

10<sup>th</sup> ANNUAL  
SYMPOSIUM  
FOR  
RESEARCH  
ADMINISTRATORS

NOV 13, 2025



...be inspiRED

RED

Research. Education. Development.

# From Proposals to Penguins: Research Administrators and the trip of a lifetime

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Space Science and Engineering Center  
Antarctic Meteorological Research and Data Center  
& Antarctic Automatic Weather Station Program





Angie Montgomery - 2022



Wenhua Wu - 2023



Tyler Plekan - 2024

# Outline

- Overview of the Automatic Weather Station (AWS) Program
- How did this happen?
- Getting there
- Field work based out of McMurdo
- Life in McMurdo
- Impact on on roles



How did we go from R.E.D....

... to Big Red?!



# Antarctic Automatic Weather Station Program

- Established at UW-Madison in 1980
- Network has expanded, observations in many regions of the Antarctic
- AWS Network critical for:
  - Safety and planning of other research projects
  - Insight into global weather patterns
- NSF funded
  - Collaborative Research: Antarctic Automatic Weather Station Program
    - NSF OPP 1543305
    - NSF OPP 1924730
    - NSF OPP 2301362

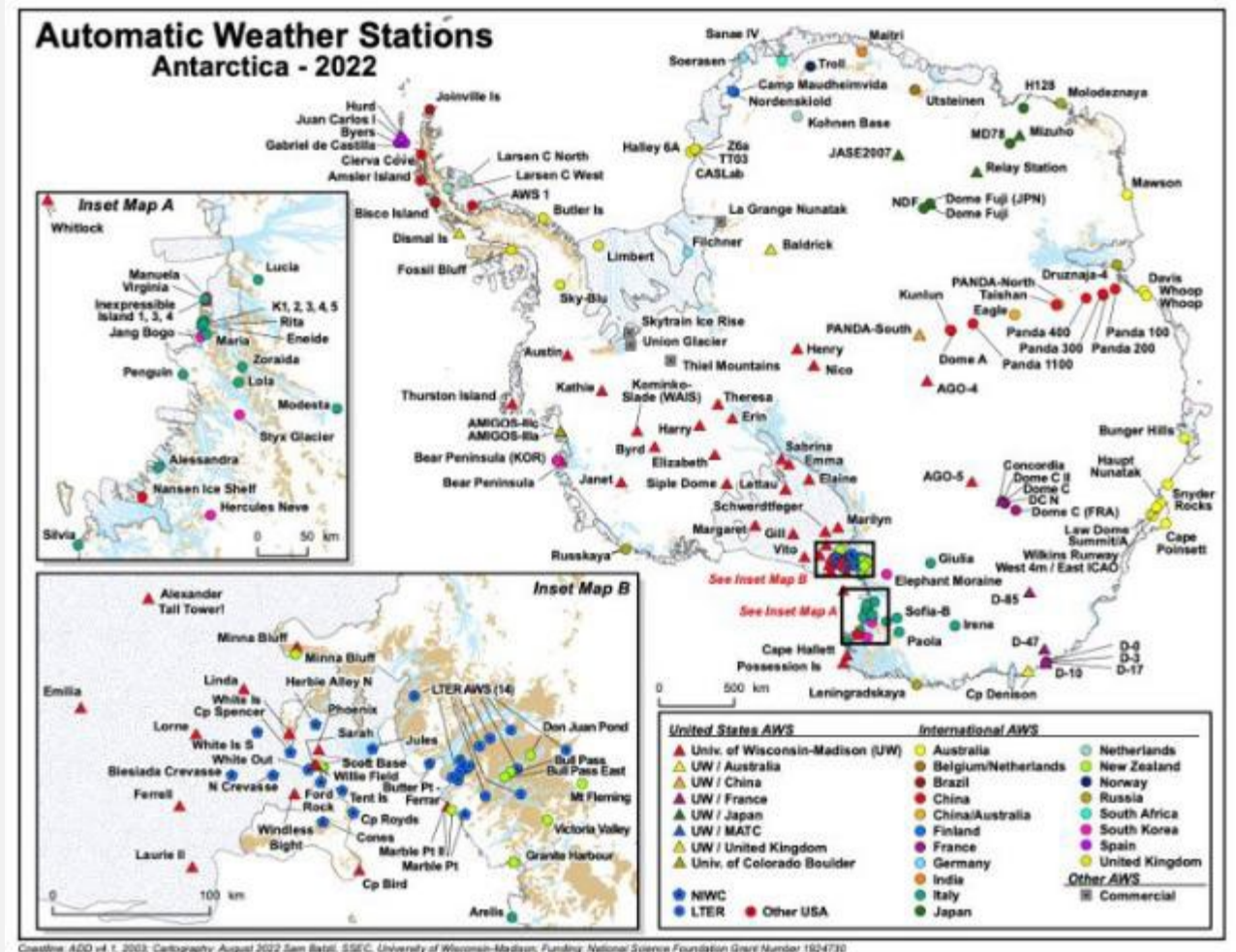
<https://amrdc.ssec.wisc.edu/>

<https://amrdc.ssec.wisc.edu/about/aws-program>



# Why an automatic weather station?

- One of the largest data voids in the world...
- Understanding how Antarctica fits into the planet's weather and climate system
- Understanding Antarctic weather and climate processes
- Capturing observations away from the very few staffed stations.

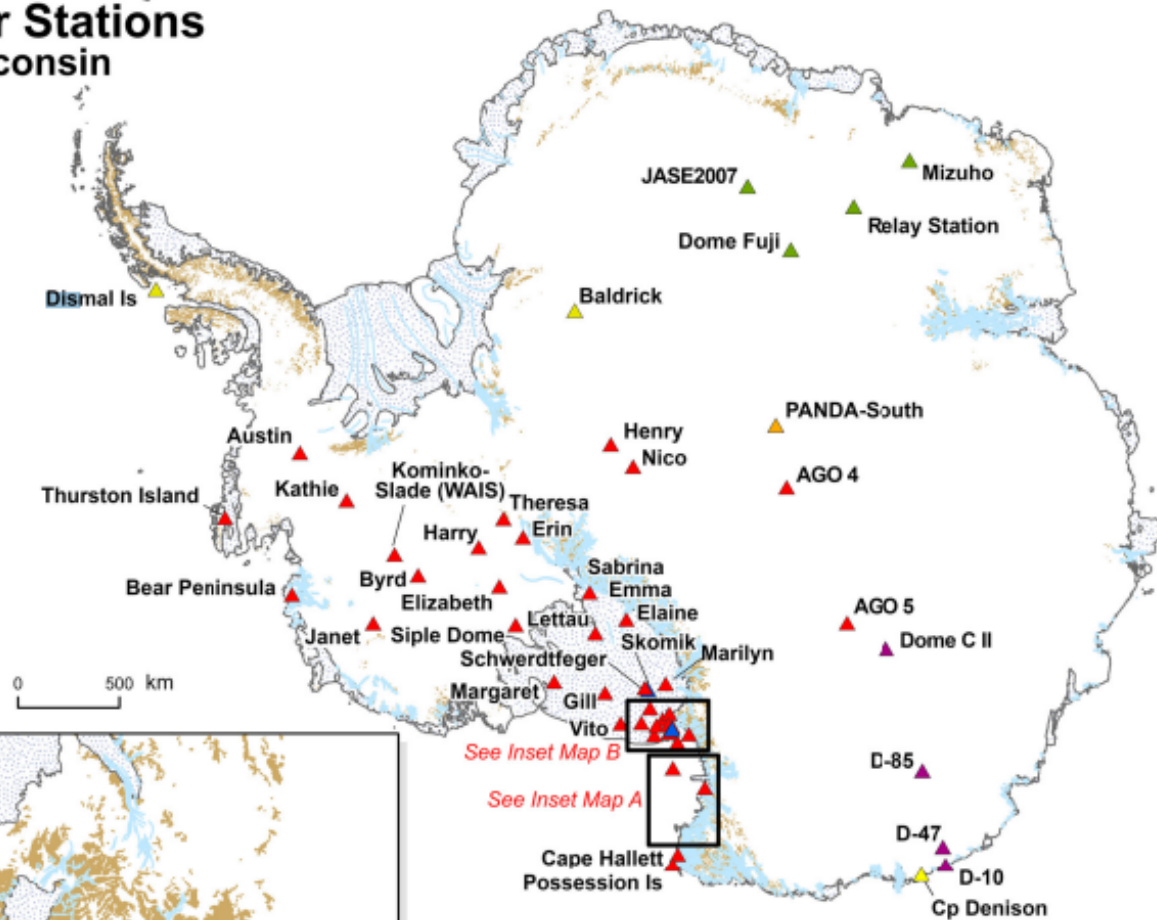
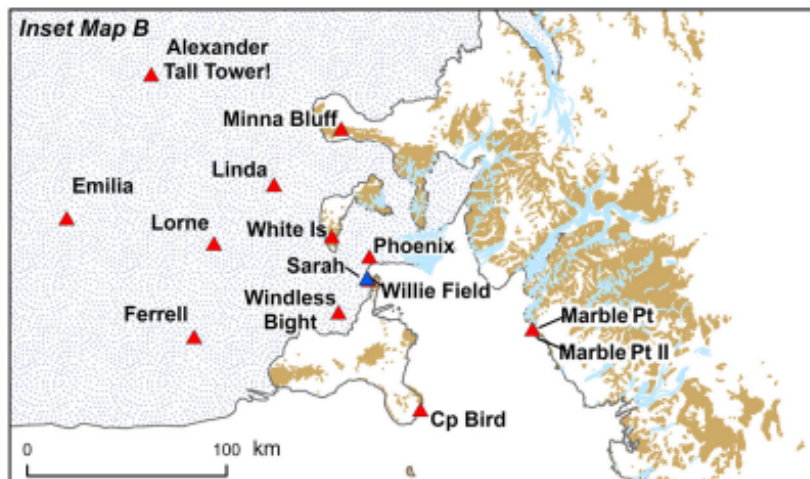


Lazzara, M.A., G.A. Weidner, L.M. Keller, J.E. Thom, J.J. Cassano, 2012: Antarctic automatic weather station program: 30 years of polar observations. *Bull. Amer. Meteor. Soc.*, **93**, 1519-1537, doi:10.1175/BAMS-D-11-00015.1

# Automatic Weather Stations

## University of Wisconsin

### 2024-2025



See Inset Map B  
See Inset Map A

- University of Wisconsin AWS**
- ▲ Univ. of Wisconsin (UW)
  - ▲ UW / Australia
  - ▲ UW / China
  - ▲ UW / France
  - ▲ UW / Japan
  - ▲ UW / MATC
  - ▲ UW / United Kingdom

# How did this happen?

**"I can shovel snow."**

Needs of the project

Relationship with science team

Support from the Center and our  
Division

Morale



# Preparing to Go

Training

Tower Training

Equipment

Planning site visits

PQ – Physical Qualification

## O-283-M

### 2022-2023 AWS Visits

AWS	GPS Lat/Lon	Date	Work
Alexander TTI	78° 59.70' S / 170° 45.48' E	Jan 2022	Raise instruments and power system
Austin	75° 59.64' S / 87° 28.68' W	Jan 2019	Raise
Bear Peninsula	74° 32.88' S / 111° 52.08' W	Jan 2019	Not transmitting, install Taylor HWS
Cape Bird	77° 13.02' S / 166° 26.34' E	Feb 2022	Checkup
Cape Hallett	72° 19.32' S / 170° 13.50' E	Nov 2019	Replace Iridium modem
Emilia	78° 22.92' S / 173° 13.20' E	Jan 2022	Not transmitting, power cycle
Ferrell	77° 47.04' S / 170° 48.96' E	Dec 2018	Raise
Kathie	77° 59.70' S / 97° 15.96' W	Dec 2017	Raise
Kominko-Slade	79° 27.96' S / 112° 06.42' W	Dec 2019	Raise, replace power system
Laurie II	77° 25.56' S / 170° 44.40' E	Dec 2018	New wind monitor
Lettau	82° 28.50' S / 174° 35.22' E	Jan 2019	Raise
Linda	78° 22.92' S / 168° 27.36' E	Dec 2016	Raise
Lorne	78° 10.68' S / 170° 2.10' E	Dec 2019	Raise
Marble Point I/II	77° 26.34' S / 163° 45.24' E	Dec 2019	Checkup
Margaret	79° 58.86' S / 165° 05.94' W	Nov 2015	Raise
Minna Bluff	78° 33.24' S / 166° 41.46' E	Jan 2022	Fix high wind direction
Phoenix	77° 56.88' S / 166° 44.94' E	Dec 2021	Install Iridium 9602-N modem
Sarah	77° 52.08' S / 166° 53.88' E	Jan 2022	Checkup, relocate
Siple Dome	81° 39.12' S / 148° 59.52' W	Jan 2016	Raise
Theresa	84° 36.12' S / 115° 50.76' W	Jan 2019	Not transmitting, power cycle
Thurston Island	72° 31.92' S / 97° 32.70' W	Jan 2019	Add resistors for Taylor HWS
Vito	78° 24.48' S / 177° 49.74' E	Feb 2016	Raise
White Island	78° 04.56' S / 167° 27.06' E	Dec 2019	Install Taylor HWS
Willie Field	77° 52.08' S / 166° 53.88' E	Jan 2022	Checkup, relocate
Windless Bight	77° 43.86' S / 167° 39.96' E	Jan 2022	Fix clock on datalogger



To get to McMurdo first  
you will have to travel to New  
Zealand





# New Zealand

- Trainings
- Clothing Distribution
- Flight to the ice
  - Weather is unpredictable - always a chance for a delay
  - Boomerang bag!
  - Point of No Return



# Clothing Distribution



# Flights to the Ice

- Flights are about 5 hours – decision made at point of no return
- Planes are equipped with wheels, or skis later in season

C-17



LC-130



Boeing 757



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## Airfield transportation



**McMurdo Station**



**Antarctica**

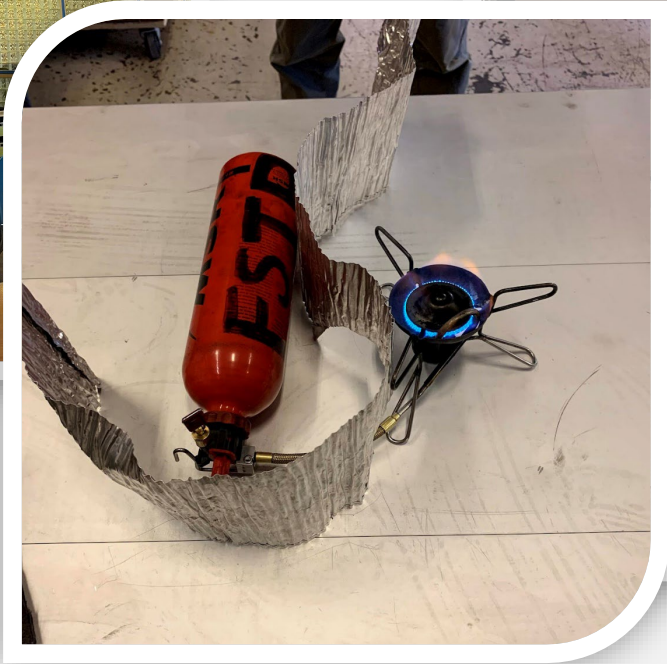
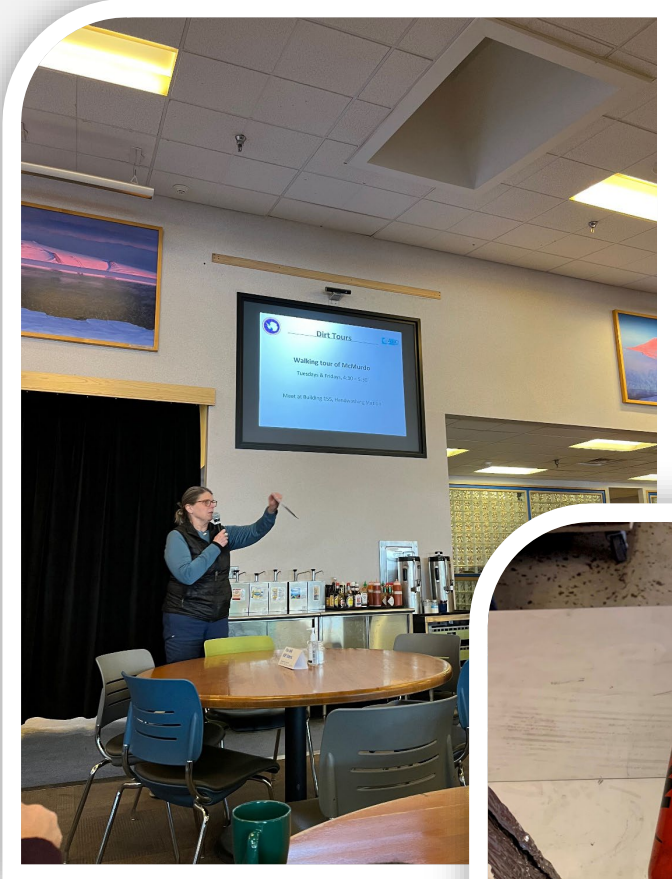


# First Days in McMurdo

- Debrief and welcome
- Get your bags and find your room
- First days are busy
  - Trainings
  - Meetings with support teams to review SIP
  - Find your freight



# Training

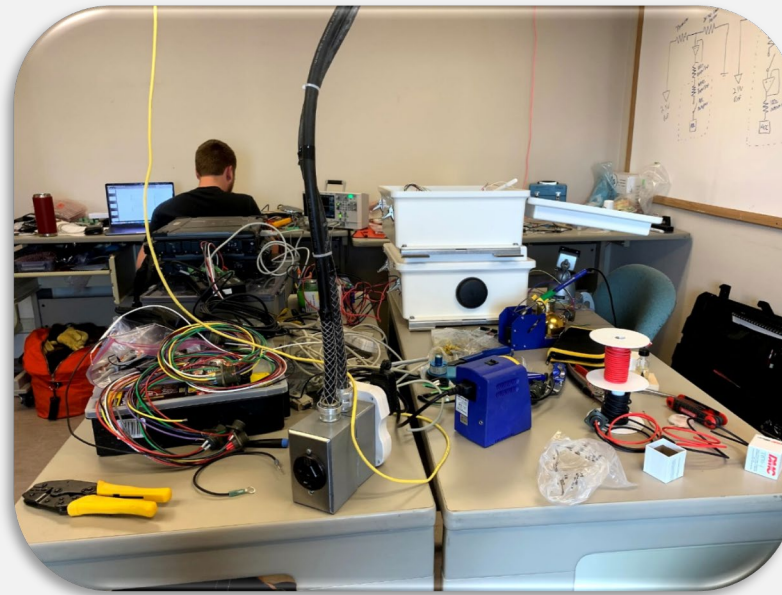


Outdoor skills / Survival Training

# Set Up Lab Space

Crary Lab is office and lab space for researchers

Dedicated space for researchers



View from the lab

# Locate Equipment



# Research at McMurdo

- Collaborative Efforts

*“The more knowledge sharing the better. Especially down there, you want everyone to succeed.” D. Mikolajczyk*

- Entirety of McMurdo is in support of research mission
- Antarctic Treaty provides guidelines for research and other activities in the Antarctic
- AWS team is deployed every year to the Antarctic, usually 2-4 people



# Site Visits

Site Visits are planned in the Science Implementation Plan well before you arrive on the ice.

Transportation to AWS: trucks, snowmobiles, piston bully, helicopters, twin otter planes

Weather dependent on if the pilots/support are okay to fly and then we can go or decline if the weather is bad for tower work

- Too windy (>15 knots/~17mph)



# AWS Records/Extremes

## UW AWS Network Records & Extremes

### Low Temperature:

- -120.3°F (-84.6°C)
- Dome C AWS - August 26, 1982

### High Temperature:

- 51°F (10.6°C)
- Bonaparte Point AWS - December 6, 1992

### “Windiest Place in Antarctica”:

- 40 to 60 miles per hour average (18-27 meters/second) monthly winds
- Cape Denison AWS

### Maximum Wind Speed:

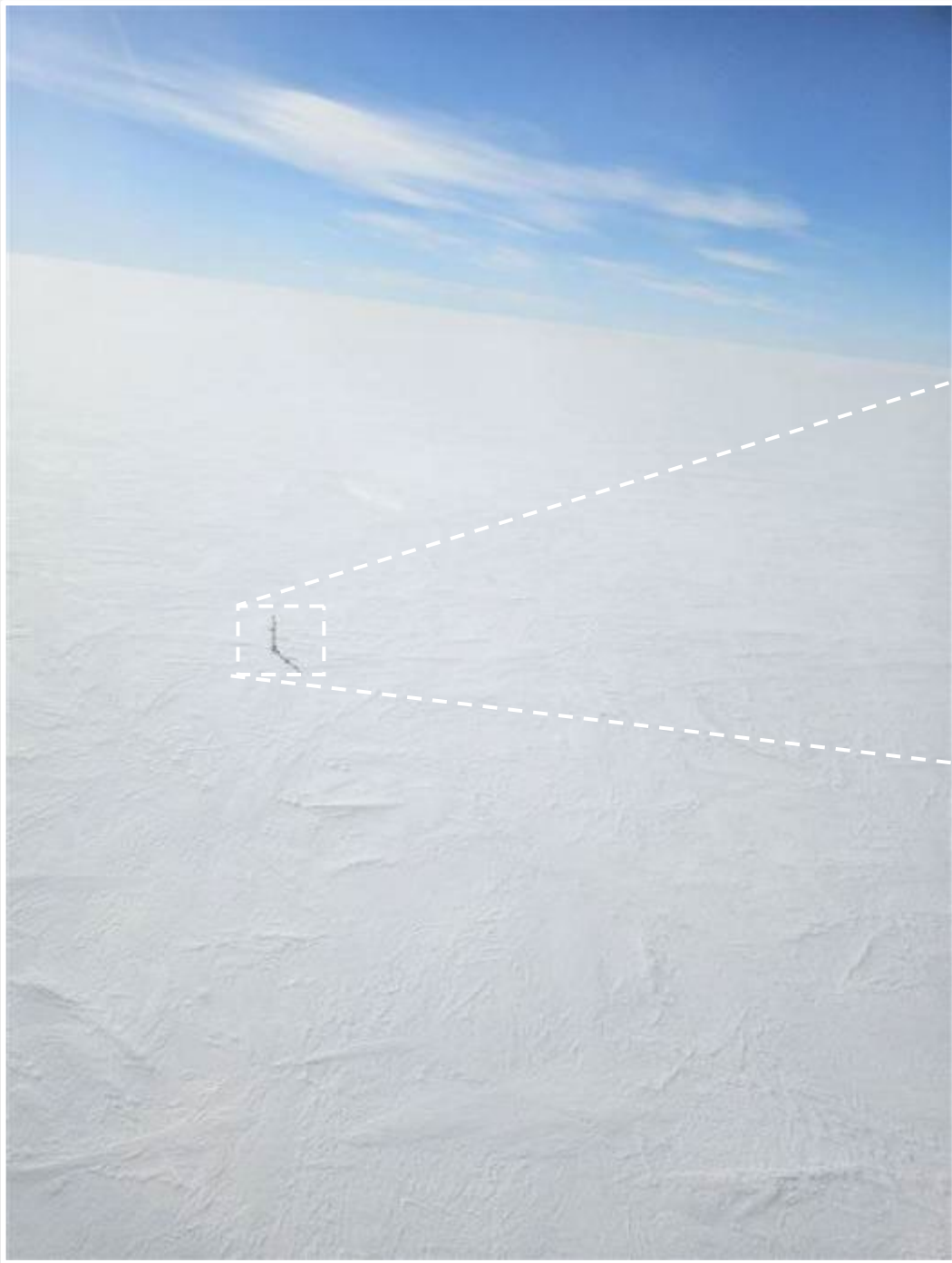
- 137 miles per hour (61.3 meters/second)
- Minna Bluff AWS - July 10, 2001

## Records at McMurdo when we were there

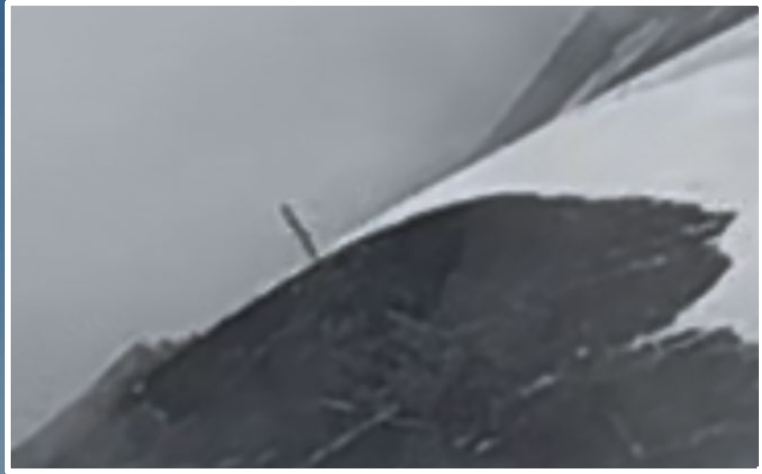
Stat	2022 (Angie) 10/22/22 – 12/09/22	2023 (Wenhua) 11/02/23 – 01/09/24	2024 (Tyler) 11/18/24 - 12/22/24
Coldest Deployment Day & Temperature	-26.2 deg C October 25, 2022	-22.5 deg C November 3, 2023	-19.5 deg C November 21, 2024
Warmest Deployment Day & Temperature	0.4 deg C December 6, 2022	2.5 deg C December 4, 2023	2.8 deg C December 21, 2024
Highest Windspeed	32 kts November 26, 2022 (36.8 mile/hr)	44 kts November 6, 2023 (50.6 mile/hr)	45 kts November 23, 2024 (51.8 mile/hr)
McMurdo Snow Accumulation / Precipitation	0.01 in	0.15 in	0.012 in
Average Humidity	n/a	~58.8%	~72.2%



# SPOT THE STATION



# SPOT THE STATION



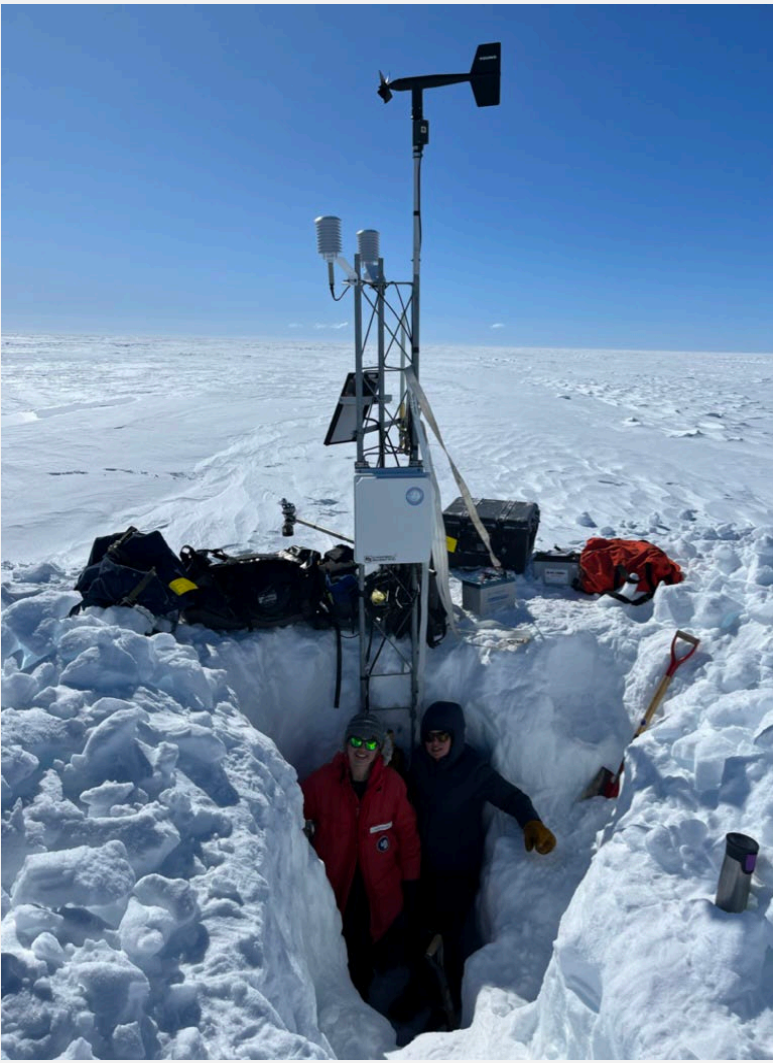
# Field Work

You never truly know what you'll walk up to when you arrive at an AWS!



Cape Hallett, 2022

Was not transmitting – we found out why  
Scheduled to be repaired this field season

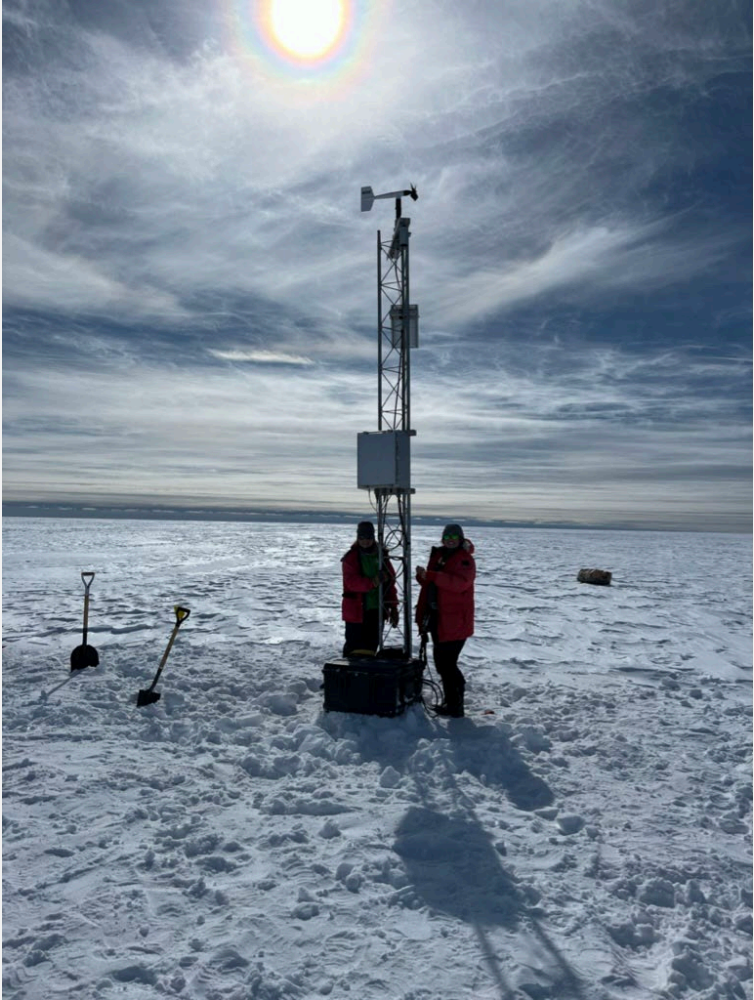


Digging out the batteries



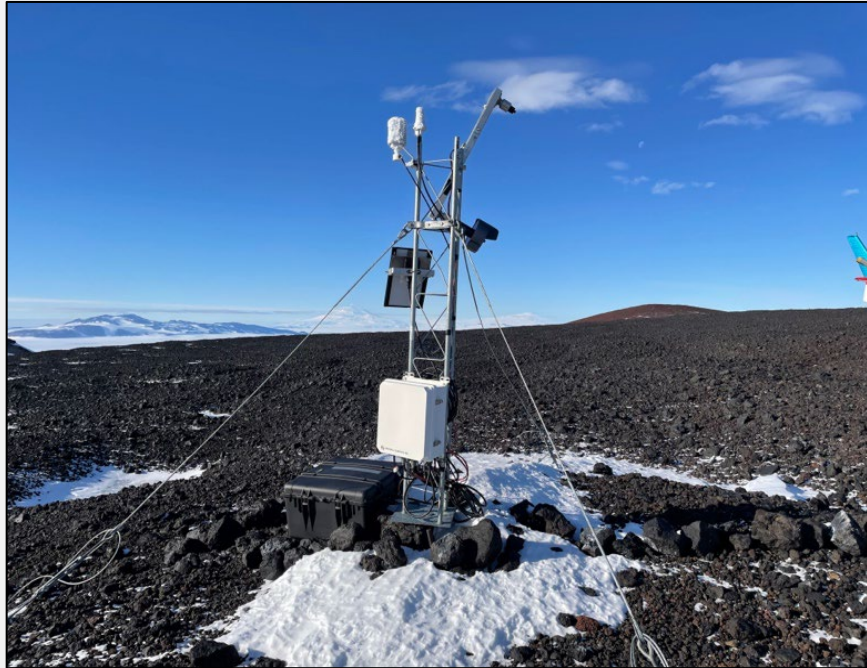
Stairs to get out!

# AWS Ferrell



# Minna Bluff AWS

Nov 22 ,2023 –Swap Instrumentation

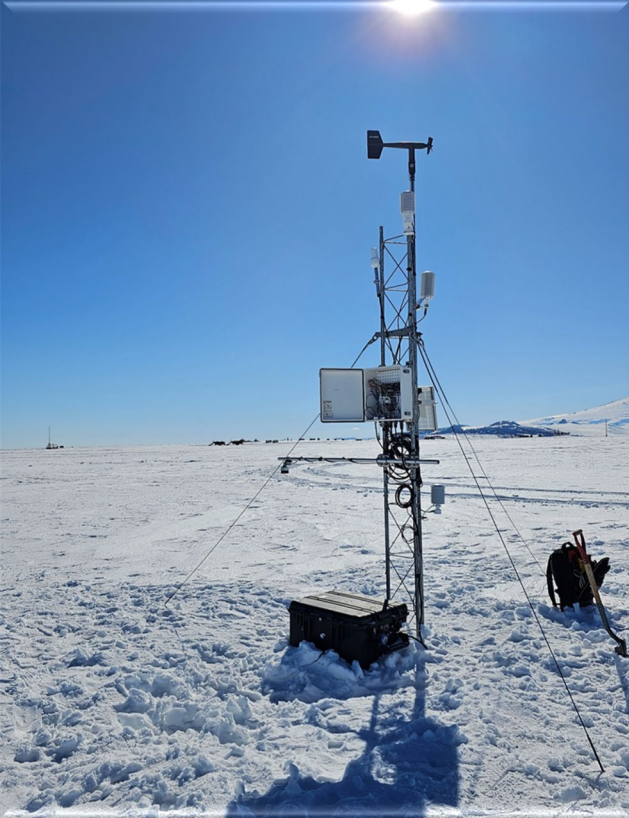


Upon arrival



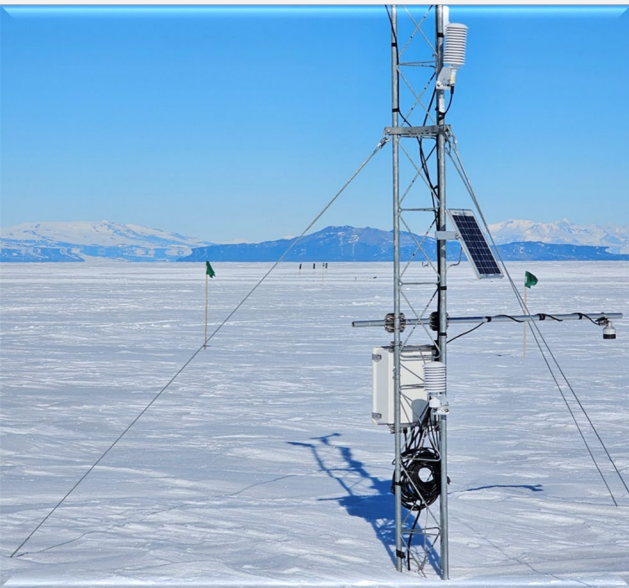
Potential new record, farthest flung sensor?!





## Phoenix AWS

- Chipping through solid ice



Remember when I said “I can shovel snow?”





What else? There is so much more...

# McMurdo Life

McMurdo has **everything**

- All the makings of a small town – total population can get to 1,000+
- Library, coffee house, radio station, bars, a church, game, music and craft rooms
- Organized activities for residents – yoga, wall climbing, hiking, holiday events





Building 150 – the main building –  
Cafeteria, gym, dorms, offices



Trash boxes  
and Skua!





## Holiday Celebrations



# Around town....

Weather Balloons



Ice Stock Festival



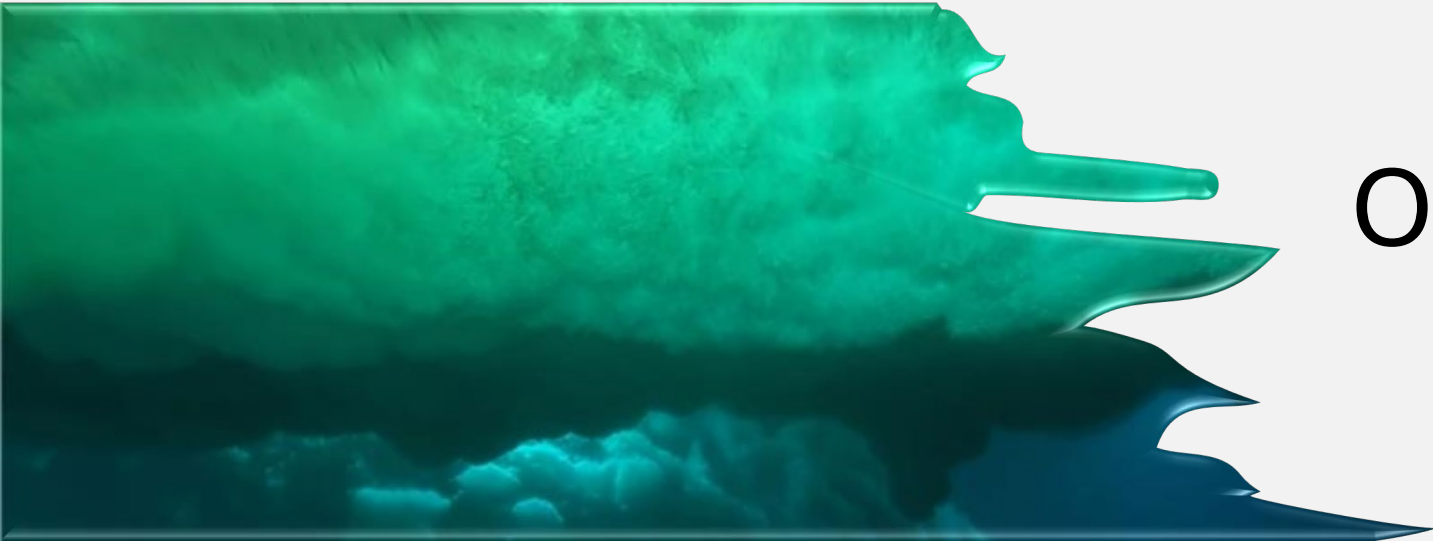
# Hiking trails

Ross Island Trail System

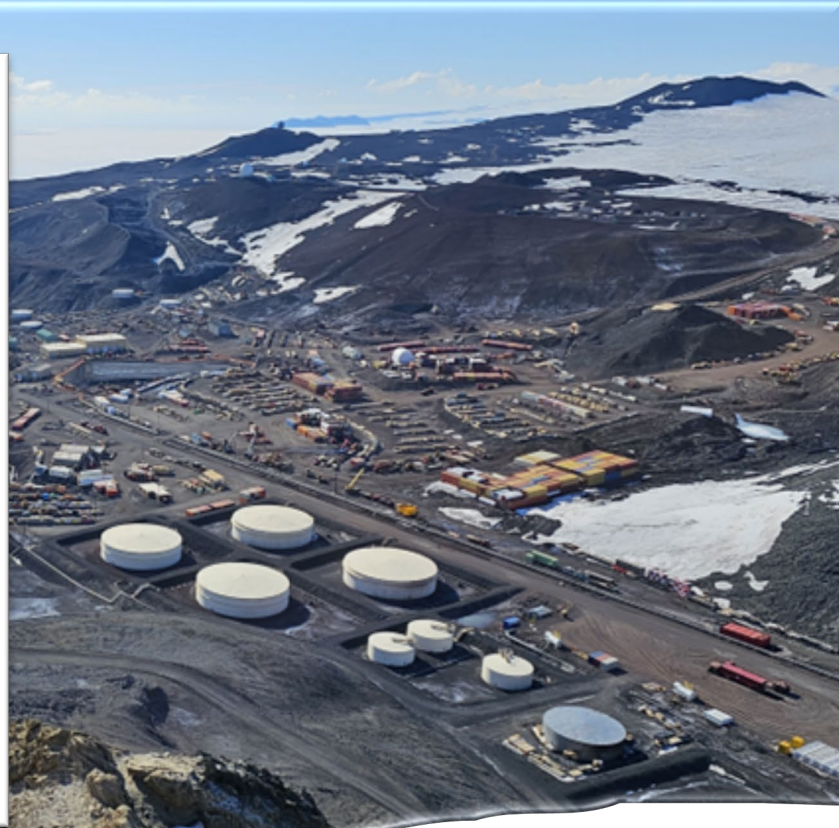


# Hut Point

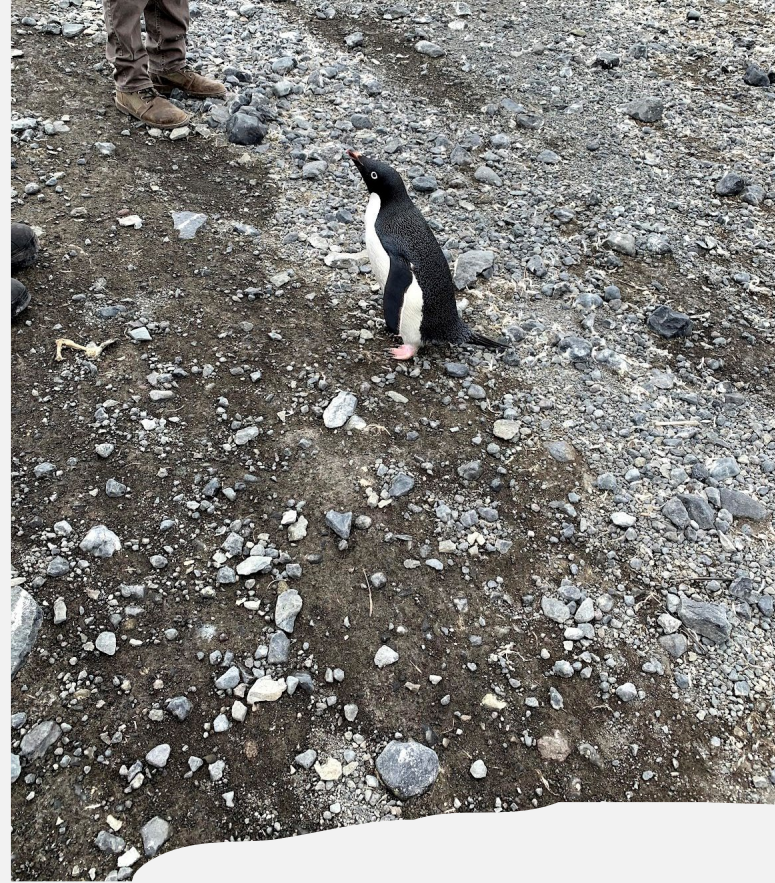
Scott's discovery expedition



Ob Tube



- Scott Base
- Ob Hill Hiking view
- Mt. Erebus puffing out smoke
- Ice breaker in McMurdo Sound



And, of course, wildlife









# So how did this impact our roles as Research Administrators?



A bright sun is positioned at the top center of the frame, casting a lens flare. The sky is a deep, clear blue. Below the horizon, the ocean is a darker blue-grey, with small whitecaps and ripples across its surface.

Better relationship with the science team

Better understanding of the needs of the project

Flexibility – you adapt and adjust very quickly

We all support the science, and we all have value to the project

Don't underestimate the contributions you can make





Questions?



# Thank you!

Angie Montgomery

Wenhua Wu

Tyler Plekan

Contributors: Carolyn Lipke, Matthew Lazzara, David Mikolajczyk, Lee Welhouse, Taylor Norton

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