

# Research Support Plan

## I-164-S, Murat Aydin

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**Collaborative Research: A 1500m ice core from South Pole**

Award Number: PLR – 1142517

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2016-17 South Pole 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
11 October 2016	RSP issued to PI for concurrence
27 October 2016	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 2016-17 season Support Information Package (SIP).

This document should be reviewed with all field team members. Any discrepancies should be presented to the ASC project point of contact (POC) prior to deployment to Antarctica.

## Project Description

The South Pole Ice Core (SPICE Core) project will collect a 1500-meter ice core from a site within five kilometers of the South Pole Station. The ice core will provide an environmental record spanning approximately 40,000 years that will be used to investigate the magnitude and timing of changes in climate and climate forcing through time. The target of 40,000 years includes the transition from the peak of the last glacial period when ice sheets were at their maximum extent, referred to as the Last Glacial Maximum (LGM), to the present warm period (the Holocene) called an interglacial period. The main activities of this season is the shipping of all remaining ice cores (616 meters; via three cold-deck LC-130 flights from South Pole to McMurdo) that are still onsite, disassembly of all remaining drilling and field equipment, including the drill tent, and concomitant shipping of equipment and cargo to the United States.

## Field Overview

Participants will reside at the Elevated Station and will make day trip to the drill site. Their work during this, their third field season, will focus on shipping all remaining ice cores (616 meters) from South Pole to McMurdo Station on cold deck LC-130 aircraft. They will also disassemble the remaining drill equipment, core handling equipment, and drill tent, and prepare those items for retrograde to the US.

## Outstanding Issues

None.

## 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-NPX	NPX-MCM	MCM-CHC	Self Ticket
Aydin	Kamil	15 Nov 2016	19 Nov 2016	20 Nov 2016	14 Dec 2016	15 Dec 2016	N
Goetz	Josh	15 Nov 2016	19 Nov 2016	20 Nov 2016	14 Dec 2016	15 Dec 2016	N
Johnson	Jay	15 Nov 2016	19 Nov 2016	20 Nov 2016	14 Dec 2016	19 Dec 2016	N
Kahle	Emma	15 Nov 2016	19 Nov 2016	20 Nov 2016	14 Dec 2016	15 Dec 2016	N

Last Name	First Name	Conus-CHC	CHC-MCM	MCM-NPX	NPX-MCM	MCM-CHC	Self Ticket
Souney	Joseph	15 Nov 2016	19 Nov 2016	20 Nov 2016	14 Dec 2016	15 Dec 2016	N

(Dates are current as of 10/06/16)

All dates are subject to change. The next table 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-NPX	Date participant is scheduled to depart McMurdo for South Pole
NPX-McM	Date participant is scheduled to depart South Pole for McMurdo
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</i> from 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.

## Permits

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

See appendix for more information.

## Environmental

### Environmental Documentation

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

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

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To comply with the Antarctic Conservation Act, the PI or project's Environmental POC is required to track and report planned or accidental environmental disturbances resulting from their research. The PI or Environmental POC for the project should be prepared to track and report geographic locations of disturbances that result from the project's field work (e.g., field camp locations, equipment remaining in the field or at sea, and materials released to the environment, as planned or unintentional). An Environmental End of Season (EOS), summarizing the projects disturbances and releases, is expected to be provided electronically to ASC Environmental (Environmental@usap.gov), prior to redeployment of the PI or the project's Environmental POC. The EOS report will be provided to the PI at the In-Brief. Please become familiar with the information requested and the requirements to accurately complete the report regarding project environmental disturbances and releases. Please contact ASC Environmental directly via email at [Environmental@usap.gov](mailto:Environmental@usap.gov) with any questions your team may have regarding EOS reporting.

## Environmental Impact Analysis

The basis for this evaluation is that project activities would result in less than minor or transitory impacts. The activities including retrograding of equipment and the drill camp are covered under the following programmatic and project-specific EIA documents:

- Conduct Rock, Soil, Ice, or Sediment Drilling, Coring, and Select Excavation Activities to Support USAP Scientific Research (PGAN1001.IEE)
- Collaborative Research: A 1500-meter ice core from South Pole (SPST1500.R01)

## Cargo

Direction	Weight (lbs)	ROS	Comments
Southbound	1,468	6310	DNF, (IDDO Cargo)
COMAIR Retrograde	0		
Vessel Retrograde	17,408	7100	KF, KD, FRG (Ice Cores)
	24,641	7100	DNF, KD, FRG

Keep in mind the following cargo-related information:

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

Cargo will provide heavy equipment to palletize and load the ices cores for transport to McMurdo.

## Science Construction

The following support will be provided.

- The existing drill camp will be opened for the final season.
- The drill camp will be decommissioned upon completion of science tasking.

## Computers and Communications

Support is provided for machines using Microsoft Windows 7 or above, Linux, and Mac OS X 10.10 or above, all with security patches and updates installed within a few weeks of release by the vendor.

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

IT Points of Contact

- ASC Denver Office: Kevin Schriener, email [kevin.schriener.contractor@usap.gov](mailto:kevin.schriener.contractor@usap.gov), phone 720-568-2442
- ASC South Pole Station: Kevin Schriener, email [kevin.schriener.contractor@usap.gov](mailto:kevin.schriener.contractor@usap.gov), phone 720-568-1801, LMR 210
- I-164-S: Scott Nolin, University of Wisconsin-Madison, email [scott.nolin@ssec.wisc.edu](mailto:scott.nolin@ssec.wisc.edu), phone 608-262-4382

## **Operating Systems**

- Windows 7 or above and updated with security patches and updates within a few weeks of release by the vendor.
- Linux updated with security patches and updates within a few weeks of release by the vendor.
- MAC OS X 10.10 or above and updated with security patches and updates within a few weeks of release by the vendor.

## **Email and Data Transmission**

- 10 MB/day of data transfers (SFTP) over the station's broadband satellite links will be supported on a best-level-of-effort basis.

## **Iridium Email service**

- Iridium 24x7 email services will be provided on a best-level-of-effort basis. All email traffic across this link is restricted in message size to less than 50k.

## **Iridium Voice Service**

- Iridium handsets will need to be picked up in McMurdo during transit to South Pole.
- Please contact [MCM-CommsCoordinator@usap.gov](mailto:MCM-CommsCoordinator@usap.gov) for resources.

## **Land Mobile Radios**

- Four Land Mobile Radios will be provided. Please see the South Pole Comms Tech once on station for radio programming and check out.

## **Wireless Network Link**

- Wireless network link will be provided for communication on the USAP network along with one voice over IP handset.

## **Observatory/Laboratory Space**

No support requested.

## **Laboratory Instruments and Equipment**

No support requested.

## **Laboratory Chemicals, Gases, Cryogenics, Dry Ice, Blue Ice**

No support requested.

## **Laboratory Materials and Supplies**

No support requested.

## **Radioactive Materials**

No support requested.

## Vehicles

There is no shuttle service available at the South Pole.

Grantees requiring the use of these vehicles should make their request directly to South Pole Science Support. The South Pole Science Support Supervisor will control the assignment of these vehicles to ensure equitable access to this limited resource.

Science Support snowmobiles and light tracked vehicles will be available only to members of the science community who undergo the vehicle operation instruction and licensing process.

The following support will be provided:

- Two dedicated snowmobiles for transport of equipment.
- Dedicated van for movement of personnel to the site.

## 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](mailto: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](mailto: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:

Jason Hebert  
PASSCAL Polar Manager  
email: [jhebert@passcal.nmt.edu](mailto:jhebert@passcal.nmt.edu)  
phone: (575) 835-5147

### 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](mailto: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:

Kristina Slawny  
IDDO Program Director  
e-mail: [kristina.slawny@ssec.wisc.edu](mailto:kristina.slawny@ssec.wisc.edu)  
phone: 608-263-6178  
<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](mailto:nicl@usgs.gov)  
phone: (303) 202-4830  
<http://nicl.usgs.gov/>

The following support has been coordinated with NICL.

- 616 meters of ice core will be shipped to NICL.

## **Meteorology Services**

Access to data and meteorology reports including surface observations, upper air data and monthly climatological summaries for all Antarctic locations is available upon request. For questions or concerns regarding custom products, format changes or any other meteorological issues, please contact the Meteorology Operations Manager, Michael Carmody, at 720-568-2310 or [Michael.Carmody.Contractor@usap.gov](mailto:Michael.Carmody.Contractor@usap.gov).

## **Research Associate Services**

No support requested.

## **Field Support & Training**

### **Field Equipment (BFC)**

No field equipment will be provided.

### **Field Training and Assistance (formerly FSTP)**

No field training will be provided.

## **Field Medical**

No support requested.

## **Mechanical Equipment**

No support requested.

## Heavy Equipment and Explosives

The following support will be provided.

- Tractor/groomer support for road redevelopment and pad grooming.
- Bulldozer, excavator, and loader support for drift removal.
- Loader support for building and fuel tank placement.
- Loader support for the delivery and retrograde of cargo.
- Loader support for the palletization of ice cores and transport to McMurdo.
- Bulldozer and loader support for site structure moving, dismantling, and drill/ice core storage trench backfilling.