

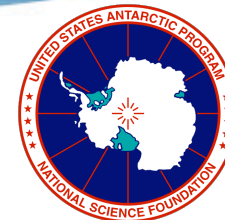
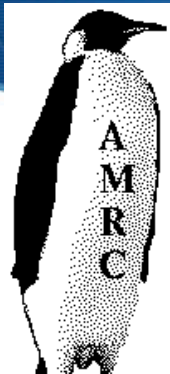
ANTARCTIC METEOROLOGICAL CYBER-INFRASTRUCTURE SUSTAINABILITY

Matthew A. Lazzara^{*1,3}, Carol A. Costanza¹, Steven Fons¹
& Linda M. Keller^{1,2}

¹Antarctic Meteorological Research Center, Space Science and Engineering Center

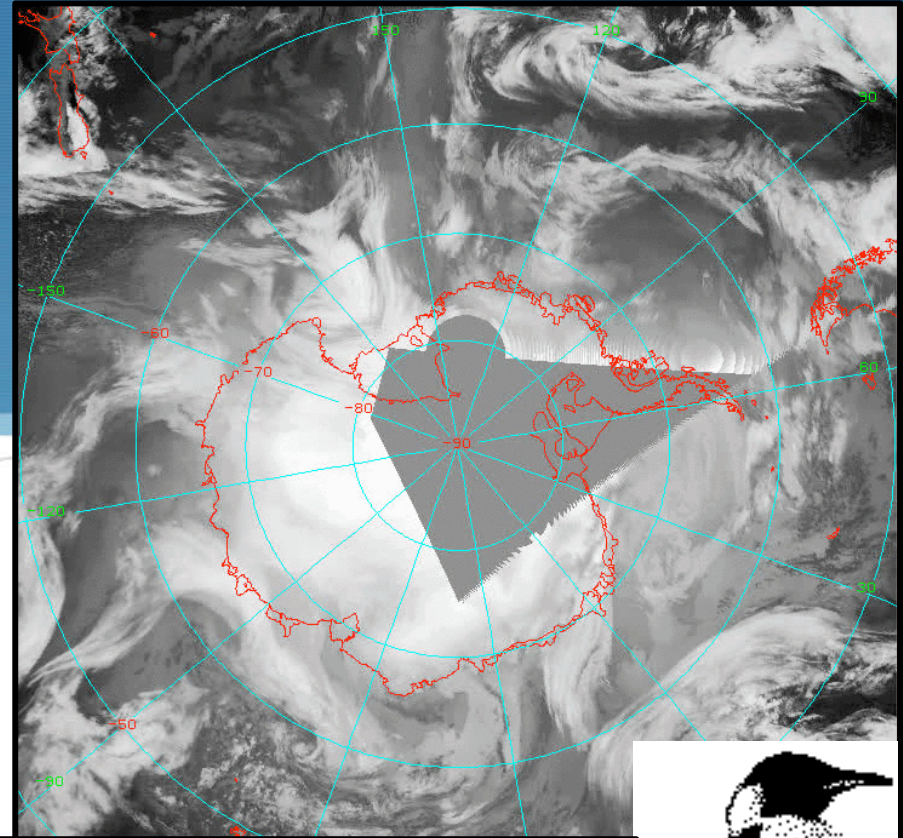
²Department of Atmospheric and Oceanic Sciences
University of Wisconsin-Madison, Madison, WI

³Department of Physical Sciences, School of Arts and Sciences,
Madison Area Technical College, Madison, WI



Outline

- 🟢 Overview of Status
- 🟢 Sustainability Effort
 - 🟢 Task Force
 - 🟢 AMRC Operations
 - 🟢 LDM/Antarctic-IDD
 - 🟢 Community Requests
- 🟢 Real-time Operations
- 🟢 Questions



Space Science & Engineering Center, UW-Madison

AMRC & AWS

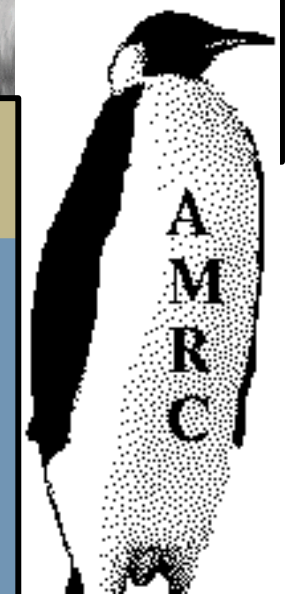
HOME ABOUT US DATA & IMAGERY AWS NETWORK RESEARCH NEWS PUBLICATIONS ON THE ICE BLOG
MEETINGS ARCTIC PROJECT RELATED LINKS CONTACT US DISCLAIMER ACKNOWLEDGMENTS PEOPLE OUTREACH

Data & Imagery

See also:

- [AMRC's RAMADDA Meteorological Archive Data Server - Upgrade and Update in progress...](#)
- [AMRC/AWS FTP Data Server](#)
- [AWS Network](#)

<p>Antarctic Surface Observations (Current surface weather conditions in the Antarctic, including from the AWS network)</p>	<p>Satellite Imagery and Composites (Current Satellite imagery from polar orbiting satellites and satellite composites)</p>	<p>Upper-Air Observations (Current Meteorological observations from weather balloons)</p>
<p>Models and Forecasts (Model forecast guidance for the Antarctic region)</p>	<p>Data Fusion (Overlays & combinations)</p>	<p>Aircraft Observations (Current meteorological aircraft reports)</p>



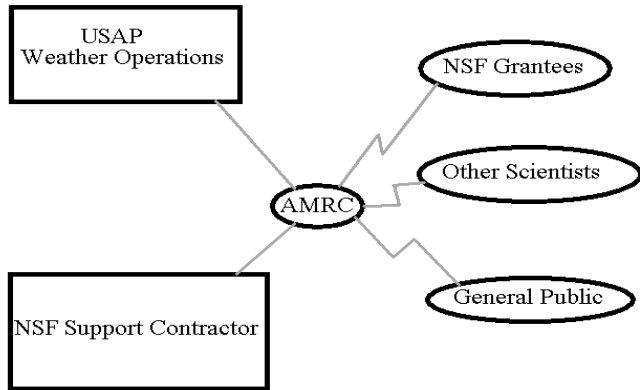
AMRC Status Report



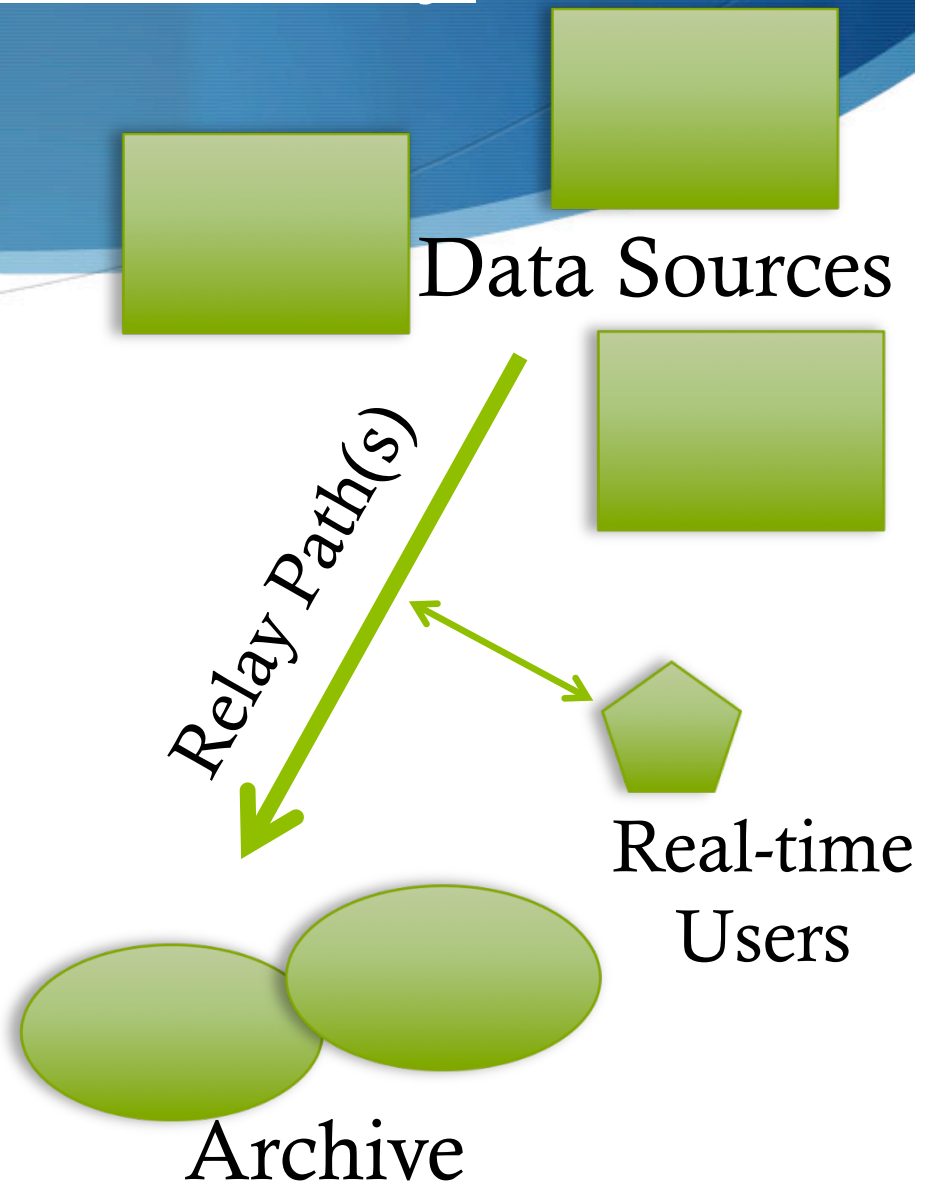
- ◆ Where we left off...
- ◆ Summer 2014
 - ◆ The end is near...
 - ◆ AMRC as a grant is ending
 - ◆ The name of the group lives on!
 - ◆ Panic of July 2014
 - ◆ Cyber infrastructure to the rescue!
- ◆ AMRC Supplemental Goals:
 - ◆ Keep ongoing data flow
 - ◆ Converting Composites to netCDF
 - ◆ AWS data to database (online searchable and netCDF)



Sustainability



- Greater good
 - This is bigger than the AMRC
 - It is about the greater data need
 - Collection
 - Distribution
 - Long term archive
- This is a FULL path! It involves:
 - The source(s)
 - Relay method
 - Final archive (with metadata, etc.)
- This is primarily a USAP issue
 - However something for everyone to consider
 - This has to be a sustained activity



- ◆ **Charge**: “to outline the expectations for Antarctic meteorological data needs along with the qualities of the stewardship of that meteorological data.”

- ◆ Where does the repository reside?

- ◆ What level of information security issues need to be addressed that will enable the multi-user USAP community to participate in both roles as data providers and data users?

- ◆ What will the data path(s) be?

- ◆ The task force can address other questions and concerns, as they deem appropriate.

Task Force

Membership

- ◆ David Bromwich

- ◆ Melissa Nigro

- ◆ Kevin Manning

- ◆ Jonathan Pundsack

- ◆ Dan Lubin

- ◆ SPAWAR

- ◆ (Art Cayette ?)

- ◆ ASC/Lockheed Martin

- ◆ (Mike Carmody ?)

AMRC Operations

- ◆ ...Hanging tenaciously:
- ◆ These are datasets to be acquired, archived and provided under a likely cyber infrastructure grant:
 - ◆ Main USAP Station Observations
 - ◆ USAP Field Camp Observations
 - ◆ USAP Research Vessel observations/SIT-REPs
 - ◆ AWS archive observations (as long as the AWS project is funded)
 - ◆ Antarctic satellite composites (if funded by NSF AIL)



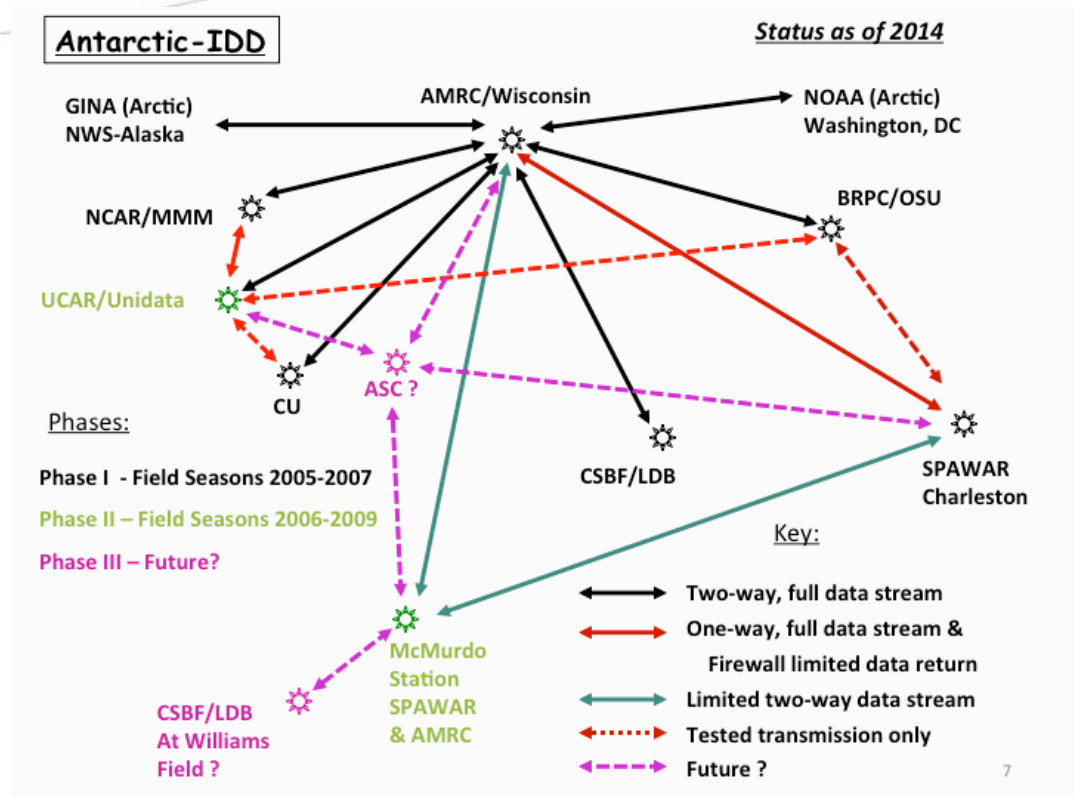
AMRC at SSEC
UW-Madison



AMRC at CSEC
McMurdo Station
Circa 2003

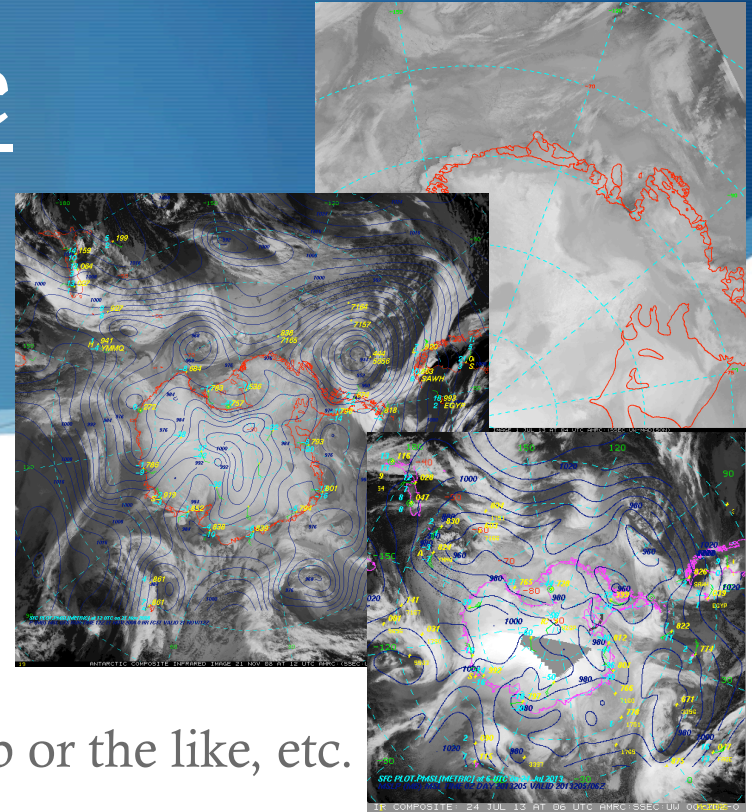
Antarctic-Internet Data Distribution System (LDM)

- ◆ See Andy's (and my) talk*Coming up next!*
- ◆ Consider this:
 - ◆ Increase utilization
 - ◆ International participation
 - ◆ Interface to broader networks:
 - ◆ GTS
 - ◆ WMO Information System
 - ◆ Others?
- ◆ Overall this isn't going away ...*I hope*

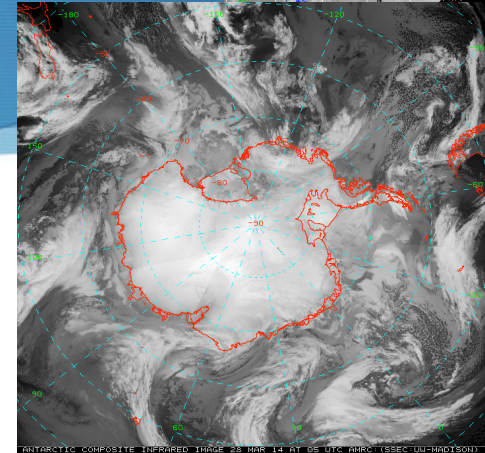
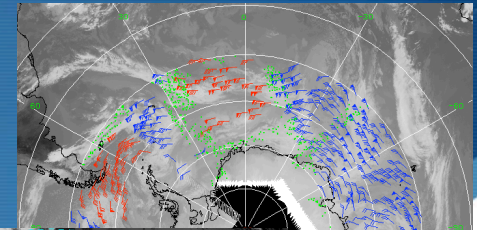


Requests from the community

- ◆ This service has waned over the years
- ◆ Ends August 2015
- ◆ Future requests must include co-authorship or the like, etc.
 - ◆ No funding to support this effort
 - ◆ Failures to acknowledge AMRC/AWS data sets have historically occurred
 - ◆ This impacts value, viability and community interest which was one gauge for funding
- ◆ Requests post August 2015
 - ◆ Unlikely to be accommodated (see above exception)
 - ◆ International requests to be routed to the US NSF for them to evaluate.



Real-time Operations



- Some things are going to end...
- Pending with NSF AIL:
 - Continue Satellite Composites
 - Continue/Improve real time AWS observations
- Sunset on August 31, 2015:
 - Antarctic and southern hemisphere “intersection” collection/archive of the Antarctic data sets via the SSEC Data Center:
 - Point Source observations: synoptic, radiosonde, aircraft, ship/buoy, METAR, etc.
 - Satellite observations: NOAA GAC and LAC, Metop FRAC, etc.
 - Models: GFS, UKMET, WWFM, etc.



Data & Imagery

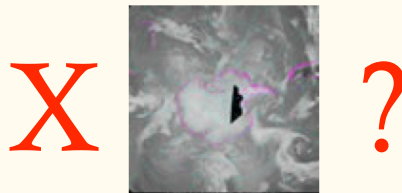
See also:

- [AMRC's RAMADDA Meteorological Archive Data Server - Upgrade and Update in progress...](#)
- [AMRC/AWS FTP Data Server](#)
- [AWS Network](#)



[Antarctic Surface Observations](#)

(Current surface weather conditions in the Antarctic, including from the AWS network)



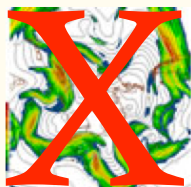
[Satellite Imagery and Composites](#)

(Current Satellite imagery from polar orbiting satellites and satellite composites)



[Upper-Air Observations](#)

(Current Meteorological observations from weather balloons)



[Models and Forecasts](#)

(Model forecast guidance for the Antarctic region)



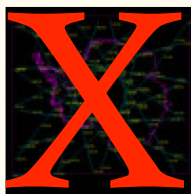
[Data Fusion](#)

(Overlays & combinations)



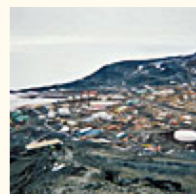
[Aircraft Observations](#)

(Current meteorological aircraft reports)



[Satellite Navigation](#)

(Expected tracks of polar orbiting satellites)



[USAP Stations](#)

(Historical surface observation database)



[Iceberg Images](#)

(Current and past images)

End of Project

Questions? Thank you!! Comments and Input

- Post Script:
 - Outreach!

Comments?

Questions?

Opinions?

Concerns?

Input?

School System	State	STEM Field	Instructor
Deerfield Middle School	Deerfield, Wisconsin	Physical Science	Melissa Frame
Emerson Middle School	Niles, Illinois	Physical Science	Jody Baty
Abraham Lincoln High School	Des Moines, Iowa	Earth Science	Howard Berger
Hastings Middle School	Fairhaven, Massachusetts	Mathematics	Lisa Cadima
King Philip High School	Wrentham, Massachusetts	Mathematics	Neva Brown



- This material is based upon the work supported by the National Science Foundation grant number ANT-1141908.