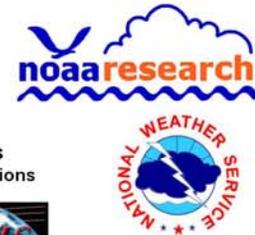




# MADIS – The Meteorological Assimilation Data Ingest System: Improving Operational MADIS



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## Providing Value-Added Observations to the Meteorological Community



### NOAA Mission

NOAA's mission "To understand and predict changes in climate, weather, oceans, and coasts; To share that information with others" increasingly demands advanced data management processes, including data integration, to achieve interoperable, accessible, and readily usable observational data.

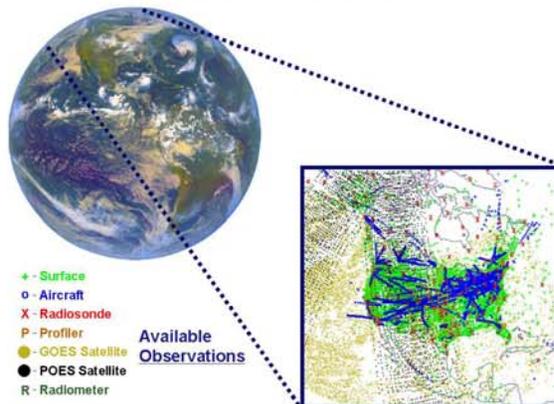
### MADIS Goal

A more usable, complete, accurate, timely, and higher density observational infrastructure for use in local weather warnings and products, numerical weather prediction, and use by the greater meteorological community.

### MADIS Provides

- Access to real-time and archived data sets
- Uniform data formats, observation units, and time stamps
- Observational Quality Control (QC)
- Network-enabled distribution with server-site sub-setting
- Authorization and authentication for proprietary data
- User documentation and help desk support

### MADIS Data Sets

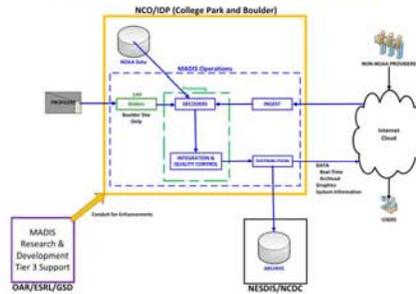


MADIS observations covering North America

### MADIS Data Scope

- 66,127 stations from over 160 surface networks producing nearly 13 million observations per day
- 113 Profiler sites (>200,000 observations per day)
- >700,000 aircraft observations per day
- Plus global radiosonde and satellite observations

### NWS MADIS Operations



MADIS operations hosted by NCO/IDP since January 21, 2015

<https://madis.noaa.gov/>

### The MADIS Team



NWS/OBS, OD, & NCEP  
Operations/Observational System Additions



NESDIS/NCEI  
Archive



OAR/ESRL/GSD

R&D/Tier 3 Support/Conduit to Operations

### Non-NOAA Providers

Observations and Metadata  
[https://madis.noaa.gov/network\\_info.shtml](https://madis.noaa.gov/network_info.shtml)



Surface Snow Profiler  
Non-NOAA Data Sets  
[https://madis.noaa.gov/madis\\_datasets.shtml](https://madis.noaa.gov/madis_datasets.shtml)



Aircraft Radiometer Radiosonde

### MADIS Users Include...

- NOAA Line Offices
- International meteorological centers
- NCAR, NASA, DOE, FAA, DOT
- >200 universities
- Hundreds of private companies
- Public

### MADIS Distribution Services

[https://madis.noaa.gov/user\\_resources.shtml](https://madis.noaa.gov/user_resources.shtml)

#### Graphical:

- Meteorological Surface - <https://madis-data.ncep.noaa.gov/MadisSurface/>
- Aircraft - <http://amdar.noaa.gov/java/>
- Profiler - <https://madis-data.ncep.noaa.gov/cap/>



Meteorological Surface Temperatures

- Application interface: [https://madis.noaa.gov/madis\\_api.shtml](https://madis.noaa.gov/madis_api.shtml)

#### Text/XML/CSV Dumps:

- Meteorological Surface - <https://madis-data.ncep.noaa.gov/public/sfcdump.html>
- Hydrological Surface - <https://madis-data.ncep.noaa.gov/public/hydrodump.html>

#### Meteorological Surface Data Query Form



#### Text Output from Data Query



### MADIS FY16 and Future Plans

#### Conduit to Operations:

- Clarus (data, metadata, displays, QC, and distribution)
- FAA One Minute ASOS
- Aircraft Based Observation Displays and Web Site (<http://amdar.noaa.gov/>)
- Sensing Hazards with Operational Unmanned Technologies (SHOUT)
- Hydrometeorological Automated Data System (HADS)/Automated Flood Warning System (AFWS)
- Snow Telemetry (SNOTEL)
- NWS Email Data Input System (EDIS)
- Voluntary Observing Ship (VOS) program



#### Light Switch Concept:

- National Mesonet (NM) (data and metadata standards)
- Standardized MADIS ingest interface

#### Oneness Concept:

- Decoders
- Quality Control

#### Improvements:

- Extended Data Delivery (NWS/FAA - AWIPS Data Delivery/NextGen Web Services)
- Reliability (Operational backup and regimented improvement release process)
- Maintainability (Standardized data and metadata)
- Faster throughput
- Citizens Weather Observer Program (CWOP) (improved metadata and sustainment issues)