

Headquarters U.S. Air Force

Integrity - Service - Excellence

U.S. Air Force Antarctica Concerns



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Overview

- **Joint Task Force Support Force Antarctica (JTF-SFA)
Mission Overview**
- **Weather Operations Challenges**
- **Way Ahead**



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Joint Task Force Support Force Antarctica (JTF-SFA) Mission Overview

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Weather Operations Support

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■ Aviation Support

- Fixed Wing (C-17s, LC-130s)
- Rotary Wing (Helo/Bell-212, A-Stars)



■ Installation Resource Protection

- McMurdo Station, South Pole Station
- Field Camps
- LC-130 Landing Sites: Shackleton Glacier (SHG), WAIS Divide, South Pole Station, Siple Dome
- Scientific Research Camps



■ Vessel Operations Support

- Coastguard Cutter: Polar Star Ice Breaker
- Container Vessel
- Tanker Vessel
- NSF Research Ships

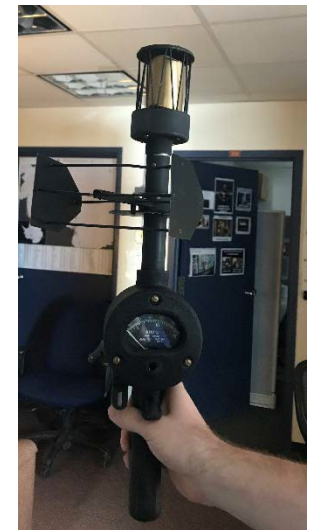




JTF-SFA Weather Equipment

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- **FMQ-19 (SOPP)**
 - Williams/Phoenix/S. Pole (x2)
- **PMQ-3 (SOPP)**
 - Williams/Phoenix/MACWX/Balloon Inflation Facility (BIF) + 7 spare
- **Campbell Automated Wx Station**
 - 13 total
 - Herbie Alley N, N. Crevasse, Cape Royds, Biesiada Crevasse, White Island S, Williams Whiteout, Cape Spencer, Ford Rock, Tent Island, Erebus Cones, Jules, Butter-Point-Ferrar
 - 3 sensors have attached webcams: Cape Spencer, N. Crevasse, Cape Royds
 - No ceilings/visibility
- **Vaisala Upper Air System: Weather Balloon and Radio Sonde**
 - MAC/S. Pole
- **Kestrel 4500**
- **Polar Portable Meteorology Kit (PPMK) (8)**
 - @ LC-130 Field Camps + @ Hut Point during Ship Ops
 - Sensors without ceilings/visibility
 - Visibility of data currently limited to SOPP forecasters/observers only*
- **R2FX (Satellite receivers- pull data directly off of METSAT) @ Pole**
- **ASI BB1 Barograph**
- **Ceiling-recording balloons @ Pole and LC-130 Outstations**
- **Campbell Stokes Sunlight Recorder @ Pole**
- **Aero2/LIKA Handheld ceilometer (Pulse laser range finder) @ WAIS**





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Weather Operations Challenges

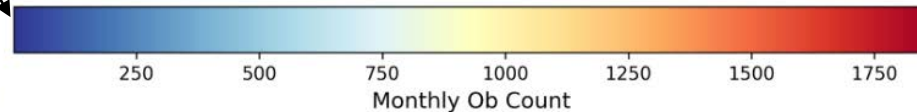
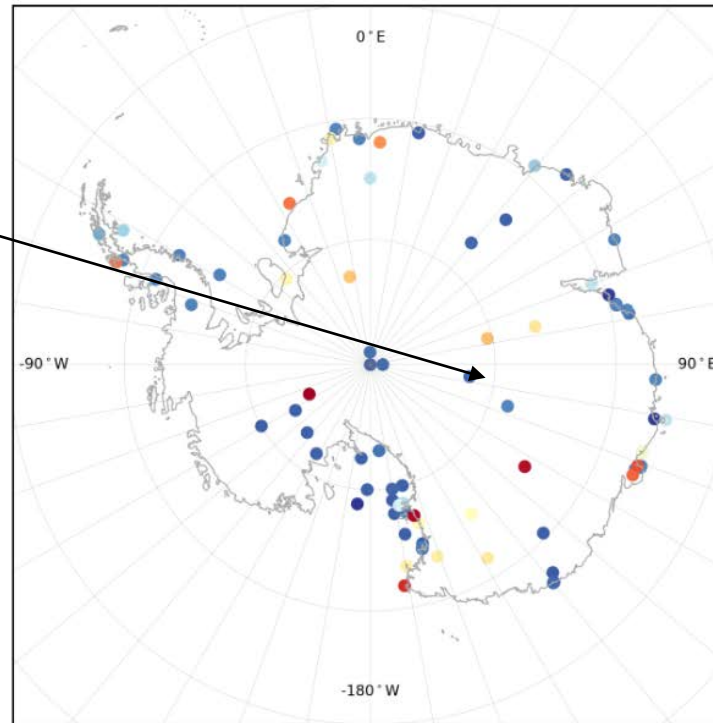


Limited Weather Observation Network

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Limited Observation Network

- Inconsistent Frequency
- Limited Coverage
- Only 3/88 Sensor Locations are Aviation Quality (Cig/Vis) & Cover Small % of Continent



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Weather Operations Challenges

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- Aircrew & weather forecasters are more risk averse in harsh climate
- Wide spectrum of meteorological support w/ limited personnel
- Limited real-time aviation quality weather observations coupled w/ limited modeling capabilities makes forecasting difficult at best
- Bandwidth limitations restrict data access
- Communications degradation severely impacts timely weather observation dissemination (Observing System to ATC)



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Way Ahead

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Recommended Actions

- Increase aviation hazards coverage/products between New Zealand & McMurdo from the 17th Operational Weather Squadron (OWS)
- Increase dialogue with National Center Atmospheric Research (NCAR) to improve Antarctic Mesoscale Prediction System (AMPS) model forecasts
- Ensure proper citing of automated weather observing system (FMQ-19) at Williams Airfield, Phoenix Ice Runway, and South Pole
- Ensure weather observers have appropriate 360° view of runways
- Ensure weather forecasters are prioritized for the most reliable comm
- Increase sharing of data (Observations, RAOBs, etc)
- Deployment of AF Weather Forecaster to Christchurch
- National Guard Bureau fund AFW Meteorologist w/ in 109th AW
- Prioritize upgrade of surface weather observing sensors to “full auto”, hereby adding ceiling/visibility reporting capabilities



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Questions



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HQ/USAF Directorate of Weather AF/A3W

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