

A topographic map of Iowa is shown on the left side of the slide, with a vertical yellow line indicating a specific location. A horizontal arrow points from this line towards the right, and a small circle with a diagonal arrow points from the arrow's start towards the bottom-left.

# Iowa Environmental Mesonet

October 4, 2001

Dennis Todey

Iowa State University



# Iowa Environmental Mesonet

- History
- IEM – What is it?
- Assessment
- Current Products & Web site
- Input from YOU!

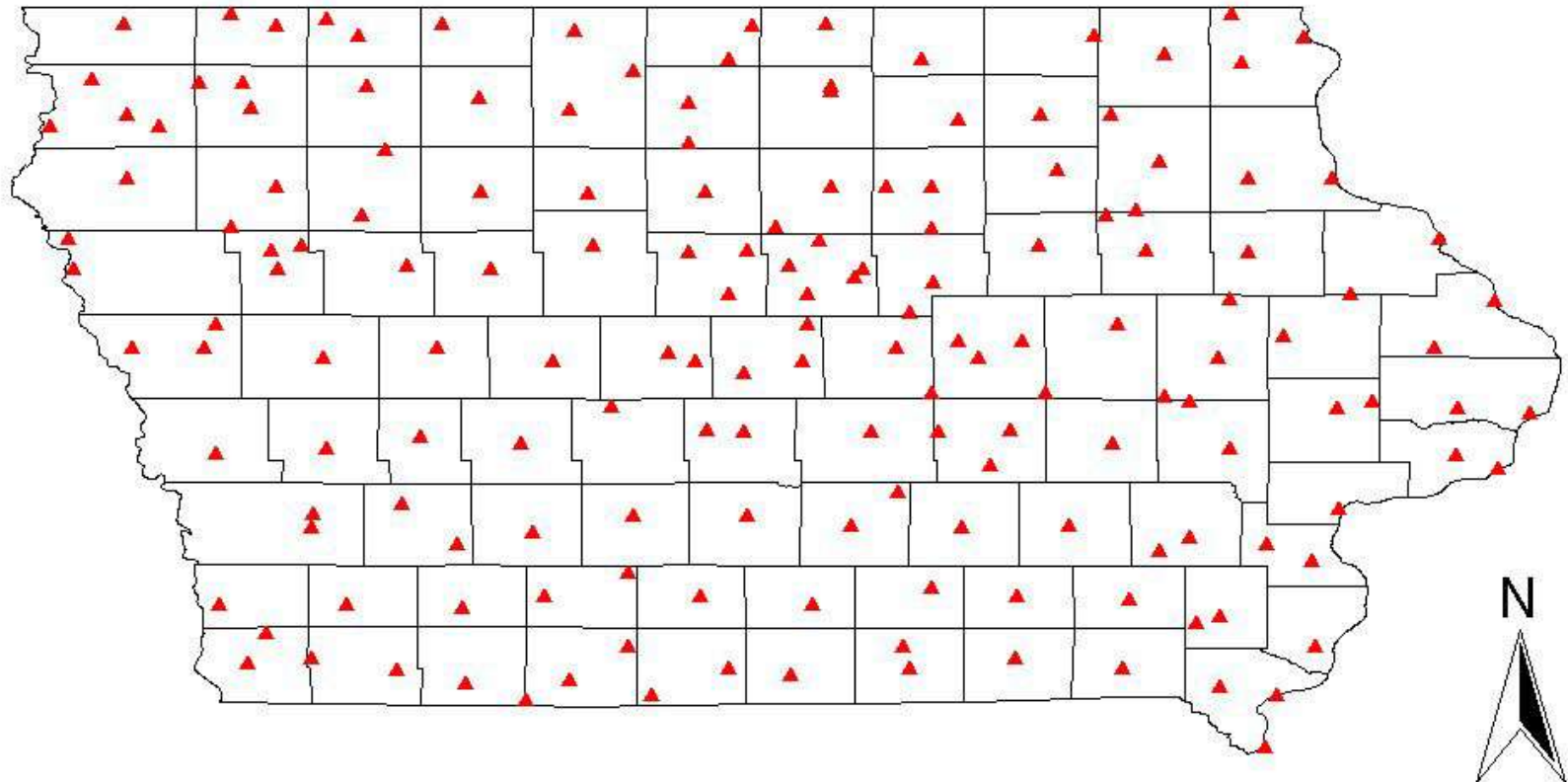


# IEM – How is it different?

Other mesonets have been built from scratch at great cost.

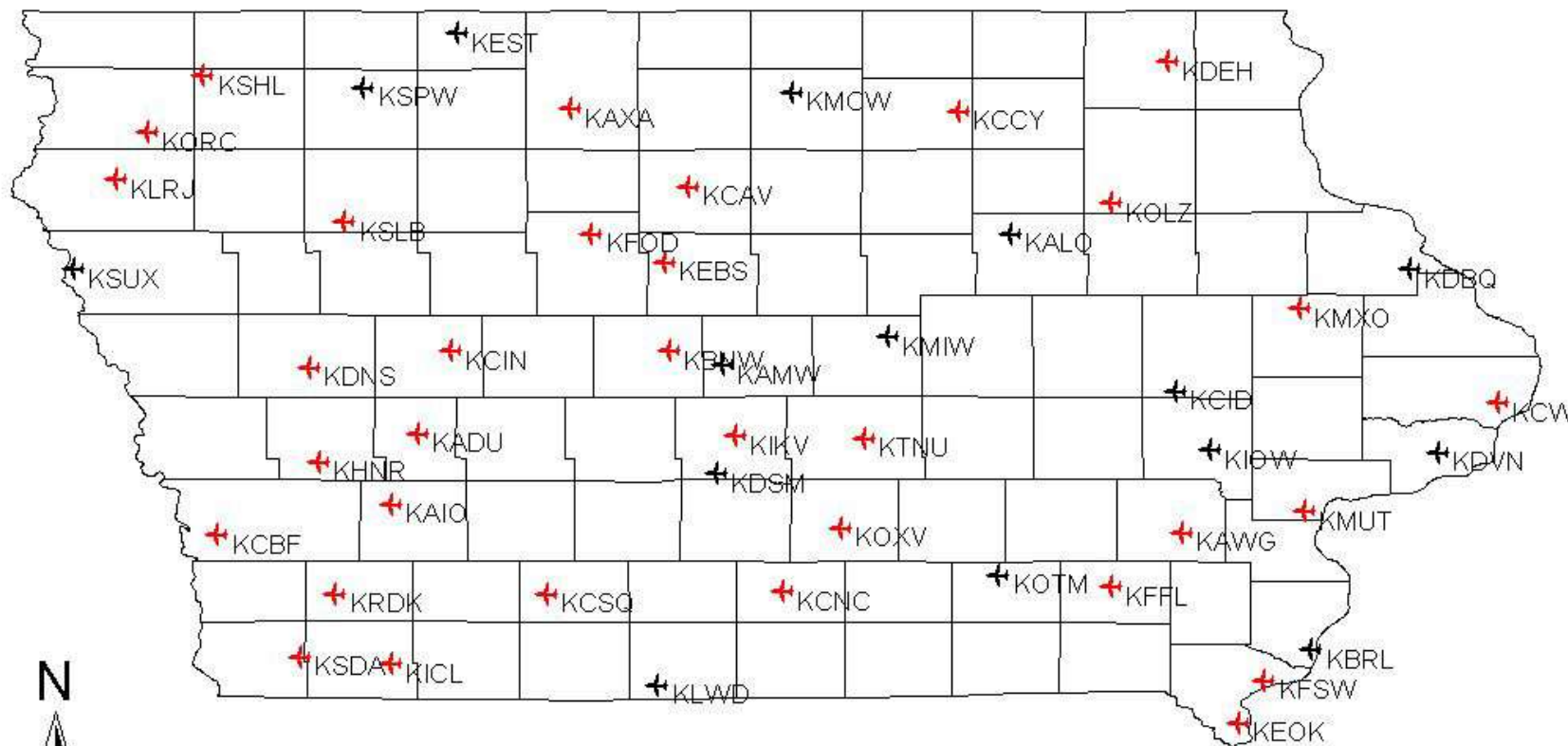
The IEM attempts to capitalize on existing resources and supplement them. This can be a model for other states and the nation.

# NWS 8 Inch Standing Rain Gages





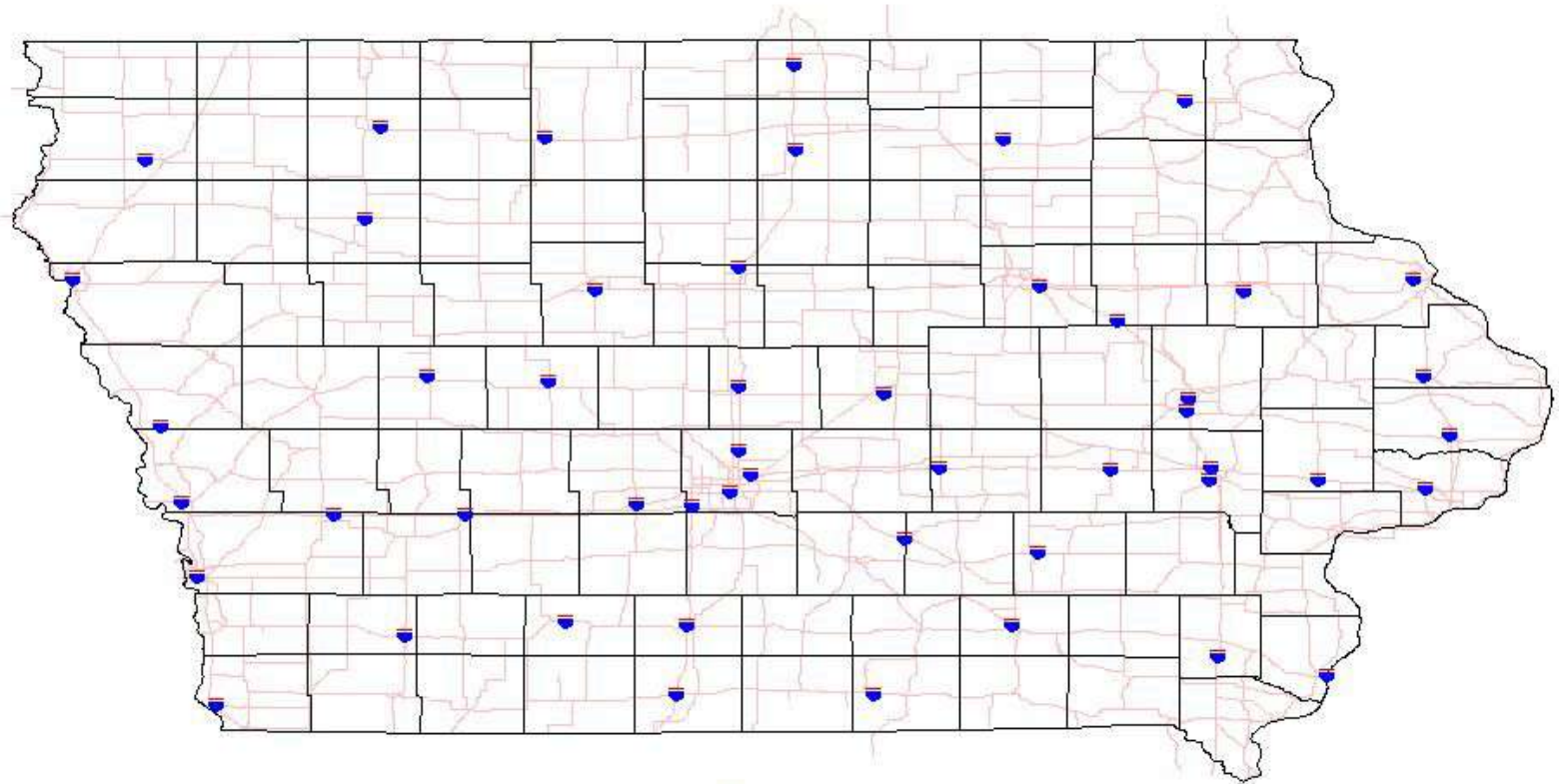
# Iowa ASOS/AWOS Weather Stations



✚ ASOS  
✚ AWOS




# IaDOT RWIS Network



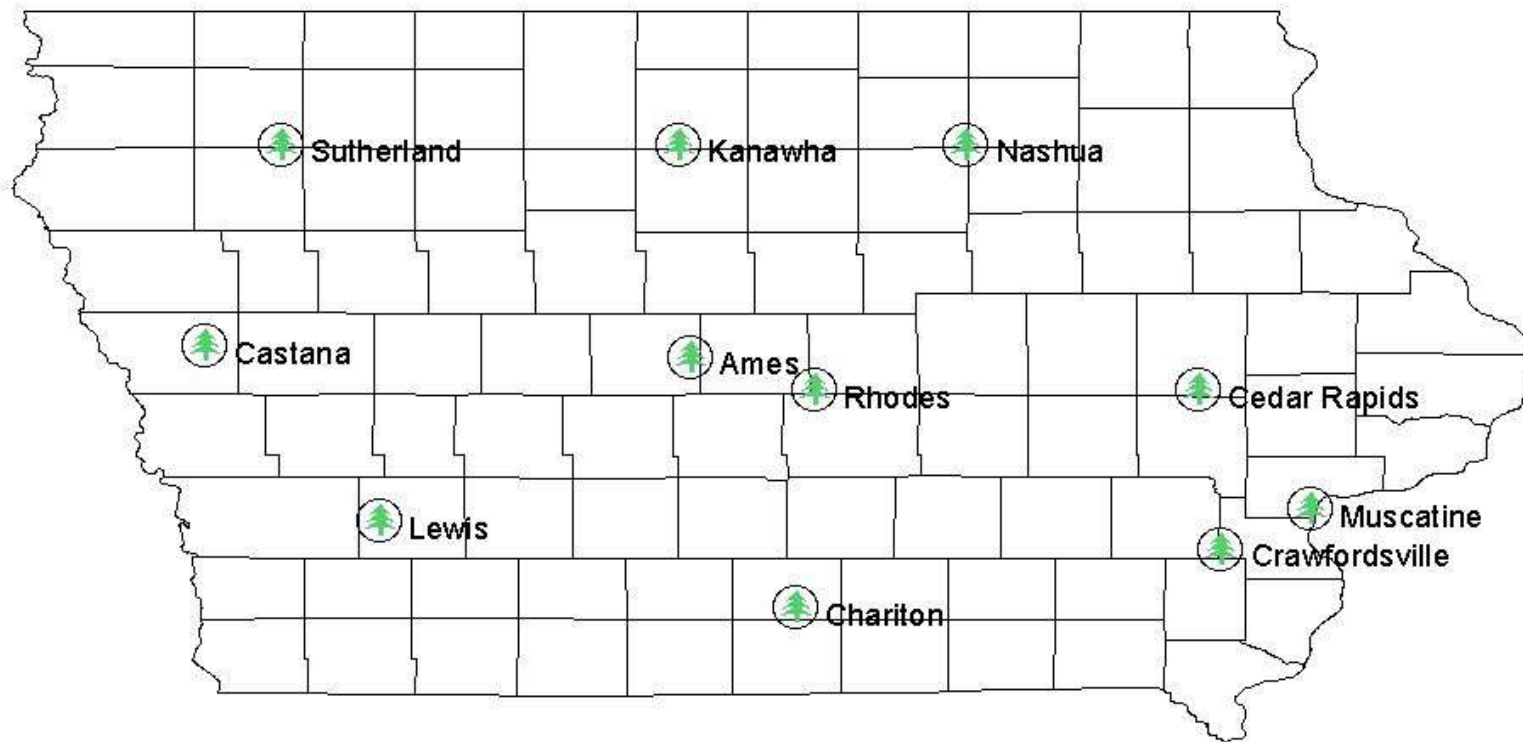
 IaDOT RWIS



 Iowa Highways



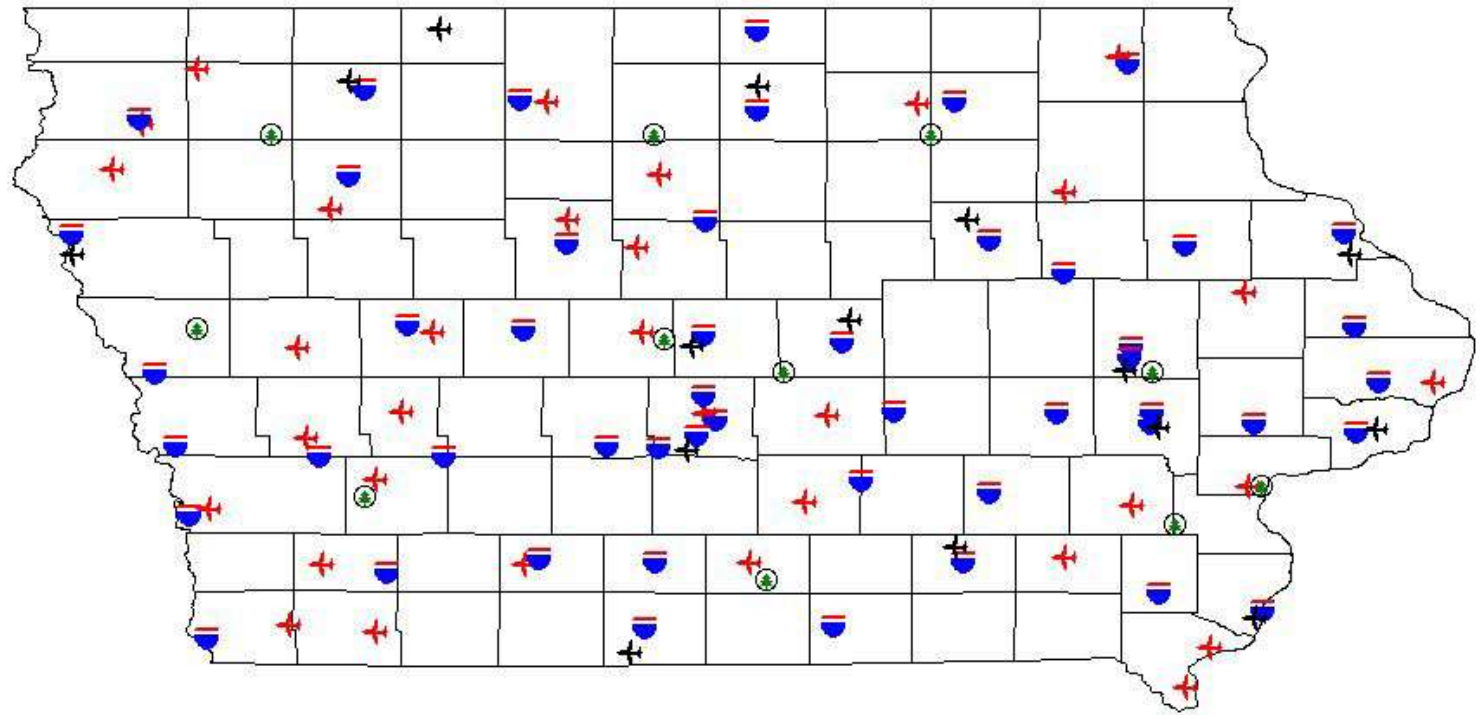
# ISU Campbell Network



For more information:  
[www.meteor.iastate.edu/agclimate/index.html](http://www.meteor.iastate.edu/agclimate/index.html)



# Iowa Automated Weather Stations



- ⊕ ISU Campbell Stations
- ⊕ NWS/FAA ASOS
- ▬▬ IaDOT RWIS
- ⊕ IaDOT AWOS

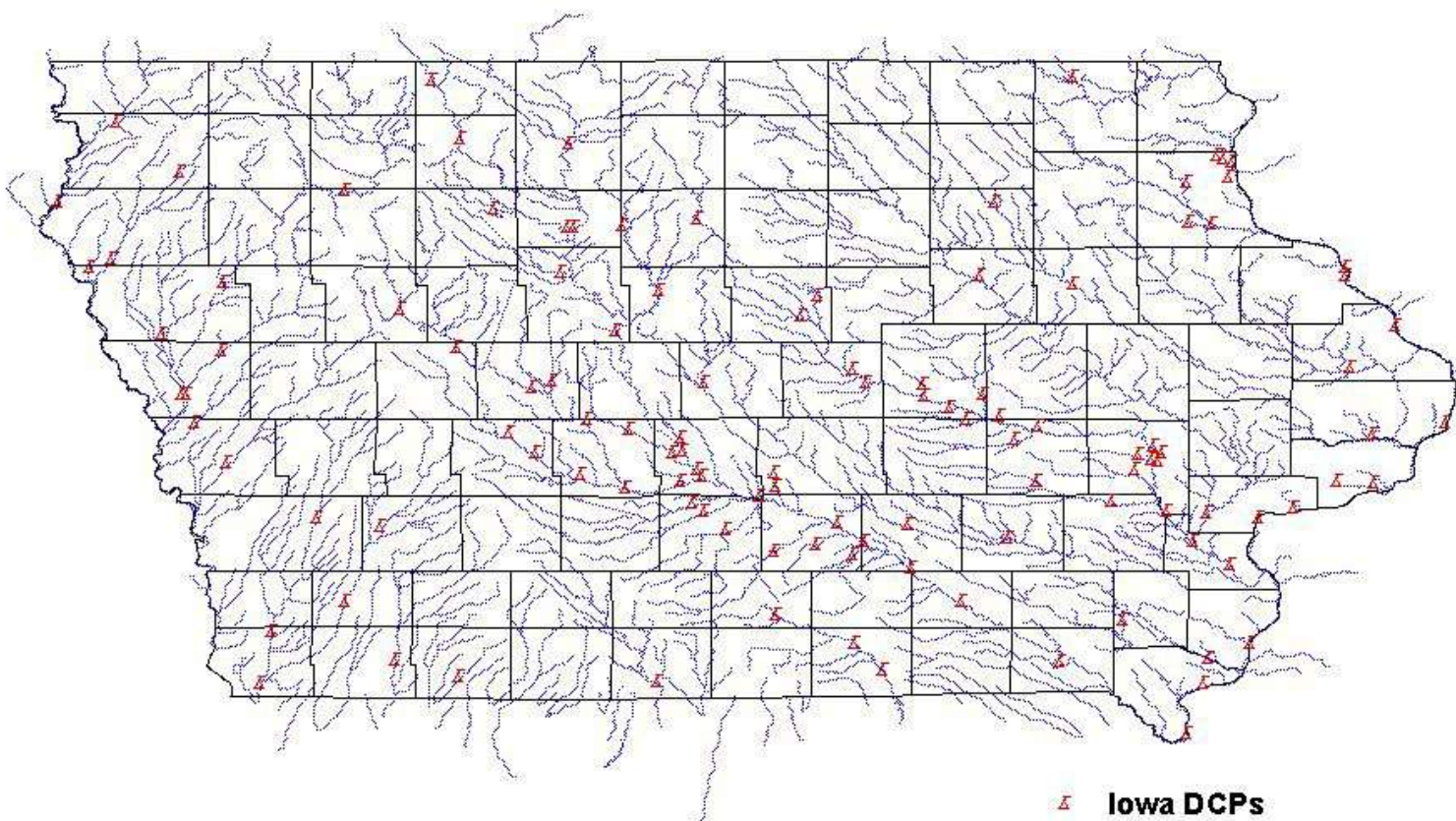




# USGS and COE Data Collection Platforms

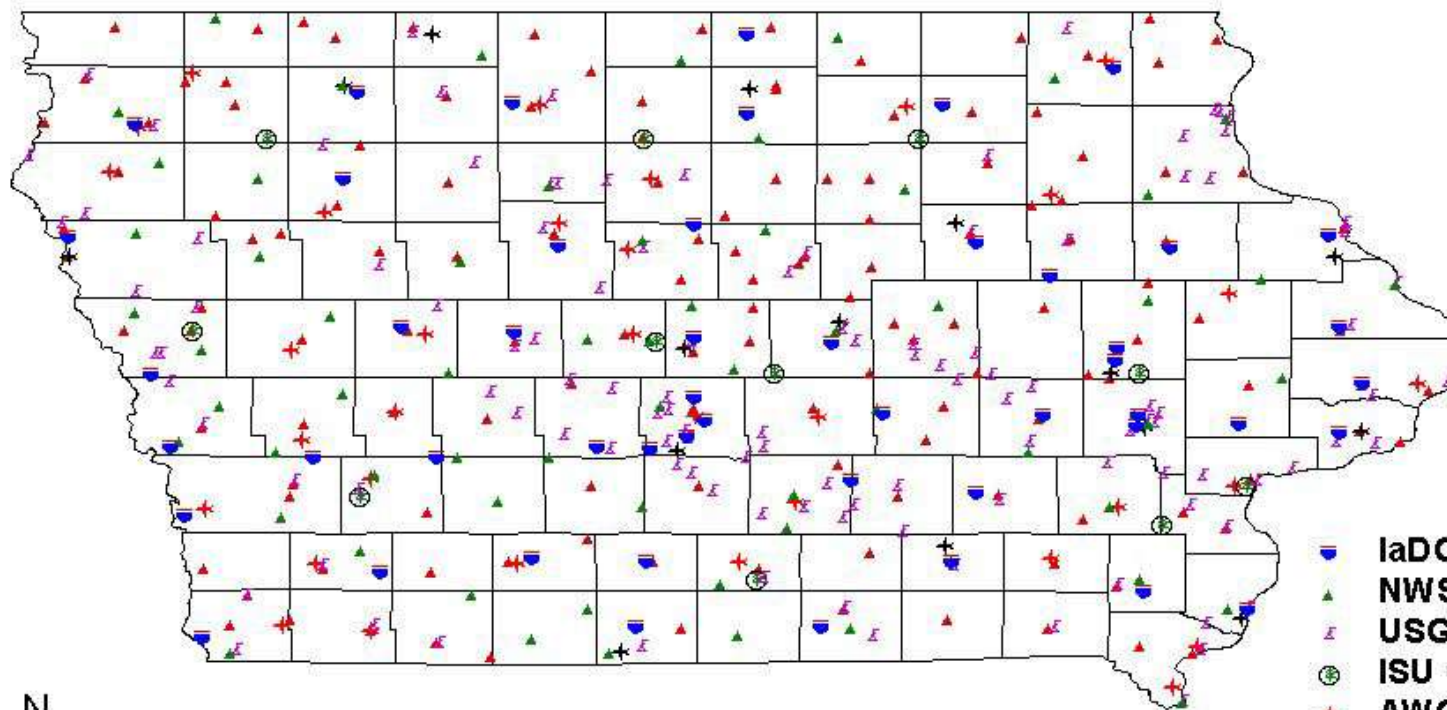


US Army Corps  
of Engineers®



 Iowa DCPs  
 Iowa Rivers and Streams

# The Iowa Meso Network



-  IaDOT RWIS
-  NWS Fischer Porter
-  USGS/COE DCP
-  ISU Campbell
-  AWOS
-  ASOS
-  NWS 8 inch Gages



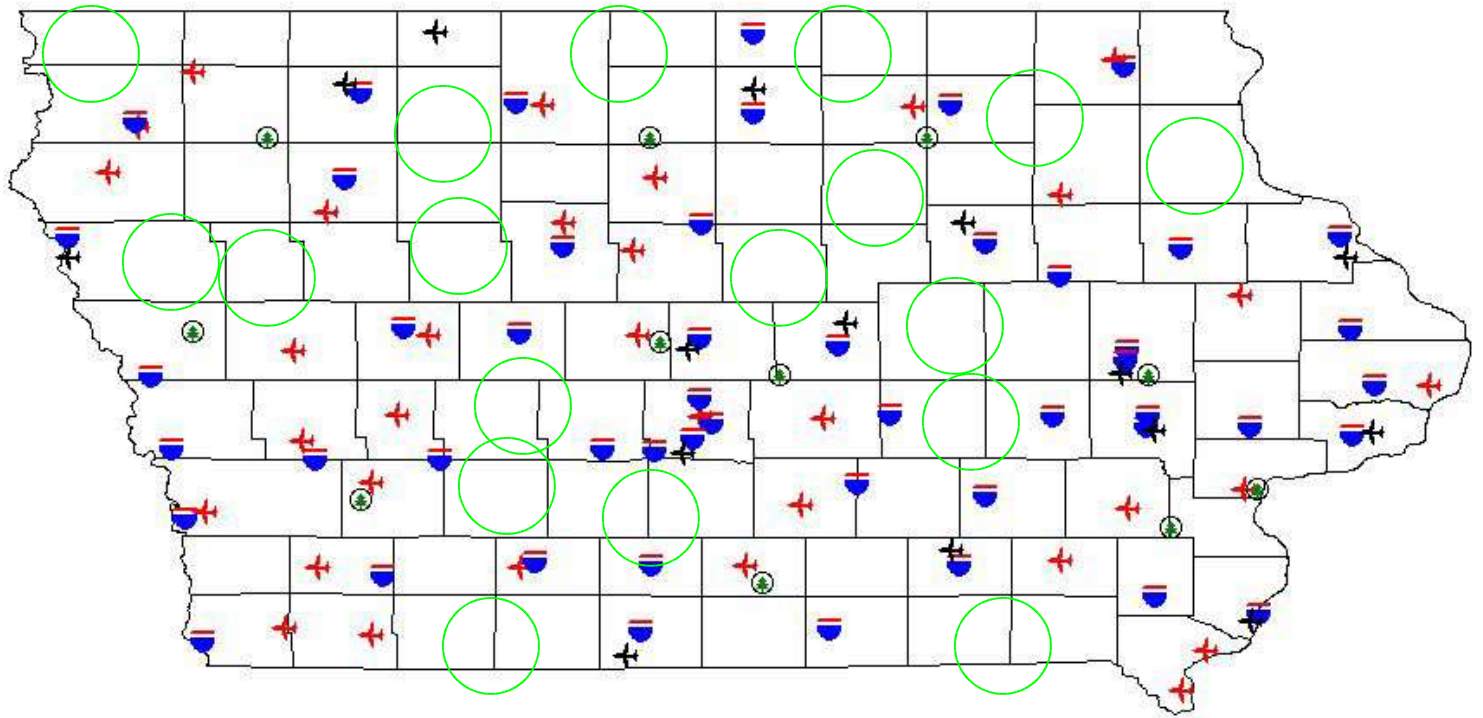




# What we are lacking

- Central data facility (archive)
- Data comparison standards
- Detailed soil temperature data
- Regular soil moisture data
- Complete state coverage
- Short term data (from 2 days - 6 weeks)

# Iowa Automated Weather Stations

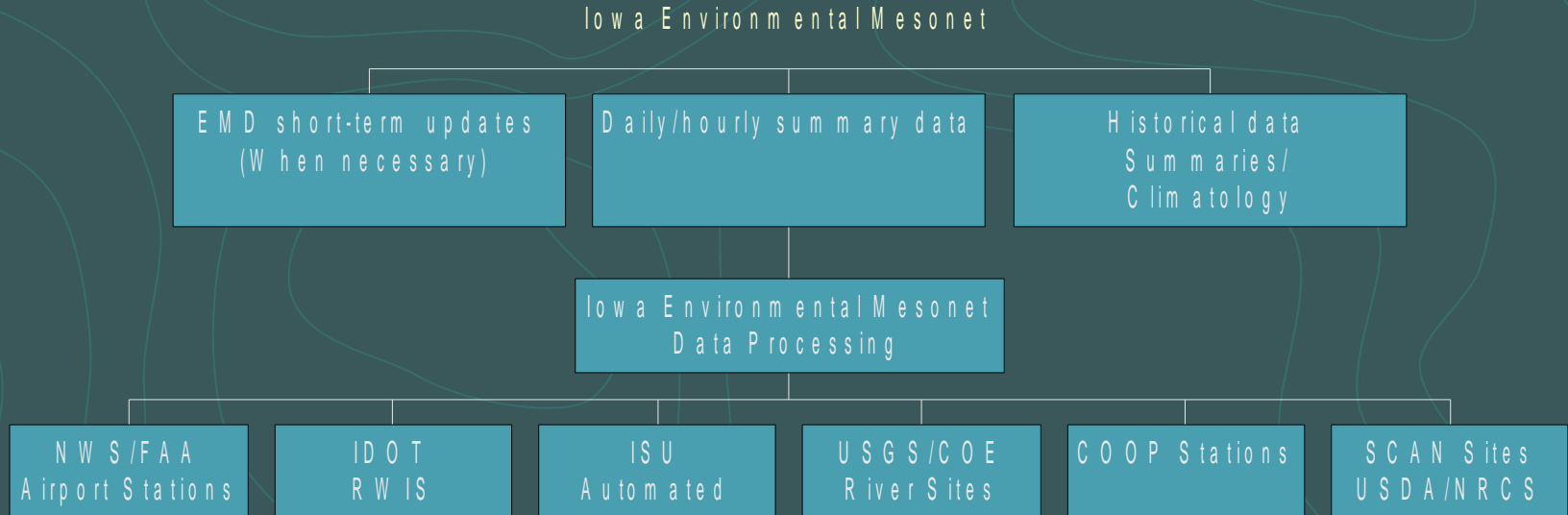


- ⊕ ISU Campbell Stations
- + NWS/FAA ASOS
- ▬ IADOT RWIS
- ✚ IADOT AWOS





# Iowa Environmental Mesonet






# Potential Users

- Farmers/Producers
- Emergency managers
- Citizenry
- Industry
- Education (K – graduate)
- Climate/agricultural researchers
- NWS

A vertical strip on the left side of the slide shows a topographic map of Iowa, with a yellow vertical line indicating a specific location. The map features contour lines and a grid.

# Cooperators/Supporters

- National Weather Service
- Iowa State University
- Insurance Industry
- USDA OCE
- Iowa DOT
- IDALS



Improve collaboration among scientists and managers to enhance the effectiveness of observation networks, monitoring, prediction, information delivery, and applied research and to foster public understanding of and preparedness for drought.

*Goal 2 National Drought Policy Commission  
“Preparing for Drought in the 21<sup>st</sup> Century”*





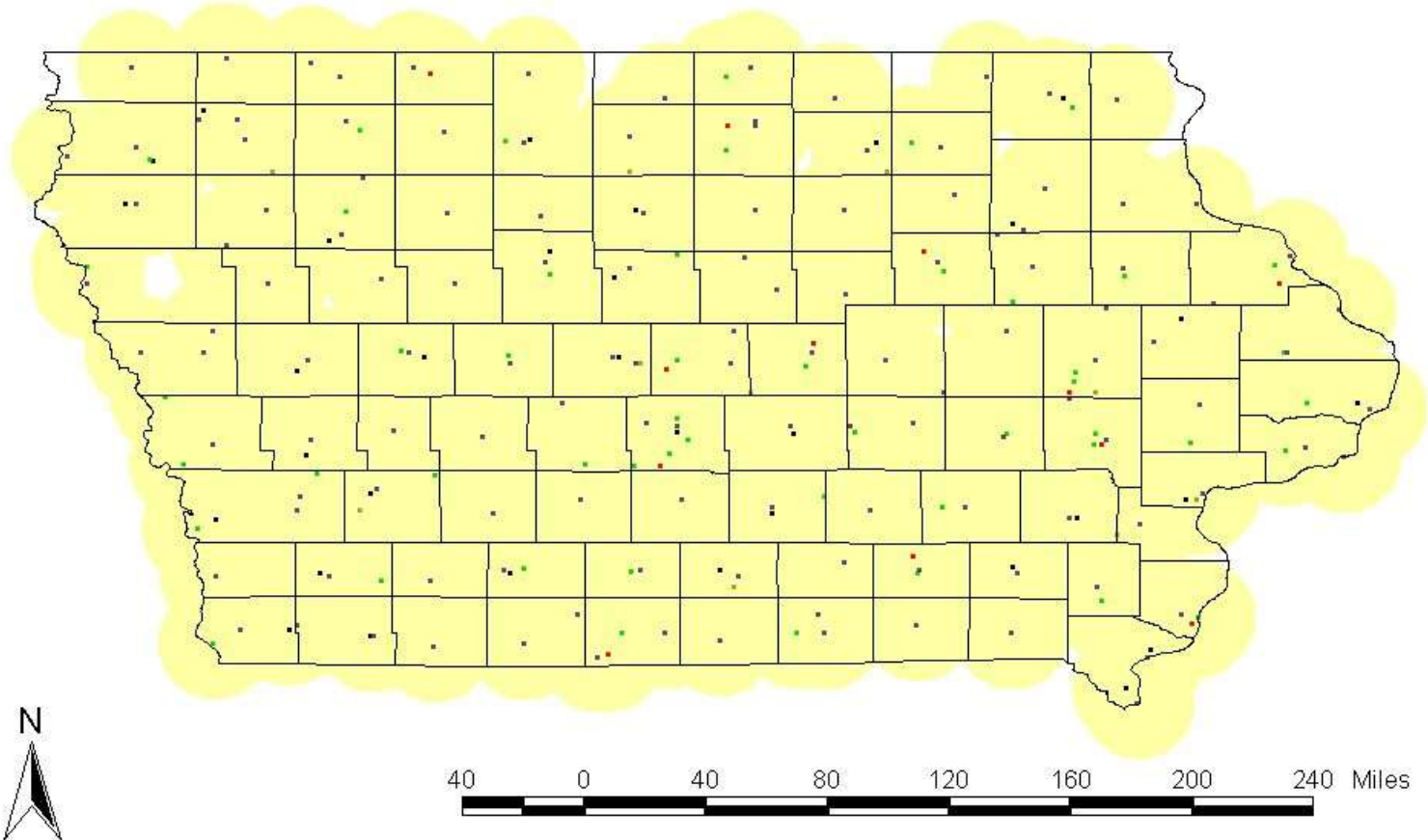
Station density

Don't we have enough??

# Maximum temperature

Combined Station Coverage  
for Temperature:  
RWIS, Campbell, AWOS, ASOS, and Coop (revised)  
Maximum Temperature (30km)

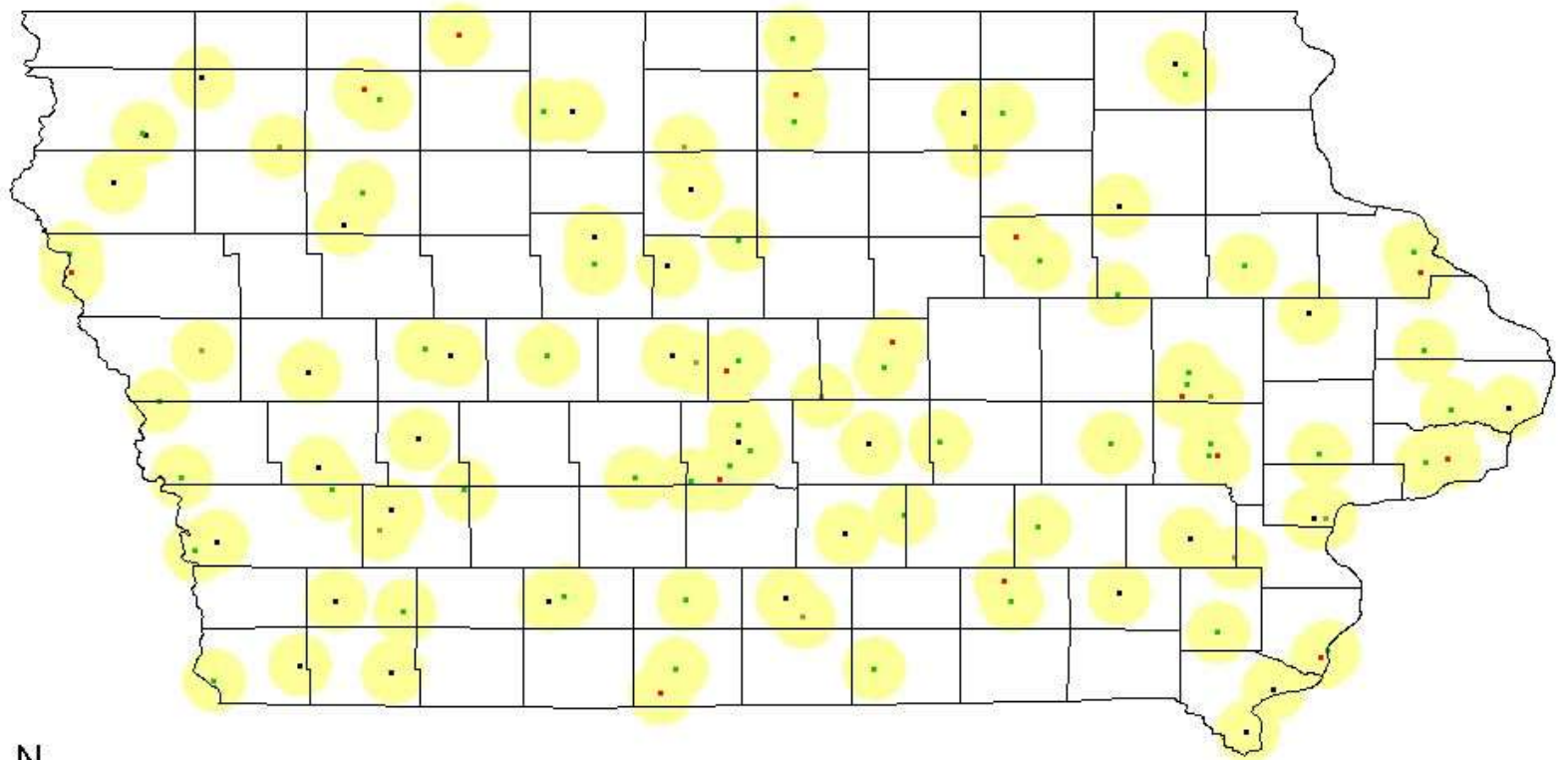
- Iowa Counties
- Coop Stations with Temperature
- RWIS
- CAMPBELL
- AWOS
- ASOS
- Max Temperature (30km)



# Relative humidity

Combined Station Coverage  
for Relative Humidity:  
RWIS, Campbell, AWOS, ASOS

- Iowa Counties
- RWIS
- CAMPBELL
- AWOS
- ASOS
- Relative Humidity Coverage



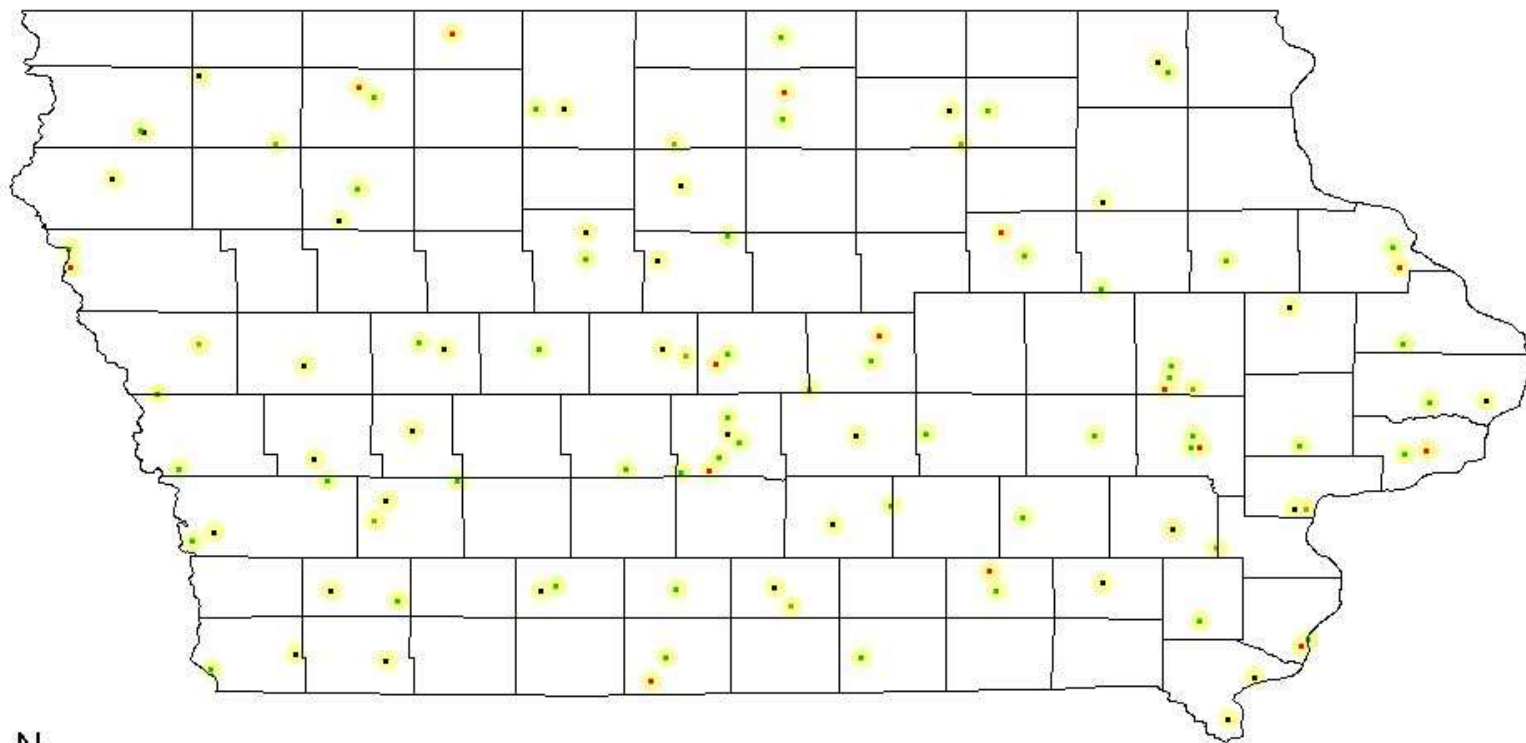
40 0 40 80 120 160 200 240 Miles

A horizontal scale bar with alternating black and white segments. The segments are labeled with the numbers 40, 0, 40, 80, 120, 160, 200, and 240, representing miles.

# Wind

Combined Station Coverage  
for Wind:  
RWIS, Campbell, AWOS, ASOS

- Iowa Counties
- RWIS
- CAMPBELL
- AWOS
- ASOS
- Wind Coverage

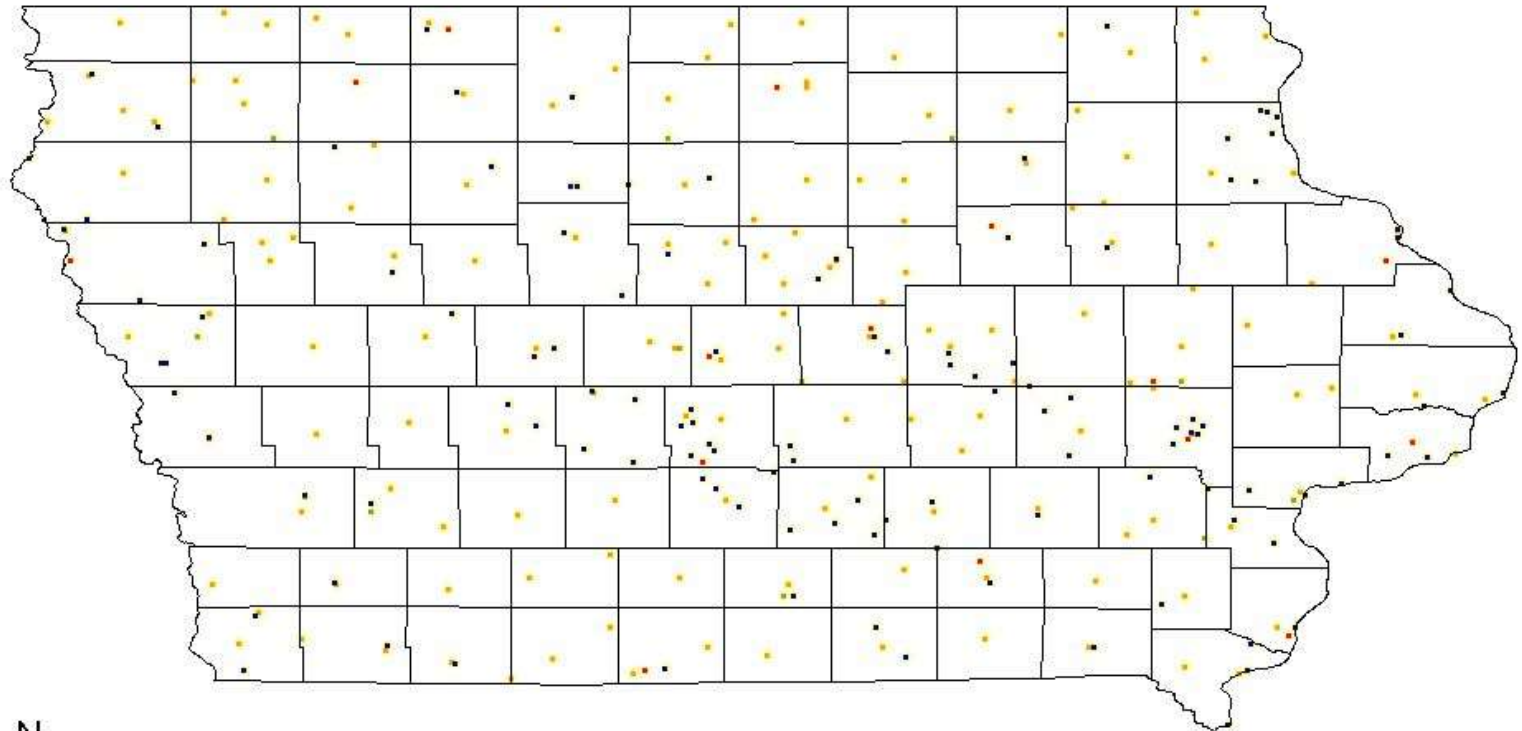




# Precipitation

Combined Station Coverage  
for Precipitation:  
USGS, Campbell, ASOS, NWS 8-in

- Iowa Counties
- USGS
- CAMPBELL
- ASOS
- NWS 8-in
- Precipitation Coverage



40 0 40 80 120 160 200 240 Miles

A horizontal scale bar with markings at 40, 0, 40, 80, 120, 160, 200, and 240 miles.



# Current Products

What do we have now?

<http://mesonet.agron.iastate.edu>

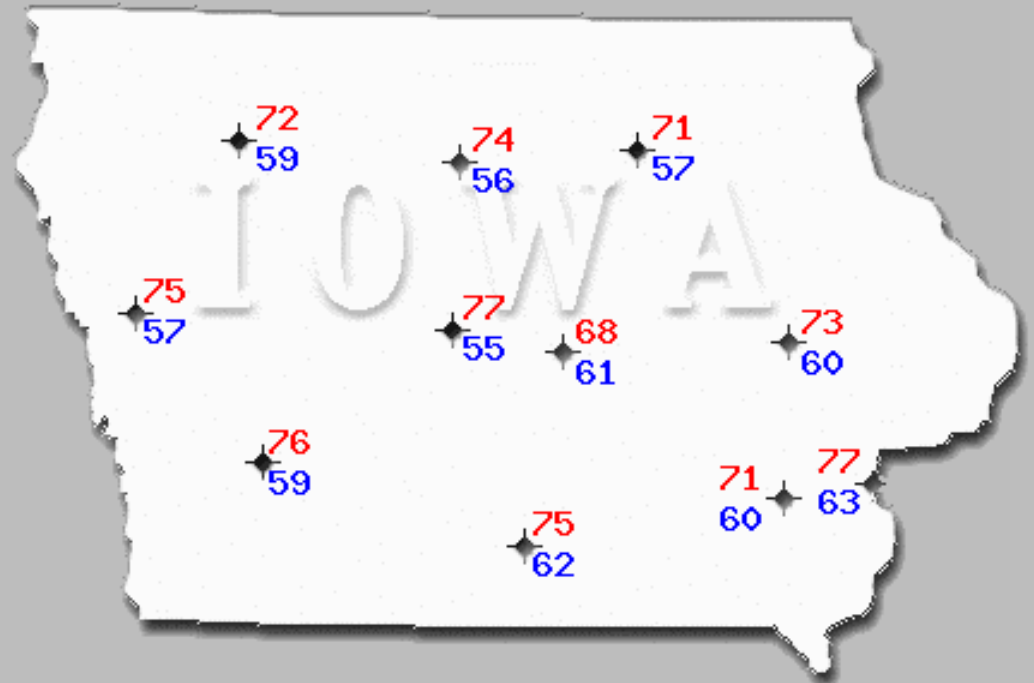


# Current Products

<http://mesonet.agron.iastate.edu>

# ISU Automate Network Soil Temp

High & Low 4 in Soil Temperatures September 10, 2001

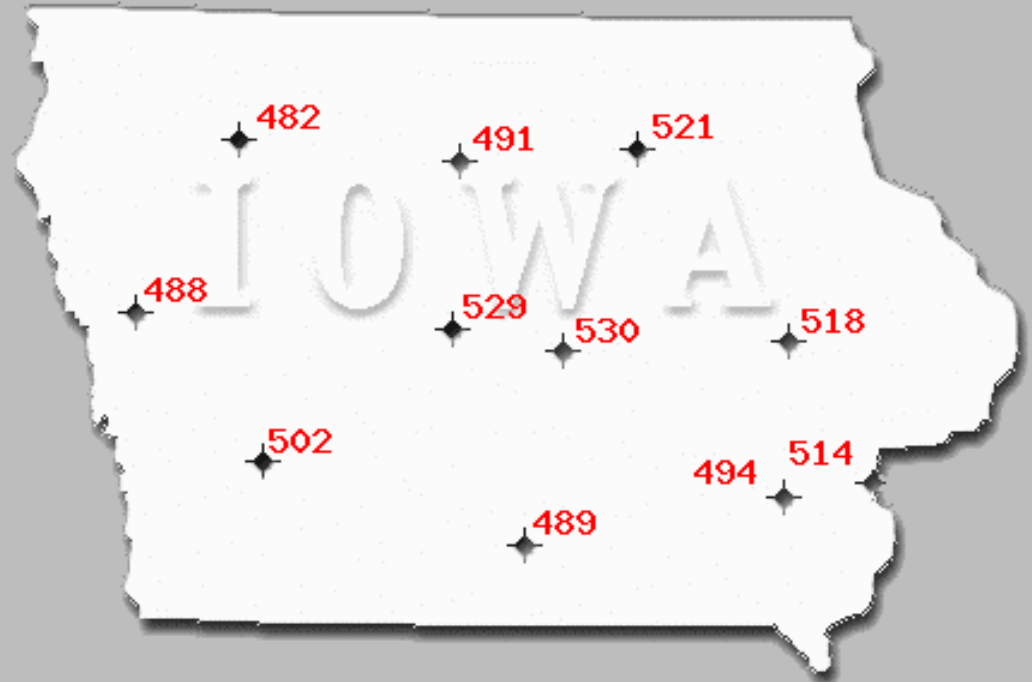


Generated on 09/11/01 06:01:35



# ISU Automate Network Solar Rad

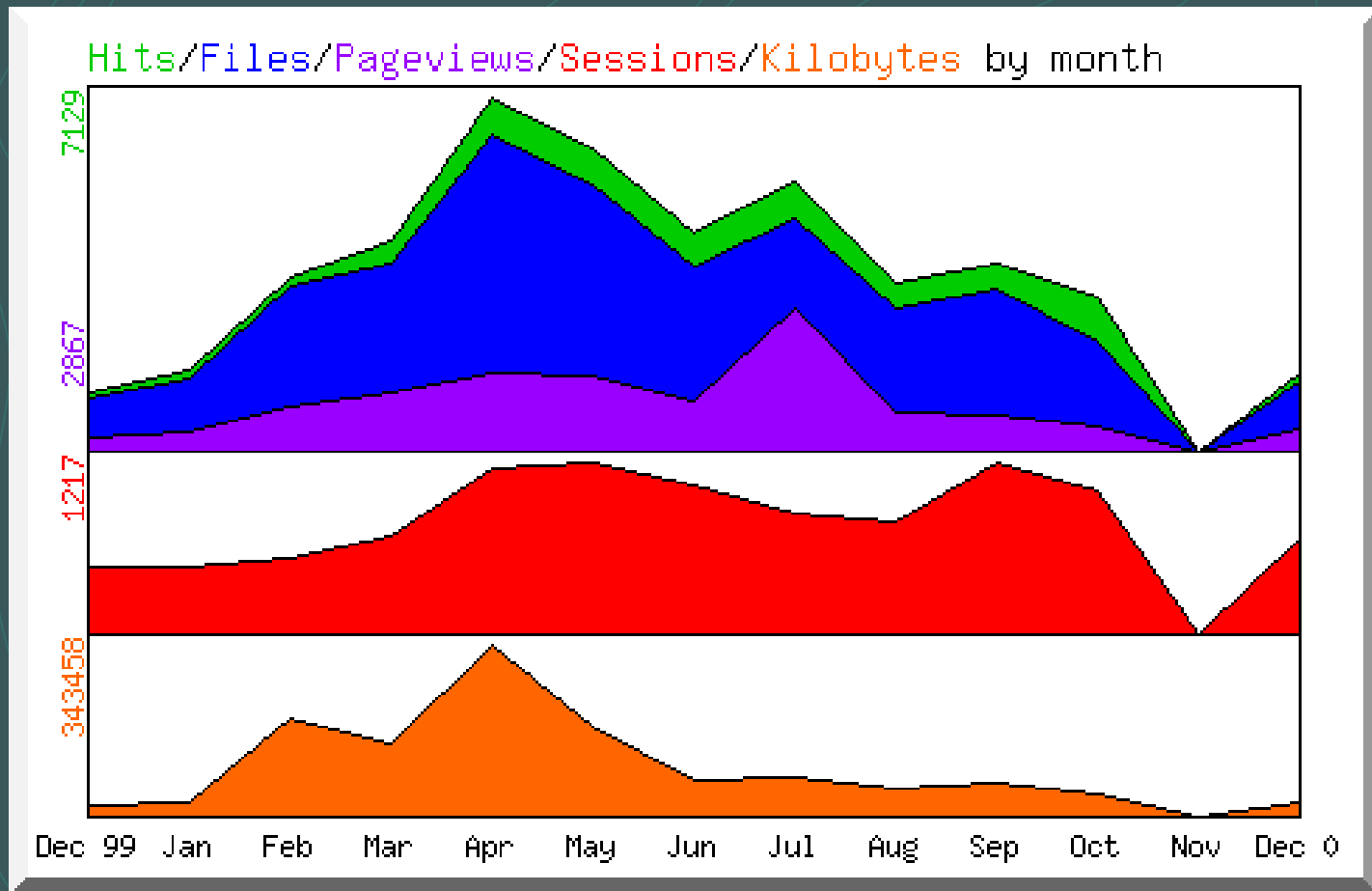
Total Radiation values on September 10, 2001



[ Langleys ]

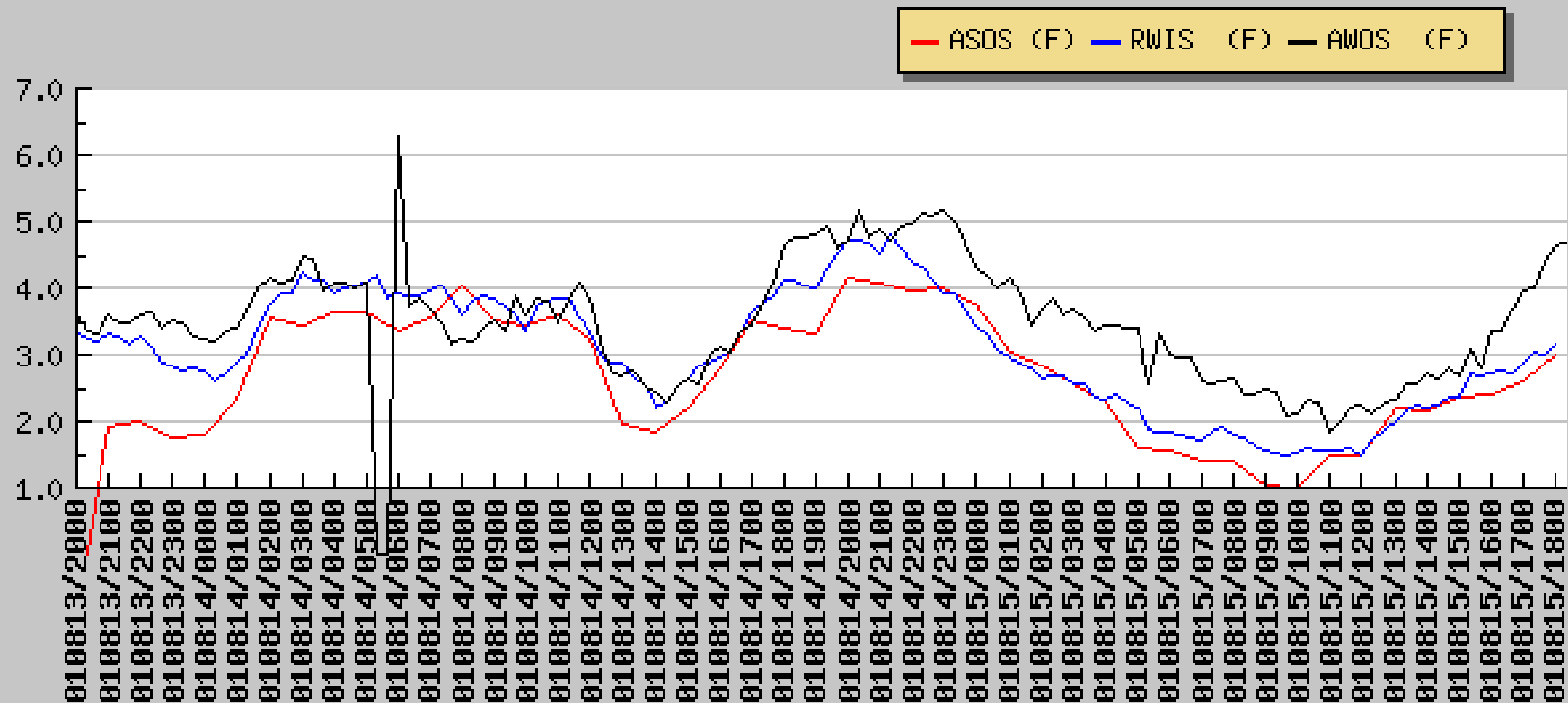
Generated on 09/11/01 06:01:36

# ISU Automated Network hits (2000)

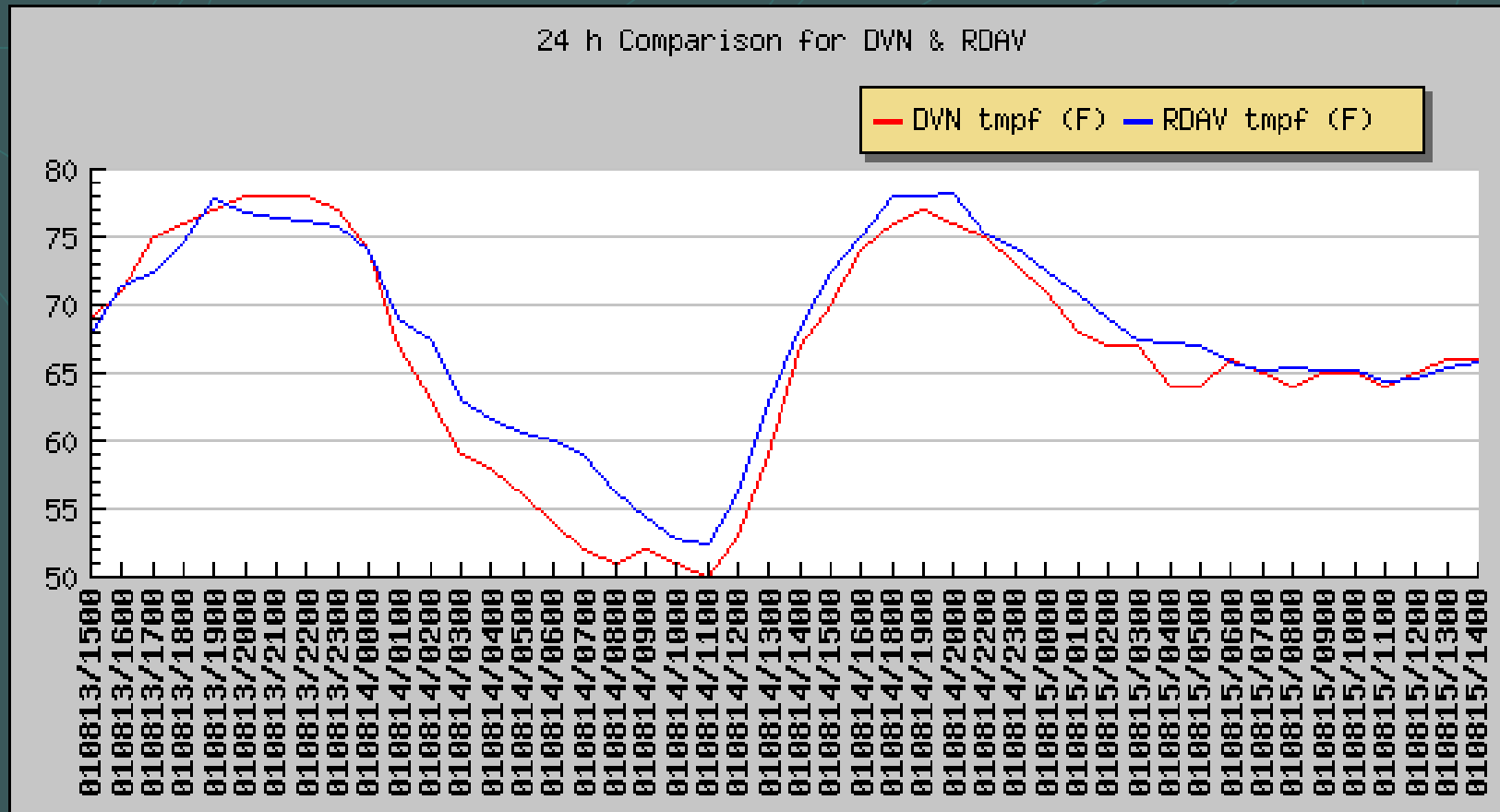


# Products – Network comparison

Last 48 h Standard Deviations for Temperature Obs



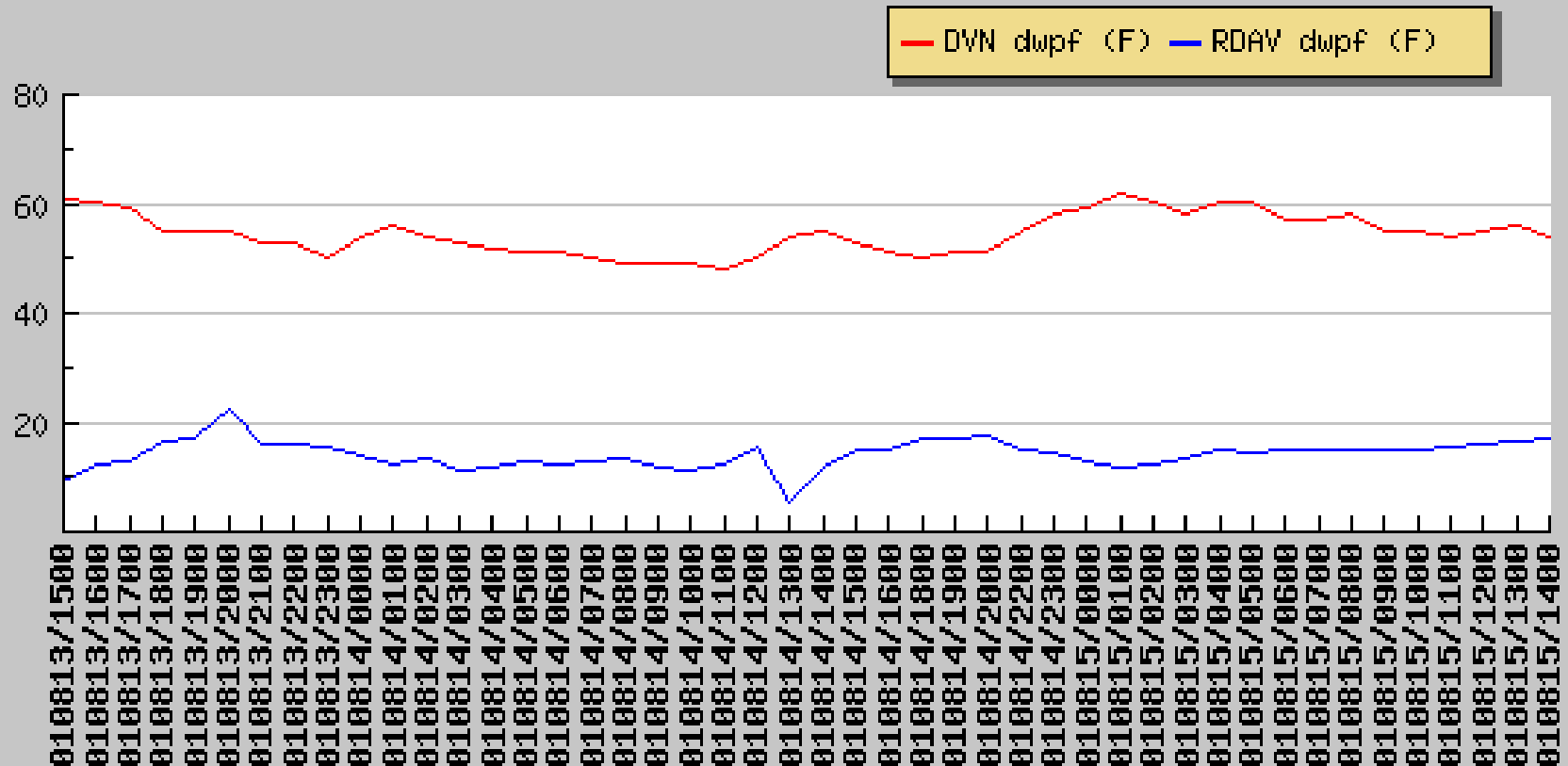
# Products – Davenport AWOS- RWIS



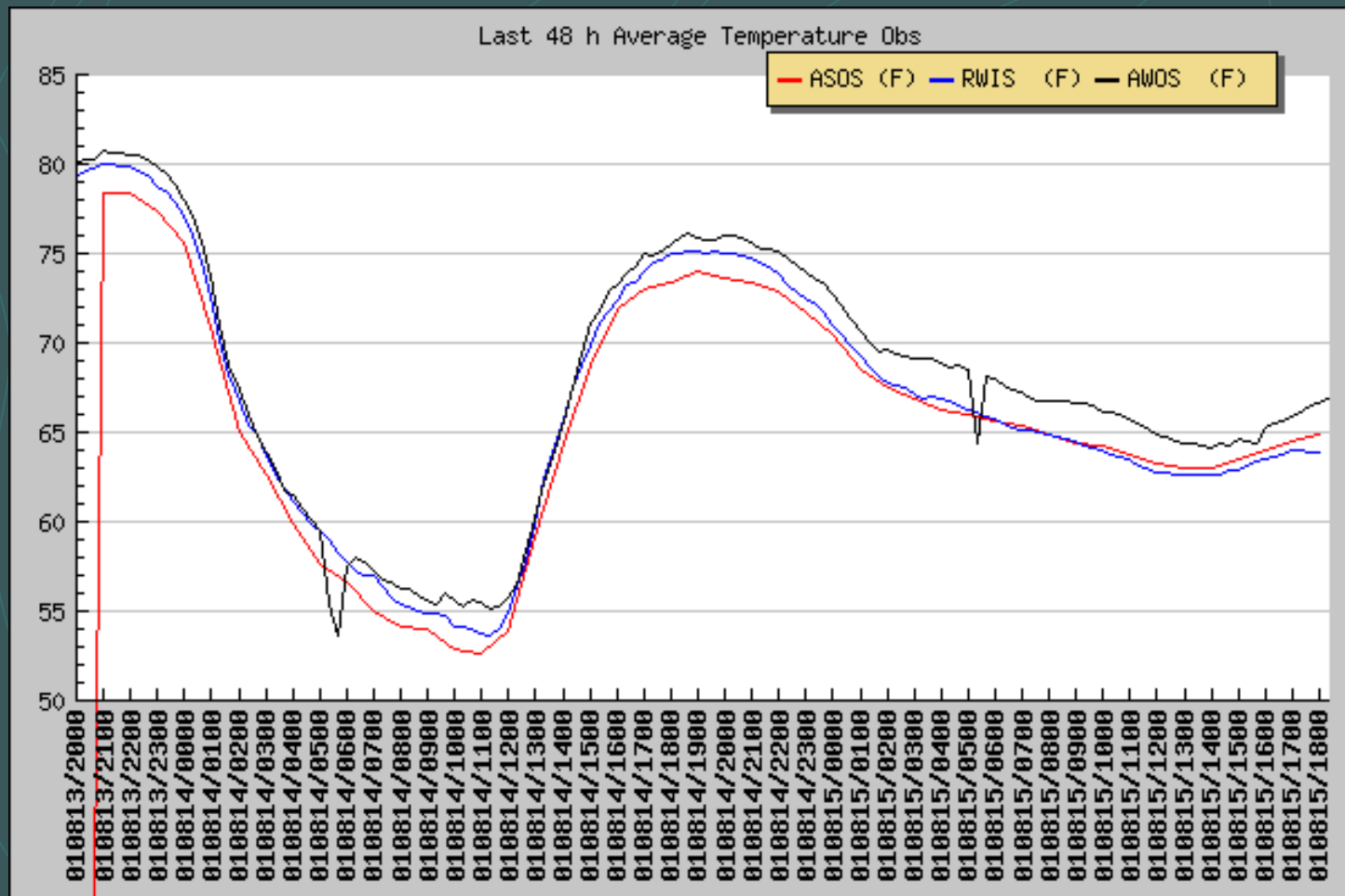


# Products – Davenport AWOS-RWIS

24 h Comparison for DVN & RDAV



# Products – Network comparison

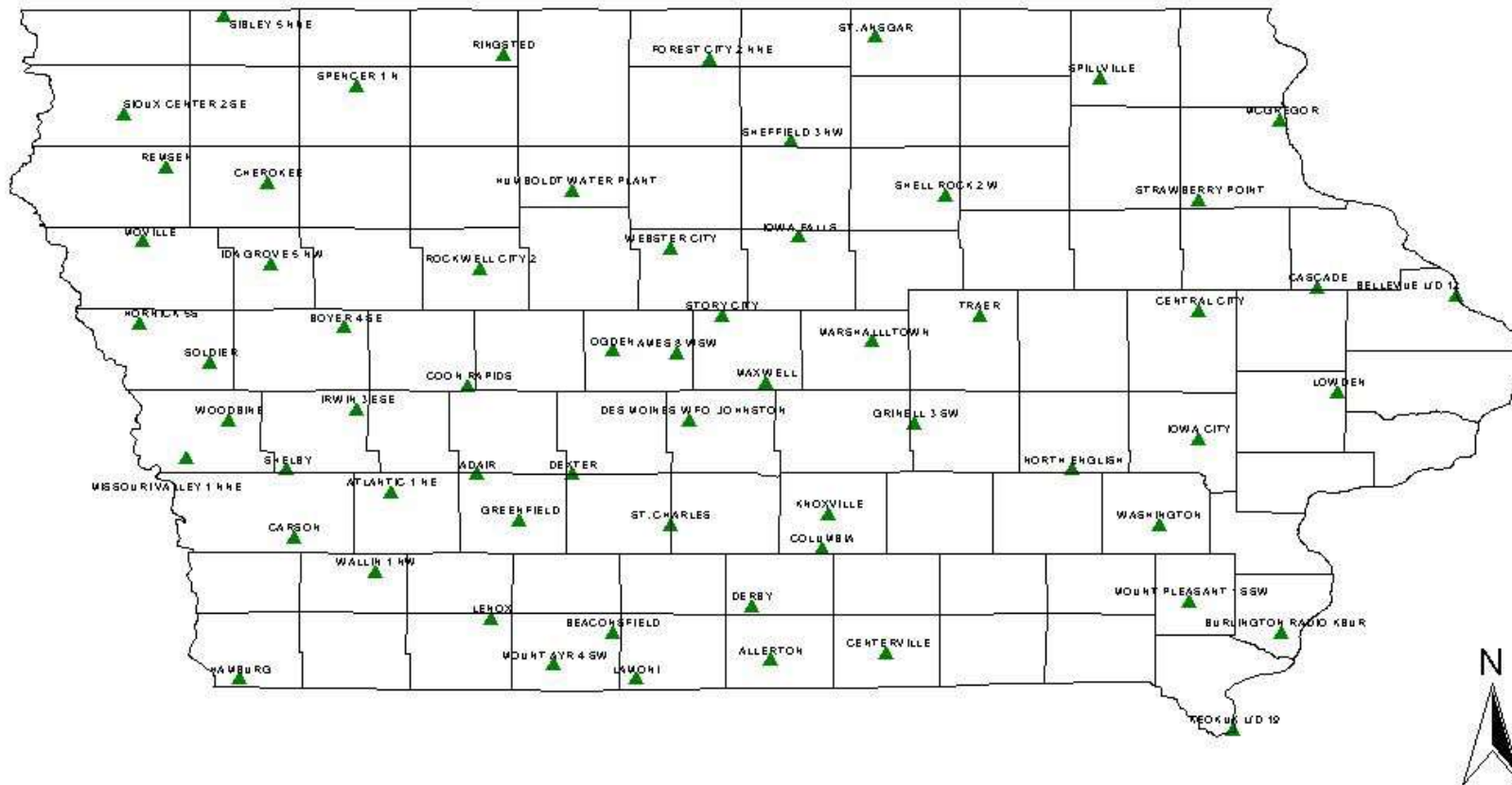


# NWS Fisher Porter Gages

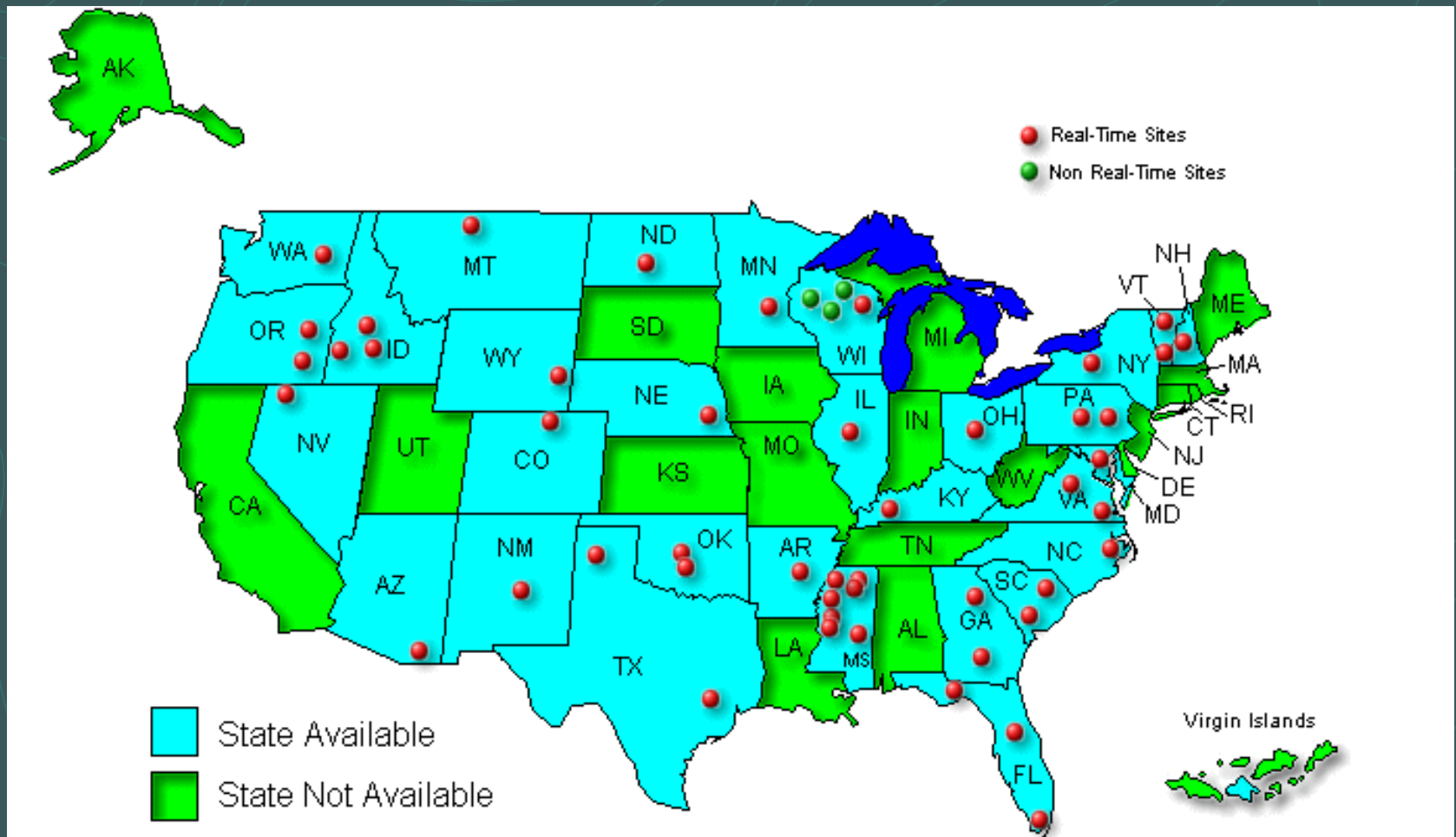


National Weather Service

Cooperative  
Observer  
Program



# SCAN (Soil Climate Analysis Network)





# SCAN (Soil Climate Analysis Network)

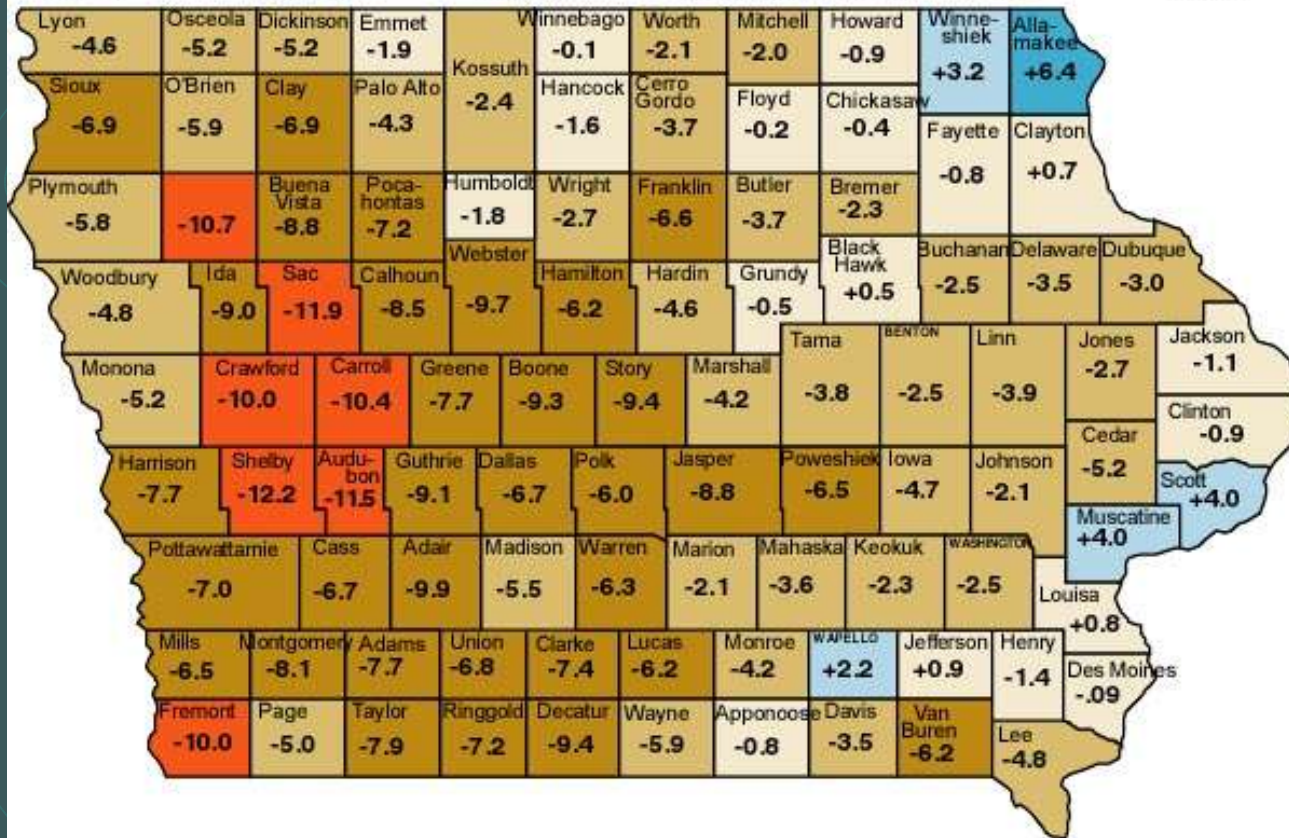
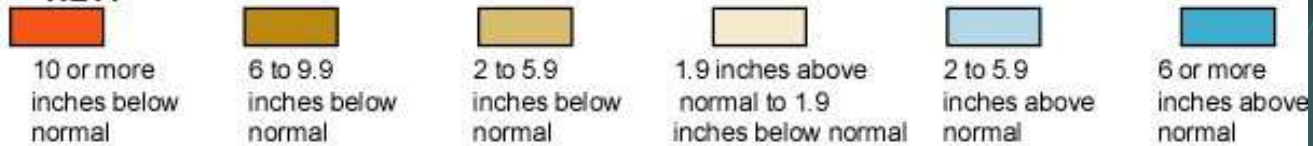
- Air and soil temperature
- Wind
- Relative humidity
- Precipitation
- Soil moisture
- Solar radiation
- Snowfall and depth



# Iowa rainfall totals

County precipitation estimates, Sept. 1, 1999 - July 17:

KEY:



SOURCE: State Climatologist, Iowa Dept. of Agriculture and Land Stewardship

Could be created daily