



MADIS – The Meteorological Assimilation Data Ingest System

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Providing Value-Added Observations to the Meteorological Community



NOAA Mission

NOAA's mission increasingly demands advanced data management processes, including data integration, to achieve interoperable, accessible, and readily usable observational data.

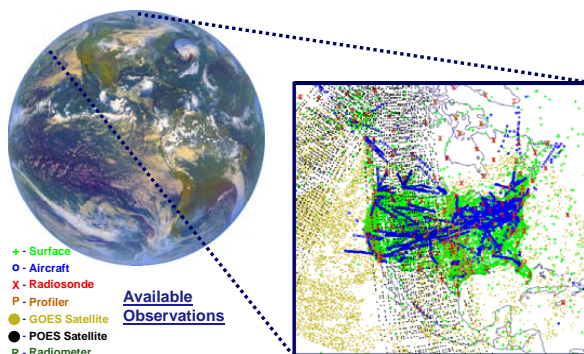
MADIS Goal

To integrate other-agency observations (obs.) with NOAA obs. and make them easily accessible and useable to the meteorological community.

MADIS Provides

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

MADIS Data Sets



MADIS obs. covering North America

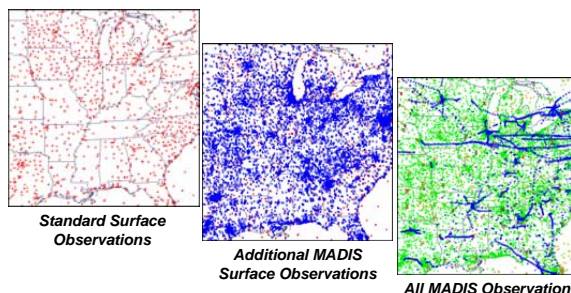
MADIS Data Scope

- 64,833 stations from over 160 networks producing nearly 13 million obs. per day
- 154 Profiler sites (<200,000 obs. per day)
- >450,000 aircraft obs. per day
- Plus global radiosonde and satellite obs.

Overall Benefits

A more usable, complete, accurate, timely, and higher density observational infrastructure for use in local weather warnings and products, model predictions, and hazardous situations.

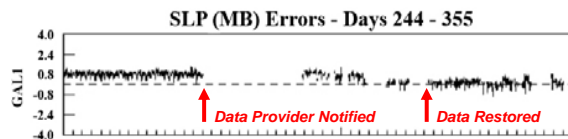
Central U.S. MADIS Obs.



Users Include...

- NWS Forecast Offices and National Centers
- OAR, NESDIS, NOS
- NCAR, NASA, DOE, FAA
- International meteorological centers
- >200 universities
- Hundreds of private companies

MADIS Provides QC and Station Monitoring Support



Estimated observation errors for a station in Galveston, Texas. The time series shows a bias detected by MADIS and corrected by the data provider.

MADIS NWS-Specific Benefits

- enhanced forecaster situational awareness
- reduced data access costs for Forecast Offices
- Support for higher-resolution global and regional data assimilation systems

Transition to Operations

NOAA is now transitioning MADIS functionality to operational status.



Planned Organizational Responsibilities for NOAA – MADIS Operational System

NOAA Research Mission

“NOAA’s research mission must identify what products and services NOAA’s customers need, the form in which they need them, and how it might better provide them.”

NOAA Research 5-Year Plan

Future MADIS R&D Plans Include

- Additional data sets
- Advanced data query and web services
- Expanded metadata fields
- Improved QC and station monitoring

MADIS Accolades

“On a daily basis, NWS forecasters utilize these [MADIS] data to refine and improve information to protect life and property.”

David Billingsley – NWS Southern Region Headquarters

“MADIS data has exceeded all expectations and has made a substantial difference in our efforts to provide decision makers throughout the country with more timely, accurate, high-quality weather information.”

Ron Sznajder – Vice President, DTN Meteorologix Co.

“MADIS provides a unique plug-and-play interface ...This capability accelerated our research tremendously...We simply set a few parameters in scripts, ‘turned on the tap’, and were instantly assimilating data from multiple sources!”

Dr. Craig Mattocks – Institute for the Environment
University of North Carolina