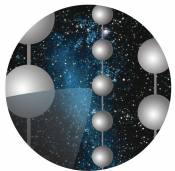


IceCube Neutrino Observatory Expedition

Leadership in a Remote Location



IceCube



Kate Miller
Physics Teacher, W-L High School
PolarTREC Teacher, 2016
KSTF, 2012 Fellow



Samantha Pedek
Undergraduate Researcher
University of Wisconsin at River Falls

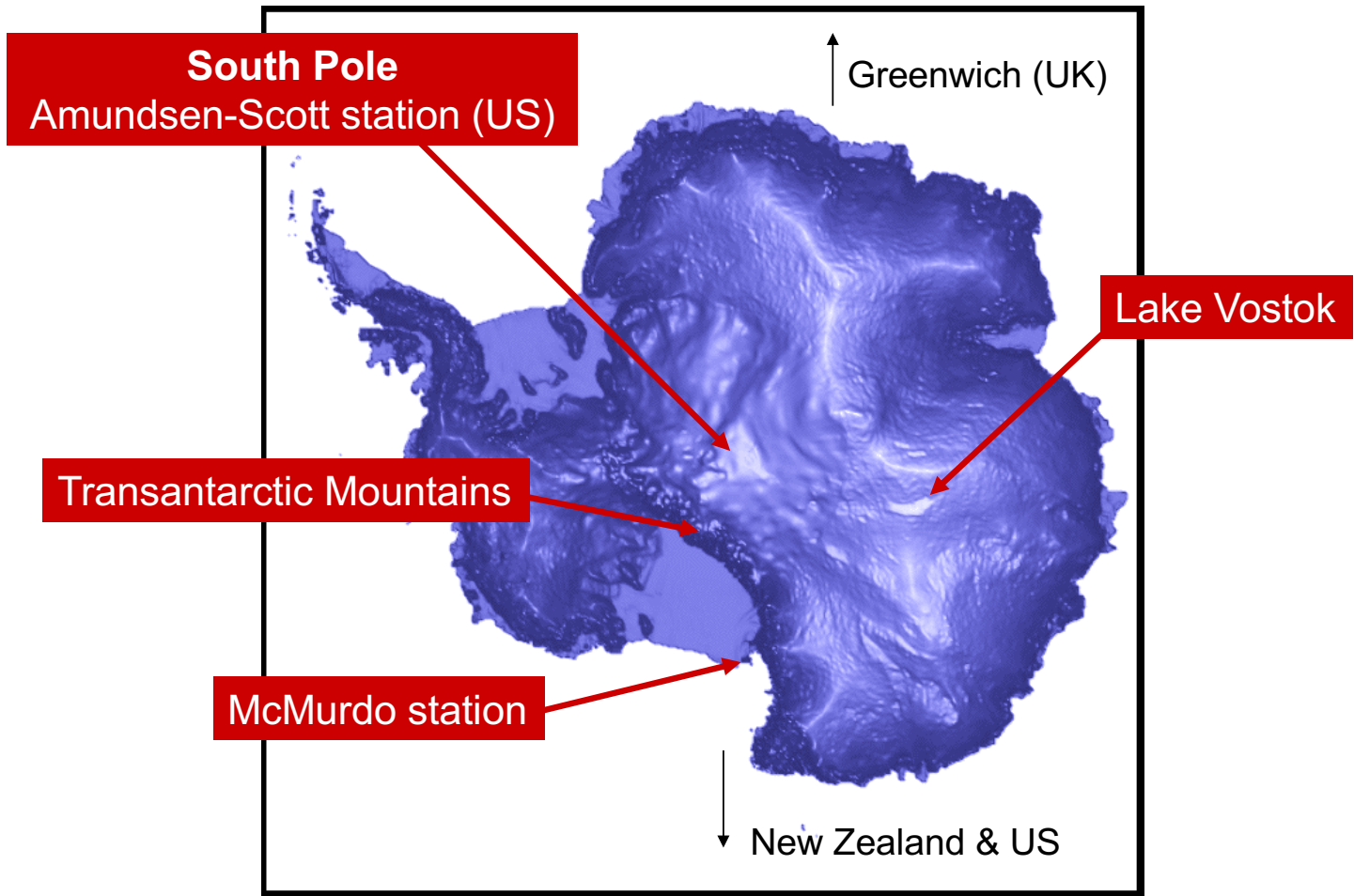


Adelie Penguins

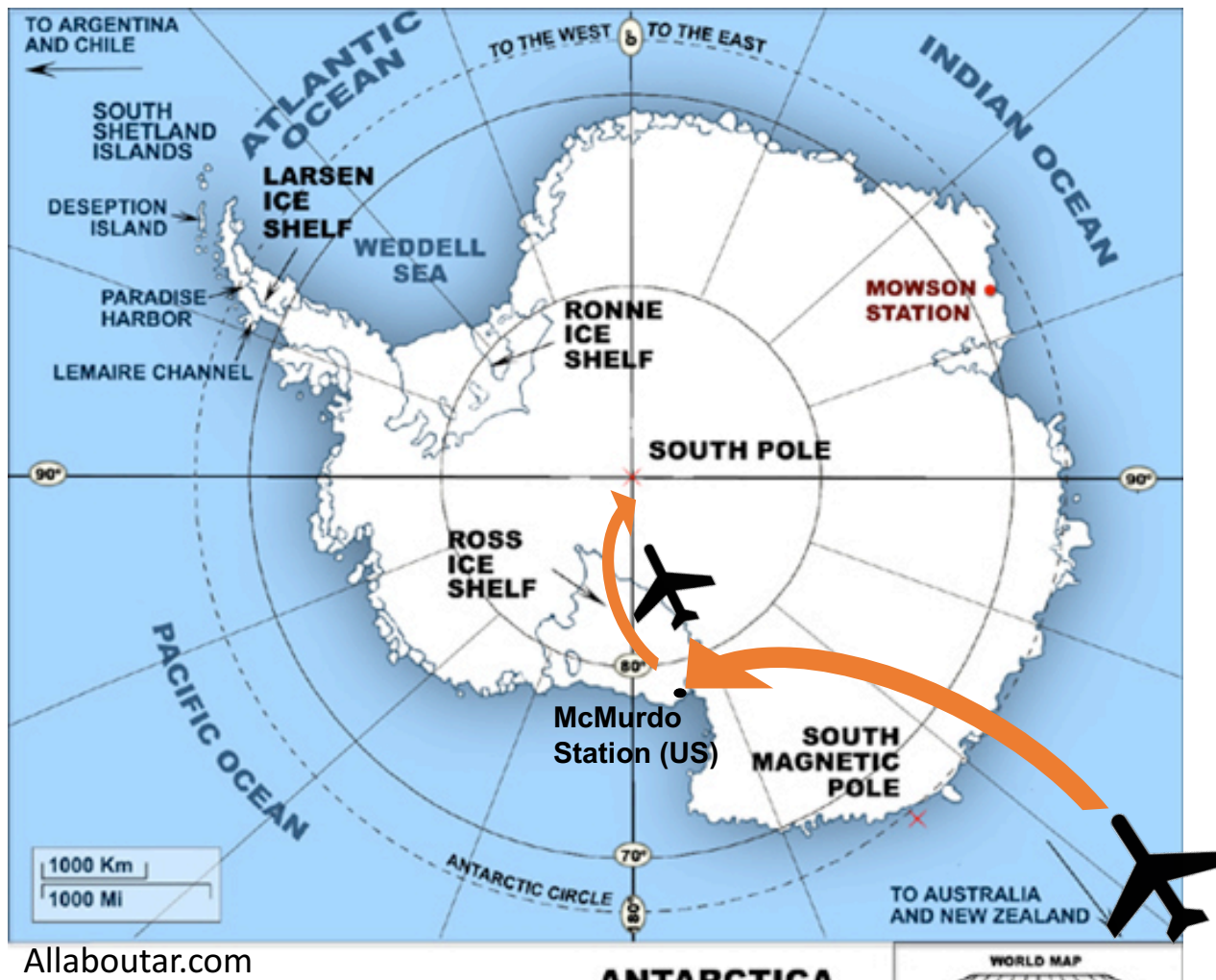


How big is Antarctica?





How did we get to there?



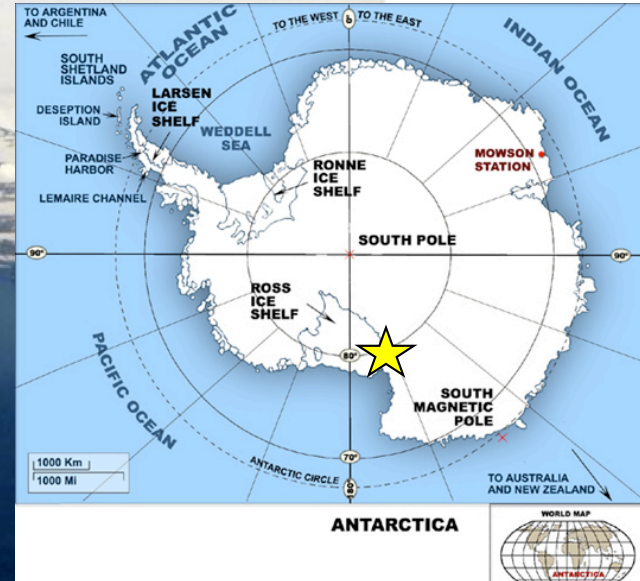
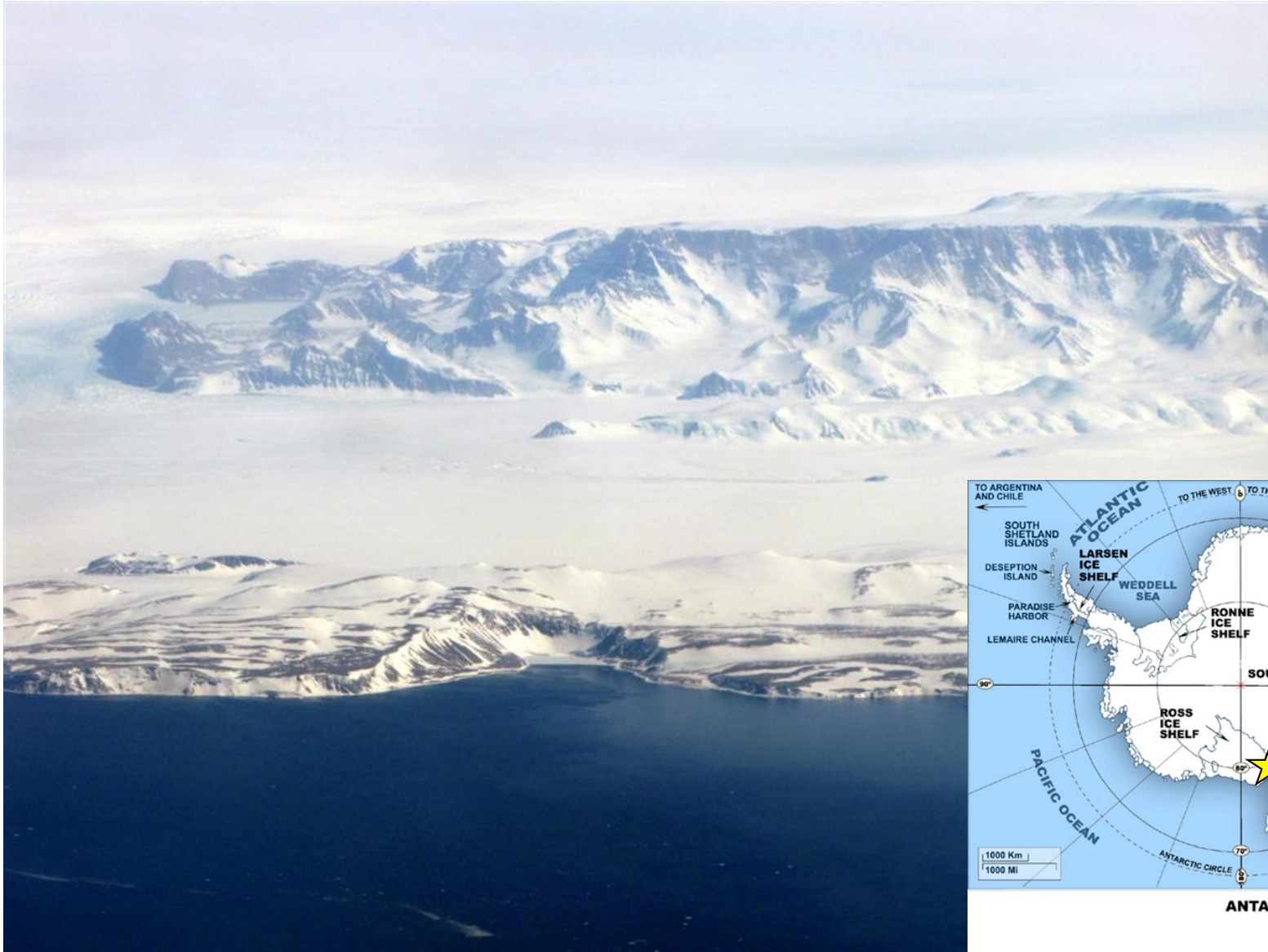
Allaboutar.com

New Zealand to McMurdo Station

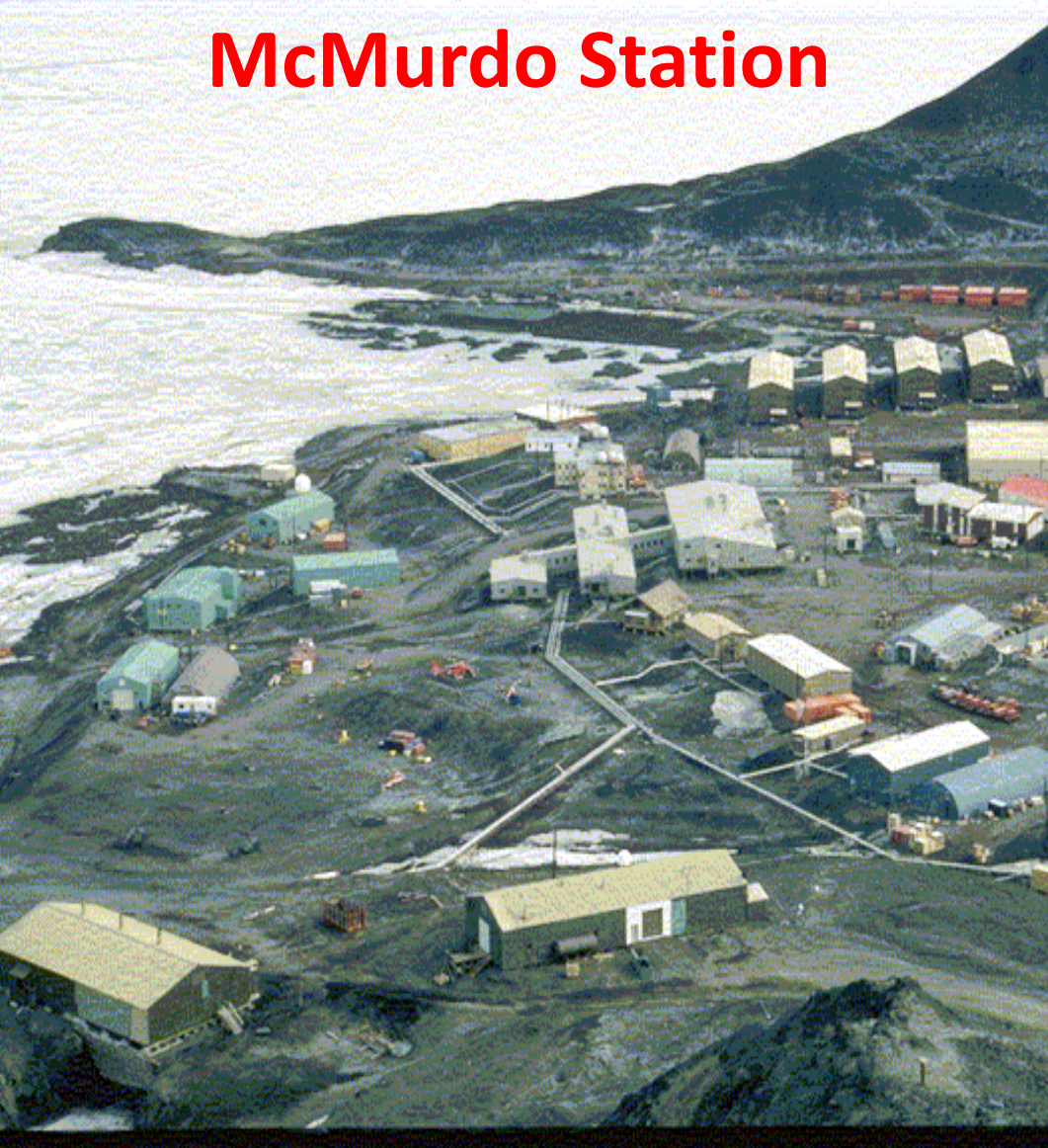


C-130
8 hours

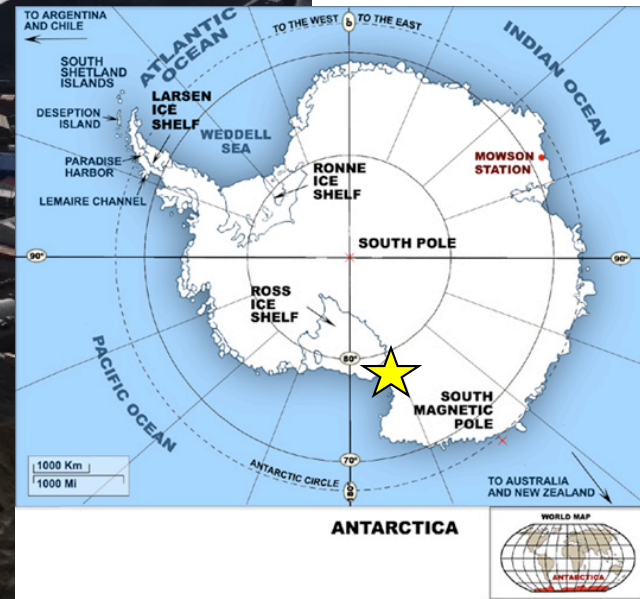




McMurdo Station



Not so cold!

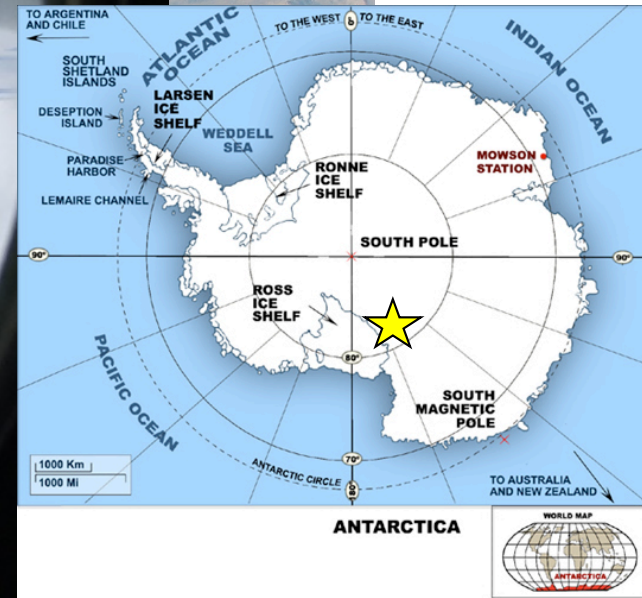
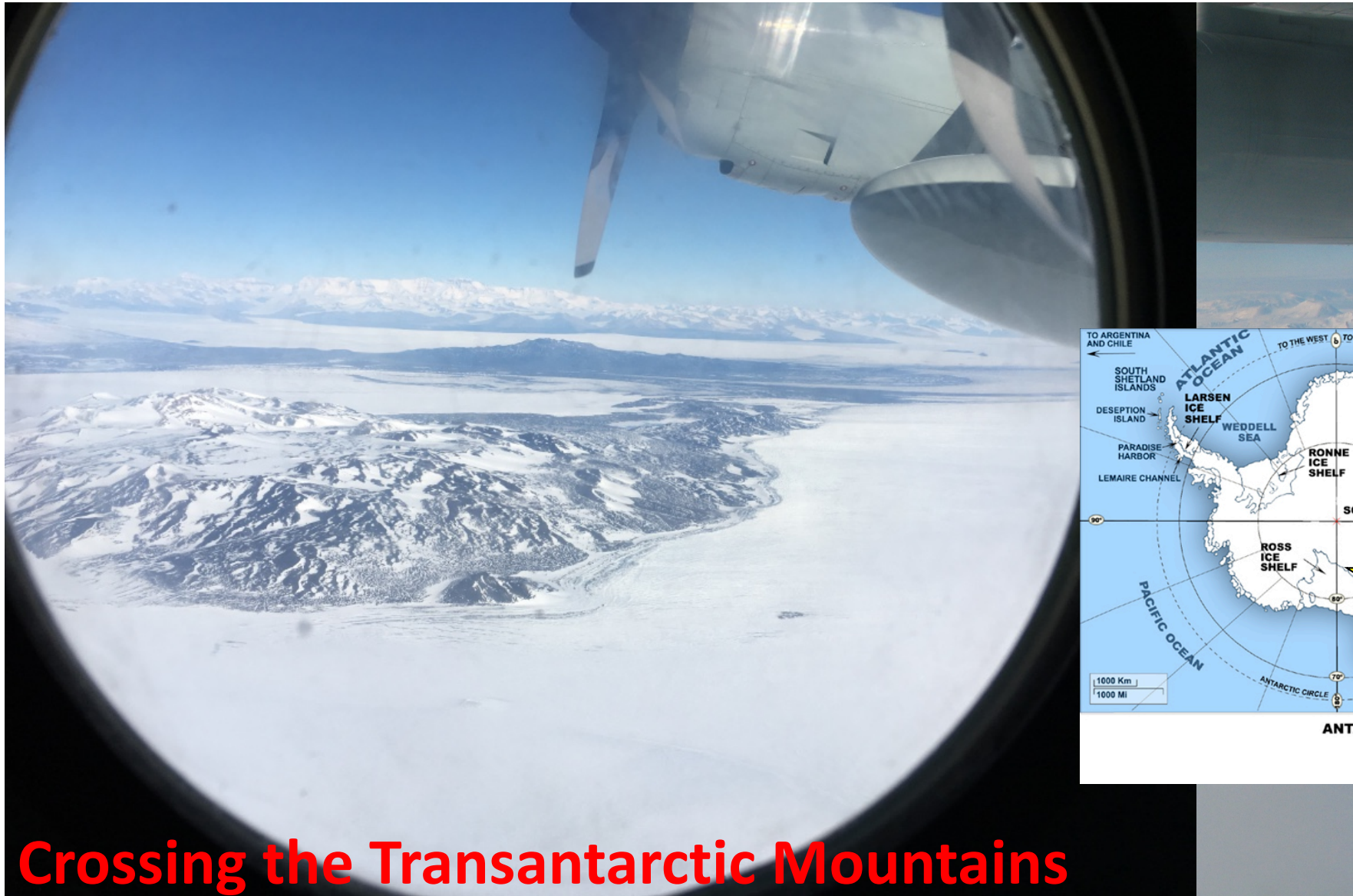


Another flight - McMurdo Station to the South Pole



C-130
3 hours





Crossing the Transantarctic Mountains



Amundsen-Scott South Pole Station (US)







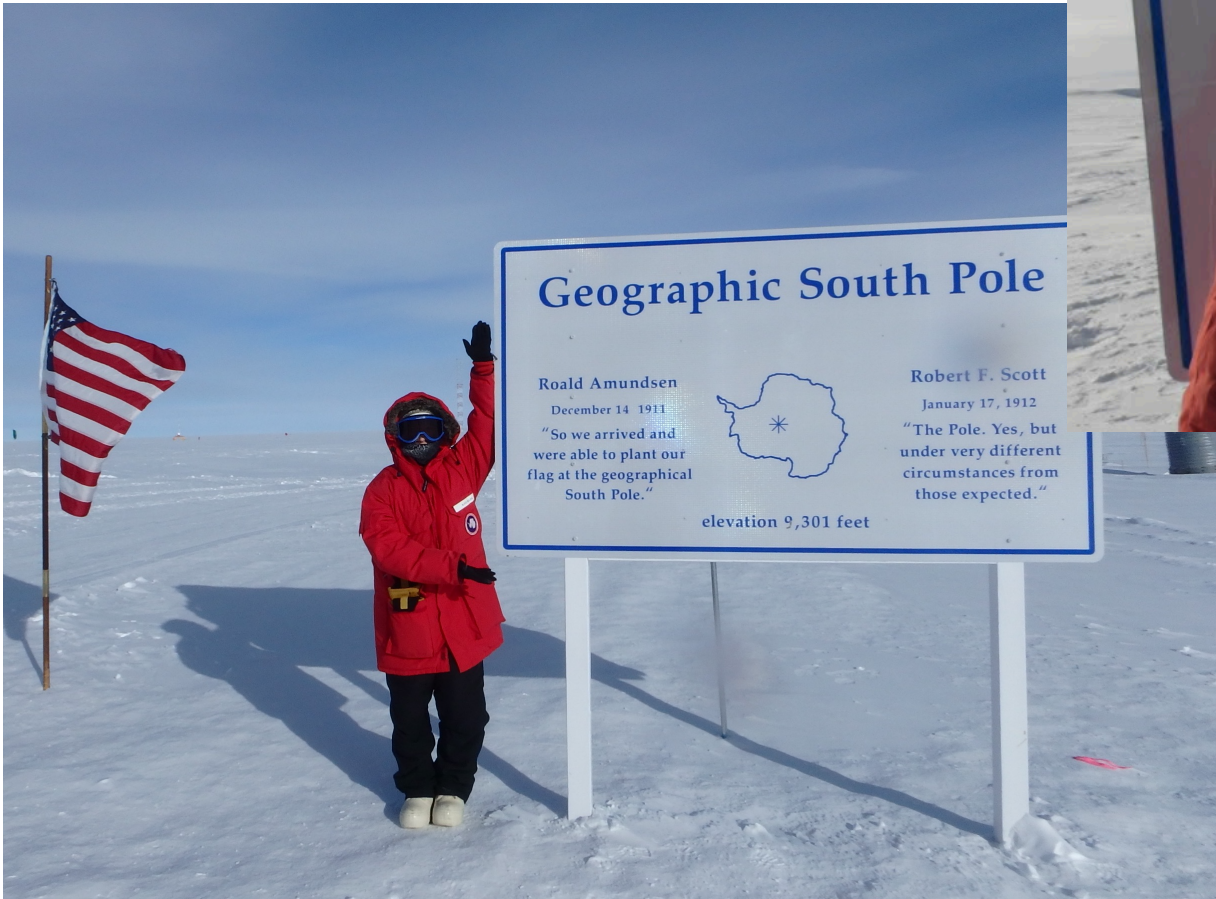






Ceremonial South Pole

Geographic South Pole





**It's really cold!!!
(-35F)**



SOUTH POLE

Main Menu
Polar Science
Local Information
Local Departments
Time Cards
Community
Emergency Response Teams

South Pole Web Email

McMurdo Web Email

Denver Web Email

Galley Scroll

Weather

Forecast

Flights

SatStat

Phone List & Instructions

Operating Procedures

Station Hours

Leaving the South Pole

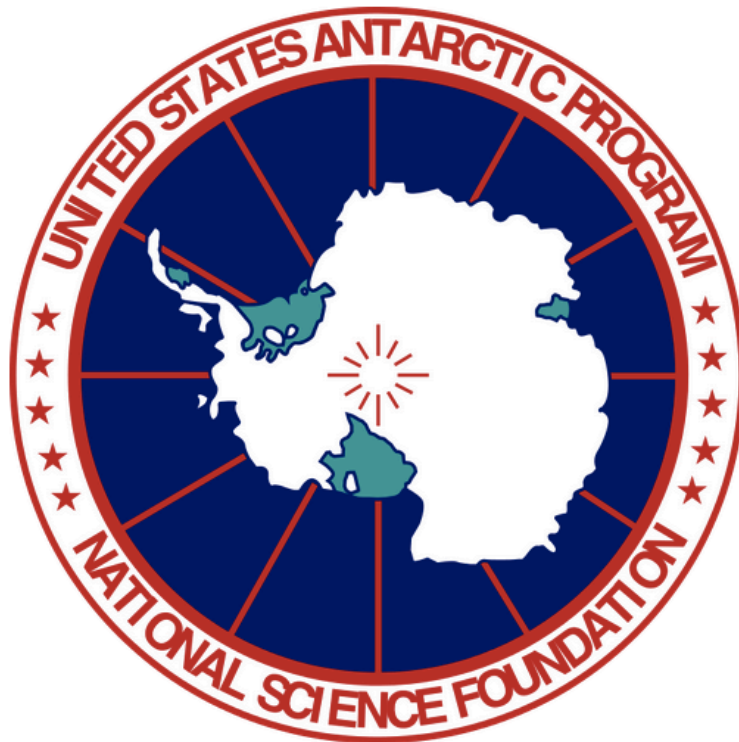
Galley Menu

Offline Wikipedia

Email the Web-Master

Weather for South Pole Station

Today is Sunday, January 22nd 9:20pm



Temperature
-31.3 °C -24.3 °F

Windchill
-43.1 °C -45.6 °F

Wind
8.3 kts Grid 349

Barometer
686.7 mb (3,163 m/10,377 ft)

If you want to see [official met data](#) - click on this link.

What should I wear?

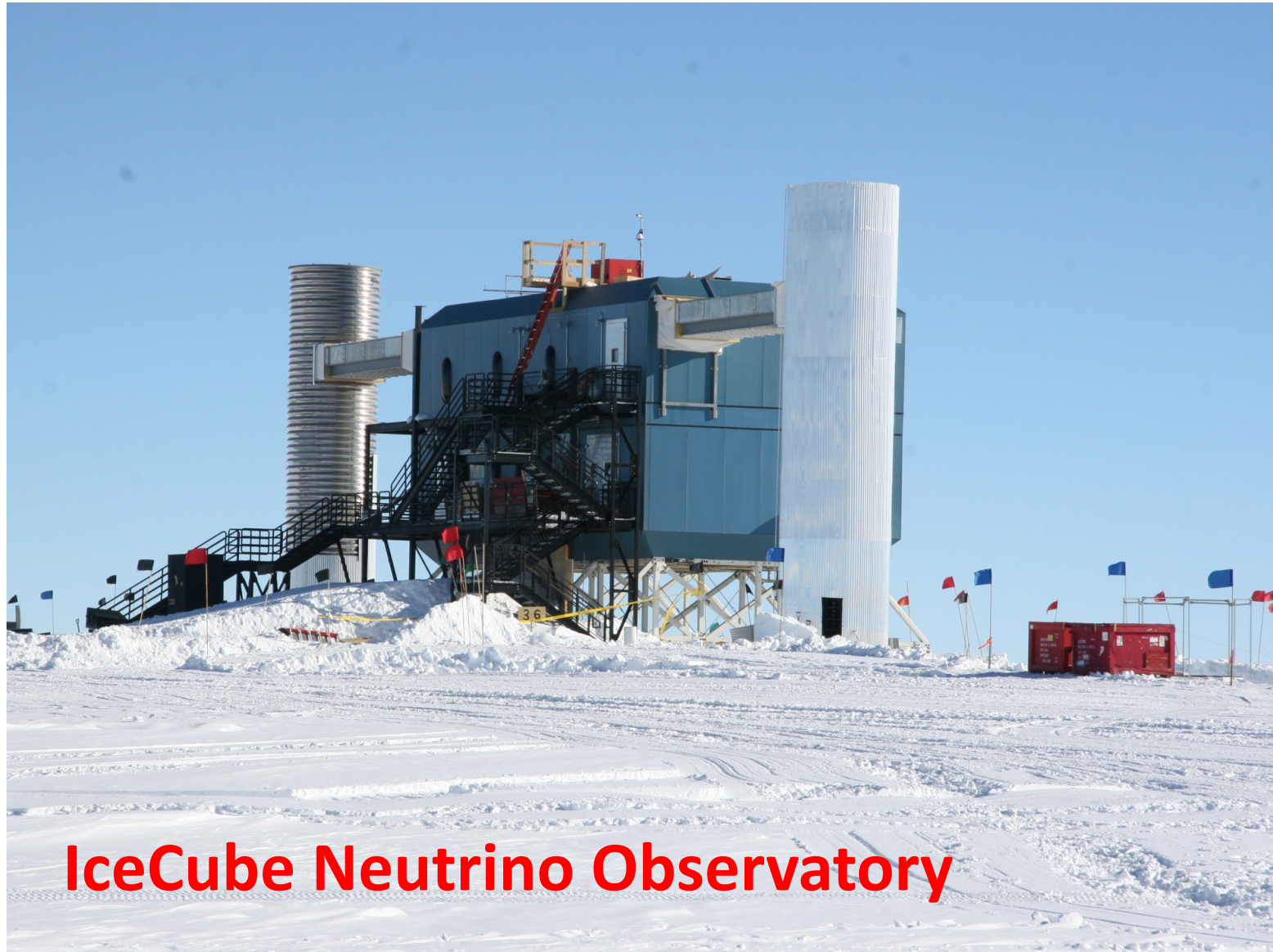




What should I wear?



Our Job



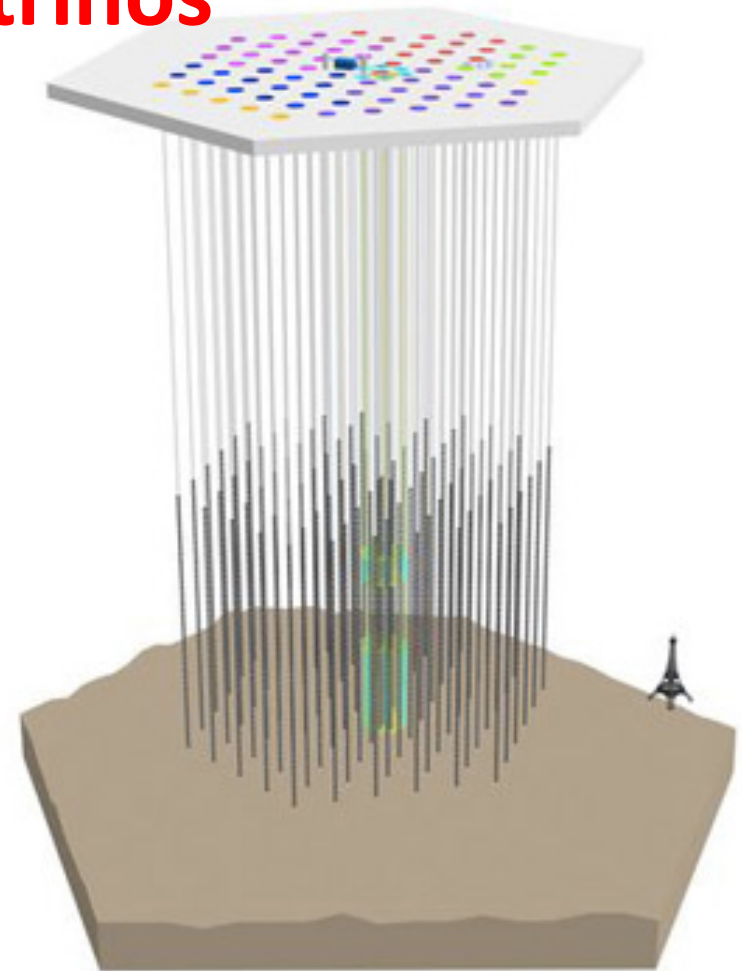
IceCube Neutrino Observatory

Neutrinos



1 billion neutrinos are passing through you every second!

A big telescope looking for neutrinos

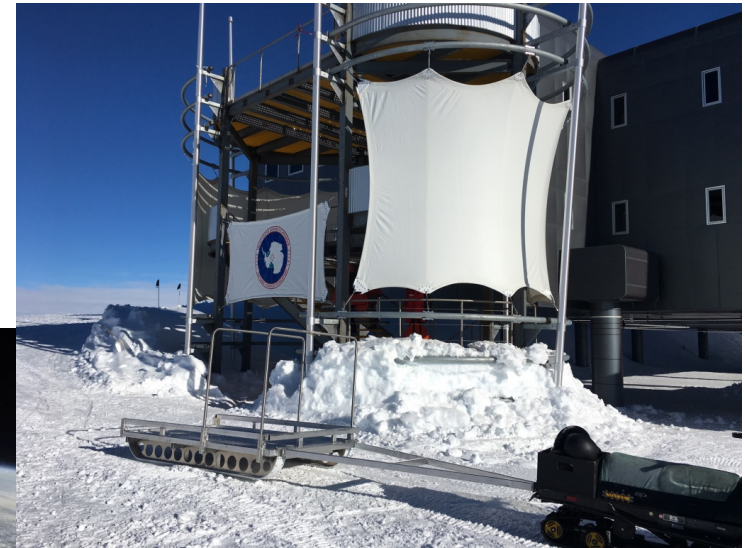


Why the South Pole?

Clear, pure ice...and lots of it!

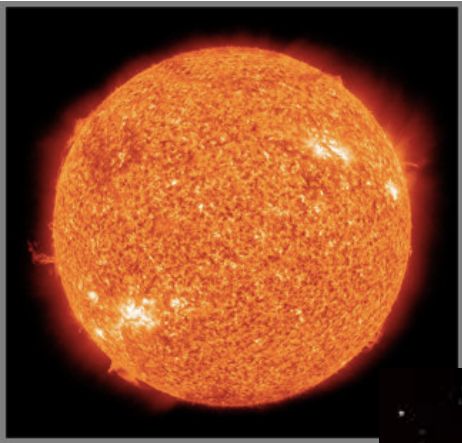


Eat, sleep, get warm

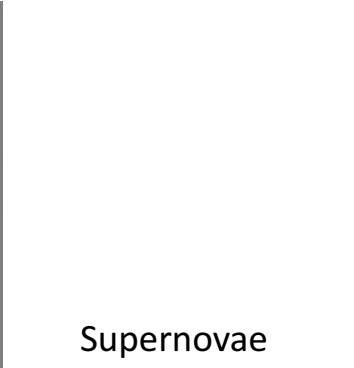


Helps shield from natural radiation at Earth's surface

Why do we care about neutrinos?



Stars



Supernovae



AGN



Black Holes

CHASING THE GHOST PARTICLE

FROM THE SOUTH POLE TO THE EDGE OF THE UNIVERSE

mpm

WIPAC
WISCONSIN

Questions?



IceCube Collaboration

- ~300 physicists
- MANY undergrads, Master's, PhD, and post-doc students
- 48 institutions
- 12 countries
- About a dozen are lucky enough to go to the South Pole each year



Remote Location

- ~1000 miles between South Pole & McMurdo
- -20F, wind chill -40F
- 9300 ft elevation
- Sun's always up
- Only about 1 month (sometimes less) to accomplish what needs to get done

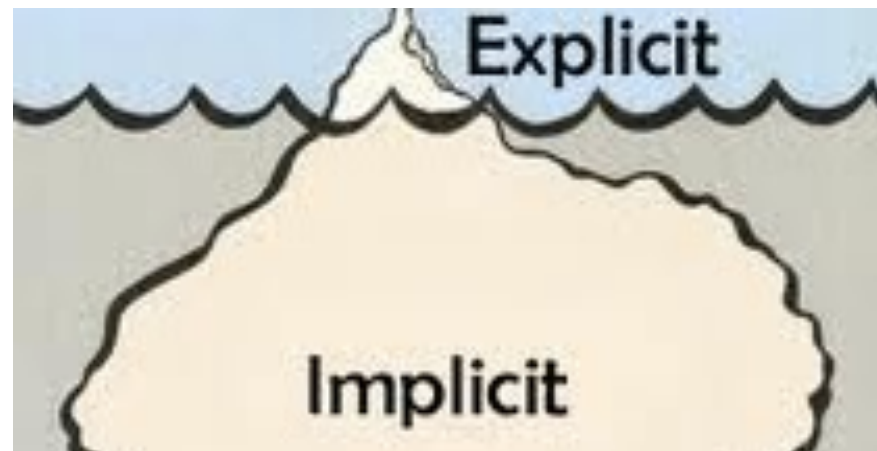
Effective collaboration and communication are key!
Leadership

Explicit Leadership

- Sets goals for the team
- Assigns tasks to team members
- Makes big-picture decisions
- Likely one or two "head" people that were appointed

Implicit Leadership

- Asks clarifying questions
- Breaks tasks down
- Makes smaller decisions
- Is prepared to step up in the case of an emergency
- Everyone!

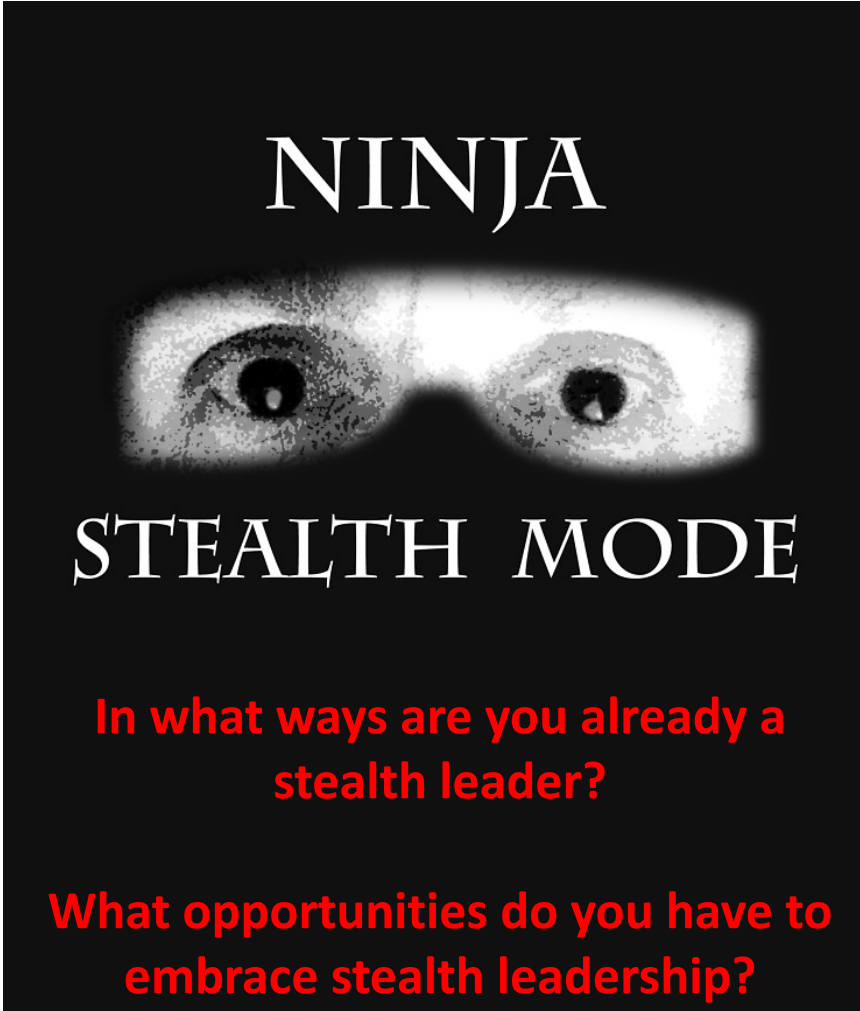


Stealth Leadership

Set your ego aside.
What's best for the group?

How can I contribute?
Big, small or not at all.

What decisions needs to be
made to push us forward?



NINJA

STEALTH MODE

**In what ways are you already a
stealth leader?**

**What opportunities do you have to
embrace stealth leadership?**

The central graphic features a black background with the word 'NINJA' in a white serif font at the top. Below it is a close-up of a person's eyes, looking forward, with a slight shadow over the bridge of the nose. Underneath the eyes, the words 'STEALTH MODE' are written in a white serif font. At the bottom of the graphic, two questions are posed in a bold red sans-serif font.

What strengths do
I bring to this group?

Do we really understand the task?
Let's clarify.

Can I help by encouraging others?

Stealth Leadership - Example

- McMurdo
- Moving 20 tons of lead (600lbs per detector)
- 2 weeks to accomplish this
- Doing things I don't want to do (cleaning!)
- Working with others to break the task down
- Sometimes stepping back is leadership!
- Encouraging others



Questions?

**Reflections:
Ethos, Pathos, Logos & Critical Thinking**



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