The Life of an IceCube Winter-Over at the South Pole

Virtual Seminar on Multi-Messenger Astronomy
July 13, 2021
Dr. Martin Wolf
Traveling to South Pole

- Started in Munich on September 22\textsuperscript{nd}
- Arrived at South Pole on November 24\textsuperscript{th} 2020
- Usually two weeks, but due to COVID-19 two months this year!
- 2 weeks each of quarantine in San Francisco and Christchurch
- One month stay in McMurdo due to bad weather at South Pole
The Clothing Distribution Center (CDC) in Christchurch

- Issuing of ECW (Extremely Cold Weather) gear
- Most important items:
  "Big Red" Canada Goose jacket, Carhartt overall, and white Bunny Boots

Last chance to see trees and flowers for the next year!
McMurdo Station

CHC → McMurdo: C17 Transport Airplane

South Pole

3h flight

McMurdo on Ross Island
McMurdo Station

CHC → McMurdo: C17 Transport Airplane
From McMurdo to South Pole

Transantarctic Mountains

Glacier in the Transantarctic Mountains

Basler Airplane from Ken Borek Air
South Pole Sectors

• Dark Sector
  • IceCube Laboratory (ICL)
  • South Pole Telescope (SPT)
  • Background Imaging of Cosmic Extragalactic Polarization (BICEP)

• Clean Air Sector
  • Atmospheric Research Observatory (ARO) run by NOAA

• Quiet Sector
  • Seismological detectors
The Station

- 9300 ft (2830 m) elevation
- 65,000 ft² (6040 m²)
- 39 people this winter (2020/21)
- 450,000 gallons (1.7M l) of fuel
Inside the Station

- 2 levels, 2 pods (A & B), 4 wings
- Science Lab
- Offices
- Galley
- Gym
- Sauna
- Library
- Craft Room
- Store
- Greenhouse
- Berthing
More of the Station
The Greenhouse
Holidays
Weather
Fun Activities
End of Summer
Sunset
Twilight
Aurora Australis
The IceCube Laboratory (ICL)

- 1.5km from station
- Contains ~140 servers for data taking of 86 IceCube strings, 5409 DOMs
- Cargo & Lab area on 1st floor
- Control & server room on 2nd floor
- Controlling mainly from station via direct fiber cable connection
The IceCube B2 Station Laboratory

- Located in B-Pod 2\textsuperscript{nd} floor
- Workstations for controlling the detector as at ICL
The work of an IceCube Winter-Over

- Keeping the detector alive and data taking 24/7, up-time about >99.9%
- Calibration runs, general maintenance like hardware replacement
- Documentation
- Lots of snow shoveling
- Outreach events
- Staying rested in case of an emergency
Thank You!

Questions?