

# Future Plans: 2011-2012 Field Season

## Antarctic Automatic Weather Station

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Antarctic Automatic Weather Station Program

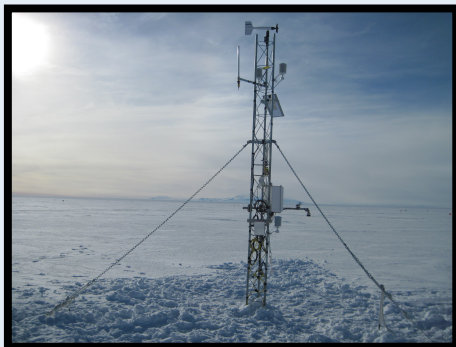
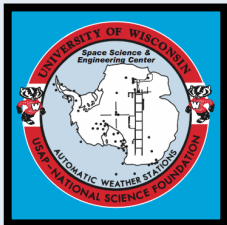
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<sup>2</sup> Department of Atmospheric and Oceanic Sciences

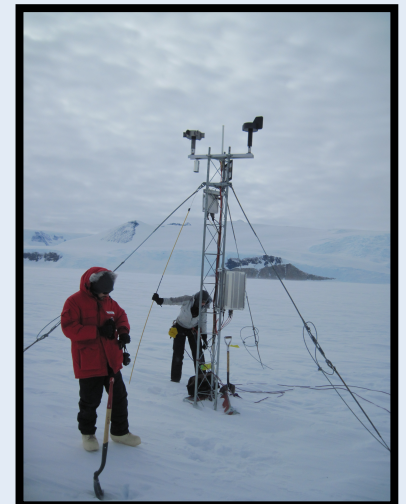
University of Wisconsin-Madison

<sup>3</sup> Department of Atmospheric and Oceanic Sciences

University of Colorado at Boulder

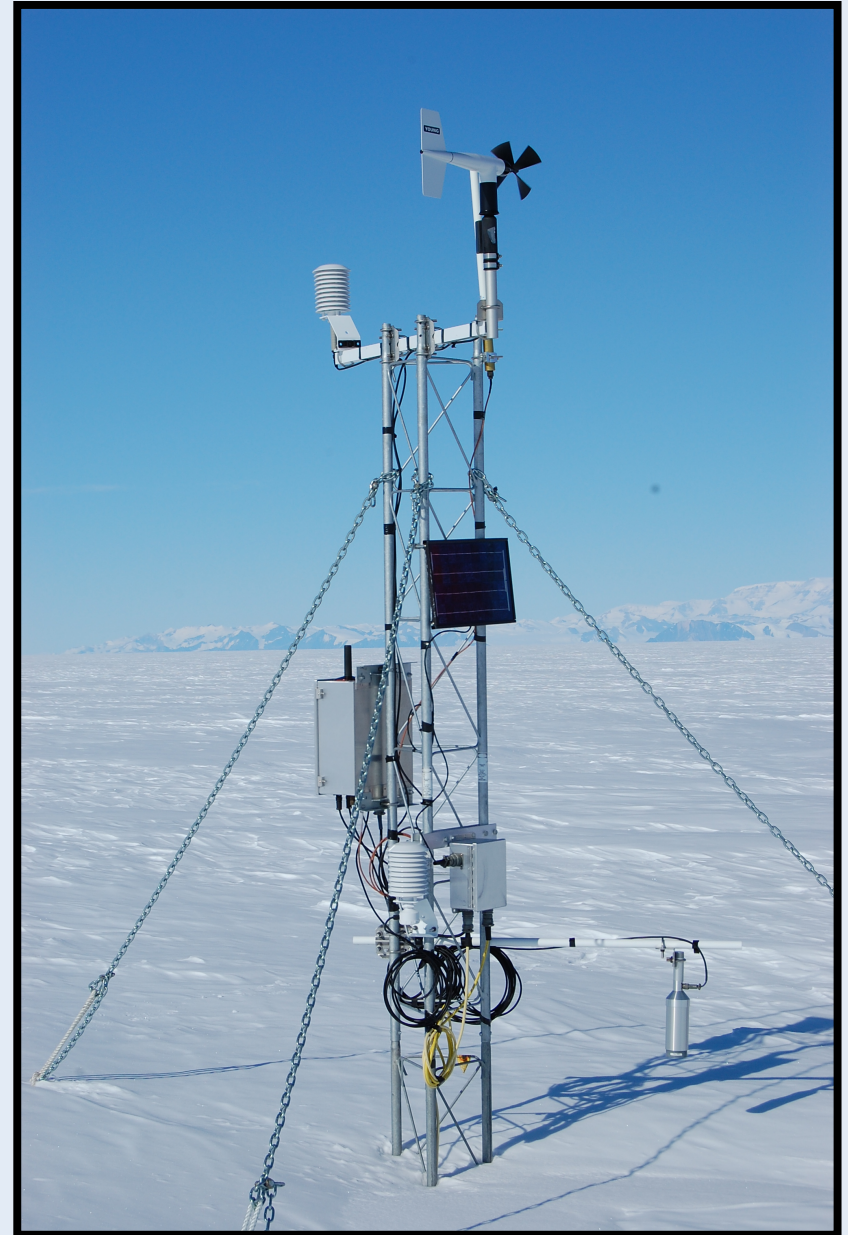


Colorado  
University of Colorado at Boulder



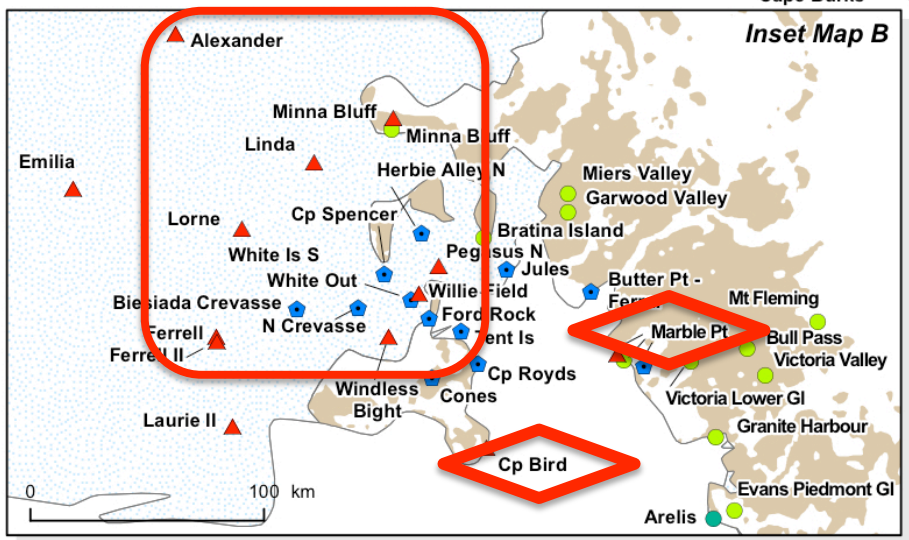
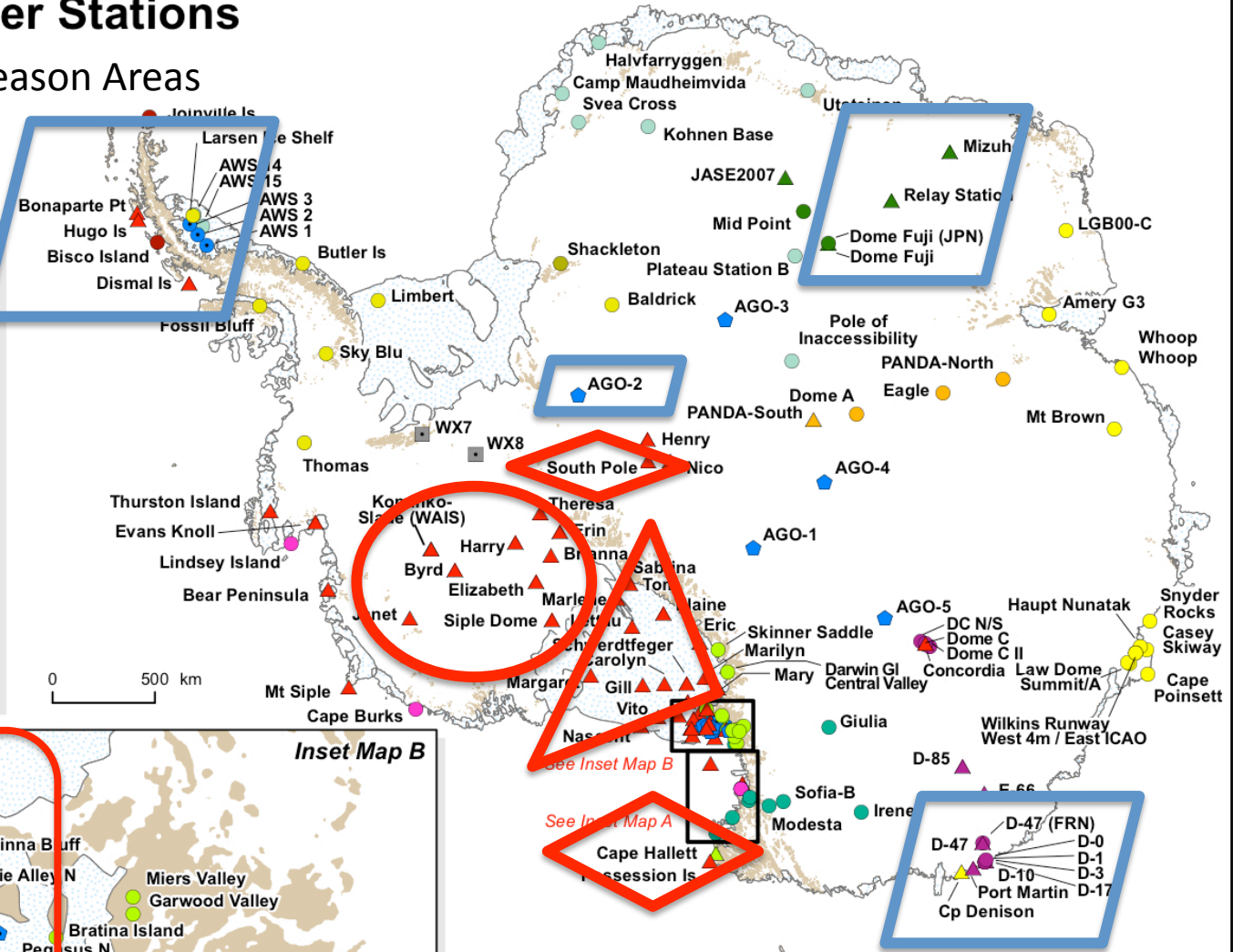
# Outline

- Field Work Plans
  - Wisconsin/Colorado AWS Team
  - AWS Collaborators
  - New Collaborations
- Sunset AWS
- Issues
- Community Input



# Automatic Weather Stations

## 2011-2012 Field Season Areas



- | United States AWS         |                   | International AWS |  |
|---------------------------|-------------------|-------------------|--|
| ▲ Univ. of Wisconsin (UW) | ● Australia       | ● South Korea     |  |
| ▲ UW / Australia          | ● Brazil          | ● United Kingdom  |  |
| ▲ UW / China              | ● China/Australia |                   |  |
| ▲ UW / France             | ● France          |                   |  |
| ▲ UW / Japan              | ● Italy           |                   |  |
| ▲ UW / New Zealand        | ● Japan           |                   |  |
| ● AGO                     | ● Netherlands     |                   |  |
| ● SPAWAR                  | ● New Zealand     |                   |  |
| ● Other US                | ● Russia          |                   |  |
|                           |                   | <u>Other AWS</u>  |  |
|                           |                   | ■ Commercial      |  |

Coastline: ADD v4.1, 2003  
 2011\_AWS\_Sites\_ALL  
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# Wisconsin/Colorado Field Work...

- Ross Ice Shelf
  - Carolyn
    - Off air – Replace with AWS 2B
  - Eric
    - Replace with AWS 2B
  - Vito
    - Replace with AWS 2B
  - Tall Tower! Alexander
    - Inspection
  - Margaret
    - Reprogram & Inspection
  - Tom
    - Off air
- Cape Hallett
  - Remove 2 AWS
    - New Zealand
    - LTER ?
  - Install 1 AWS
- (Remove South Pole Radiation Test Facility)
- West Antarctica
  - Inspection:
    - Byrd AWS
    - Janet AWS
  - Siple Dome AWS
    - New electronics/move?
  - Kominko-Slade (WAIS) AWS
  - Harry
    - Replace with AWS 2B ?
  - I-157 (to be renamed)
    - New install
    - Unlike to be done this season
- McMurdo Area
  - Move to Freewave from Argos
    - Linda or Lorne
    - Marble Point ?
    - Cape Bird ?
- Peninsula (by USAP RPSC staff)
  - Bonaparte Point (Off Air - Batteries)
  - Hugo Island

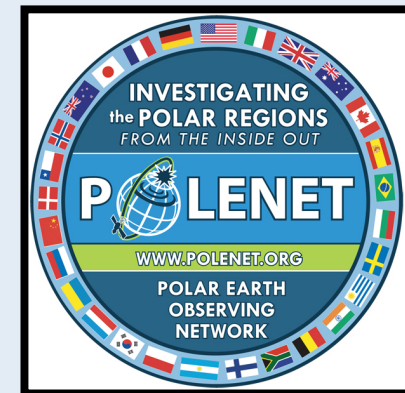


# AWS Collaborators...

- Australia (Mawson's Hut Foundation)
  - Cape Denison (Off air)
- China
  - PANDA South (new batteries)
- France
  - Port Martin ? (Not installed at this time)
  - Dome C II replacement next field season...
- Italy?
  - Manuela (Needs high wind speed AWS system)
- Japan
  - Reprogram Dome Fuji AWS & Relay Station AWS
- New Zealand
  - Cape Hallett AWS switch to Wisconsin
- United Kingdom (British Antarctic Survey)
  - Dismal Island – Now a shared AWS

# New Collaborations...

- POLENET AWS
  - Working with PASSCAL and UNAVCO to provide a weather station component with their installations
  - Test at Observatory Hill, McMurdo Station
  - More sites in the future?
- AGO/ARRO AWS
  - AGO-1 or AGO-2
  - More sites in the future?
- Ozone AWS
  - 4 in McMurdo Area
    - Marble Point AWS
    - Cape Byrd AWS
    - Lorne AWS
    - Minna Bluff





# Sunset AWS

## Removals

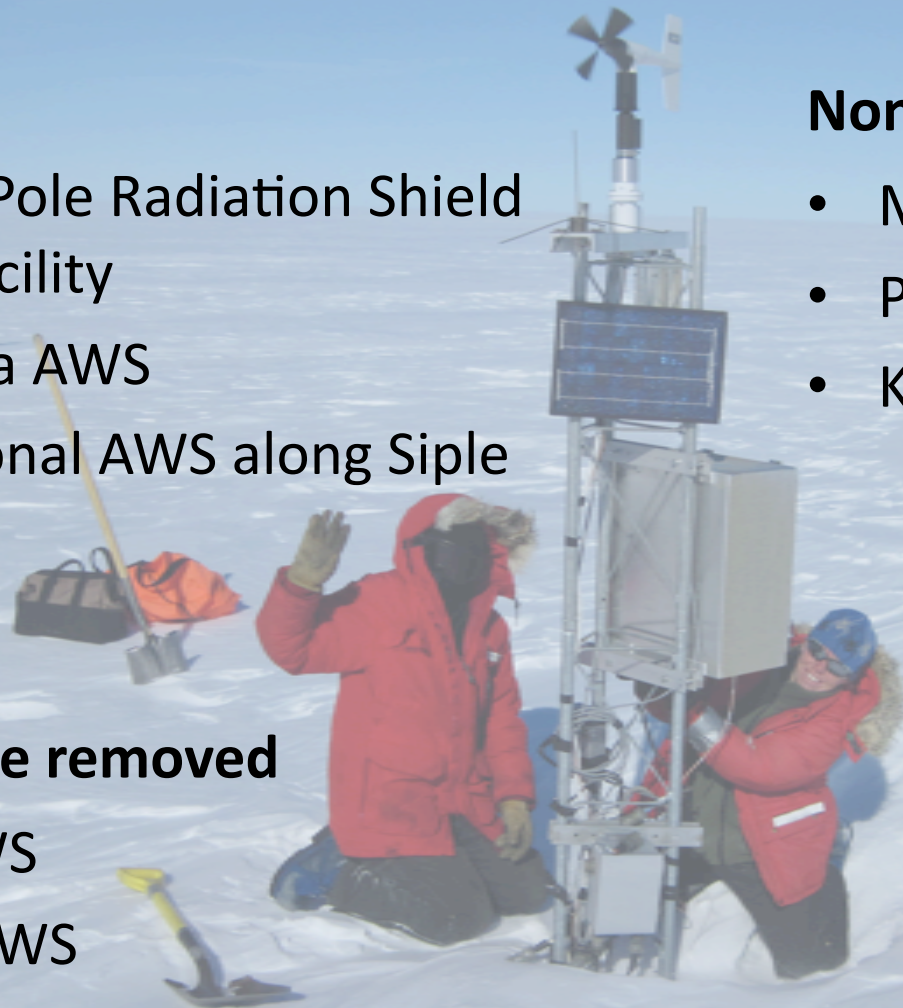
- South Pole Radiation Shield Test Facility
- Brianna AWS
- Additional AWS along Siple Coast?

## Non-replacement/no visit

- Mt. Siple AWS
- Possession Island AWS
- Kirkwood Island AWS

## Will NOT be removed

- Nico AWS
- Henry AWS



# Equipment/Instrumentation

- Transitioning to Campbell Scientific CR1000 datalogger systems
  - Continue to use Wisconsin AWS 2B
- Side-by-side testing of CR1000 based system and old UW AWS system at Ferrell site (occupied since 1980)
- Some new (for us) instrumentation testing
  - Transition to Freewave in McMurdo area
  - Radiation sensors
  - On station data recording
  - Aspirated radiation shields on some future stations
    - See Christophe's talk for more...



# Issues

- Takes a long time to transition our network
  - Visit 1/3 of the network a year...some sites are visited once per decade
- Is the Campbell system the best choice?
  - These are systems built for many different types of data acquisition (Commercial-Off-The-Shelf)
  - We are a relatively small customer of Campbell hardware
    - We do not have any say in development
    - Have limited knowledge of datalogger update cycle and how it will affect us
  - Potentially operating outside CSI's temperature specs in some locations
    - Chamber tested CR1000 to -65C measuring a precision resistor, PRT, and HMP155 (Christophe ran a test to -70 C ?)
    - CR1000 operated during the entire test
- FISMA compliance issues
- Observing strategy different from Wisconsin AWS 2B vs AWS CR1000
- Instrumentation has been consistent:
  - Vaisala humidity sensors
  - R. M. Young wind sensors
  - Platinum resistance thermometers
  - Paroscientific pressure gauges

# Additional Issues...

- AWS equipment costs increasing
  - Adding sensors adds costs too...
- No more island AWS?
  - Will keep up with Franklin Island (Whitlock AWS)
  - Peninsula Island AWS ...
  - Peter I AWS site targeted, but unlikely....
    - No “ship” of opportunity 2011-2012
- End of Argos sharing between UW and BAS...
  - Affects:
    - Larsen Ice Shelf AWS
    - Fossil Bluff AWS
    - Sky Blu AWS
    - Limbert AWS
    - Baldrick AWS
- Unable to reach some sites we want to keep:
  - JASE2007



# Community Input...

- United States Antarctic Program Input:
  - McMurdo Area Users Committee
  - Palmer Area Users Committee
- AMOMFW attendees input:

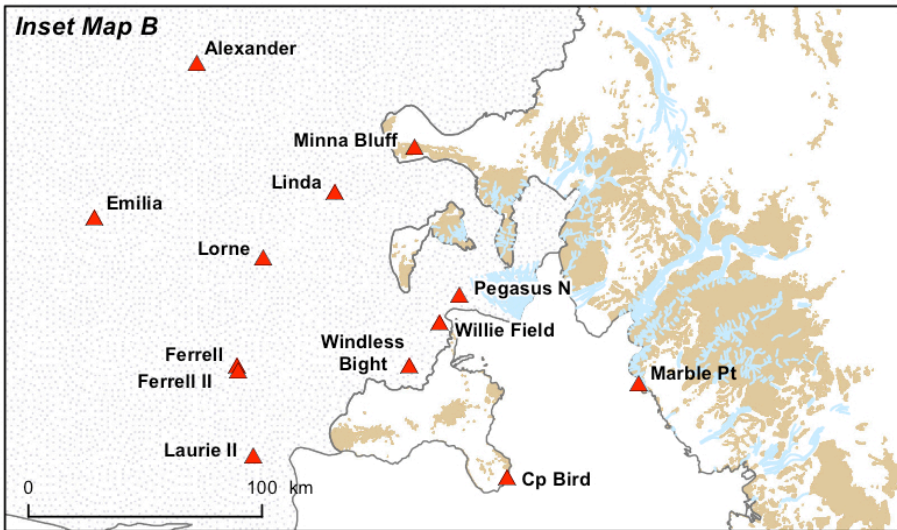
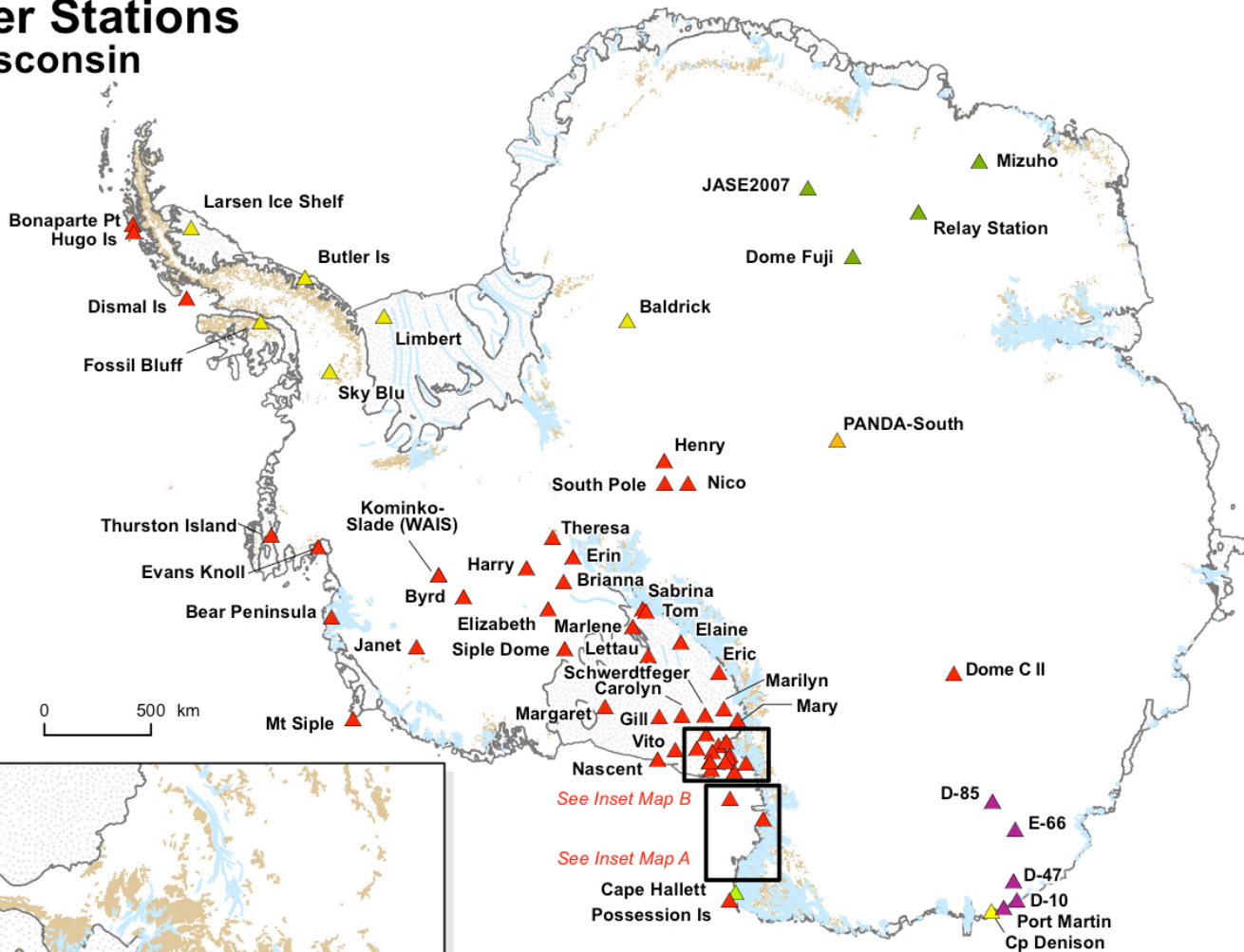
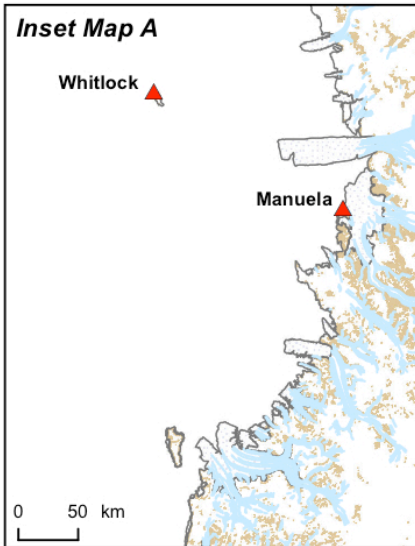
- *Locations?*
- *Sensors/Meteorological Variables?*
- *Data offerings?*
- *Other needs?*



# Automatic Weather Stations

## University of Wisconsin

### 2011



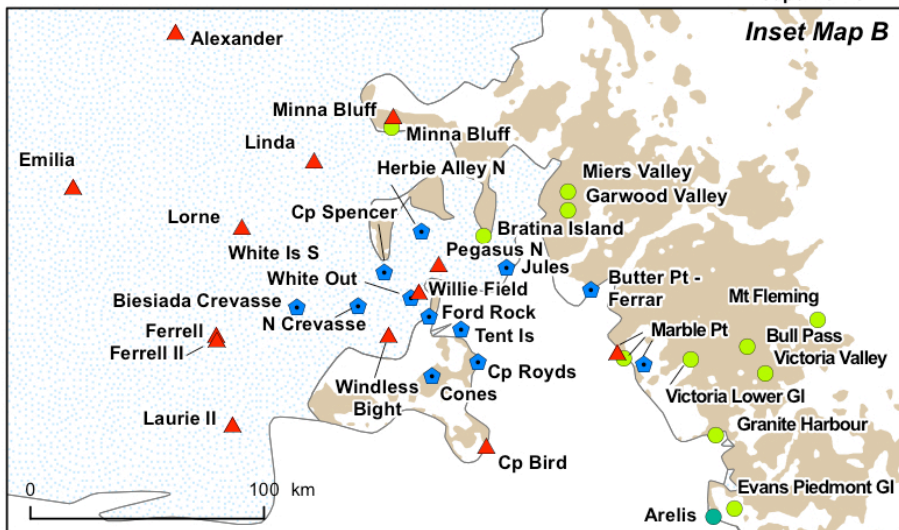
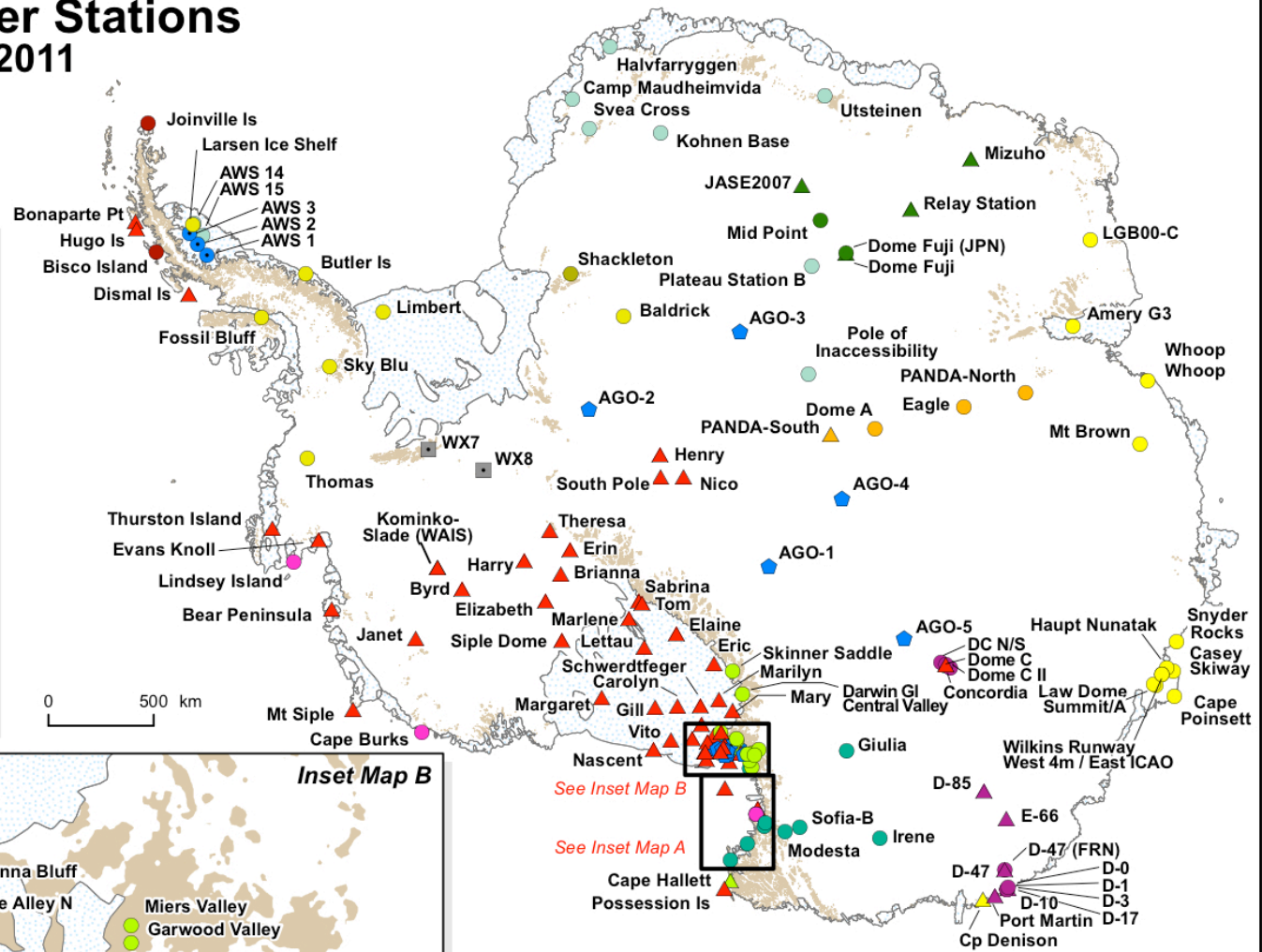
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- ▲ UW / Australia
- ▲ UW / China
- ▲ UW / France
- ▲ UW / Japan
- ▲ UW / New Zealand
- ▲ UW / United Kingdom

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# Automatic Weather Stations Antarctica - 2011



### United States AWS

- ▲ Univ. of Wisconsin (UW)
- ▲ UW / Australia
- ▲ UW / China
- ▲ UW / France
- ▲ UW / Japan
- ▲ UW / New Zealand
- ▲ AGO
- ▲ SPAWAR
- Other US

### International AWS

- Australia
- Brazil
- China/Australia
- France
- Italy
- Japan
- Netherlands
- New Zealand
- Russia

- South Korea
- United Kingdom

### Other AWS

- Commercial

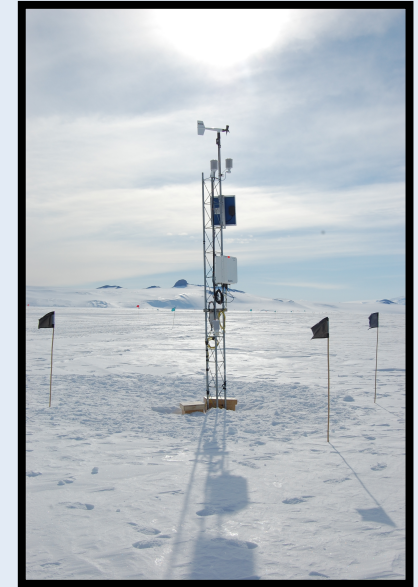
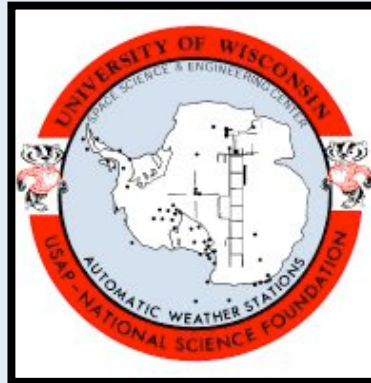
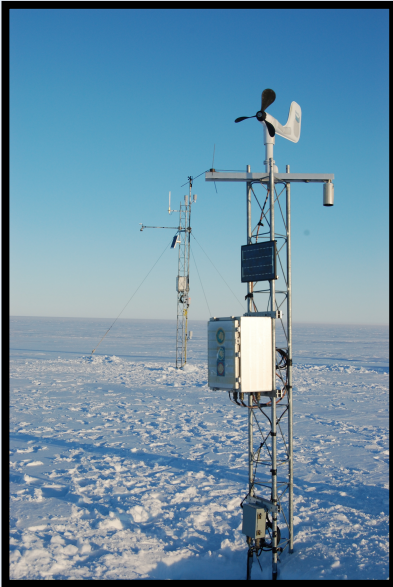
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Thank you!

<http://amrc.ssec.wisc.edu>

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*AWS Photos by Melissa Nigro, Jonathan Thom, and Lee Welhouse*