National Network of Networks (NNoN)

Jim Koermer
Plymouth State University
AMS Surface Transportation Committee

Motivation

- Spawned by a 2009 National Research Council (NRC) report entitled "*Observing the Weather and Climate from the Ground Up: A Nationwide Network of Networks*"
  - Detailed weather observations are essential to a range of needs (including transportation)
  - Businesses, state and local governments, and individuals have set up various observing systems throughout the United States
  - No national network tying systems together; inconsistent collection; and limited public accessibility
  - Report identifies short- and long-term goals for federal government sponsors and other public and private partners to establish a nationwide "network of networks" of weather and climate observations

American Meteorological Society (AMS) Response

- Formed an Ad Hoc Committee under its Commission on Weather & Climate Enterprise
- Address the NRC report's recommendations and provide venues for community discussion and response
- Committee had 27 members representing government agencies, private sector organizations, and academia
- Six working groups were formed and first met at the AMS Annual Meeting in Atlanta in January 2010
- Drafted a final report addressing 15 specific NRC recommendations with options and proposed actions
- Draft report was opened for public comment

Options and Proposed Actions

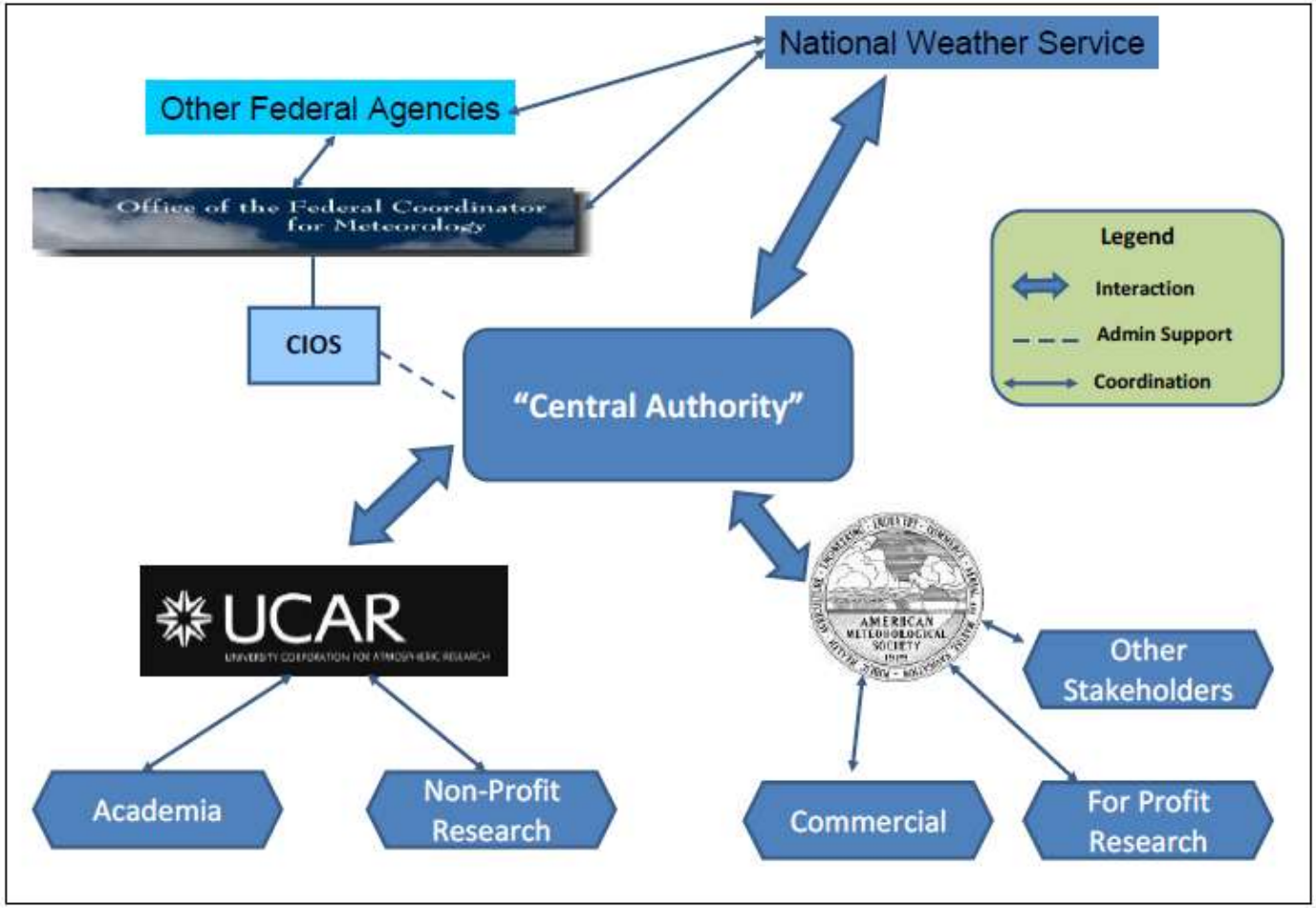

Figure 1. NNoN Central Authority Concept

Other Key Recommendations

- Convene a stakeholders summit resulting in implementation plans
- Challenge of funding requires prioritization based on economic benefits
- Ongoing R & D and treating all networks as perennial testbeds is essential for assessing and improving them and developing new methods
- Adoption of the Unidata Local Data Manager (LDM) to provide the communications backbone for the NNoN
- Metadata is mandatory with ISO 19115-2 and SensorML recommended as standards
- Human dimension must be considered to engage stakeholders and network operators; need user assessments and education

Structure

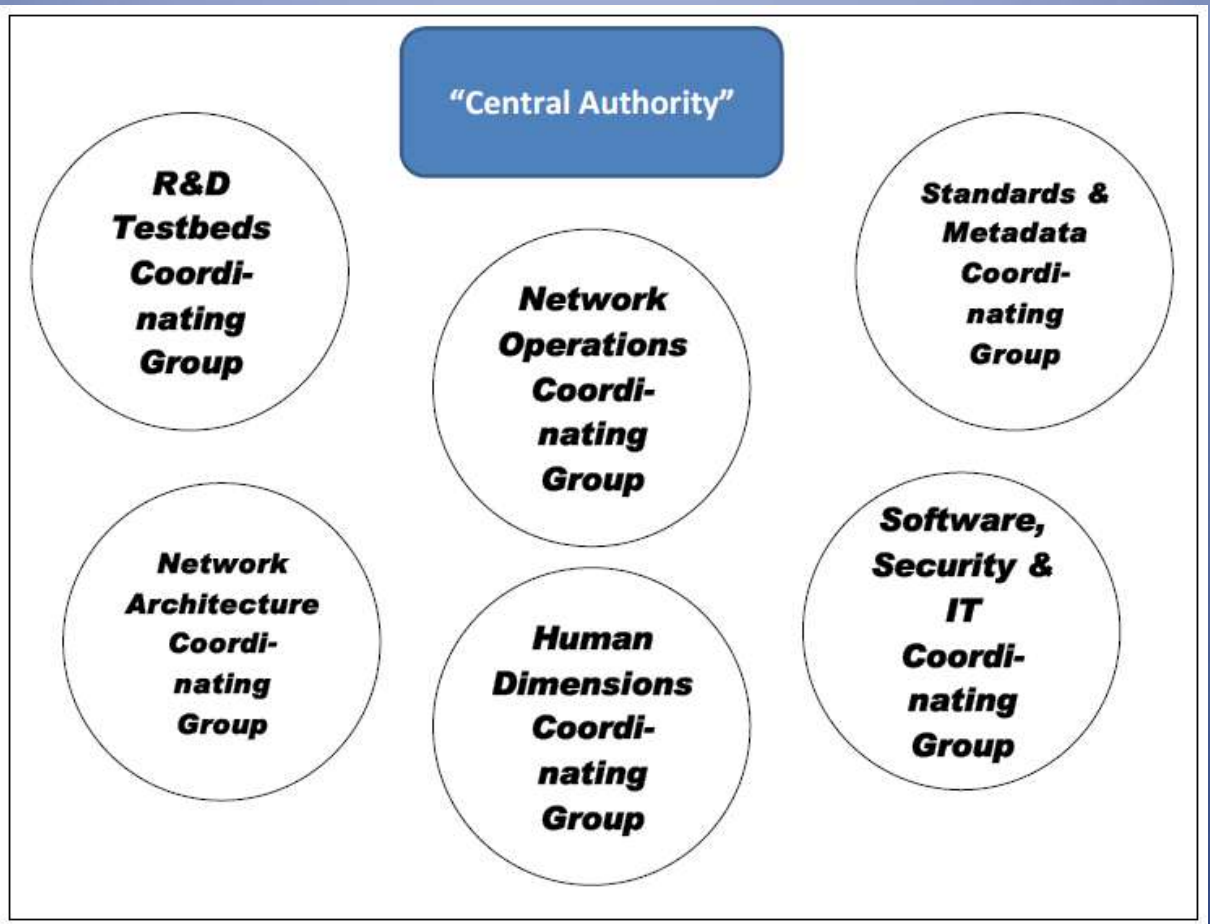

Figure 2. Central Authority and Potential Working Group Structure

APT Committee Report on Mobile Observations

- In 2009, the AMS established an Annual Partnership Topic (APT) Committee focused on mobile observations and their potential use by the weather and transportation communities
- Addresses recommendations of NRC NNoNN including mobile observations
- Committee members represented Public-Private-Academic entities
- Prepared, administered, and analyzed driver surveys to assess attitudes
- Published detailed report on July 27, 2011

Primary Finding

"High-quality weather information about the roadway environment, including both current observations and forecasts, communicated in a timely and effective manner will help drivers to make better, safer decisions regarding travel plans and to react properly when faced with potentially compromised conditions; however, there are several technical, financial, societal, and institutional barriers that must be overcome before the full potential of mobile observations can be realized by the weather and transportation communities."

ATM Report's Other Findings and Recommendations

- Road weather data are important
- Added mobile observations have far reaching benefits
- Challenges with accuracy, reliability, and accessibility
- Siting, maintenance, and calibration issues
- No authoritative vision for deployment, operation, management, and governance
- Objectives to be defined
- Robust USDOT research program
- Importance of metadata and strict quality control
- Development of the best business model
- AMS should take lead in advancing mobile observations

Lunch!!!