

Discussion Topic:

Antarctic Observational Meteorological Data



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Outline

Data Progress

- Antarctic-IDD
- Trial Processing of Suomi-NPP at McMurdo Station via CSPP
 - Added to the existing IMAPP processing of Terra and Aqua
 - AMV input to AMPS & other models
- 20 Years of Antarctic Composites
 - Composite AMVs
- 30+ Years of Automatic Weather Stations
 - AMPS HySPLIT Backtrajectories

Data Challenges

- Loss in capabilities
 - Changes already implemented
- Data capability limits
- Future Data Risk
- Additional Data Risks
- Coming soon?: AWS Data Gateway
- Open Discussion...

Antarctic Observational Meteorological Data Progress









Bi-Polar Arctic Composites (NSF→NOAA)

Antarctic Satellite Composite Imagery: 20 Years of Polar Observations









Next Generation System Architecture

Server: Dell PowerEdge R720 CPU: Intel Xeon 2 x 3.3 Ghz, 10 M Cache Cores: 16 Total RAM: 12 x 8GB = 96GB Total





Composite Atmospheric Motion Vectors AMV

LEO/GEO AMVS GOES-R Risk Reduction Project NOAA



AWS Data Relay

Data Collection Service (DCS) AWS Project 30+ year user!





McMurdo Station Direct Broadcast Reception Data Flow...



AMPS driven HySPLIT "Forecast" back trajectories

D3 Grid – ending at McMurdo

D2 Grid – ending at Lorne AWS



Antarctic Observational Meteorological Data Challenges

Loss Capabilties: Changes Already Implemented

- AMRC No longer supports Web Site or FTP site at McMurdo Station (per NSF request due and/or per FISMA/DoHS rules)
 - Antarctic-IDD/LDM & ADDE service only
- No longer offers a copy of AMRC archive holdings in McMurdo
- Reducing support for manual data requests and custom meteorological displays
 - Collaborations with joint outcome will always be considered
 - Time delays to user requests, fixing errors in real-time dataset, data displays on the web, etc.
- No longer able to work with DMSP data
 - AMRC no longer a member of McIDAS User Group (MUG)
 - First time in 20 years!

Data Capability Limits

- AMRC Satellite Data Ingest (SSEC Desktop Ingestors (SDI)):
 - Not able to get decode AWS observations from all satellite platforms in real-time:
 - NOAA-19, Metop-A, Metop-B, and beyond
 - No means to get SARAL in the USAP at all...
 - SDI systems are sunset and no longer supported by MUG
 - No funding for replacement, the SDI-104
 - Costly & same AWS decode issues
- Other AWS data issues
 - Not **yet** offering Freewave Modem AWS in real-time merged with Argos AWS data (This summer or fall?)
 - Need to include other automated weather data (e.g. POLENET)
 - Not always up to date on real-time decoding of other international AWS efforts. (Lagged implementation)
 - Lag in updating CLS America/Service Argos with updates
 - Leading to two sources of non-matching data on the GTS
 - BAS EGRR
 - Argos KLRS

Some of this is capability differences...

Future Data Risks

- The end of AMRC Antarctic composite generation....
 - There is no driving funded science
 - There is funded science to use the historic archive, but does not yet justify the future creation
 - No NOAA customer/user requesting this (yet), so NOAA/ NESDIS does not (yet) have justification to make these
 - It does for the Arctic composites....
- AMRC real-time dataset via web especially at risk in a year or so:
 -and thus no more additions to the archive
 - NOAAport/GTS collected data set
 - Some ship, radiosonde, synoptic, METAR, pilot data for example.
- AWS observations in **real-time only** may go away:
 - No science requirement to have this
 - No funding to maintain decoding Current system only works through NOAA-18

Additional Data Risks...

- Long term archive unclear
 - Flaw in the funding model, no one is funding long-term archive (the "forever" archive)
 - No funding to move it to another archive
 - To meet that archive's standards/criteria/rules
 -If another archive wants it
 - Data will be around per UW-Madison standards
 - 7 years
 - Unclear options, for what is left behind, if it all ends:
 - May or may not be part of the SSEC Data Center collection
 - May or may not be part of the Schwerdtfeger Library
- Additional USAP considerations:
 - McMurdo, Palmer and South Pole Station's weather data
 - US Field camp data weather data
 - Quality control work
 South Pole done

<u>Coming Soon?:</u> AWS Data "Gateway"

- All users required to register to get data...
 - Free registration
 - Allow for version control of the dataset (version 1.0, etc.)
 - Revision and updates can be more explicit
 - Stronger encouragement of acknowledgement/reference
 - Keep pace with best practices
- Possibility: Apply this to all AMRC data?
- Concerns: Will this scare away data users?
- Limitation: Less data services (e.g. no more rsync)?
- Unknown: May help with secondary source issues?
 NCAR, READER, etc...

Open Discussion

- What does the community want to see with regards to observational meteorological data?
 - Data Services
 - Data Centers
 - Internal (National) vs. External (International)
 - Data Types
- How do we communicate this clearly as a community?
 - White paper?
 - Proposal?
 - Other means?
- How does this translate into supporting this effort?
 - Coordinating efforts
 - Funding

Anything else? Anything missing?

Thank you!

Thank you to the National Science Foundation, Division of Polar Programs, Geoscience Directorate, NSF grant numbers ANT-0944018, ANT-1043478, ANT-1141908, and ANT-1245663.