

Research Support Plan I-477-M, Kendrick Taylor

WAIS Divide Science Coordination office

Award Number: ANT – WAIS Retro
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2014-15 McMurdo Station-Based Project
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Change Management and Tracking

This table documents and tracks major changes that develop following RSP distribution.

| Date | Description |
|----------------------|----------------------------------|
| 10/1/14 | RSP issued to PI for concurrence |
| {Enter Release Date} | Final concurred RSP distributed |
| | |
| | |

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COMPREHENSIVE RESEARCH SUPPORT INFORMATION

Purpose

This document summarizes and provides information about the resources allocated to the subject NSF-PLR award for the upcoming field season.

The support details have been developed in consultation with the Principal Investigator (PI), National Science Foundation (NSF), and Antarctic Support Contractor (ASC), and are based on the support levels approved in the Operational Notice for the award, and the specific seasonal needs as indicated in the 2014-15 season Support Information Package (SIP).

This document should be reviewed with all field team members. Any discrepancies should be presented to the ASC Implementer prior to deployment to Antarctica.

Project Description

West Antarctic Ice Sheet (WAIS) Divide is a collaboration of about 40 separate but synergistic projects funded by NSF to collect deep ice cores from the West Antarctic Ice Sheet (WAIS). Work began with construction of a field camp in 2005-06 and the first cores were recovered in 2006-07. On December 31, 2011 drillers reached the final depth goal of 3,405 meters, and recovered the longest U.S. ice core to date from the polar regions.

This project represents the Science Coordination Office (SCO) for WAIS Divide, providing scientific and field oversight.

Field Overview

A field party of two will travel by fixed-wing aircraft to WAIS Divide to disassemble and retrograde the science equipment in the arch (deep ice sheet coring (DISC) drill and associated equipment). Some of the core handling equipment will be returned to the National Ice Core Laboratory, while other items will be returned to USAP inventory.

Outstanding Issues

The exact total weight and cube of cargo that will be retrograded from WAIS Divide to MCM/CONUS is difficult to estimate at this point in time, because it partly depends on LC-130 support for cargo coming out of WSD.

Deployment Dates

The table below shows the approved deployment plan for your group. The dates have been set by the PI, ASC and the NSF and cannot be changed without coordination and approval from your ASC Implementer. Any changes must be made no later than four weeks before scheduled deployment.

| Last Name | First Name | Conus-CHC | CHC-McM | McM-CHC | Self-Ticket | Handcarry Samples/ Equipment | International AOD | Comments |
|-----------|------------|-----------|---------|---------|-------------|------------------------------|-------------------|----------|
| Burkett | Peter | 11/29/14 | 12/3/14 | 1/7/15 | N | | | |
| Voigt | Donald | 11/27/14 | 12/1/14 | 1/31/15 | N | | | |

(Dates are current as of 9/19/14)

All dates are subject to change. The table below explains each column.

| Column | Description |
|-------------|--|
| Conus-CHC | Dates participant is scheduled to leave the U.S (four days before Ice flight, with two nights in Christchurch). |
| CHC-McM | Date participant is scheduled to depart Christchurch for McMurdo Station. |
| McM-CHC | Date participant is scheduled to redeploy from McMurdo Station to Christchurch. |
| Self-Ticket | "Y" indicates the participant will purchase commercial airline tickets without support <i>or reimbursement from</i> ASC Travel. Self-tickers must provide their itinerary to ASC Travel (deploy@usap.gov or fax 303-705-0742). ASC Travel will make hotel reservations in Christchurch upon request. |

Redeployment Travel

McMurdo to Christchurch

It is unlikely that we will be able to accommodate changes to your McMurdo-to-Christchurch redeployment date within 72 hours of your scheduled departure date, particularly if it's not due to a programmatic delay. During much of the season there will be limited intercontinental flights; additionally there is significant cost associated with changing your ticket from CHC at very short notice. (Programmatic delays are defined as any travel delays related to airplane mechanical problems, weather, or science project-driven issues.) As in past seasons, please direct any redeployment date change requests through your Implementer and they will work with the ASC work centers and NSF to see if your request can be accommodated.

Christchurch to Home

This season, there will be no redeployment forms for you to fill out. Instead, the default redeployment status for all participants will be to return home FAA (First Available Air) with a single room scheduled for one night in Christchurch. If you would like to choose an alternative departure classification to the default FAA or identify a roommate for your Christchurch accommodations, you will need to contact the Crary Admin, Mitch Kennedy, once you are in McMurdo.

The three options for redeployment travel this year are: FAA, Actual and Leisure.

- **FAA (First Available Air):** You will be flown home to your Airport of Departure the day after you arrive in Christchurch, no matter when that is. (If you arrive in Christchurch after 3am, you will automatically be booked for another night in Christchurch. If you don't want this, let Mitch know.) ASC will arrange this for you and adjust for programmatic delays at no charge.
- **Actual:** You want to fly home from New Zealand on a specific date regardless of when your flight from McMurdo arrives in Christchurch. ASC will arrange this for you at no charge to you the first time you pick a date.

Due to the high cost of travel during the holidays, **this option is not available from December 1, 2014 through January 5, 2015**. If you elect an Actual date during this period, it will be considered leisure travel and the extra costs will be your responsibility.

- **Leisure:** Any travel plans different than what's listed above, including changing routing, the length of your layovers on your flights home, or additional changes to the Actual date. You will be required to make these changes and/or plans directly with the airlines and pay for any associated costs.

Note Any changes you make in the type of travel once you've requested FAA or Actual will be considered Leisure travel; you will be required to make these changes directly with the airlines and pay for any associated costs. Any non-programmatic changes (those not related to airplane mechanical problems, weather, or science project-driven issues) beyond the first request will require the grantee (or anyone) to pay.

The deadline for changing your default redeployment status (FAA) depends on your field deployment plan:

- If you will be located at McMurdo during your deployment or have easy access to phone/internet when you're in the field, you can contact Mitch with your changes until 30 days before your RSP-scheduled redeployment date.
- If you will be on the Ice for over 30 days but spending the majority of your deployment in the field without easy access to phone/internet, you will need to contact Mitch with your changes before you depart McMurdo for your field location. (We would strongly prefer you do not use MacOps to relay this information).
- If you are scheduled for a deployment length of less than 30 days, please contact Mitch within a day or two upon arrival in McMurdo.

McMurdo House Mouse

All Grantees will be expected to participate in cleaning the common areas of their dorms ("House Mouse"). Schedules and details will be provided upon arrival in McMurdo. House Mouse activities will be monitored by each dorm's Resident Assistant (RA).

Residents will also be required to clean their rooms and pass an inspection before vacating their rooms, whether it be to go to the field or to head north.

Permits

The Principal Investigator is responsible for ensuring that all applicable permits have been obtained prior to deployment.

Samples

No samples anticipated.

Cargo

| Cargo Direction | Transport Type | Cargo Contents | Weight (lbs) | Special Requirements | ROS (Julian) | ROS (Date) |
|-----------------|----------------|---------------------|--------------|----------------------|--------------|------------|
| Southbound | COMSUR | Voigt science cargo | 50 | KD | 4326 | 22-Nov-14 |
| Northbound | VESSEL | Voigt science cargo | 50 | KD | 5094 | 4-Apr-15 |

Keep in mind the following cargo-related information:

- Baggage, hand-carried items, and items purchased and shipped by ASC are not listed.
- ROS (Required On Site) is the Saturday closing the week that cargo will be delivered to the research station (McMurdo or South Pole Stations).
- Unapproved northbound COMAIR cargo will require approval from the NSF representative on station.

Environmental Documentation

The Principal Investigator is responsible for ensuring that all required environmental documentation has been completed before deployment.

A project-specific Amended Initial Environmental Evaluation (IEE) is being prepared and will be approved by NSF prior to the project team arriving at McMurdo Station.

Note Each Principal Investigator needs to submit a completed Environmental End-of-Season (EOS) Report to ASC Environmental at the end of the season to meet ACA reporting requirements. Further information and instructions will be provided in the RSP Appendix and at the Science Inbrief.

Environmental Training

| Course Name | Who Needs It | Scheduling | On-Ice Contact | Required/ Recommended | Comments |
|-------------------------------------|----------------------|---|--|--|----------------------------------|
| Environmental Field Brief | All new participants | When: Every Monday and Thursday at 8:15am | Laura Elliott / Nate Williams: Ext. 2330, 2581 | Required for all new participants/ Recommended for all returning participants | Recommended for all participants |
| Deep Field Environmental Discussion | PI and field team | Schedule upon arrival in McMurdo | Laura Elliott / Nate Williams: Ext. 2330, 2581 | Required | |

Fuel and Liquid Waste Containment

No fuel and liquid waste containment will be provided.

Construction Support

| Structures/Fabrications | Labor Services | Materials/ Qty/ Required By | Start | Finish | Comments |
|---|---|-----------------------------|-------|--------|----------|
| All support requirements for WAIS are contained in the WAIS WBS, including a Jamesway next to the Arch for logging support, a Rac Tent for Science Office Space, and shipping crates. | As defined in the WAIS schedule Dated Aug 25-2014 | | | | |

Computers & Outreach

No computer or outreach support will be provided.

Locally-generated (McMurdo Station) e-mail messages will be sent to the e-mail address indicated during the planning season for all team members. If the group has team members who have not yet been identified (example, "TBDs"), the Crary IT staff will add them to the McMurdo Station grantee list upon their arrival.

If any member of the group would like to have a McMurdo Station local account, or the group would like a 'group account' to facilitate the sharing of data and information while on station, these can be created upon your arrival by informing the Crary IT staff. The Crary IT staff will also assist in setting up individuals with access to the Crary wireless and printers upon request.

Please reference the list of IT security guidelines at the end of this document for IT security questions. Personal computers that are brought to Antarctica must have current anti-virus software installed and have current definitions updated. All Windows computers coming down to Antarctica running Windows 7 or above should be patched with the latest service packs. Linux and Mac OS systems must be patched to latest level of the OS that they are running. Any version of Windows prior to Windows 7 is no longer supported or allowed on the USAP network.

Information Security

Please be aware that Microsoft support for the Windows XP operating system ended on April 8, 2014. Computers running Windows XP will not pass computer screening and will not be permitted to connect to the USAP network. Windows computers must be running Windows 7 or 8.

Macintosh computers must also be running a supported version. As of the writing of this RSP, Mac OS X 10.7 is the minimum supported version, although users running 10.7 should confirm that it is still supported prior to deployment.

Additional IT security guidelines are provided in the Appendix of this RSP.

Communications Support

| Category | Requested Item | Qty Requested | Qty Provided | Comments |
|-----------|-------------------|---------------|--------------|------------------|
| VHF Radio | HT750 | 2 | 2 | 3x spare battery |
| Iridium | Iridium Field Kit | 1 | 1 | |

Training

| Course Name | Who Needs It | Scheduling | On-Ice Contact | Required/ Recommended | Comments |
|--|-----------------------------|---------------------------|----------------------------------|-----------------------|---|
| Communications Equipment Familiarization | All interested participants | During equipment pick-up. | Comms Coordinator : Ext# 2378 | Recommended | Highly recommended for new participants. Will demonstrate basic functions, operation, and good-use practices. |

MacOps Training

No MacOps training will be provided.

Crary Science and Engineering Center

Crary resources will be allocated to accommodate science groups as best possible. Due to limited space availability you may be required to share resources with other groups. For the same reason, the dates listed may not be the exact dates you requested in your SIP. **Please review this carefully as space will not be available before or after these dates, regardless of arrival and departure dates.**

Laboratory/Office Space

| Assigned Space | Room # | Start Date | End date | Sh/Ded | Comments |
|----------------|--------|------------|----------|-----------|----------|
| Office | 231 | 1-Dec-14 | 8-Dec-14 | Dedicated | |

Training

| Course Name | Who Needs It | Scheduling | On-Ice Contact | Required/Recommended | Comments |
|-----------------------|------------------------------|-----------------------|------------------------------|----------------------|----------|
| Crary Lab Orientation | All participants using Crary | Schedule upon arrival | Crary Lab Manager / Ext 4169 | Required | |

At the end of your deployment, you will be required to complete a laboratory check-out with the Crary staff. Please include time for this in your plans.

Laboratory Instruments and Equipment

No laboratory instruments or equipment will be provided.

Laboratory Chemicals, Gases, Materials and Supplies

No laboratory chemicals, gases, materials or supplies will be provided.

Laboratory Cryogenics, Dry Ice and Blue Ice

No laboratory cryogenics, dry ice or blue ice will be provided.

Note Dry ice and ice packets for shipping samples back to your home institution are coordinated through Science Cargo personnel. Please refer to the Samples section of the RSP for any support.

Radioactive Materials

No radioactive materials have been approved for use, and no support will be provided.

Controlled Substances

No controlled substances have been approved for use, and no support will be provided.

Staging and Storage Space

Staging and Storage Space is limited; if it is not listed in this RSP, there is no guarantee additional space can be found once you are in McMurdo.

Personal gear storage will be available through Science Cargo via a secured, unheated milvan. Please take advantage of this location to store your gear as other groups may be using the lab and office space while you are in the field.

On-Ice Staging

No on-ice staging will be provided.

Temporary On-Ice Storage

No temporary on-ice storage will be provided.

Winter Over On-Ice Storage

No winter over on-ice storage will be provided.

Over-winter storage is contingent upon funding for the following season or NSF approval. If you have questions, please refer to the USAP On-Ice Storage Policy # AIL-07-01 and the USAP Field Laboratory Over-Winter Storage Policy #AIL-09-01. Both can be found at:

<http://www.usap.gov/USAPgov/proposalInformation/#Policies>

Scientific Services

Spatial Analysis, Remote Sensing, and GIS Support

GIS Support is provided by the Polar Geospatial Center (PGC). Please direct all support requests to:

Cole Kelleher
Cartographer and Support Coordinator
email: kell1026@umn.edu

Geodetic Support

UNAVCO will work with grantees to provide support as requested within the guidelines of the NSF/UNAVCO agreement. Please contact UNAVCO with any support related questions:

Joe Pettit
UNAVCO Antarctic Support Project Manager
email: pettit@unavco.org
phone: (303) 381-7615

Seismological Support

Seismological equipment and support is provided by IRIS/PASSCAL. Please contact IRIS/PASSCAL with any support related questions:

Paul Carpenter
PASSCAL Polar Manager
email: pcarpenter@passcal.nmt.edu
phone: (575) 835-6783

Ultraviolet Data Services

UV monitoring data is provided by NOAA. Please contact them with any support related questions:

Patrick Disterhoft
NOAA Antarctic UV Monitoring Program, NOAA-EPA Brewer UV-ozone Monitoring Network

(NUEBrew) Central UV Calibration Facility NOAA GMD
 email: patrick.disterhoft@noaa.gov
 phone: (303) 497-6355

Ice Core Drilling Support

ICDS-IDDO will work with grantees to provide support as requested within the guidelines of the NSF. Please contact ICDS-IDDO with any support related questions:

Tony Wendricks
 ICDS-IDDO Project Coordinator
 e-mail: tonyw@ssec.wisc.edu
 phone: (608) 263-6755
<http://www.ssec.wisc.edu/icds/>

National Ice Core Laboratory (NICL) Ice Core Support Service

NICL will work with grantees to provide support as requested within the guidelines of the NSF. Please contact NICL with any support related questions:

Geoffrey Hargreaves
 Curator, National Ice Core Laboratory
 e-mail: nicl@usgs.gov
 phone: (303) 202-4830
<http://nicl.usgs.gov/>

Research Associate Services

No research associate services will be provided.

Meteorological Services

No meteorological services will be provided.

Field Medical Support

No field medical kit will be provided.

Field Support & Training

Field Equipment (BFC)

| Name | QTY | UOI | Total Weight (lbs) | Total Cube (ft3) |
|---------------------------------------|-----|-----|--------------------|------------------|
| Carabiner, Sledge, for sled use | 1 | ea | 0.50 | 0.10 |
| Cargo/Duffel Bag | 2 | ea | 6.00 | 0.60 |
| Chair, crazy creek | 2 | ea | 2.00 | 2.00 |
| Cot, Low, metal or wood, 8"x 76"x 30" | 2 | ea | 16.00 | 8.00 |
| Ensolite Pad, 1/2"x28"x84" | 2 | ea | 10.00 | 2.00 |
| Pile Liner | 2 | ea | 8.00 | 2.00 |
| Pillow, Camp | 2 | ea | 1.00 | 0.60 |
| Sled, Nansen, w/ Rigid Towbar | 1 | ea | 122.00 | 40.00 |
| SLEEPING BAG, UNDER 6' TALL | 2 | ea | 18.00 | 0.00 |
| Thermarest | 2 | ea | 10.00 | 2.00 |

| Name | QTY | UOI | Total Weight (lbs) | Total Cube (ft3) |
|-------------------------|-----|-----|--------------------|------------------|
| Urine bottle, 32 oz. | 4 | ea | 1.20 | 0.80 |
| Approximate Weight/Cube | | | 47.00 | 18.20 |

Training

| Course Name | Who Needs It | Scheduling | On-Ice Contact | Required/Recommended | Comments |
|-------------------------------|------------------|---------------------------------|----------------------|----------------------|----------|
| Equipment clean up and return | All participants | Schedule upon return from field | Meghan Walker / 2348 | Required | |

Field Training and Assistance (formerly FSTP)

| Participant | Required Courses | Recommended Courses |
|---------------|--------------------------------------|---------------------|
| Peter Burkett | Antarctic Field Safety, Snow Machine | |
| Donald Voigt | Antarctic Field Safety, Snow Machine | |

Mechanical Equipment Center (MEC)

| Category | Equipment | QTY | Pooled or Dedicated | Start Date | End date | Comments |
|------------------------|-----------------------------------|-----|---------------------|------------|-----------|-----------|
| Snowmobile, Heavy Duty | Two person, traverse, heavy cargo | 1 | Pooled | 8-Dec-14 | 30-Jan-15 | WAIS Pool |

Air Support

Fixed-Wing Aircraft

Week ending 13 December: One LC-130 mission allocated for passenger transport from McMurdo Station to WAIS Divide.

Week ending 31 January: One LC-130 mission allocated for passenger transport from WAIS Divide to McMurdo Station.

Retrograde cargo will be transported from WAIS Divide to McMurdo Station as space is available on LC-130s throughout the season.

Fixed-Wing planning is based on a six-day flight week beginning on Monday and ending on Saturday of each week. Flight dates are approximate and are subject to change due to weather, aircraft availability, logistical constraints, NSF priorities, etc. You will be notified of any changes and/or updates to your fixed-wing support when they occur.

Helicopter

No helicopter support will be provided.

Flight dates are approximate and are subject to change due to weather, aircraft availability, logistical constraints, NSF priorities, etc. You will be notified of any changes and/or updates to your helicopter support when they occur.

Your support is an allotment based on specific, NSF approved support. Any surplus hours/flights will be returned to the NSF for reallocation. Mission Time is defined as the aggregate of Flight Time + Close Support Time.

Dive Support

No diving has been approved, and no support will be provided.

Heavy Equipment and Explosives Support

McMurdo Fleet Operations will provide 1 HEO for excavation of ARCH from 10 November to 4 December. If arch is excavated sooner than expected Fleet Operations would like the operator back asap as opposed to supporting creep of scope.

Waste Handling

| Course Name | Who Needs It | Scheduling | On-Ice Contact | Required/ Recommended | Comments |
|-------------|--------------|--------------------------|--|-----------------------|--|
| Waste Brief | Everyone | Flexible, we come to you | Julie Katch x2303, 2741, or 2740 email: julie.katch.con ractor@usap.g ov | Required | In order to avoid mis-labeled and unlabeled waste, this brief covers the handling of hazardous and solid waste, spills, and resale for all participants, regardless of study location. |

Terms and Acronyms

| Term | Definition |
|-------------|--|
| ACA | Antarctic Conservation Act. |
| AFS | Antarctic Field Safety |
| ANT | Antarctic Sciences |
| ASC | Antarctic Support Contractor. The support contractor providing logistical support to grantees in Antarctica. |
| ASPA | Antarctic Specially Protected Area. |
| BFC | Berg Field Center. The facility at McMurdo Station that houses and distributes field party equipment such as camping gear, waste disposal supplies and sleds. |
| CHC | Christchurch, New Zealand. The departure point for groups deploying to the Antarctic continental research stations. |
| COMAIR | Commercial Air |
| COMSUR | Commercial Surface |
| CONUS | Continental United States. |
| DNF | Do Not Freeze |
| ECW | Extreme Cold Weather. The clothing and personal gear loaned to participants during their Antarctic deployments. |
| FRG | Fragile |
| FS&T | Field Safety & Training. This is a new department made up of the BFC and the group formerly known as FSTP (Field Safety Training Program). |
| Implementer | The person assigned to your project for planning the logistical support that will be provided to you by ASC during your fieldwork. |
| KD | Keep Dry |
| LDB | Long Duration Balloon Facility |
| MPI | New Zealand Ministry for Primary Industries. |
| MCM | McMurdo Station. |
| MEC | Mechanical Equipment Center. The facility at McMurdo Station that houses and distributes mechanical equipment, such as generators, vehicles and solar power units. |
| NSF | National Science Foundation |
| PI | Principal Investigator. |
| PLR | NSF Polar (Division of Polar Programs) |
| PPE | Personal Protection Equipment |
| PQ | Physical qualification. |
| RA | Research Associate or Resident Assistant |
| ROER | Record of Environmental Review |
| ROS | Required on Site |
| RSP | Research Support Plan. This document describes the support to be provided to field parties. |
| SIP | Support Information Package. An online form that describes support logistics, equipment and supplies requested by science groups. |
| S&TPS | Science and Technical Project Support |
| TBD | To Be Determined |
| USAP | United States Antarctic Program. |