



# **NOAA Surface Weather Program**

## **Maintenance Decision Support System Stakeholder Meeting #9**

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# The NOAA Big Picture



## NOAA Headquarters

Oceanic and  
Atmospheric  
Research

National  
Environmental  
Satellite, Data  
and Information

National Ocean  
Service

National  
Weather  
Service

Program  
Planning  
and Integration

NOAA Marine  
and Aviation  
Operations

National Marine  
Fisheries  
Service

Ecosystem Goal Team

Climate Goal Team

Weather and Water Goal Team

Commerce and Transportation Goal Team



# Commerce and Transportation Overview



- **Surface Weather**
- **Aviation Weather**
- **Marine Weather**
- **Marine Transportation System**
- **Geodesy**
- **Emergency Response**





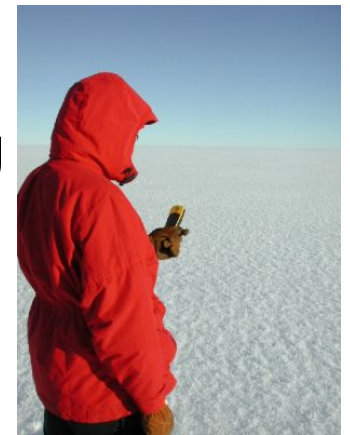
# Commerce and Transportation Key Strategies



## *Information that Moves America*



- NOAA has enhanced the American Public's ability to:
  - Know where they are
  - Get where they are going safely and efficiently
  - Make appropriate decisions for a safe, secure, efficient, and environmentally sound transportation network.
- NOAA's essential services are uninterrupted and available during emergencies and critical events





# NOAA's Surface Weather Program

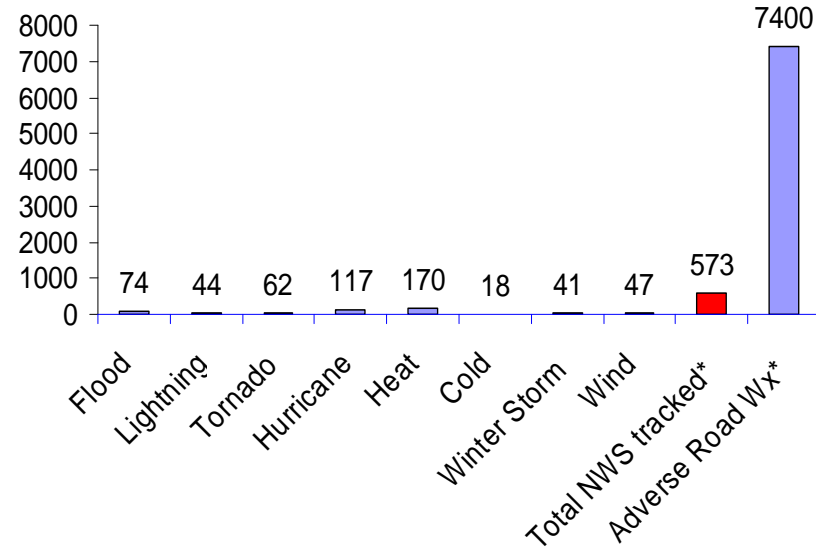


NOAA is responsible for protecting life and property and promoting safe and efficient commerce and transportation

Weather contributes to over 7,400 fatalities, over 600,000 injuries, and 1,400,000 weather-related highway crashes per year

Representing the needs of all surface transportation sectors, i.e., roadways, rail, transit and pipeline operations

Opportunity to improve safety with timely weather information that is transportation-relevant



Annual weather averages for the years 1997-2006; adverse road conditions from 1996-2005. Compiled from *Storm Data*, NWS and NCDC and the DOT Fatality Analysis Reporting System





# Surface Weather within NOAA's Commerce & Transportation Goal



- **Themes**
  - Safe, secure, efficient and seamless movement of people and goods in the U.S. transportation system
  - Environmentally sound development and use of the U.S. transportation system
  - “Port to Door”
- **Meteorological Assimilation Data Ingest System (MADIS) - Transition to Operations**
  - National Surface Weather Observing System (NSWOS)
  - Within the NWS Telecommunications Gateway (NWSTG)
  - Integration with DOT's CLARUS Initiative
- **MADIS transition is key to providing data management support for C&T and NWS mission**
  - Integration of other NOAA and non-NOAA networks
  - NOAA essential services and customer requirements



# Current Activities

## Partnerships



- US Environmental Information Enterprise
  - Public-Private-Academic
  - Continuing to communicate and work with the Commercial Sector
- Interagency Partnerships
  - Federal Highway Administration (FHWA):
    - The *Clarus* Initiative
    - Vehicle Infrastructure Integration (VII)
  - Office of the Federal Coordinator for Meteorology's Weather Information for Surface Transportation Working Group

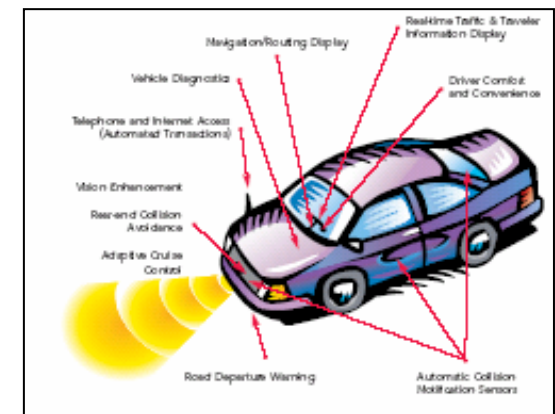


# Future Activities

## Opportunities for Partnerships



- **Integrated Surface Observing System**
  - Operational assimilation, ingest, and management system for external data
  - Add more weather sensors to Geodetic Reference Stations
- **Identify infrastructure vulnerability through Height Modernization**
- **Vehicles as mobile sensors**
  - Potential uses of Vehicle Infrastructure Integration data: temperature, precipitation, visibility





# Future Activities

## Trends

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- **Digital Services**

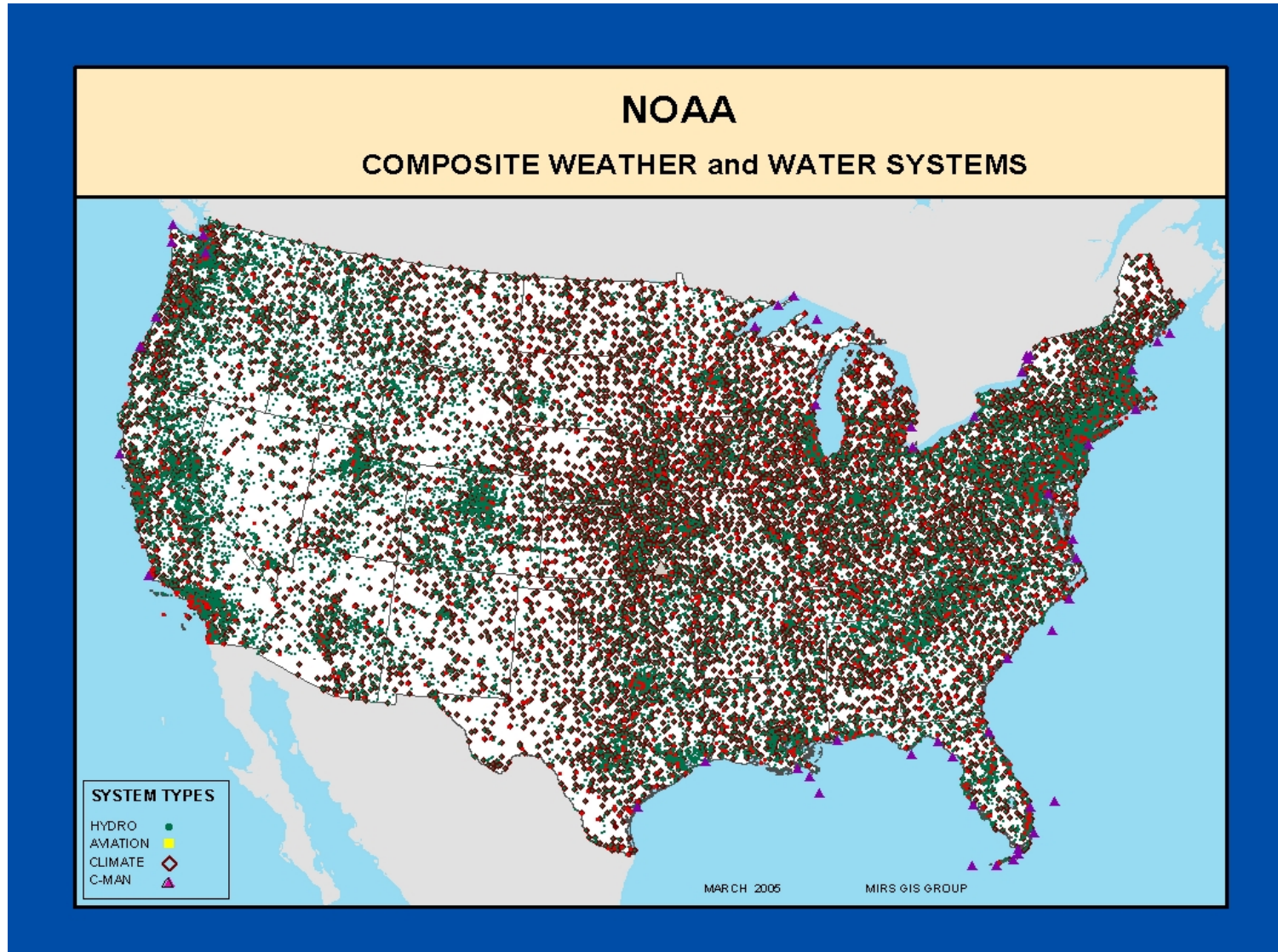
- Users pull the information they want when they need it
- Easier to integrate with information and display systems

- **Next Generation of Models**

- Higher frequency and resolution
- More ground level information



# “Snapshot” of Observations





# NOAA's Surface Observations Requirements



- Maintaining and enhancing NOAA's observing systems as well as leveraging existing and emerging partner and citizen platforms are necessary to address all requirements NOAA has for observations
- NOAA service requirements for observations are composed primarily around three elements:
  - Required accuracy
  - Station density
  - Reporting interval
- Metadata – increased awareness and importance



# Theme of Integration

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- Capacity, including future needs
- Inclusive
- Metadata (crucial for effective use)
- Available (mission support, latency issues)
- Quality (levels of QC/QA, time vs. quality)
- Standards
- Accessible (to all, at minimal recovery cost)
- Archive (operational, forensic, and research support)
- Leverage what's available to define what's needed

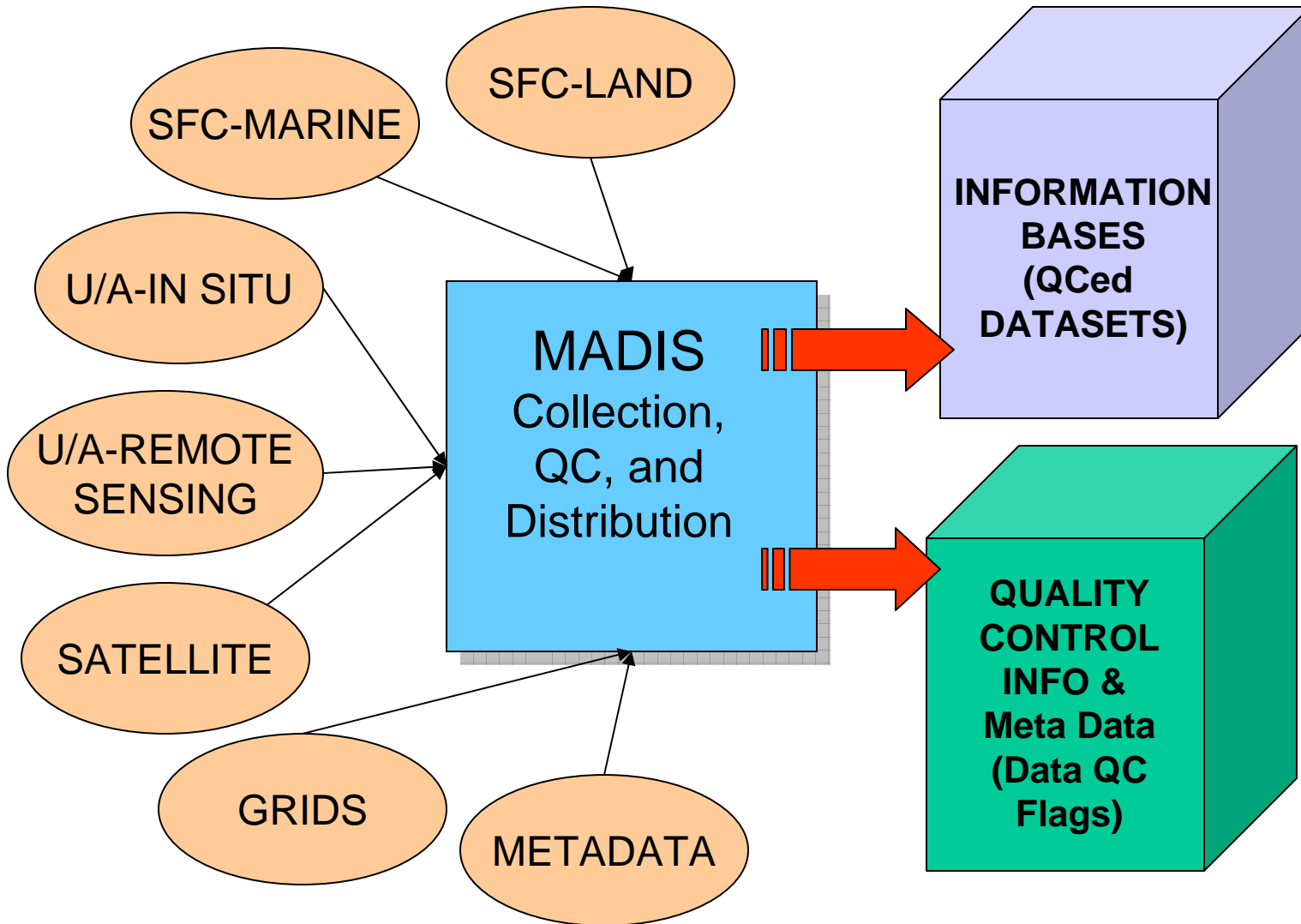


# MADIS – An Overview

- Developed by NOAA Research's Earth System Research Laboratory's Global Systems Division (formerly FSL)
- Data management system that's flexible, expandable and interoperable – an architecture for the future
- Provides government and non-government mesonet, upper-air, and coastal data to NOAA and the enterprise
- Data are stratified and informed by metadata
- Transitioning MADIS to NWS operations will provide 24x7 maintenance support with offsite system backup
  - Leverages NOAA's extensive data management infrastructure and investment



# MADIS Data Sources and Outputs





# Conclusions

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- **Observations are at the heart NOAA Surface Weather Program – an extension of climate, water, and weather services**
- **Data contribute to the government mission**
- **They provide significant business and research opportunities to transportation and weather communities**



# NOAA Surface Weather Program / NWS Observing Services Division

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