabama



Location

Supporting Stations: RV/IB Nathaniel B. Palmer

Research Locations: Weddell Sea

Description

The overarching goal of this research is to understand environmental factors that have shaped patterns of present-day diversity in Antarctic benthic marine invertebrates. Evidence from sediment cores and modeling suggests ice shelf collapses have occurred multiple times in the last few million years. During these periods, transantarctic seaways connected the Ross and Weddell Seas. This research will assess whether the presence of transantarctic waterways helps explain observed similarities between the Ross and Weddell Seas benthic marine invertebrate fauna better than other current hypotheses (e.g., dispersal by the Antarctic Circumpolar Current, or expansion from common glacial refugia). Seven Antarctic benthic invertebrate taxa will be targeted to test alternative hypothesis about the origins of population genetic structure in the Southern Ocean using Single Nucleotide Polymorphism (SNP) markers that sample thousands of loci across the genome. Additionally, research will test the current paradigm that divergence between closely related, often cryptic, species is the result of population bottlenecks caused by glaciation. Specifically, SNP data will be mapped on to draft genomes of three of our target taxa to assess the degree of genetic divergence and look for signs of selection. Research findings may be applicable to other marine ecosystems around the planet.

Field Season Overview

In the 2020-21 season, a science team consisting of fourteen participants will travel from Punta Arenas, Chile to the Weddell Sea. Seven target invertebrate species have been prioritized, but other species will also be collected along the continental shelf at depths ranging from 400-600 meters. Sampling may occur down to 1000 meters. Planned shipboard science includes 24-hour operations. Sampling operations at each site will

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include conductivity temperature depth (CTD) casts, Blake trawls, multicoring, multibeam surveys, and camera surveys. Post-sampling activities will consist of sorting, photographing, cataloguing, and sample processing and storage. All bycatch will be catalogued, stored, and sent back to PI Institution along with samples of the seven target species.

Deploying Team Members

- Madeline Armstrong
- Madeline Armstrong
- Madeline Armstrong
- Ashley Batts
- Ashley Batts
- Ashley Batts
- Kyle David
- Kyle David
- Kyle David
- Candace Grimes
- Candace Grimes
- Candace Grimes
- Kenneth Halanych (PI)
- Kenneth Halanych (PI)
- Kenneth Halanych (PI)
- Deric Learman
- Deric Learman
- Deric Learman
- Andrew Mahon (Co-PI)
- Andrew Mahon (Co-PI)
- Andrew Mahon (Co-PI)
- Nusrat Noor
- Nusrat Noor
- Nusrat Noor
- Caitlin Redak
- Caitlin Redak
- Caitlin Redak
- Michael Tassia
- Michael Tassia
- Michael Tassia
- Damien Waits
- Damien Waits
- Damien Waits
- Jessica Zehnpfennig
- Jessica Zehnpfennig
- Jessica Zehnpfennig



Project Title

Management And Operations Of The IceCube Neutrino Observatory 2016-2021

Summary

Event Number:

A-333-S
NSF/OPP Award 1600823

Program Manager:

Dr. Vladimir Papitashvili

ASC POC/Implementer:

Paul Sullivan / Sheryl Seagraves / Leah Street

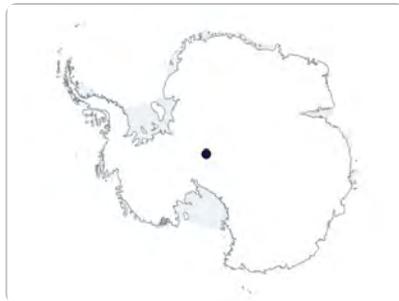


Principal Investigator(s)

Dr. Francis Halzen

halzen@icecube.wisc.edu

University of Wisconsin Madison
Physics Department
Madison, Wisconsin



Location

Supporting Stations: South Pole Station

Research Locations: IceCube Lab (ICL)

Description

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

Field Season Overview

NSF has reduced on-Ice staffing levels during the 2020-21 season due to the COVID-19 virus. The IceCube project will only deploy two grantees that will work during the austral summer and winter seasons. The existing winterover crew will stay longer during the summer to assist with training and transitioning. At a maximum, there will be four IceCube grantees on station.

Project Indexes

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2020-2021 USAP Field Season

Project Detail

Project Title

IceCube Gen2 Phase 1; An IceCube Extension For Precision Neutrino Physics And Astrophysics

Summary

Event Number:

A-334-M/S
NSF/OPP Award 1719277

Program Manager:

Dr. Vladimir Papitashvili

ASC POC/Implementer:

Paul Sullivan / Sheryl Seagraves / Leah Street
/ Matthew Kippenhan

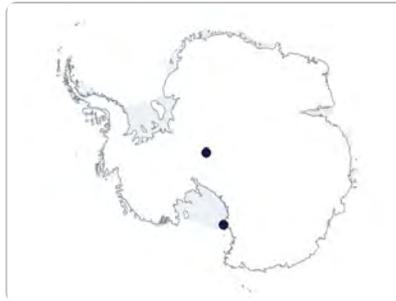


Principal Investigator(s)

Dr. Kael Dylan Hanson

kaeld@icecube.wisc.edu

University of Wisconsin Madison
Department of Physics
Madison, Wisconsin



Location

Supporting Stations: McMurdo Station, South Pole Station

Research Locations: IceCube Lab (ICL) and local drill camp location(s)

Description

Leveraging the experience of the IceCube collaboration and the currently operating infrastructure of the IceCube Neutrino Observatory, a five-year project is proposed to advance the state of the art in multimessenger astronomy with neutrinos and improve on the ability of IceCube to make a unique measurement of the unitarity of the PMNS (Pontecorvo-Maki-Nakagawa-Sakata) matrix. This award, the IceCube Gen2 Phase 1 extension, will fund the deployment of seven additional strings of photon sensors at the bottom center of IceCube. The new strings will use multiple photomultiplier tube (PMT) Digital Optical Modules (mDOMs) that provide better directionality and more than double the photocathode area per module, at lower cost per unit area, than traditional IceCube DOMs.

Field Season Overview

For McMurdo Station, no participants will deploy during the 2020-21 field season. The Science Traverse Supervisor will be the ASC point of contact (POC) for McMurdo activities, as time allows. The POC will help direct and facilitate cargo coordination with South Pole Operations Traverse (SPoT) personnel based on available capacity to the South Pole Station. The POC will also conduct minor information gathering per instructions from the ASC project manager.

On-Ice activities for this project at the South Pole will include grooming the drill pad and relocated the ICL road, preparing a skid steer loader with suitable modifications for working at the South Pole, receiving cargo delivered from the South Pole Operations Traverse, and

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grooming the drill equipment storage berm area.



Project Title

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

Summary

Event Number:

T-396-M
NSF / DTRA IAA MOA

Program Manager:

Dr. Michael Jackson

ASC POC/Implementer:

John Rand / Elizabeth Kauffman



Principal Investigator(s)

Mr. Jay Gregory Helmericks

jghelmericks@alaska.edu
University of Alaska Fairbanks
Geophysical Institute
Fairbanks, Alaska



Location

Supporting Stations: McMurdo Station

Research Locations: Windless Bight

Description

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

Field Season Overview

This project's equipment runs continuously year-round, essentially autonomously, with only limited intervention required by personnel onsite and the researchers via the internet. The site does however requires annual servicing. Due to COVID-19 pandemic impacts, only two participants will deploy to perform this work during the 2020-21 season. The logistical support contractor will provide the usual, though reduced in scale, field camp and operational equipment assistance, as well as additional labor support to dig up and raise the project's equipment. Delivery of fuel and survey support will also be provided. An onsite Research Associate will provide monitoring, troubleshooting, and the collection and forwarding of data as needed throughout the year.

Deploying Team Members

Project Indexes

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Project Web Sites

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- Jessie Crain
- Jay Helmericks (PI)

- Andrew Winkelman



2020-2021 USAP Field Season

Project Detail

Project Title

University Of Hawaii Data Acquisition System (UHDAS) Support

Summary

Event Number:

T-933-L/N

NSF Agreement

Program Manager:

Mr. Tim McGovern

ASC POC/Implementer:

Rachel Shackelford / Bruce Felix



Principal Investigator(s)

Dr. Julia M Hummon

hummon@hawaii.edu

University of Hawaii Manoa

Joint Institute for Marine and Atmospheric

Research (JIMAR)

Honolulu, Hawaii



Location

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

Research Locations: ARSV Laurence M Gould, RV/IB Nathaniel B Palmer

Description

This project maintains the Acoustic Doppler Current Profiler (ADCP) computer system on the RV/IB Nathaniel B. Palmer (NBP) and ARSV Laurence M. Gould (LMG). These computer systems are used to manage and post-process data from the ADCP sonars on the NBP and the LMG. On the LMG, the ADCP data is specifically collected and managed under the Chereskin (O-317-L) project, but is available to all cruise participants. On the NBP, the systems are maintained for general grantee requests.

Field Season Overview

No sailing or port call visits are planned for systems on the LMG or NBP this season.

Project Indexes

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Project Web Sites

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2020-2021 USAP Field Season

Project Detail

Project Title

Dry Valley Seismic Project

Summary

Event Number:

G-078-M
NSF/PLR-DoD MOA

Program Manager:

Dr. Michael Jackson

ASC POC/Implementer:

Jenny Cunningham / Elizabeth Kauffman



Principal Investigator(s)

Dr. Robert C Kemerait

robert.kemerait@us.af.mil
United States Air Force
AFTAC
Patrick AFB, Florida



Location

Supporting Stations: McMurdo Station
Research Locations: Bull Pass, Mount Newall

Description

The Dry Valley 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 transmitted to the National Data Center in Florida and made available to the international scientific community.

Field Season Overview

Antarctic Support Contract personnel will make helicopter day trips to the Bull Pass seismic and the Mount Newall repeater sites to refuel diesel generators and perform any required equipment maintenance and inspections.

Deploying Team Members

- Marcus Bottensek
- Marcus Bottensek
- Marcus Bottensek
- Evan Estrada
- Evan Estrada
- Evan Estrada
- Dale Pomraning
- Dale Pomraning
- Dale Pomraning
- Robert Stone (Team Leader)
- Robert Stone (Team Leader)
- Robert Stone (Team Leader)

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

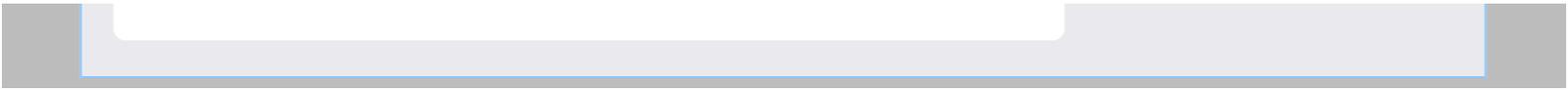
Project Web Sites

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Project Title

CAREER: Revolutionizing Biodiversity And Systematics Research On Aplacophora (Mollusca) And Training The Next Generation Of Invertebrate Systematists

Summary

Event Number:

B-237-N
NSF/OPP Award 1846174

Program Manager:

Dr. Jennifer Burns

ASC POC/Implementer:

Rachel Shackelford / Jamee Johnson

Principal Investigator(s)

Dr. Kevin M Kocot

kmkocot@ua.edu

University of Alabama Tuscaloosa
Tuscaloosa, Alabama



Location

Supporting Stations: RV/IB Nathaniel B. Palmer

Research Locations: Weddell Sea

Description

Aplacophora is a diverse group of shell-less, worm-shaped marine molluscs. Although they are not common at intertidal depths (and are thus unfamiliar even to many zoologists), aplacophorans are abundant and ecologically important members of deep-sea communities. Around 400 species have been named, but it is estimated that tenfold more are awaiting discovery. Aplacophorans are of interest to evolutionary biologists because aplacophorans, along with chitons, form the sister group to all other Mollusca, which is the second most species-rich animal phylum and exhibits some of the most dramatically disparate body plans in the animal kingdom. Unfortunately, in recent years, the number of taxonomists working on this already understudied group has dropped significantly as three of the world experts have passed away. This project will resurrect aplacophoran biodiversity and systematics research in the United States through training of a new generation of scientists and answer fundamental questions about the biodiversity and evolution of these understudied animals.

Field Season Overview

The research team will sample for benthic invertebrates with epibenthic sleds, trawls, dredges, box corers, and grabs depending on substrate type. At most sites, the team will cast out a conductivity temperature depth (CTD) rosette, a box corer, and an epibenthic sled and/or trawl. Live specimens will be sieved, sorted and processed in a manner designed to facilitate observation and documentation, and to ensure they are suitable for molecular work. Representative specimens of all species collected will be imaged live and preserved using the most appropriate preservation strategy for each taxon.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

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Deploying Team Members

- Maria del Carmen Cobo Llovo
- Maria del Carmen Cobo Llovo
- Maria del Carmen Cobo Llovo
- Kevin Kocot (PI)
- Kevin Kocot (PI)
- Kevin Kocot (PI)
- Emily Mclaughlin
- Emily Mclaughlin
- Emily Mclaughlin
- Nickellaus Roberts
- Nickellaus Roberts
- Nickellaus Roberts
- Rebecca Varney
- Rebecca Varney
- Rebecca Varney
- Meghan Yap-Chiongco
- Meghan Yap-Chiongco
- Meghan Yap-Chiongco



Project Title

Physical Mechanisms Driving Food Web Focusing On Antarctic Biological Hotspots

Summary

Event Number:

B-005-L
NSF/OPP Award 1745009

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

Rachel Shackelford / Cara Ferrier



Principal Investigator(s)

Dr. Josh Kohut

kohut@marine.rutgers.edu

Rutgers University

Institute for Marine & Coastal Sciences

New Brunswick, New Jersey



Location

Supporting Stations: ARSV Laurence M.

Gould

Research Locations: Palmer Deep

Description

Undersea canyons are important oceanic biological hotspots and are critical for understanding coastal ecosystems. Observations of currents over Palmer Deep canyon indicate that surface phytoplankton blooms enter and exit the local hotspot on scales of ~1-2 days. This time of residence is in conflict with the prevailing idea that canyon-associated hotspots are primarily maintained by the upwelling of nutrient-rich deep water that fuels local phytoplankton growth. Instead, the implication is that horizontal ocean circulation is likely more important to maintaining these biological hotspots than local upwelling and its physical concentrating effects. Researchers on this project will integrate a modeling and field program that will target the processes responsible for transporting and concentrating phytoplankton and krill biomass to known penguin foraging locations.

Field Season Overview

The sub surface mooring deployed last season will be recovered this season to prevent loss of equipment and data. Therefore, the science team will coordinate with Palmer-Long Term Ecological Research (PAL-LTER) team members and ASC contractors to recover their sub surface mooring deployed near the head of Palmer Deep on the LMG21-01 cruise. The mooring is located at -64.8436° S; -64.1173° W. The recovery will require approximately six hours of ship time and will use the ship's crane. Vessel technicians will download the data from the sensors and prepare it for shipment north. No team members will deploy to Antarctica for this project this season.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

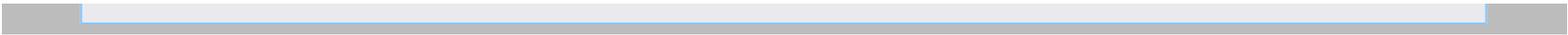
Project Web Sites

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2020-2021 USAP Field Season

Project Detail

Project Title

Cape Shirreff

Summary

Event Number:

X-591-L

NSF / NOAA-AMLR Agreement

Program Manager:

Mr. Tim McGovern

ASC POC/Implementer:

David Rivera / Cara Ferrier



Principal Investigator(s)

Dr. Douglas John Krause

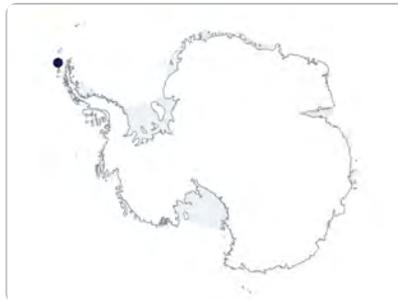
douglas.krause@noaa.gov

National Oceanic and Atmospheric Administration

AMLR - Antarctic Ecosystem Research

Division (SW Fisheries Sci Ctr)

La Jolla, California



Location

Supporting Stations: ARSV Laurence M. Gould

Research Locations: Livingston Island

Description

Cape Shirreff is located on Livingston Island in Antarctic Specially Protected Area (ASPA) 149. The facility at this site, also referred to as Cape Shirreff, is owned by the National Science Foundation but maintained and operated by the National Oceanic and Atmospheric Administration (NOAA), specifically under the Antarctic Marine Living Resource (AMLR) program of NOAA's Southwest Fisheries Science Center (SWFC). Cape Shirreff currently supports a NOAA-funded project conducting marine-mammal research. The facility was built in the 1996-97 austral summer at NSF direction by Antarctic Support Associates, the NSF Antarctic contractor at that time. Since then, it has been NOAA-occupied with USAP support limited to personnel transport and camp openings and closings.

NOAA also occupies another camp, Copacabana on King George Island, for which USAP does not generally provide any logistical support. However, in the 2020-21 season, USAP will provide limited support for the field camp at Copacabana as part of a special circumstance.

Field Season Overview

Each season the ARSV Laurence M. Gould (LMG) supports Cape Shirreff camp opening and closing operations. In 2020-21 the camp is scheduled to open in early- to mid-December and close around early February. USAP expedition participants, which include both contractors and science team members will assist camp operations by providing labor for cargo transport to and from the field camp. Camp support requires use of the USAP

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small boats. USAP will also support several days of support at the Copacabana field camp on King George Island. In addition to field camp support, the NOAA Cape Shirreff science team will assist ASC personnel in deploying seven subsurface moorings for the NOAA event (B-006-L).

Deploying Team Members

- Jefferson Hinke (Co-PI)
- Douglas Krause (PI)
- Douglas Krause (PI)
- Douglas Krause (PI)
- David Wang
- David Wang
- David Wang



2020-2021 USAP Field Season

Project Detail

Project Title

Palmer, Antarctica Long-Term Ecological Research (LTER): Land-Shelf-Ocean Connectivity, Ecosystem Resilience And Transformation In A Sea-Ice Influenced Pelagic Ecosystem

Summary

Event Number:

C-021-L
NSF/OPP Award 1440435

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

Samina Ouda / Bruce Felix



Principal Investigator(s)

Dr. Oscar Schofield

oscar@marine.rutgers.edu
Rutgers University
Institute for Marine & Coastal Sciences
New Brunswick, New Jersey



Location

Supporting Stations: ARSV Laurence M. Gould

Research Locations: Palmer Station, ARSV Laurence M. Gould

Description

Palmer Long-Term Ecological Research (PAL-LTER) started in 1990 to address the hypothesis that the annual sea ice cycle may be the major determinant of spatial/temporal changes in the structure and function of Antarctic marine communities. Research now includes bacteria, viruses, phytoplankton, krill, macrozooplankton, penguins, seabirds, and marine mammals. The PAL-LTER model traces the effects of changing climate and the extent, duration, and seasonality of sea ice on ecosystem composition and dynamics in the Western Antarctic Peninsula, where satellite observations over the past 35 years indicate the average duration of sea ice cover is now about 90 days shorter. Six collaborative projects on the ARSV Laurence M. Gould cruise and at Palmer Station will use moorings, numerical modeling, oceanographic cruises, and environmental sampling to address core hypotheses.

Field Season Overview

Due to COVID-19 restrictions, the tasks of the Physical Oceanography team (C-021) will be carried out by the deploying team lead, Chief Scientist Oscar Schofield. The science team plans on conducting a search and recovery effort for the 300.100 mooring deployed in the 2018-19 season, which was not recovered in 2020. They will also recover and re-deploy the 300.100 mooring deployed in the 2019-20 season.

Deploying Team Members

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

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- Oscar Schofield (PI)
- Oscar Schofield (PI)

- Oscar Schofield (PI)
- Oscar Schofield (PI)



2020-2021 USAP Field Season

Project Detail

Project Title

Joint Polar Satellite System (JPSS)

Summary

Event Number:
T-961-M

Program Manager:
Mr. Pat Smith

ASC POC/Implementer:
Sheryl Seagraves



Principal Investigator(s)

Mr. William Gregory, Jr. Munley
william.g.munley@nasa.gov
Charlotte, North Carolina



Location

Supporting Stations: McMurdo Station
Research Locations: McMurdo Station

Description

The Joint Polar Satellite System (JPSS) Common Ground Station (CGS) at McMurdo is a combination of satellite reception and communications projects that provide an unheralded capability on/from the Antarctica continent. The JPSS CGS assets in Antarctica consist of the McMurdo Multi-Mission Communications System (MMCS) and three JPSS 4-meter Ka/S-band receptors.

Field Season Overview

A deploying crew of four will perform annual maintenance, including radome inspection and preventive maintenance, antenna and equipment maintenance, hardware inventory, and installation of new equipment.

Deploying Team Members

- | | |
|-------------------|-------------------|
| ■ Edgar Brandt | ■ Matthew DeCicco |
| ■ Edgar Brandt | ■ Matthew DeCicco |
| ■ Edgar Brandt | ■ Matthew DeCicco |
| ■ Carlos Carrillo | ■ Fawaaz Diljohn |
| ■ Carlos Carrillo | ■ Fawaaz Diljohn |
| ■ Carlos Carrillo | ■ Fawaaz Diljohn |

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Project Title

Investigating Biogeochemical Fluxes And Linkages To Climate Change With Multi-Scale Observations In The Drake Passage

Summary

Event Number:

O-214-L/N

NSF / NOAA Agreement

Program Manager:

Dr. Peter Milne

ASC POC/Implementer:

Rachel Shackelford / Bruce Felix



Principal Investigator(s)

Dr. David Russel Munro

david.munro@colorado.edu

University of Colorado Boulder

CIRES

Boulder, Colorado



Location

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

Research Locations: Drake Passage

Description

The Southern Ocean plays a key role in modulating the global carbon cycle, but the size and even the sign of the global ocean flux in terms of the atmospheric burden of man-made carbon dioxide is still uncertain. This is in part because of lack of measurements in this remote region of the world ocean. This project continues a multi-year time series of shipboard chemical measurements in the Drake Passage to detect changes in the ocean carbon cycle and to improve the understanding of mechanisms driving natural variability and long-term change in the Southern Ocean.

Field Season Overview

This project supports ongoing surface measurements of the partial pressure of CO₂ (pCO₂) from aboard the ARSV Laurence M. Gould and RV/IB Nathaniel B. Palmer. In addition, discrete measurements may be made from water samples collected underway.

Deploying Team Members

- David Munro (PI)
- David Munro (PI)
- David Munro (PI)
- Tim Newberger
- Tim Newberger
- Sonja Wolter
- Sonja Wolter
- Sonja Wolter

Project Indexes

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■ Tim Newberger



Project Title

Lower Thermospheric Science Using New Meteor Radar At McMurdo Station

Summary

Event Number:

A-284-M
NSF/OPP Award 1543446

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

John Rand / Elizabeth Kauffman



Principal Investigator(s)

Dr. Scott Palo

scott.palo@colorado.edu

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



Location

Supporting Stations: McMurdo Station

Research Locations: McMurdo Station

Description

This project will observe the mesosphere and lower thermosphere (MLT) between 80 and 120 kilometers above the earth. This is a highly dynamic region that couples the lower terrestrial atmosphere with the upper atmosphere near-earth space environment. Of particular importance in this region are both the upward propagating thermally forced atmospheric tides, global-scale planetary waves, and small-scale gravity waves. All these phenomena transport heat and momentum from the lower atmosphere into the upper atmosphere. The primary goal of this research is to observe, quantify, model, and further understand the spatial-temporal structure and variability of the MLT circulation above Antarctica.

Field Season Overview

The instrumentation for this project is located in the pass-area between McMurdo and Scott Base Stations. It runs continuously year-round, essentially autonomously, with only limited intervention required by personnel onsite and by the researchers via the internet. Due to the COVID-19 pandemic, no participants will deploy to service the equipment this season, and the scheduled decommissioning and removal of the equipment has been deferred to a later year. An onsite Research Associate will provide monitoring, troubleshooting, and the collection and forwarding of data as needed throughout the year.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

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2020-2021 USAP Field Season

Project Detail

Project Title

Thwaites-Amundsen Regional Survey And Network (TARSAN) Integrating Atmosphere-Ice-Ocean Processes Affecting The Sub-Ice-Shelf Environment

Summary

Event Number:

C-445-M
NSF/OPP Award 1738992 / NERC Award
NE/S006419/1

Program Manager:

Dr. Paul Cutler

ASC POC/Implementer:

Judy Shiple / Dean Einerson / Leslie Blank



Principal Investigator(s)

Dr. Erin Pettit

pettiter@oregonstate.edu
Oregon State University
College of Earth, Ocean, and Atmospheric
Sciences
Corvallis, Oregon

Dr. Karen Heywood

k.heywood@uea.ac.uk
University of East Anglia
School of Environmental Sciences
Norwich, United Kingdom



Location

Supporting Stations: McMurdo Station

Research Locations: Thwaites Glacier

Description

Thwaites and neighboring glaciers in the Amundsen Sea Embayment are rapidly losing mass in response to recent climate warming and related changes in ocean circulation. Better understanding of the dominant processes at and near grounding zones is needed, especially in regard to their spatial and temporal variability and their atmospheric and oceanic drivers. Using state-of-the-art technology, such as autonomous underwater vehicles (AUVs) and automated land-ice stations, the TARSAN project will measure ocean circulation and thinning beneath the floating part of the glacier to investigate how the ocean and atmosphere are affecting it.

Field Season Overview

This season the team will service two atmosphere-ice-ocean multi-sensor remote autonomous station (AMIGOS) and two autonomous phase-sensitive radio-echo sounder radar (ApRES) installed at two locations on Thwaites Eastern Ice Shelf during the 2019-20 field season to ensure that they will be able to continue collecting data until recovered in early 2023 or 2024. The NSF priority for science support tasking in West Antarctica in

Project Indexes

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2020-21 is to manage or recover scientific instruments to maintain their viability for future seasons. This scope of work will be accomplished by ASC contractor staff and one technician provided by UNAVCO and PASSCAL agencies utilizing existing fuel inventories established in West Antarctica during the 2019-20 field season.



2020-2021 USAP Field Season

Project Detail

Project Title

UNAVCO GPS, TLS, UAV Survey Support

Summary

Event Number:

T-295-M
NSF / EAR Award 1724794

Program Manager:

Dr. Michael Jackson

ASC POC/Implementer:

John Rand / Elizabeth Kauffman



Principal Investigator(s)

Mr. Joseph R Pettit

pettit@unavco.org
UNAVCO Inc.
Boulder, Colorado



Location

Supporting Stations: McMurdo Station

Research Locations: McMurdo Station

Description

UNAVCO provides geodetic observations support and equipment. Surveygrade GPS, terrestrial laser scanners, unmanned aerial vehicles (UAVs), power and communications systems for high-precision campaign surveying and continuous data collection are available. UNAVCO operates a network of Global Navigation Satellite System (GNSS) stations on Ross Island and in the Dry Valleys. Support infrastructure includes a real-time kinematic differential GPS broadcasting station covering McMurdo Sound, a Mount Erebus repeater for GPS data retrieval from the Transantarctic Mountains, and an Iridium satellite hub in Colorado. Support is also provided for Palmer Station's GPS survey system. Operation and maintenance is provided for NASA's GNSS service stations MCM4 and PALM, POLENET (ANET), West Antarctic Ice Sheet Divide, South Pole GPS stations, and as-yet-unplanned support, as feasible.

Field Season Overview

Due to the COVID-19 pandemic impacts, only one participant will deploy in FY21 to provide support of Thwaites project instrumentation and equipment recovery and sustainment activities.

Deploying Team Members

- Nicolas Bayou
- Nicolas Bayou
- Nicolas Bayou

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

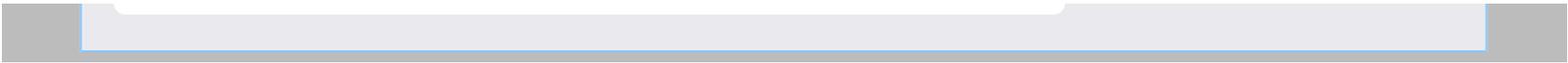
Project Web Sites

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Project Title

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

Summary

Event Number:

T-998-P
NSF / DTRA IAA

Program Manager:

Mr. Tim McGovern

ASC POC/Implementer:

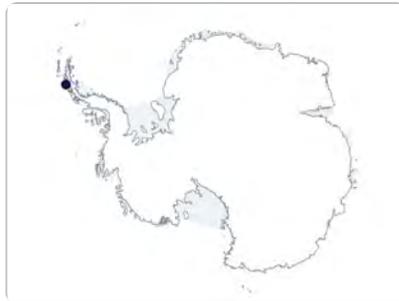
John Rand / Jamee Johnson



Principal Investigator(s)

Mr. John L Rand

john.rand.contractor@usap.gov
Antarctic Support Contract
Leidos
Alexandria, Virginia



Location

Supporting Stations: Palmer Station

Research Locations: Terra Lab

Description

This project services and calibrates the automated radionuclide air-particulate (RN73 RASA) monitoring system in the International Monitoring Station (IMS) building (Terra Lab) at Palmer Station. The IMS continuously collects and automatically analyzes daily air samples for radiation. The collected filter media samples from the Radionuclide Aerosol Sampler/Analyzer (RASA) are sent to Vienna, Austria for archiving on a quarterly basis. Additionally, single samples are shipped, upon request, to various laboratories elsewhere in the world.

Field Season Overview

The USAP provides year-round, on-site support by the ASC research associate (RA) to help operate and maintain the RASA. In addition, General Dynamics engineer(s) deploy each season for maintenance of the RASA, the uninterruptible power supply, computers and other station related hardware. Training for the RA is conducted by General Dynamics Mission Systems (GDMS) and includes a site visit to the GDMS offices in Chantilly, Virginia for two days prior to deployment. Extensive upgrades to the RASA air-sampling system are planned for 2021 including replacing the mainframe and cabinet. The equipment for this upgrade were shipped for the 2020 visit. Two engineers are required to deploy in 2021 for at least 14 days on station.

Deploying Team Members

- Bouvard Hosticka

Project Indexes

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Project Title

Diversity And Ecological Impacts Of Antarctic Mixotrophic Phytoplankton

Summary

Event Number:

B-303-L
NSF/OPP Award 1744767

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

Rachel Shackelford / Jamee Johnson



Principal Investigator(s)

Dr. Robert Sanders

robert.sanders@temple.edu
Temple University
Biology Department
Philadelphia, Pennsylvania



Location

Supporting Stations: ARSV Laurence M. Gould

Research Locations: Laurence M Gould

Description

Traditional models of oceanic food chains have consisted of algae (phytoplankton) being ingested by small animals (zooplankton), which are ingested by larger animals (fish). These traditional models changed as new methods allowed recognition of the importance of bacteria and non-photosynthetic "protozoa" in more complex food webs. More recently, the widespread existence of mixotrophy (the ability to both photosynthesize and ingest food particles) has been recognized in numerous species and many oceanographic areas. Mixotrophs are now known to have a large impact as predators of microbes in oceanic systems, yet little is known about mixotrophs in Antarctic regions. This project will advance understanding of mixotroph diversity and their ecological impact within the Southern Ocean microbial food web.

Field Season Overview

Five participants will deploy to the Western Antarctic Peninsula (WAP) area on the ARSV Laurence M. Gould to sample approximately ten stations, including one in the Gerlache Strait on the way to Palmer Station, one in the Palmer Deep, and several to the south, as far as Marguerite Bay. The team will conduct experiments to examine bacterial grazing, bacterial production, primary production and microbial diversity (prokaryotic and eukaryotic). The team will collect water samples from the surface and the deep chlorophyll maximum early in the morning every two to three days.

Deploying Team Members

Project Indexes

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- Rebecca Gast (Co-PI)
- Rebecca Gast (Co-PI)
- Rebecca Gast (Co-PI)
- Jean-David Grattepanche
- Jean-David Grattepanche
- Jean-David Grattepanche
- Leila Harris
- Leila Harris

- Leila Harris
- Wade Jeffrey (Co-PI)
- Wade Jeffrey (Co-PI)
- Wade Jeffrey (Co-PI)
- Robert Sanders (PI)
- Robert Sanders (PI)
- Robert Sanders (PI)



Project Title

Southern Ocean Carbon And Climate Observations And Modeling (SOCCOM)

Summary

Event Number:

O-271-N
NSF / OPP Award 1936222

Program Manager:

Dr. Peter Milne

ASC POC/Implementer:

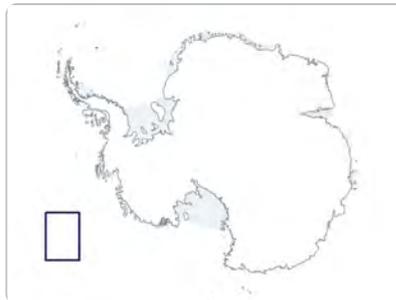
David Rivera / Bruce Felix



Principal Investigator(s)

Dr. Jorge I Sarmiento

jls@princeton.edu
Princeton University
Department of Geosciences
Princeton, New Jersey



Location

Supporting Stations: RV/IB Nathaniel B. Palmer

Research Locations: Weddell and Ross Seas

Description

The Southern Ocean Carbon and Climate Observations and Modeling (SOCCOM) project seeks to increase our understanding of the crucial role of the Southern Ocean in taking up anthropogenic carbon and heat from the atmosphere, and resupplying nutrients from the abyss to the surface. An observational component, based on deployment of profiling floats with oxygen, nitrate, pH and bio-optical sensors, is supplying unprecedented amounts of new biogeochemical data that provide a year-round view of the Southern Ocean from the surface to 2000 m, including tracking ocean acidification, de-oxygenation, and warming processes. A modeling effort is applying these observations and enhancing our understanding of the current Southern Ocean, and reducing uncertainty in projections of future carbon and nutrient cycles and climate.

Field Season Overview

The SOCCOM project will deploy biogeochemical (BGC) profiling floats on two scheduled USAP science expeditions in the Weddell and Ross Seas and also several transits as underway science from the RV/IB Nathaniel B. Palmer (NBP). No personnel from the program will participate in USAP fieldwork this coming season. The SOCCOM program is currently collaborating with scientists already scheduled to participate on both expeditions and will receive logistical and operational support from the science teams and USAP shipboard personnel. CTD casts will accompany float deployments when possible on the science expeditions.

Project Indexes

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Project Title

Palmer, Antarctica Long-Term Ecological Research (LTER): Land-Shelf-Ocean Connectivity, Ecosystem Resilience And Transformation In A Sea-Ice Influenced Pelagic Ecosystem

Summary

Event Number:

C-013-L/P
NSF/OPP Award 1440435

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

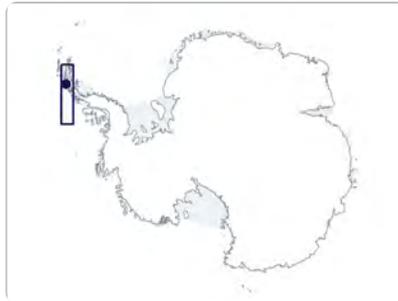
Samina Ouda/Jamee Johnson/Bruce Felix



Principal Investigator(s)

Dr. Oscar Schofield

oscar@marine.rutgers.edu
Rutgers University
Institute for Marine & Coastal Sciences
New Brunswick, New Jersey



Location

Supporting Stations: ARSV Laurence M. Gould, Palmer Station

Research Locations: Palmer Station, ARSV Laurence M Gould

Description

Palmer Long-Term Ecological Research (PAL-LTER) started in 1990 to address the hypothesis that the annual sea ice cycle may be the major determinant of spatial/temporal changes in the structure and function of Antarctic marine communities. Research now includes bacteria, viruses, phytoplankton, krill, macrozooplankton, penguins, seabirds, and marine mammals. The PAL-LTER model traces the effects of changing climate and the extent, duration, and seasonality of sea ice on ecosystem composition and dynamics in the Western Antarctic Peninsula, where satellite observations over the past 35 years indicate the average duration of sea ice cover is now about 90 days shorter. Six collaborative projects on the ARSV Laurence M. Gould cruise and at Palmer Station will use moorings, numerical modeling, oceanographic cruises, and environmental sampling to address core hypotheses.

Field Season Overview

Due to COVID restrictions, a participant of the C-013 project will embark on the ARSV Laurence M. Gould cruise, boarding the ship in Punta Arenas in late December. The reduced personnel due to the COVID outbreak will likely result in another LTER team member aiding in C-013 research. The vessel will drop two researchers at Avian Island where they will establish a field camp and conduct research for five days. When onboard and underway, the participant records observations from the bridge. Researchers will be dropped off at the Dion Islands to deploy remote cameras to record the potential breeding behavior of emperor penguins and researchers will conduct population censuses at other accessible islands of interest along the WAP as possible.

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

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The Palmer Station component of the project will deploy from roughly mid October until mid April. Due to the COVID outbreak, only two team members will live at Palmer Station while conducting their research (colony surveys and tag deployment/recovery), with a total of four LTER members that will also contribute to field work when possible. While sampling will be much reduced this year, the team will use small boats to access local islands in the Palmer vicinity and will make frequent day trips to seabird colonies in the extended boating area including Dream Island, Biscoe Point, the Joubin Islands, the Wauwermans Islands, and the Rosenthal Islands.

Deploying Team Members

- Darren Roberts
- Megan Roberts



Project Title

Palmer, Antarctica Long-Term Ecological Research (LTER): Land-Shelf-Ocean Connectivity, Ecosystem Resilience And Transformation In A Sea-Ice Influenced Pelagic Ecosystem

Summary

Event Number:

C-045-L/P
NSF/OPP Award 1440435

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

Samina Ouda / Jamee Johnson / Bruce Felix



Principal Investigator(s)

Dr. Oscar Schofield

oscar@marine.rutgers.edu
Rutgers University
Institute for Marine & Coastal Sciences
New Brunswick, New Jersey



Location

Supporting Stations: ARSV Laurence M. Gould, Palmer Station

Research Locations: Palmer Station, ARSV Laurence M Gould

Description

Palmer Long-Term Ecological Research (PAL-LTER) started in 1990 to address the hypothesis that the annual sea ice cycle may be the major determinant of spatial/temporal changes in the structure and function of Antarctic marine communities. Research now includes bacteria, viruses, phytoplankton, krill, macrozooplankton, penguins, seabirds, and marine mammals. The PAL-LTER model traces the effects of changing climate and the extent, duration, and seasonality of sea ice on ecosystem composition and dynamics in the Western Antarctic Peninsula, where satellite observations over the past 35 years indicate the average duration of sea ice cover is now about 90 days shorter. Six collaborative projects on the ARSV Laurence M. Gould cruise and at Palmer Station will use moorings, numerical modeling, oceanographic cruises, and environmental sampling to address core hypotheses.

Field Season Overview

The science team will participate in LTER water-column sampling, focusing primarily on seawater samples collected with conductivity temperature depth (CTD) rosette.

One person will deploy to Palmer Station mid October to mid April to conduct flow cytometry, oxygen isotopic analysis and bacterial incubations. A total of four LTER members that will also contribute to field work when possible. They will participate in the once weekly Station E sampling, and twice weekly bioacoustics surveys.

Project Indexes

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Deploying Team Members

- Daniel Lowenstein
- Daniel Lowenstein

- Daniel Lowenstein



Project Title

Element Composition Of High-Energy Solar Particles

Summary

Event Number:

A-118-S
NSF/OPP Award 1341562

Program Manager:

Dr. Robert Moore

ASC POC/Implementer:

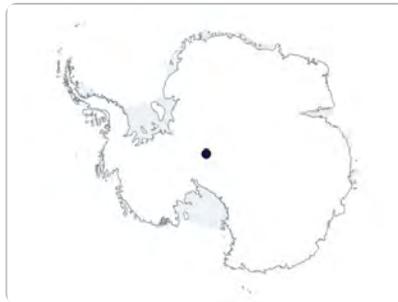
John Rand / Paul Sullivan / Sheryl Seagraves



Principal Investigator(s)

Dr. Surujhdeo Seunarine

surujhdeo.seunarine@uwrf.edu
University of Wisconsin River Falls
Department of Physics
River Falls, Wisconsin



Location

Supporting Stations: South Pole Station

Research Locations: B2 Laboratory, Near Field

Description

This project operates a neutron-monitor suite at South Pole which is in addition to the IceCube Neutrino Observatory which is also located at south Pole. Central to the research is understanding the response of these detectors to the radiation environment of the South Pole, particularly in determining the cause of the decline in cosmic ray intensity at South Pole over the last 50 years. Understanding this decline is important because cosmic rays produce radionuclides such as Beryllium-10 that become trapped in the ice and are used to determine ice-core ages and precipitation levels over Earth's polar regions. An understanding of the production rate is vital to interpreting these data.

Field Season Overview

The instrumentation for this project is located in the B2 Lab and near the V8 vault. It runs continuously year-round, essentially autonomously, with only limited intervention required by personnel onsite and by the science team via the internet. Due to the COVID-19 pandemic, no participants will deploy to service the equipment this season, and the scheduled decommissioning and removal of the equipment has been deferred for a year. Onsite Research Associates will provide monitoring, troubleshooting, and the collection and forwarding of data as needed.

Project Indexes

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2020-2021 USAP Field Season

Project Detail

Project Title

Department Of Interior Office Of Aircraft Services

Summary

Event Number:
T-926-M

Program Manager:
Mr. Gary James

ASC POC/Implementer:
Lindsay Steinbauer



Principal Investigator(s)

Mr. Jeremiah R Smith
jeremiah_smith@ios.doi.gov
United States Department of the Interior
Office of Aviation Services
Boise, Idaho

Location

Supporting Stations: McMurdo Station
Research Locations: McMurdo Station

Description

The United States Department of Interior's Office of Aircraft Services has provided the National Science Foundation a full-service commercial aircraft contract support package via an existing Interagency Agreement since 1996.

Field Season Overview

USAP aviation program oversight will be primarily conducted from McMurdo Station. Field visits to sites where aviation activities are taking place, basically day trips on fixed or rotor wing flights to observe aviation operations. Planning these trips usually occurs at the Helicopter Operations Planning meeting or the Air Operations Planning Board and are completed on short-notice.

Deploying Team Members

- Joshua Chandler
- Joshua Chandler
- Joshua Chandler
- Jeremiah Smith (PI)
- Jeremiah Smith (PI)
- Jeremiah Smith (PI)

Project Indexes

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2020-2021 USAP Field Season

Project Detail

Project Title

Palmer, Antarctica Long-Term Ecological Research (LTER): Land-Shelf-Ocean Connectivity, Ecosystem Resilience And Transformation In A Sea-Ice Influenced Pelagic Ecosystem

Summary

Event Number:

C-020-L
NSF/OPP Award 1440435

Program Manager:

Dr. Karla Heidelberg

ASC POC/Implementer:

Samina Ouda / Jamee Johnson / Bruce Felix



Principal Investigator(s)

Dr. Deborah Steinberg

debbies@vims.edu

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



Location

Supporting Stations: ARSV Laurence M.

Gould

Research Locations: ARSV Laurence M Gould

Description

Palmer Long-Term Ecological Research (PAL-LTER) started in 1990 to address the hypothesis that the annual sea ice cycle may be the major determinant of spatial/temporal changes in the structure and function of Antarctic marine communities. Research now includes bacteria, viruses, phytoplankton, krill, macrozooplankton, penguins, seabirds, and marine mammals. The PAL-LTER model traces the effects of changing climate and the extent, duration, and seasonality of sea ice on ecosystem composition and dynamics in the Western Antarctic Peninsula, where satellite observations over the past 35 years indicate the average duration of sea ice cover is now about 90 days shorter. Six collaborative projects on the ARSV Laurence M. Gould cruise and at Palmer Station will use moorings, numerical modeling, oceanographic cruises, and environmental sampling to address core hypotheses.

Field Season Overview

Due to the cancellation of the annual LTER cruise, no members of the zooplankton team (C-020) will deploy this season.

Deploying Team Members

■ John Conroy

■ John Conroy

Project Indexes

Find information about projects approved for the 2020-2021 USAP field season using the available indexes.

Project Web Sites

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■ John Conroy



2020-2021 USAP Field Season

Project Detail

Project Title

NOAA / AMLR

Summary

Event Number:

B-006-L
NSF / NOAA Agreement

Program Manager:

Mr. Tim McGovern

ASC POC/Implementer:

David Rivera / Cara Ferrier



Principal Investigator(s)

Dr. George Watters

george.watters@noaa.gov

National Oceanic and Atmospheric
Administration
La Jolla, California



Location

Supporting Stations: ARSV Laurence M.
Gould

Research Locations: ARSV Laurence M Gould, Livingston Island

Description

National Oceanic and Atmospheric Administration (NOAA) Fisheries' Antarctic Marine Living Resources (AMLR) program collects data and provides scientific information to better inform decision making for the Commission for the Conservation of Antarctic Living Marine Resources. For the past 25 austral summers, the AMLR field program has been conducted in the vicinity of Elephant Island, the South Shetland Islands, and the Antarctic Peninsula. This year, researchers will participate on one expedition aboard the ARSV Laurence M. Gould (LMG) to take advantage of the vessel's advanced data collecting technologies in order to better understand ecosystem interactions.

Field Season Overview

A four person NOAA field team (X-591-L) deploying to Cape Shirreff field camp on Livingston Island will additionally assist USAP personnel to deploy up to seven subsurface moorings. Time on station for each mooring operation is expected to be approximately two to three hours. Subsurface floats will be connected to a terminal top-side assembly which will be outfitted with an acoustic package consisting of an upward-facing sonar, a conductivity temperature depth (CTD), and an acoustic doppler current profiler (ADCP). This array will reside at 350 meters or within 20 meters of the bottom if the water depth is less than 350 meters.

Deploying Team Members

Project Indexes

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- Anthony Cossio
- George Cutter

- Christian Reiss