

Iowa Environmental Mesonet

October 4, 2001

Dennis Todey

Iowa State University

Iowa Environmental Mesonet

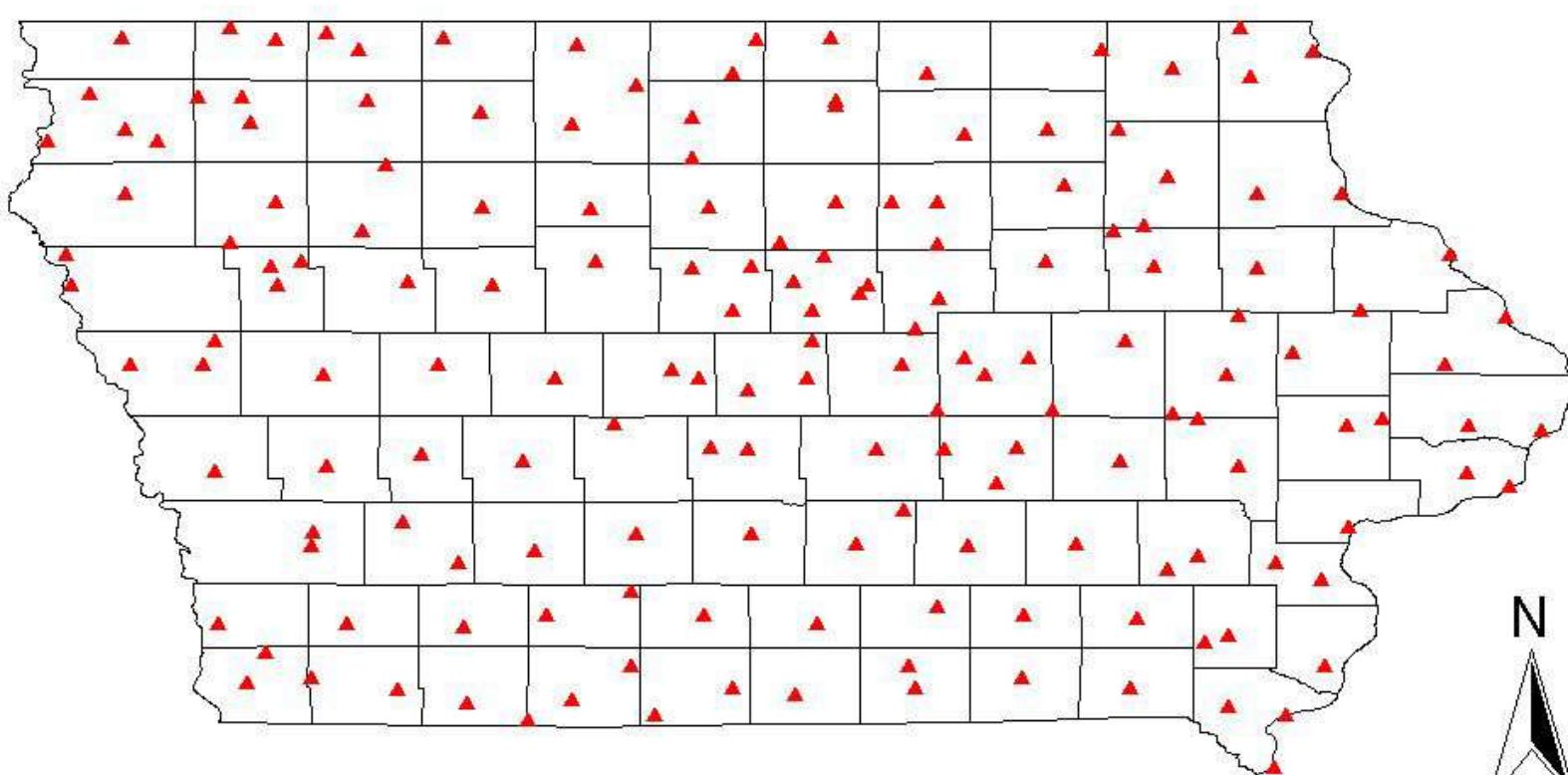
- History
- IEM – What is it?
- Assessment
- Current Products & Web site
- Input from YOU!

IEM – How is it different?

Other mesonets have been built from scratch at great cost.

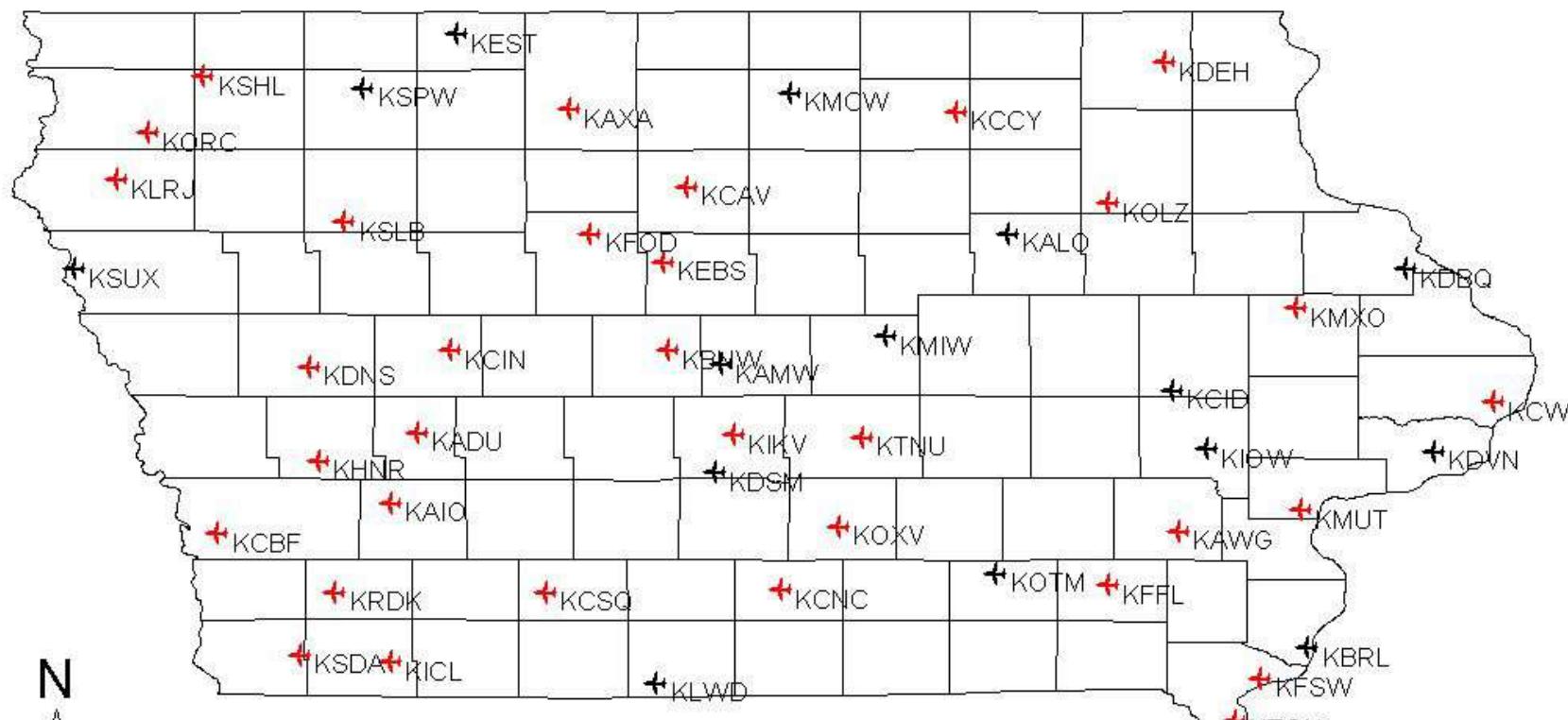
The IEM attempts to capitalize on existing resources and supplement them. This can be a model for other states and the nation.

NWS 8 Inch Standing Rain Gages





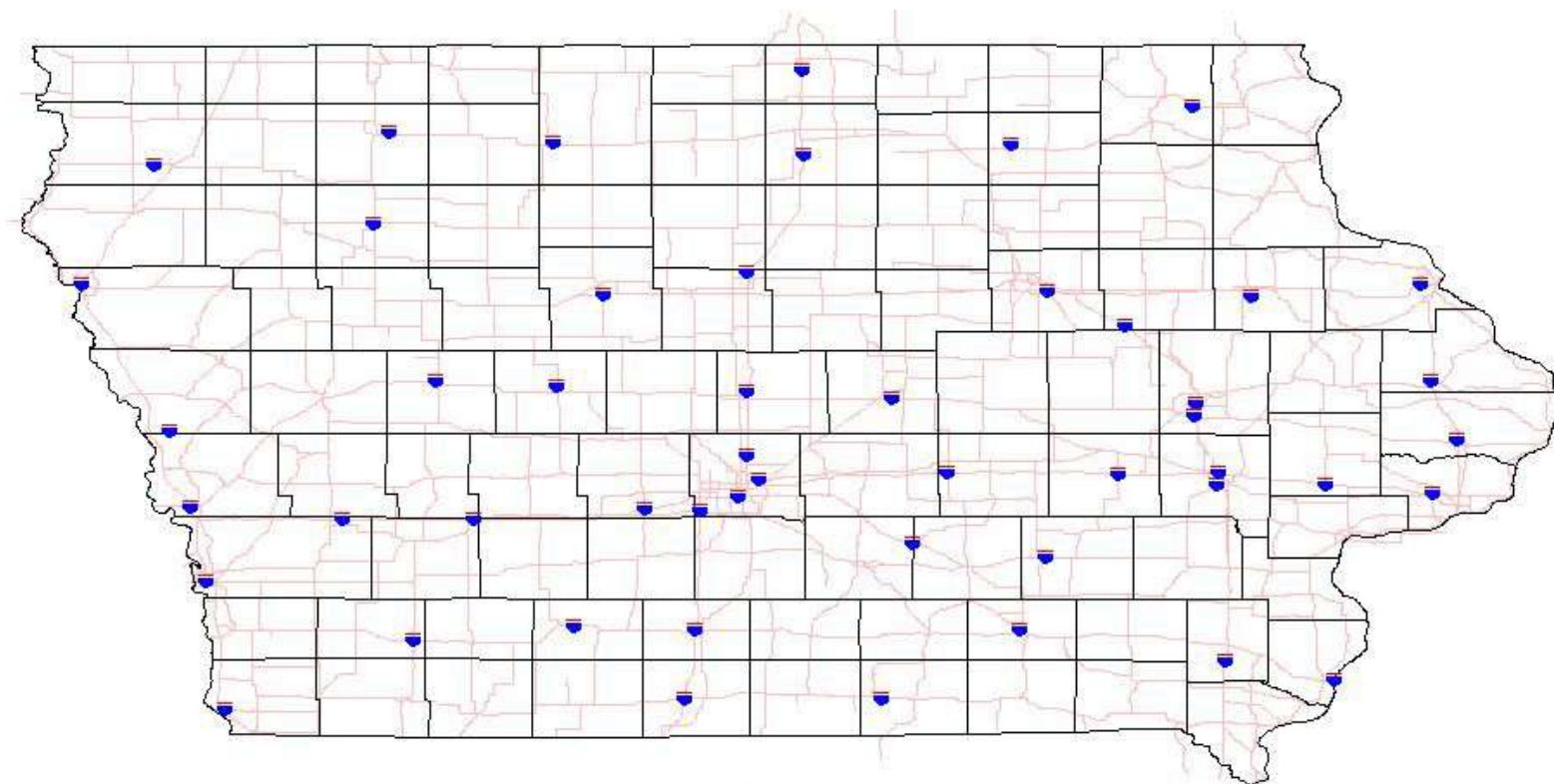
Iowa ASOS/AWOS Weather Stations



+ ASOS
+ AWOS



IaDOT RWIS Network



■ IaDOT RWIS

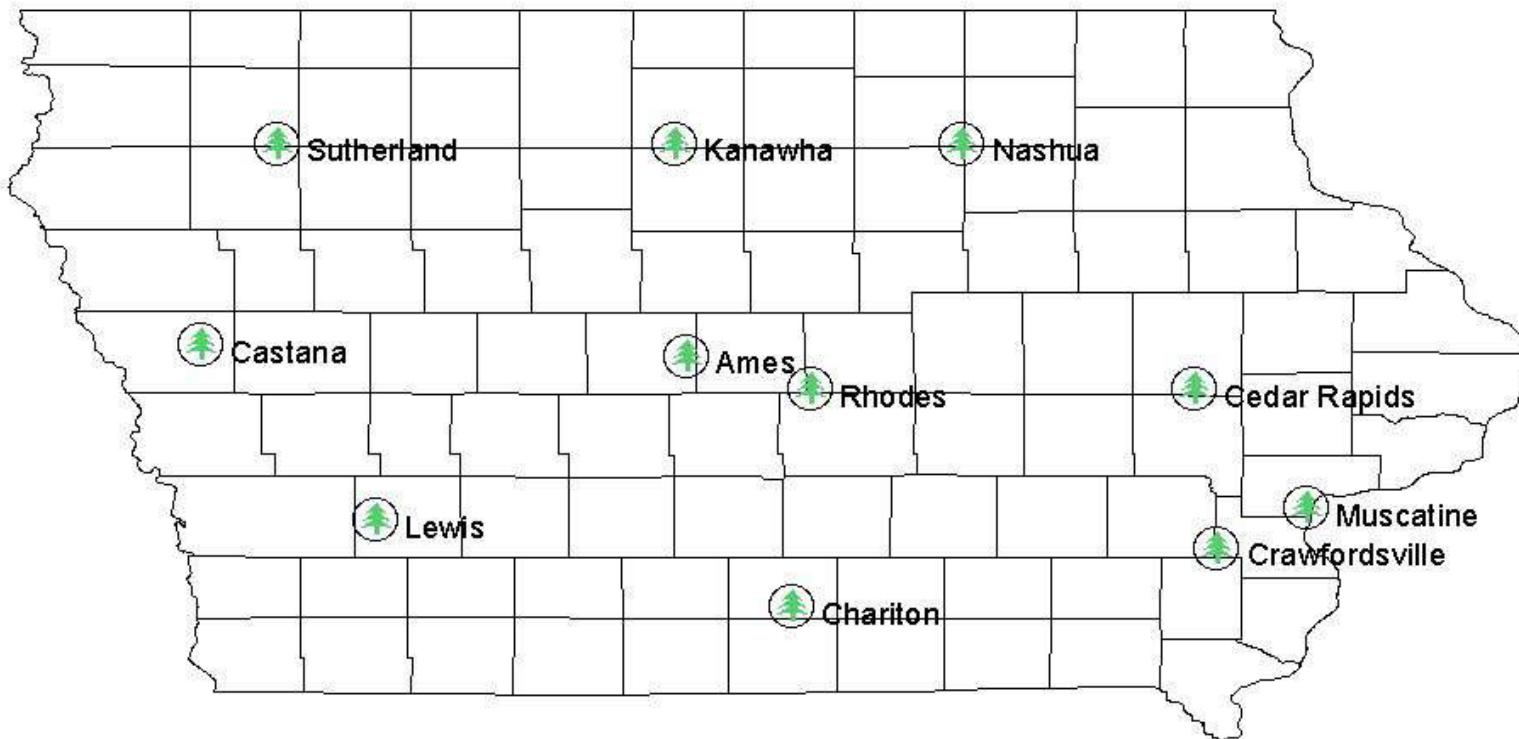
 Iowa Highways



Iowa Department
of Transportation



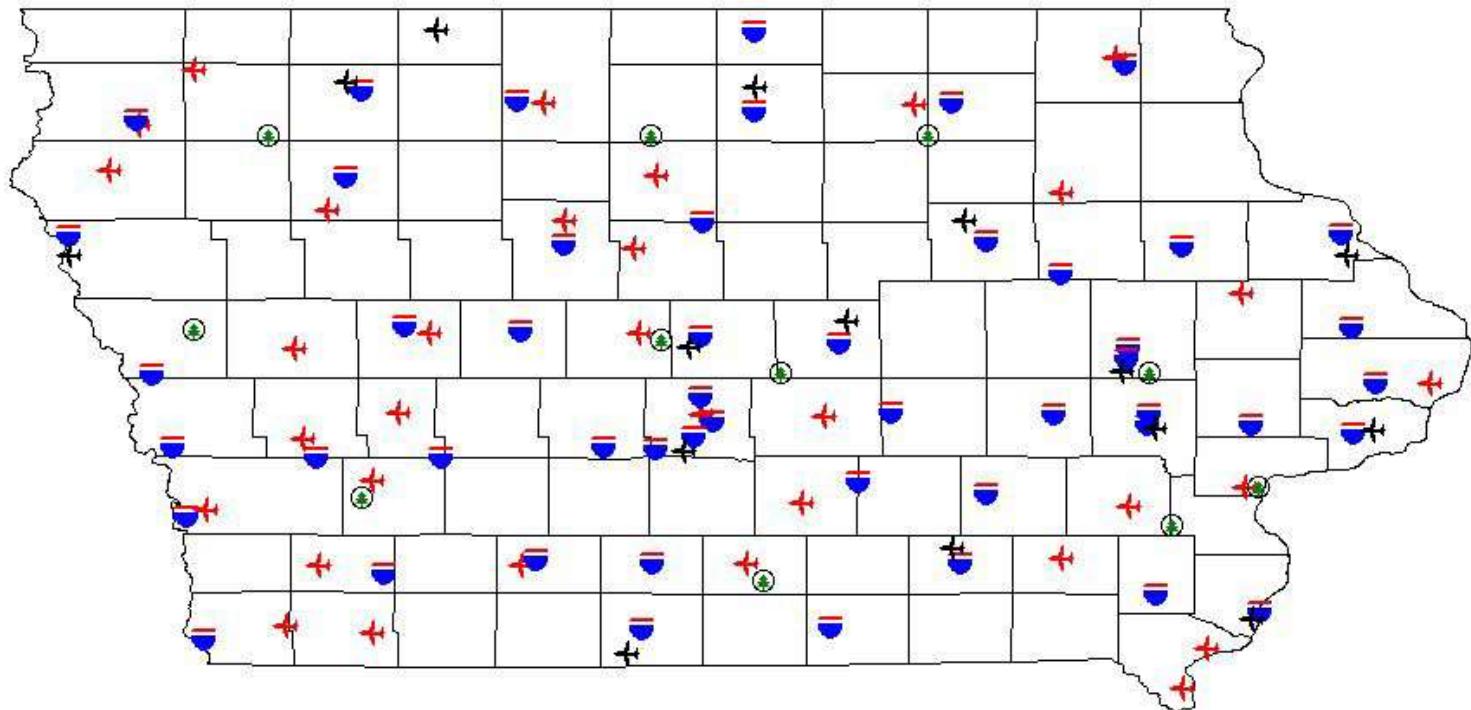
ISU Campbell Network



For more information:
www.meteor.iastate.edu/agclimate/index.html



Iowa Automated Weather Stations



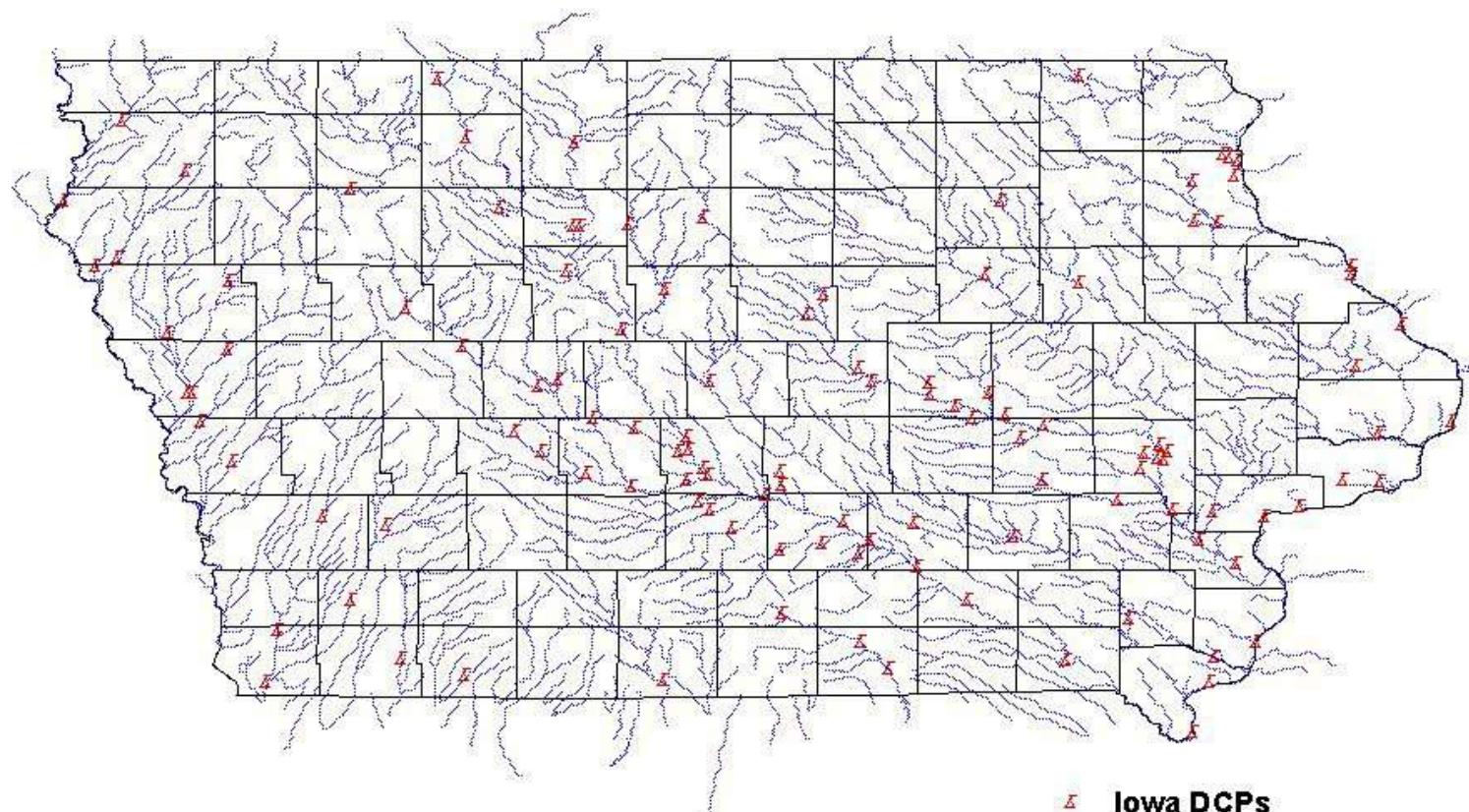
- ISU Campbell Stations
- NWS/FAA ASOS
- IaDOT RWIS
- IaDOT AWOS



USGS and COE Data Collection Platforms



US Army Corps
of Engineers®



Iowa DCPs
 Iowa Rivers and Streams

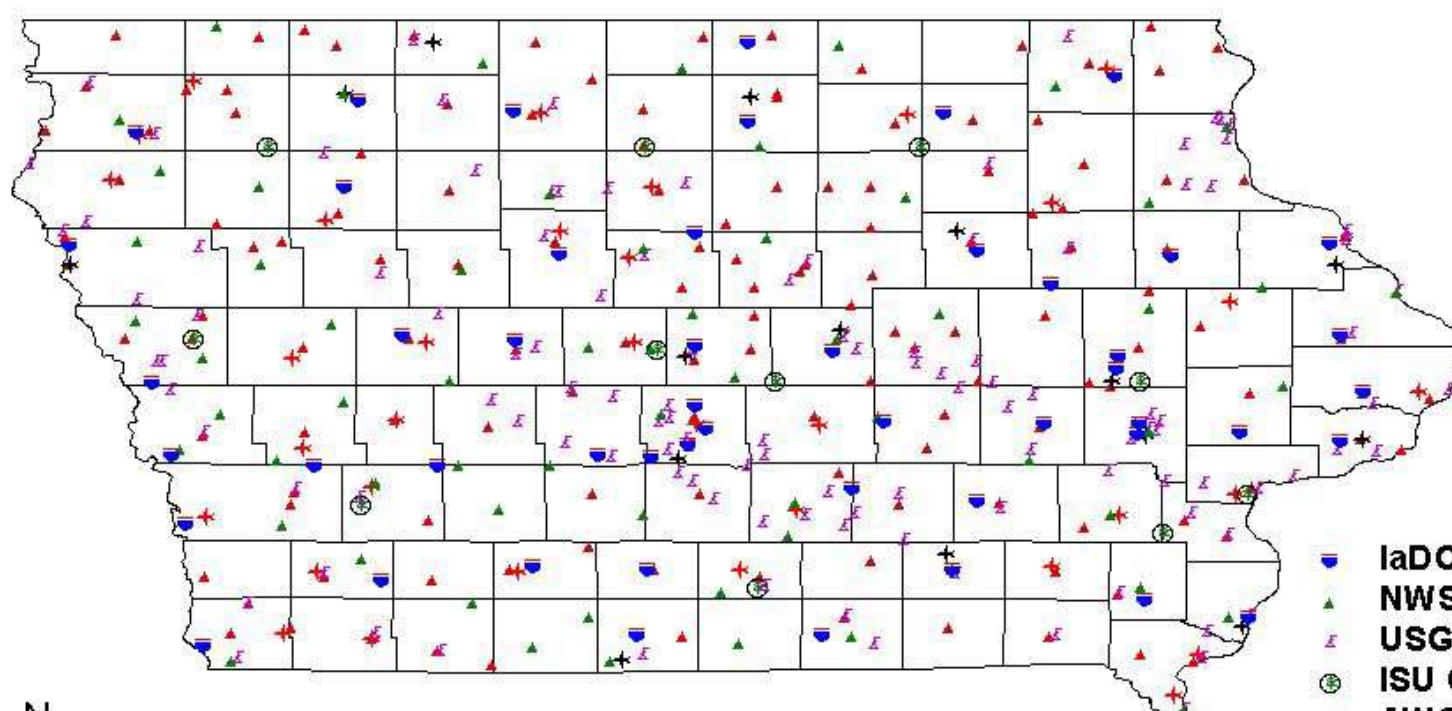
The Iowa Meso Network



CAMPBELL STATION NETWORK
IOWA STATE UNIVERSITY
CROP, SOIL, AND ENVIRONMENTAL SCIENCES



Iowa Department
of Transportation



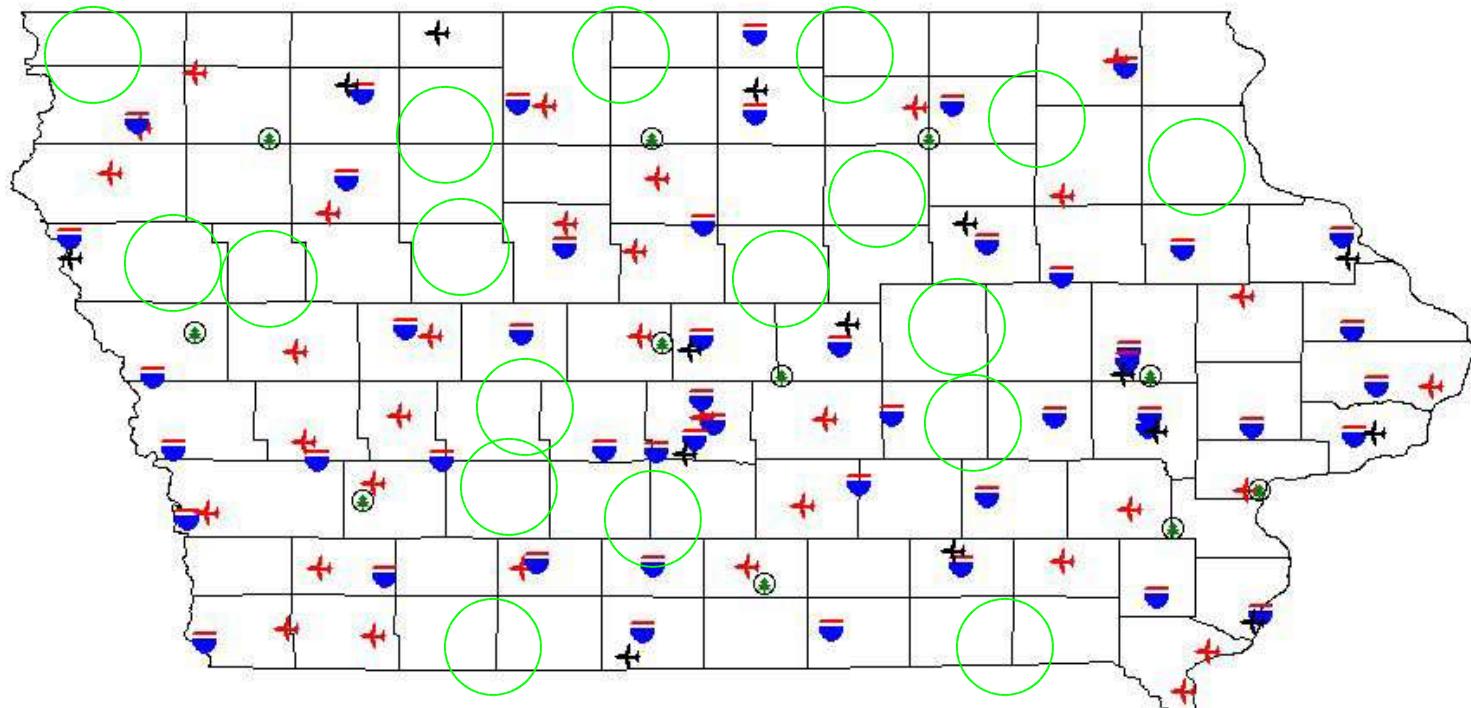
- IaDOT RWIS
- ▲ NWS Fischer Porter
- ✖ USGS/COE DCP
- ISU Campbell
- ★ AWOS
- + ASOS
- △ NWS 8 inch Gages



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)

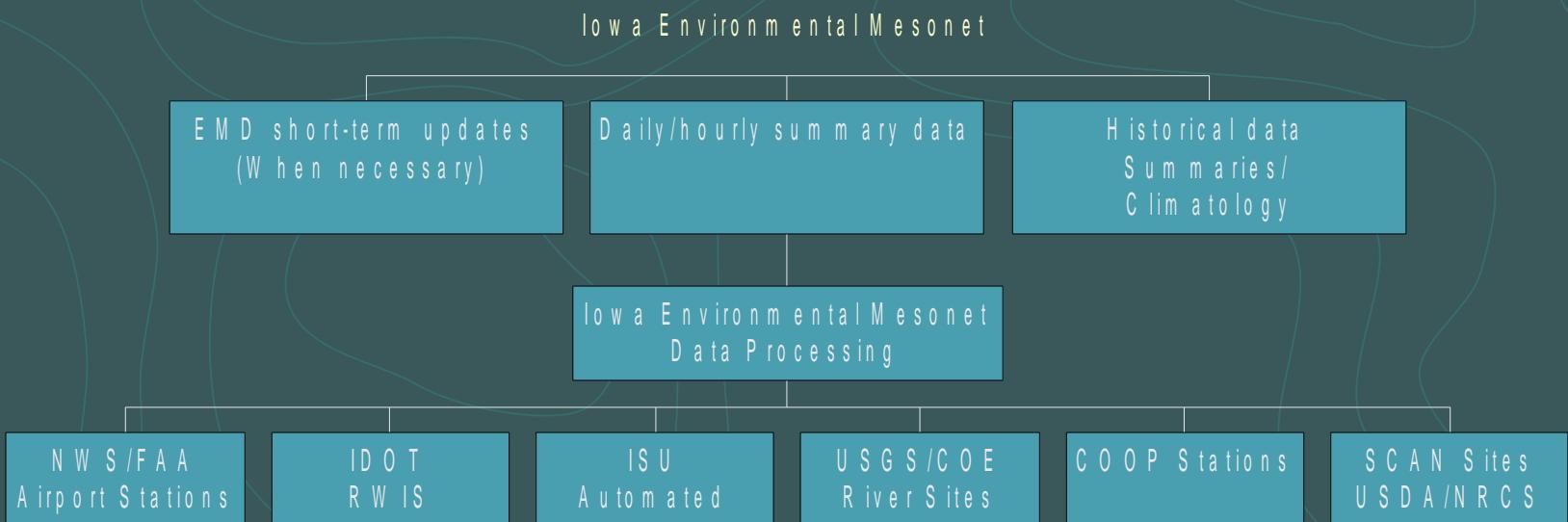
Iowa Automated Weather Stations



- 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

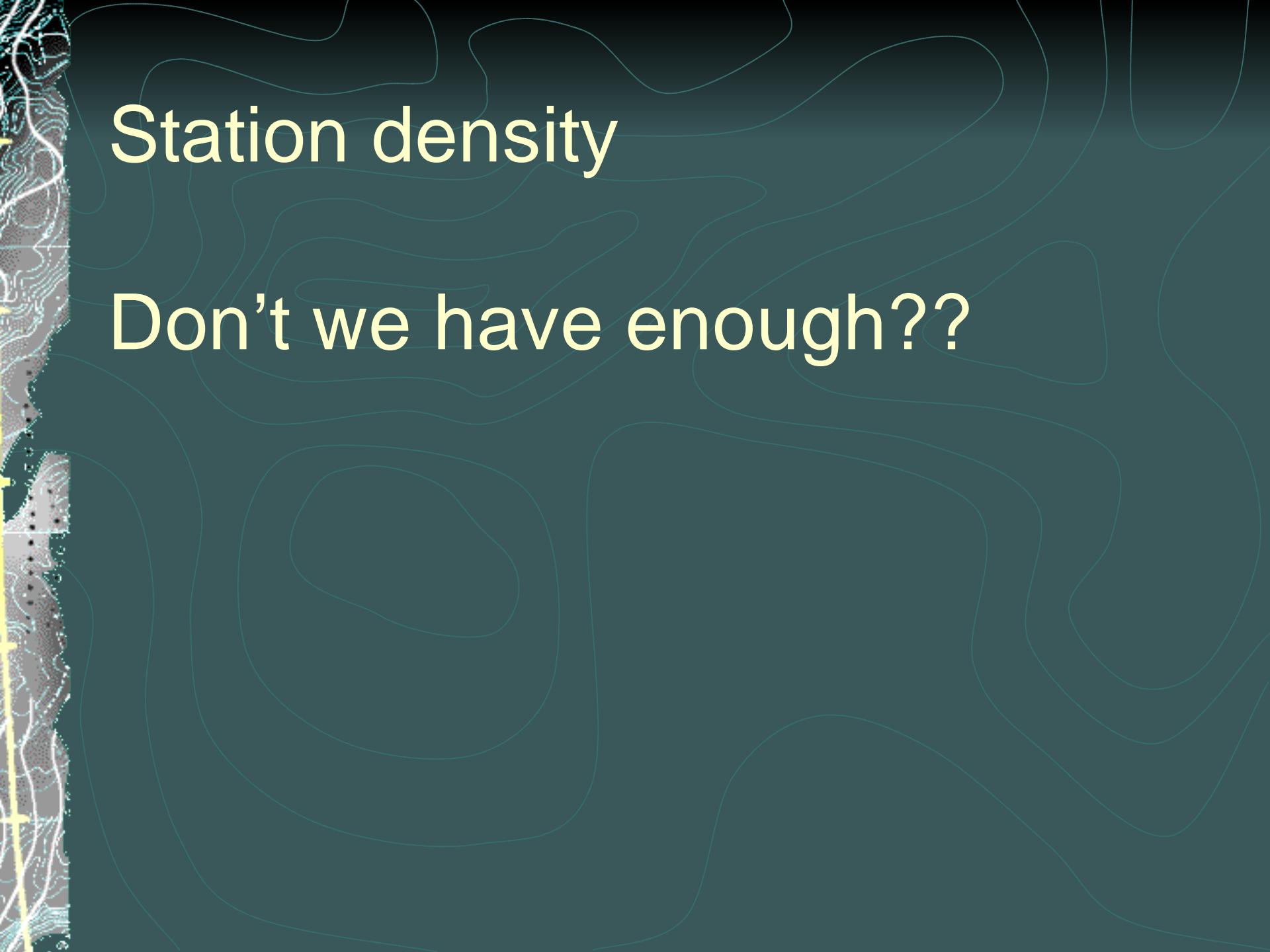
Cooperators/Supporters

- 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 21st Century”*



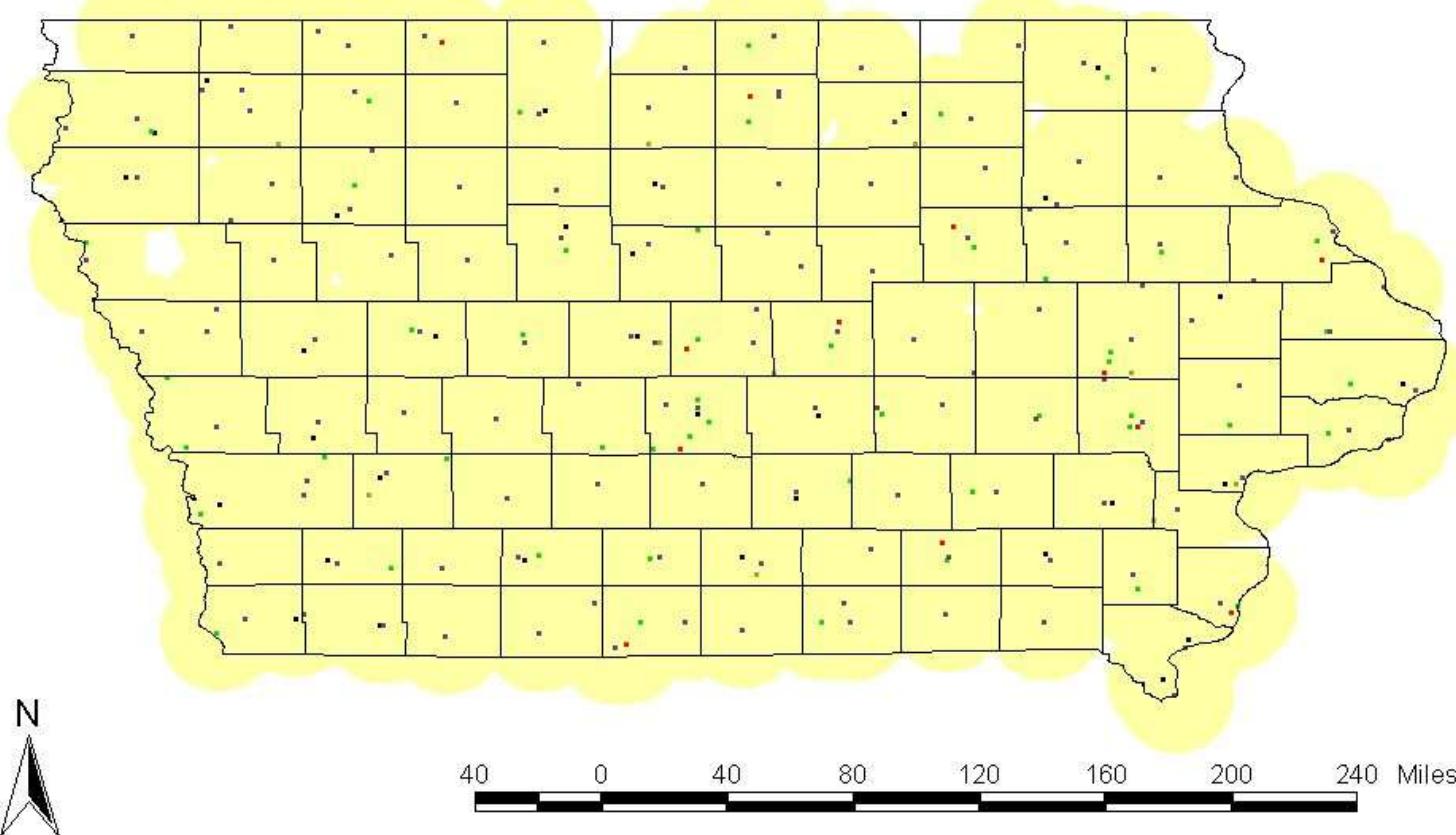
Station density

Don't we have enough??

Maximum temperature

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

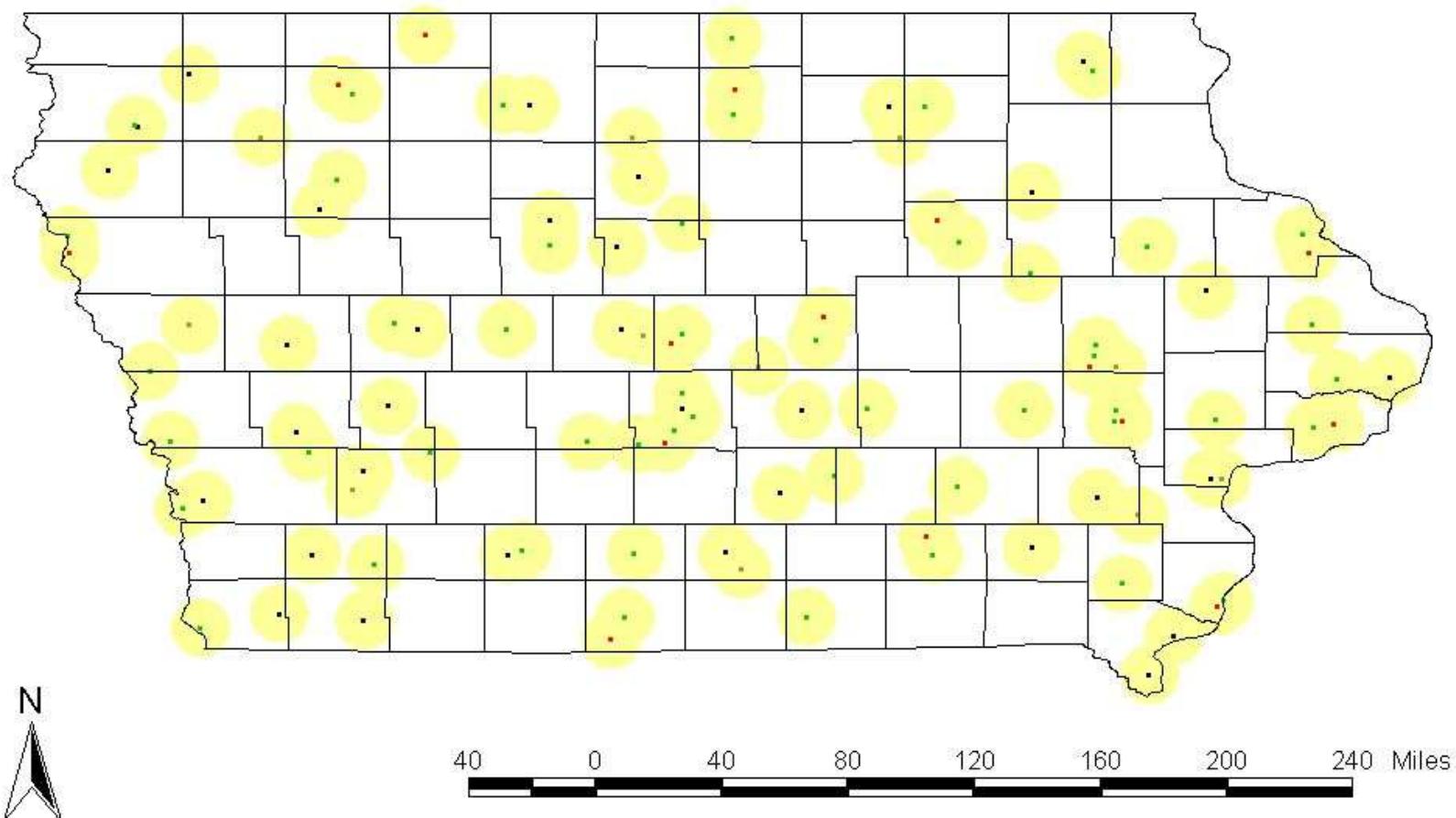
- Iowa Counties
- Coop Stations with Temperature
- RWIS
- CAMPBELL
- AWOS
- ASOS
- Max Temperature (30km)



Relative humidity

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

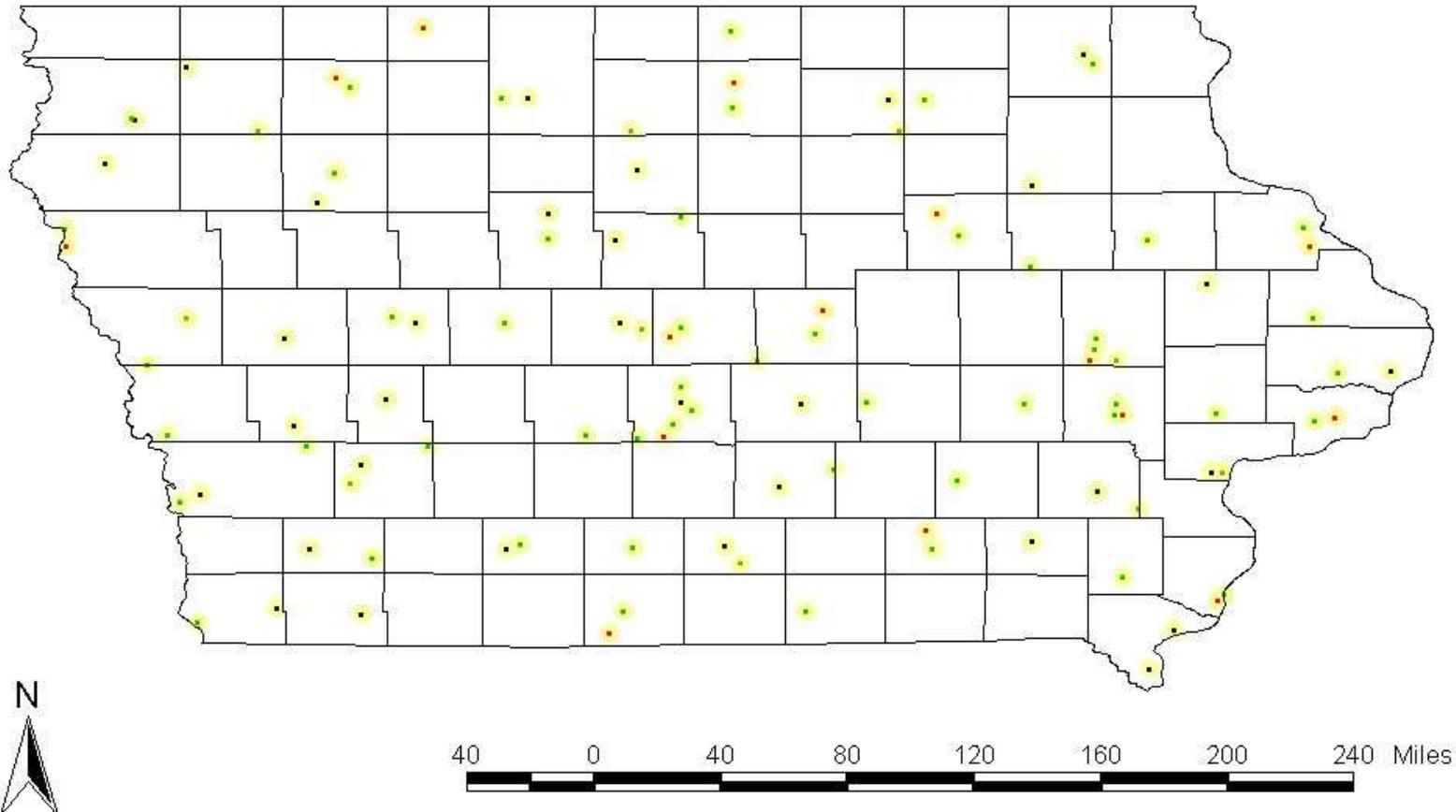
- Iowa Counties
- RWIS
- CAMPBELL
- AWOS
- ASOS
- Relative Humidity Coverage



Wind

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

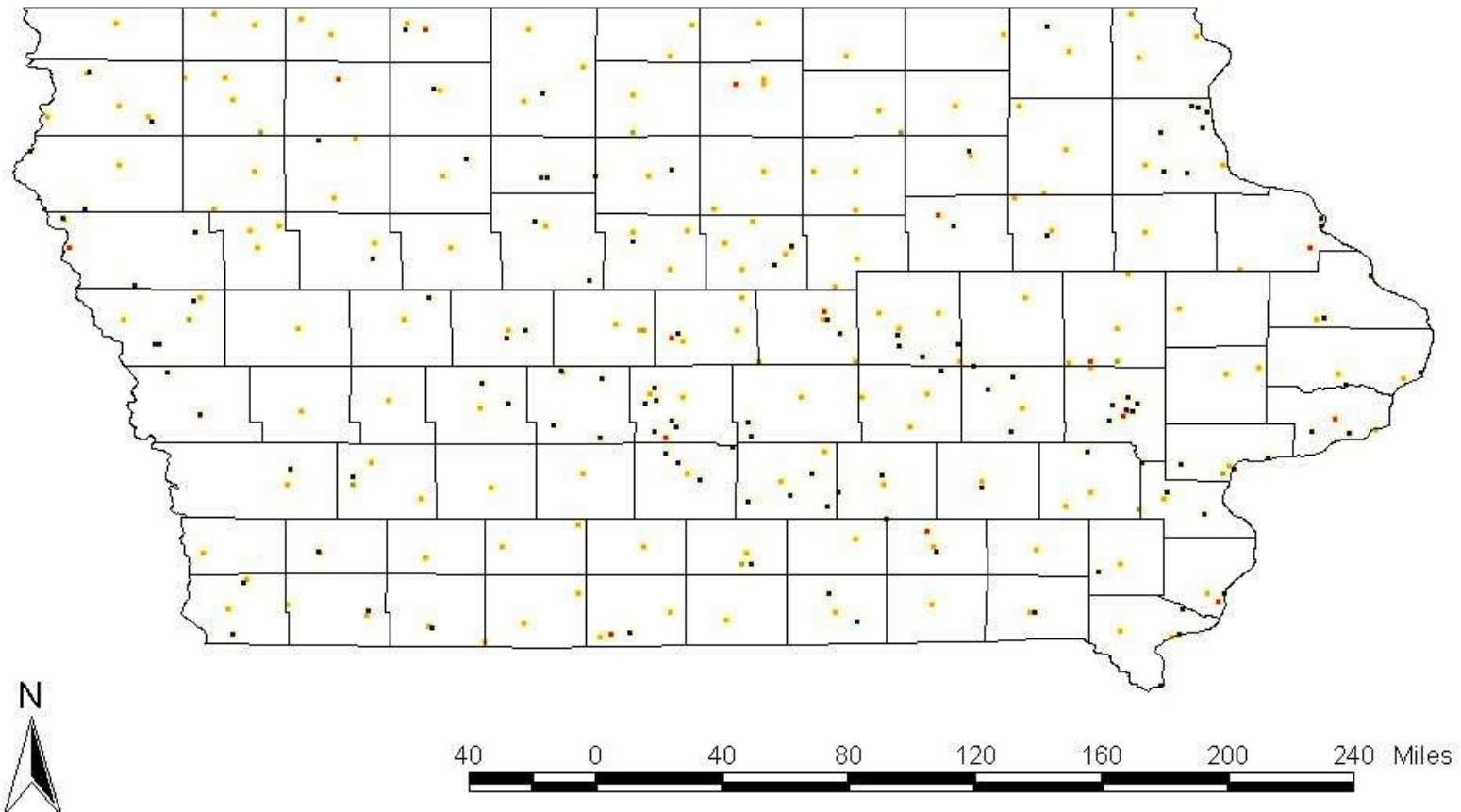
- Iowa Counties
- RWIS
- CAMPBELL
- AWOS
- ASOS
- Wind Coverage



Precipitation

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

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



Current Products

What do we have now?

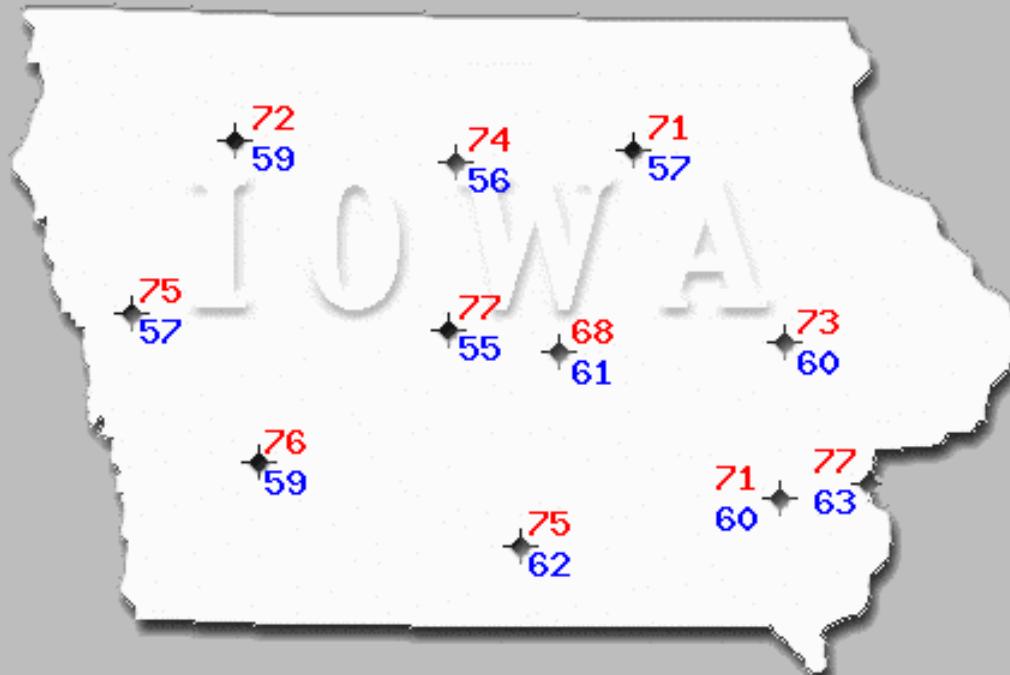
<http://mesonet.agron.iastate.edu>

Current Products

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

ISU Automate Network Soil Temp

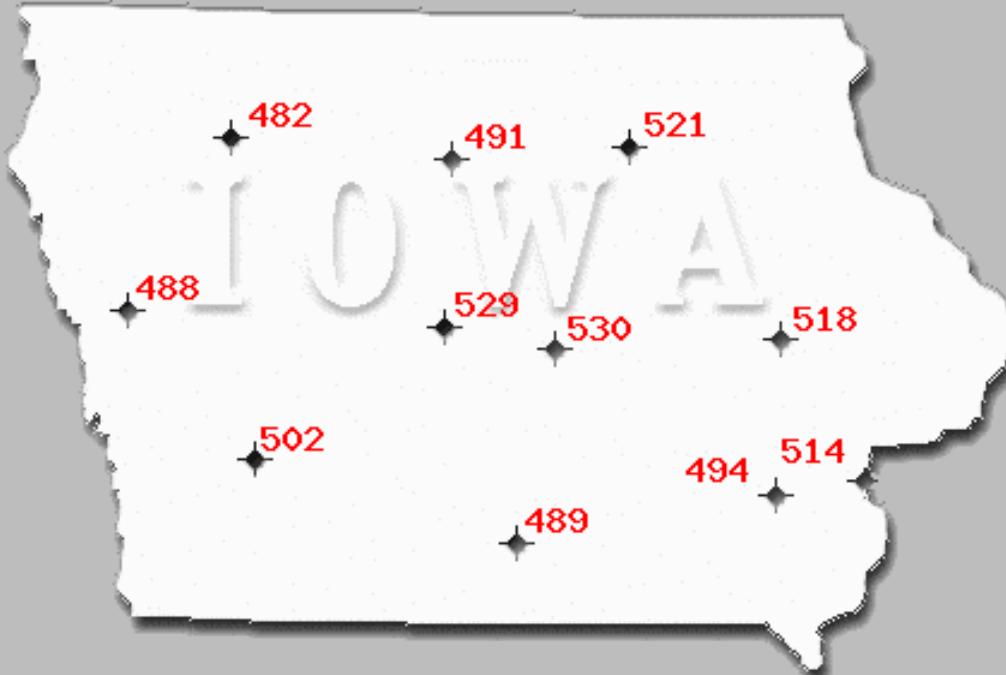
High & Low 4 in Soil Temperatures September 10, 2001



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

ISU Automate Network Solar Rad

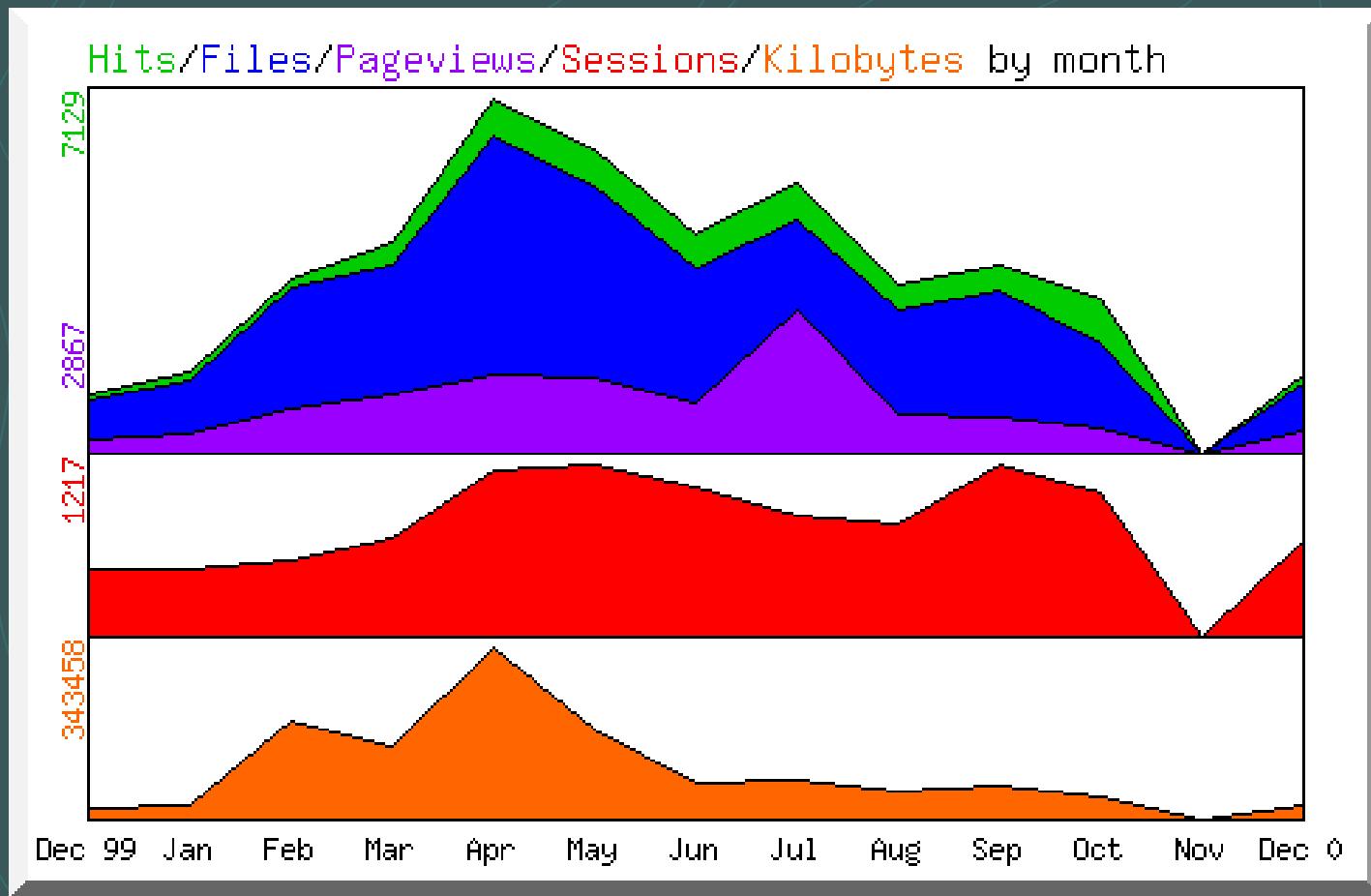
Total Radiation values on September 10, 2001



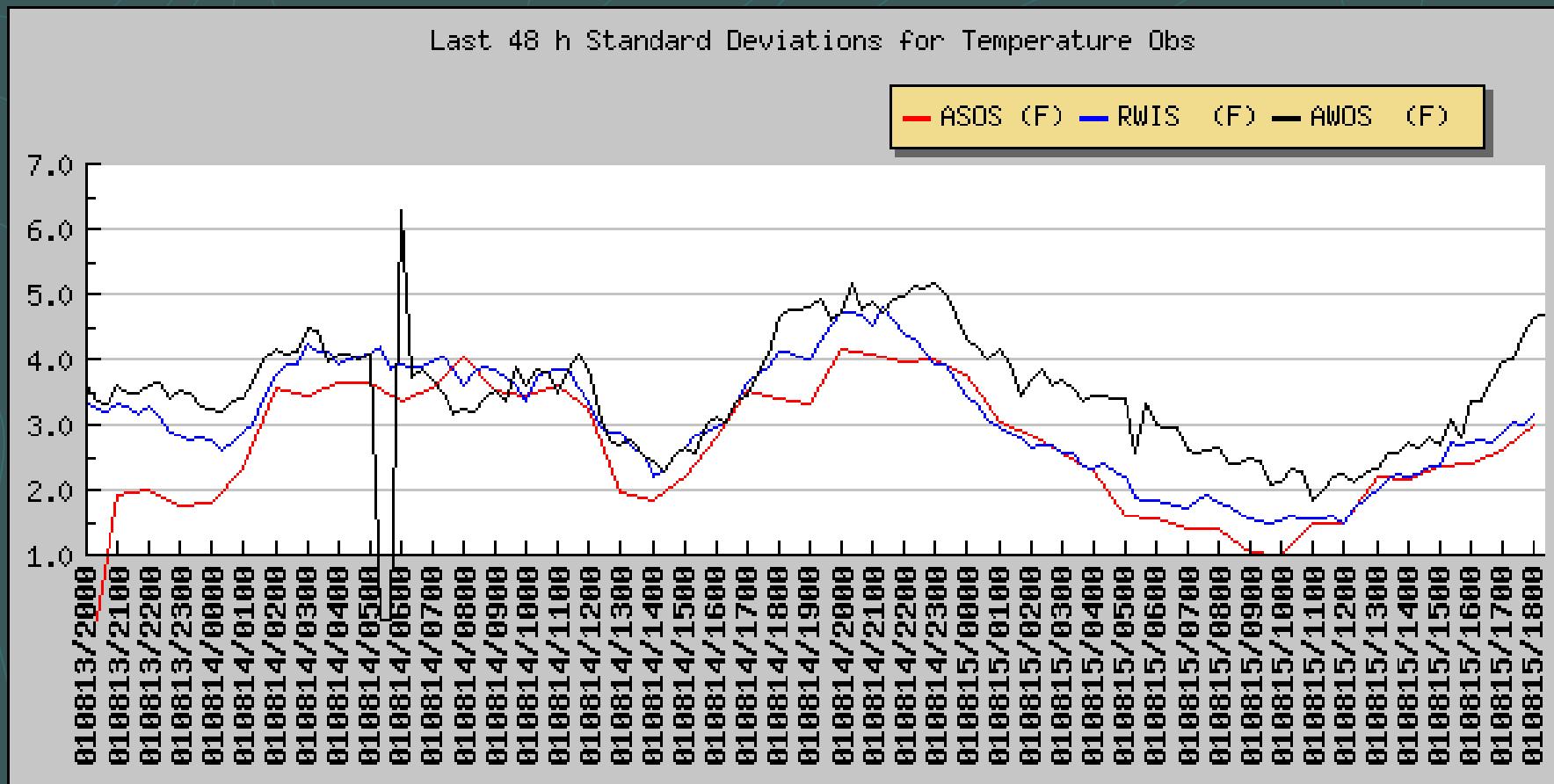
[Langleys]

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

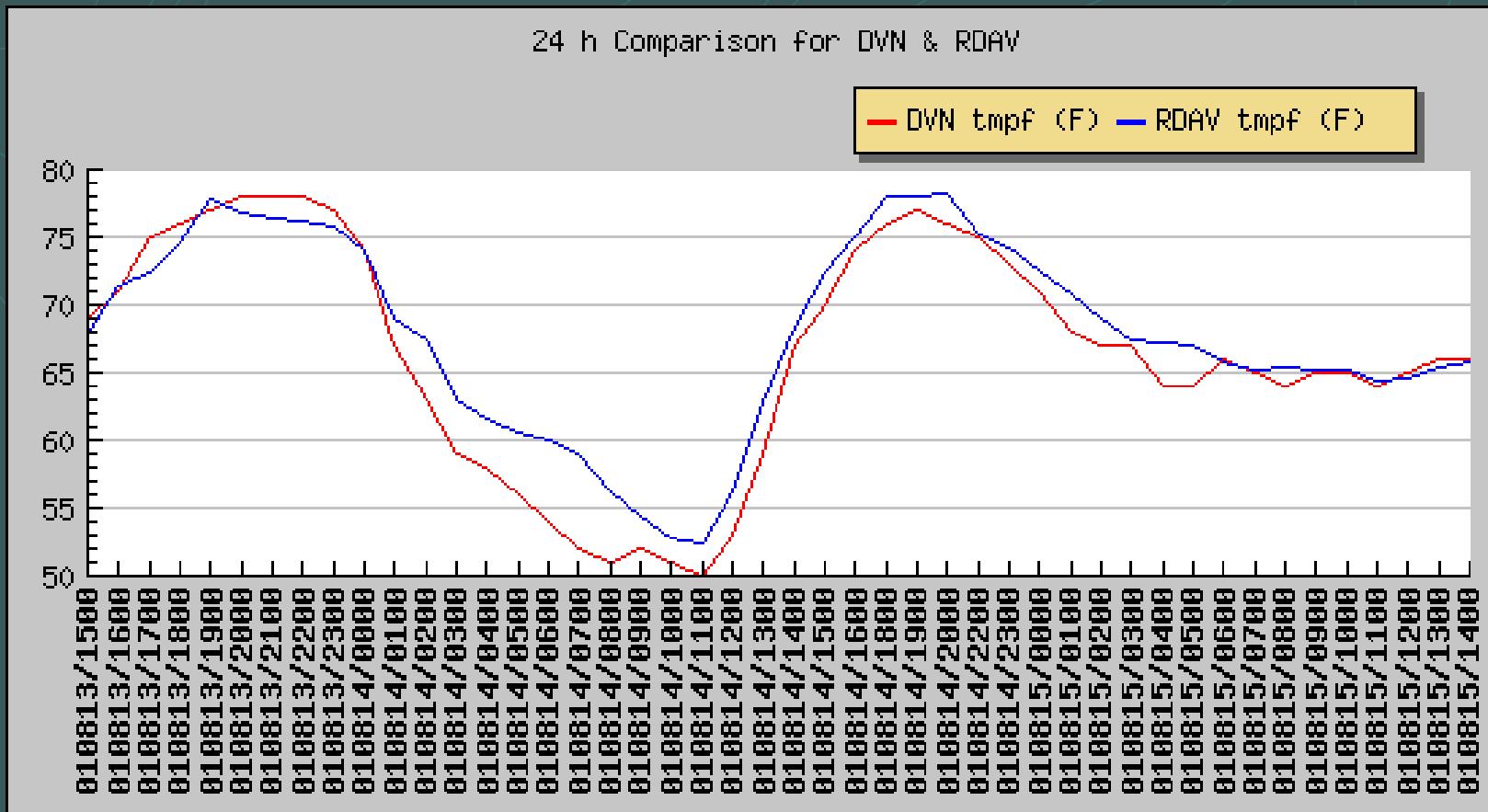
ISU Automated Network hits (2000)



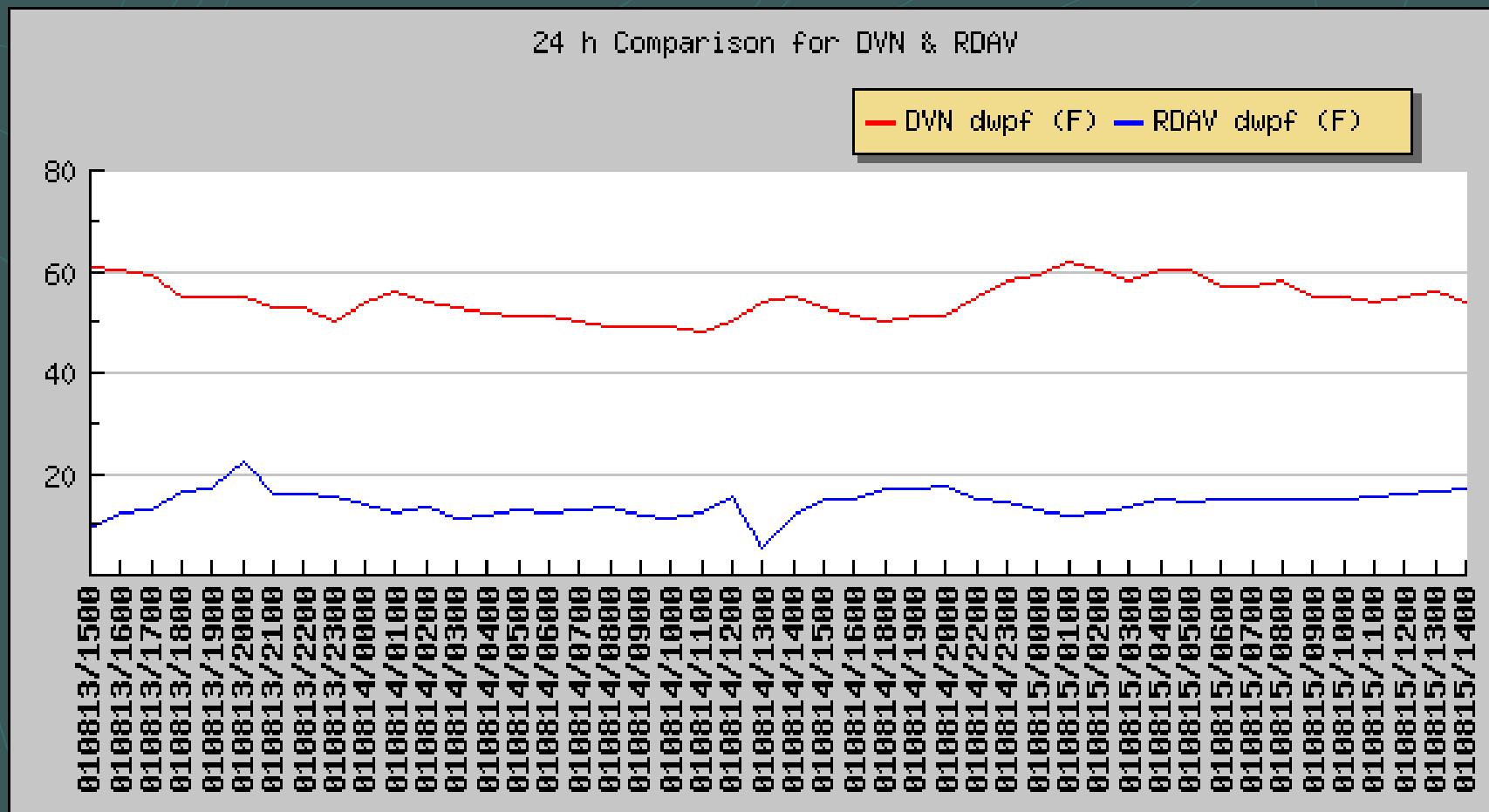
Products – Network comparison



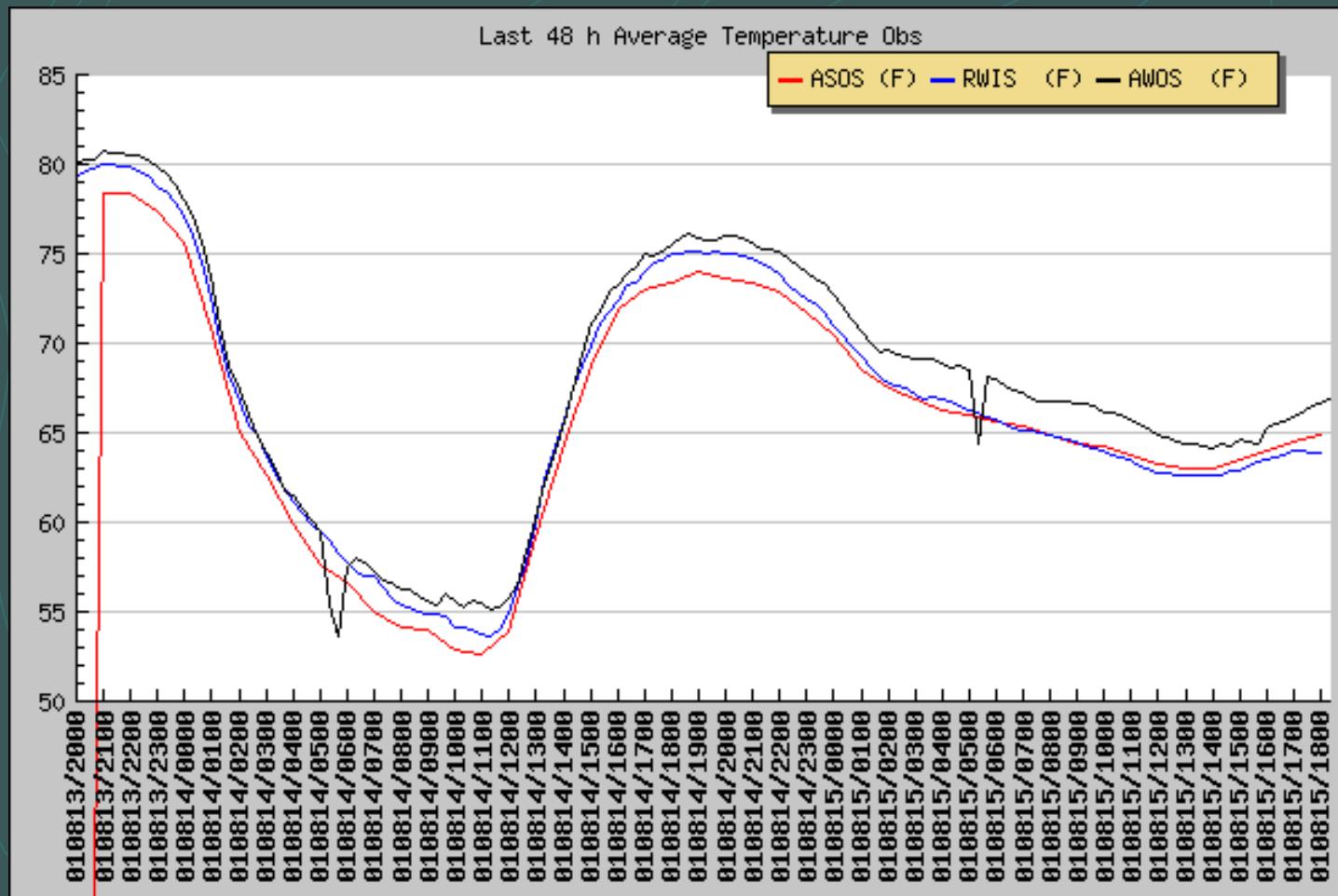
Products – Davenport AWOS-RWIS



Products – Davenport AWOS-RWIS



Products – Network comparison

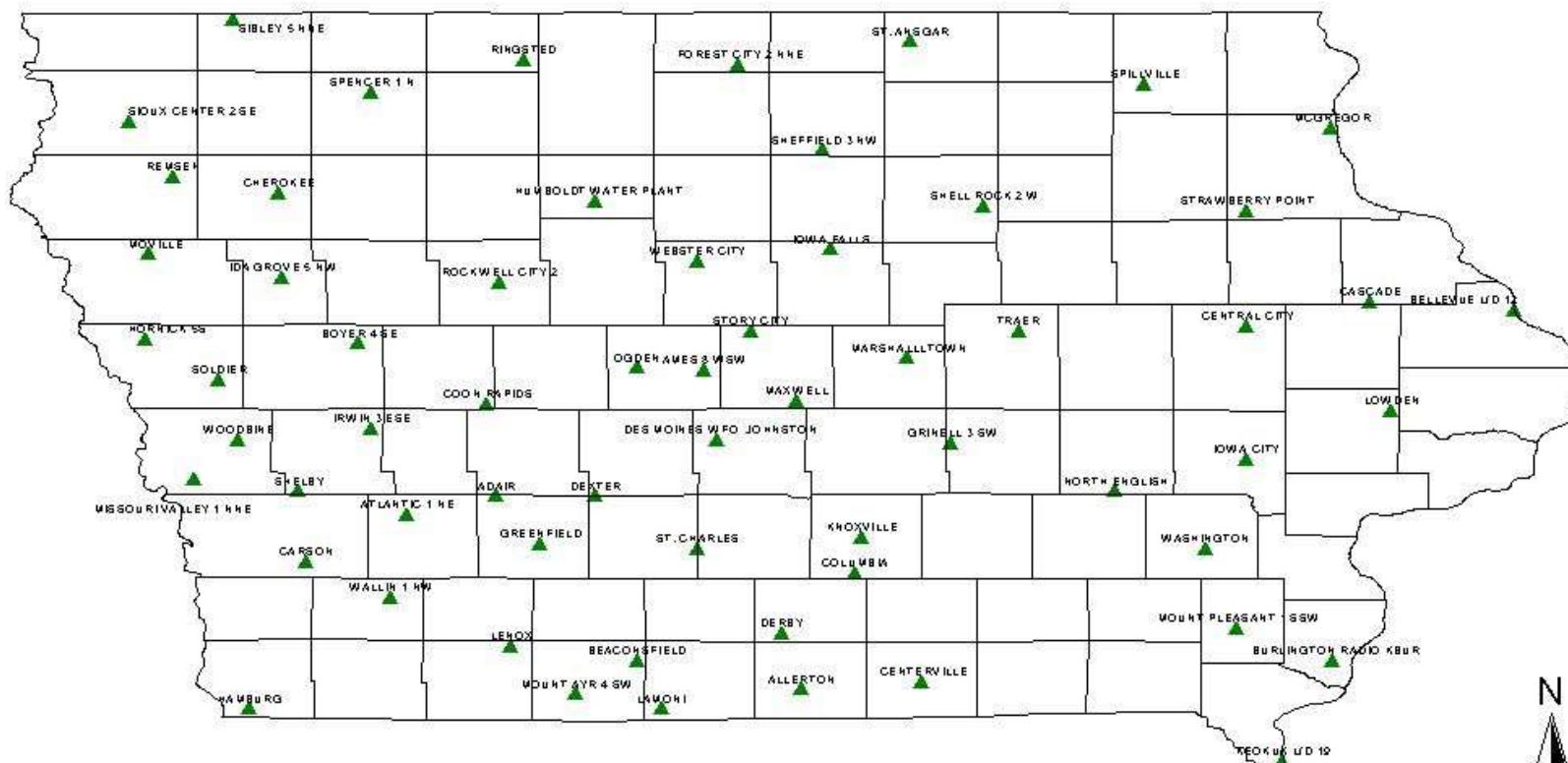


NWS Fisher Porter Gages

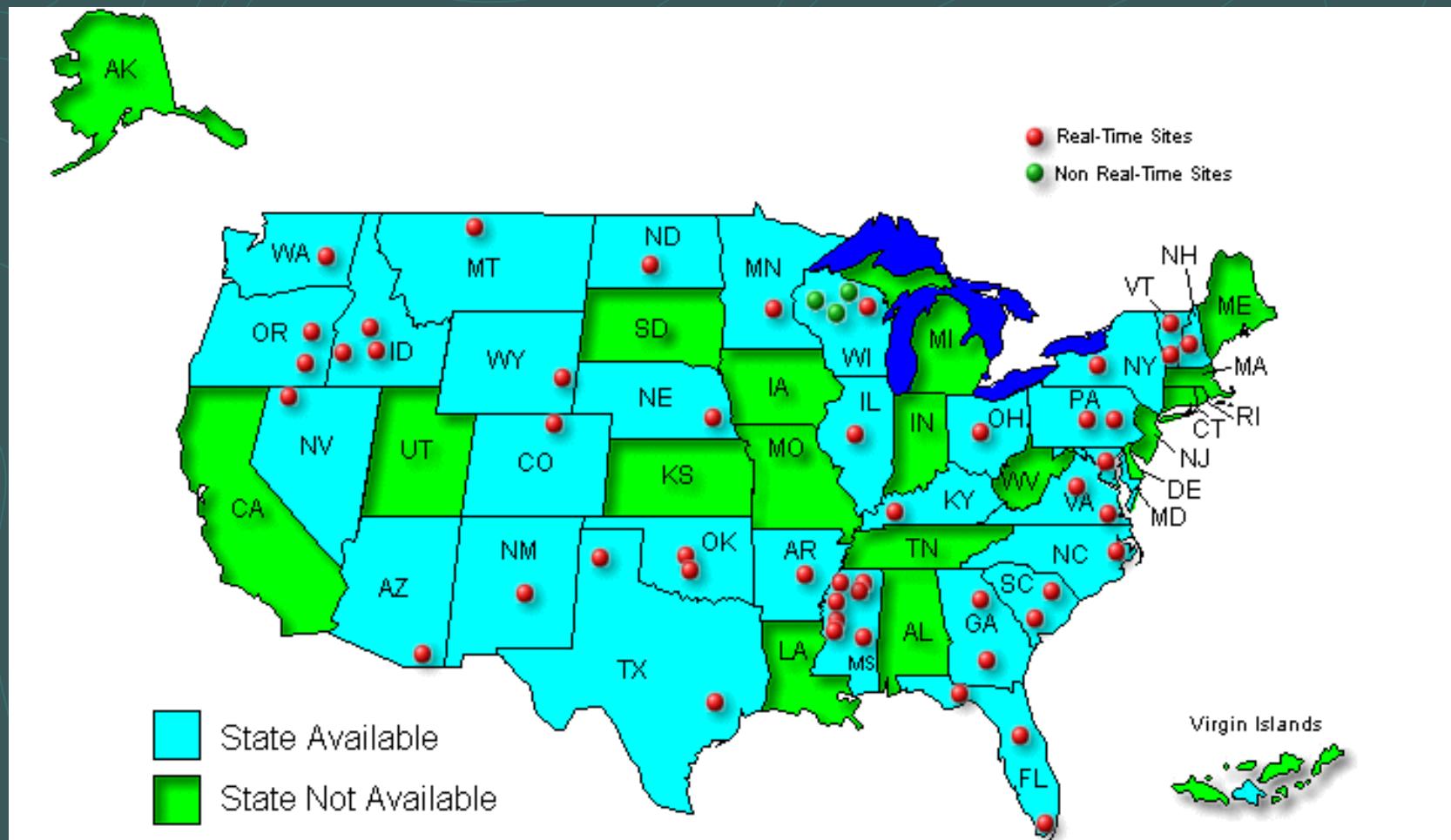


National Weather Service

Cooperative
Observer
Program



SCAN (Soil Climate Analysis Network)



SCAN (Soil Climate Analysis Network)

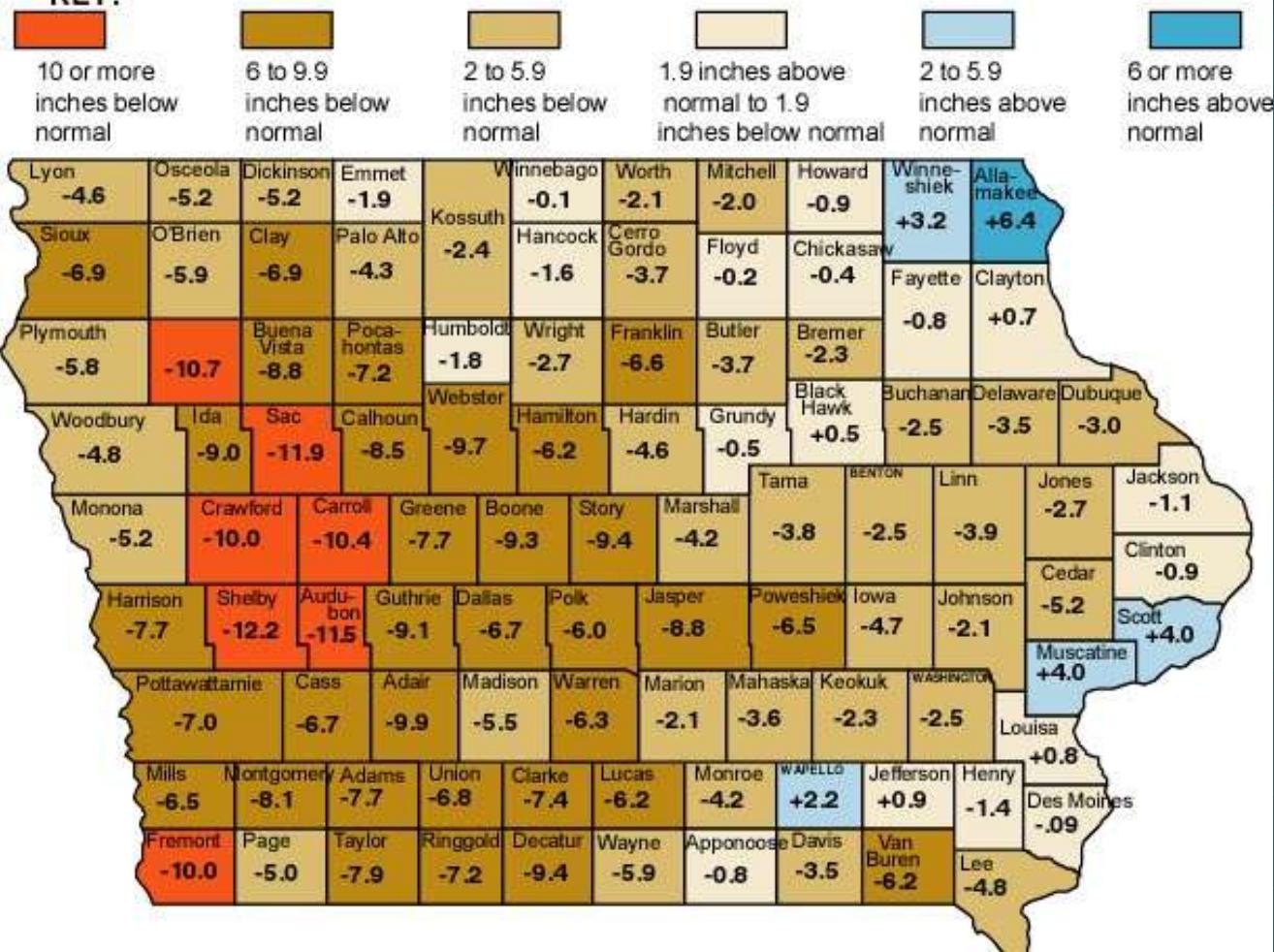
- Air and soil temperature
- Wind
- Relative humidity
- Precipitation
- Soil moisture
- Solar radiation
- Snowfall and depth



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