

KCCI SchoolNet8 Workshop

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Iowa Environmental Mesonet

Iowa State University



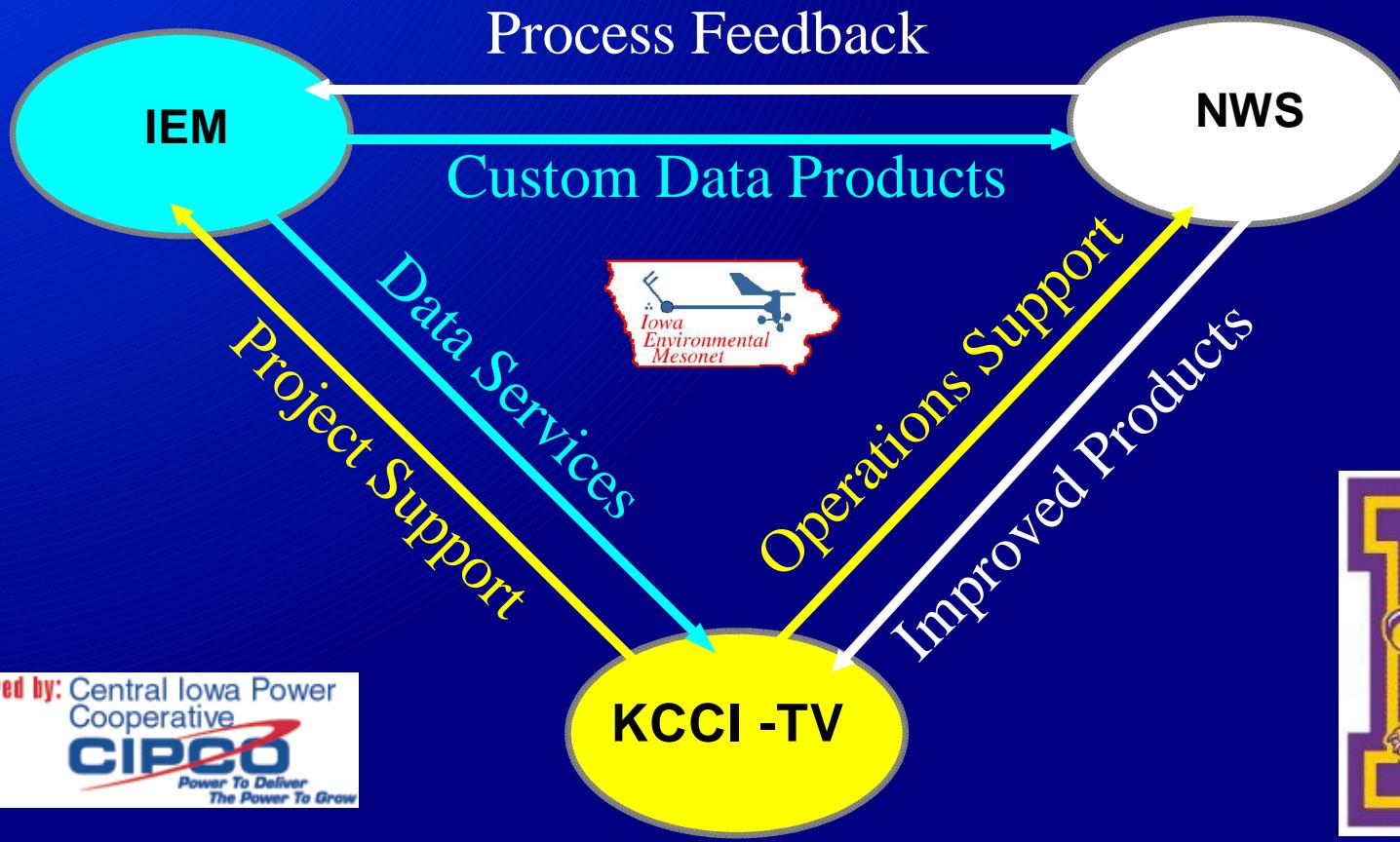
<http://kcci.mesonet.agron.iastate.edu>



The Rundown

- CIPCO/IEM/KCCI/NWS partnership
- Who is using your data?
- IEM Tracker (a.k.a. spam generator)
- Downloading Data
- Website Demo
- Java Viewer Demo

Our Partnership



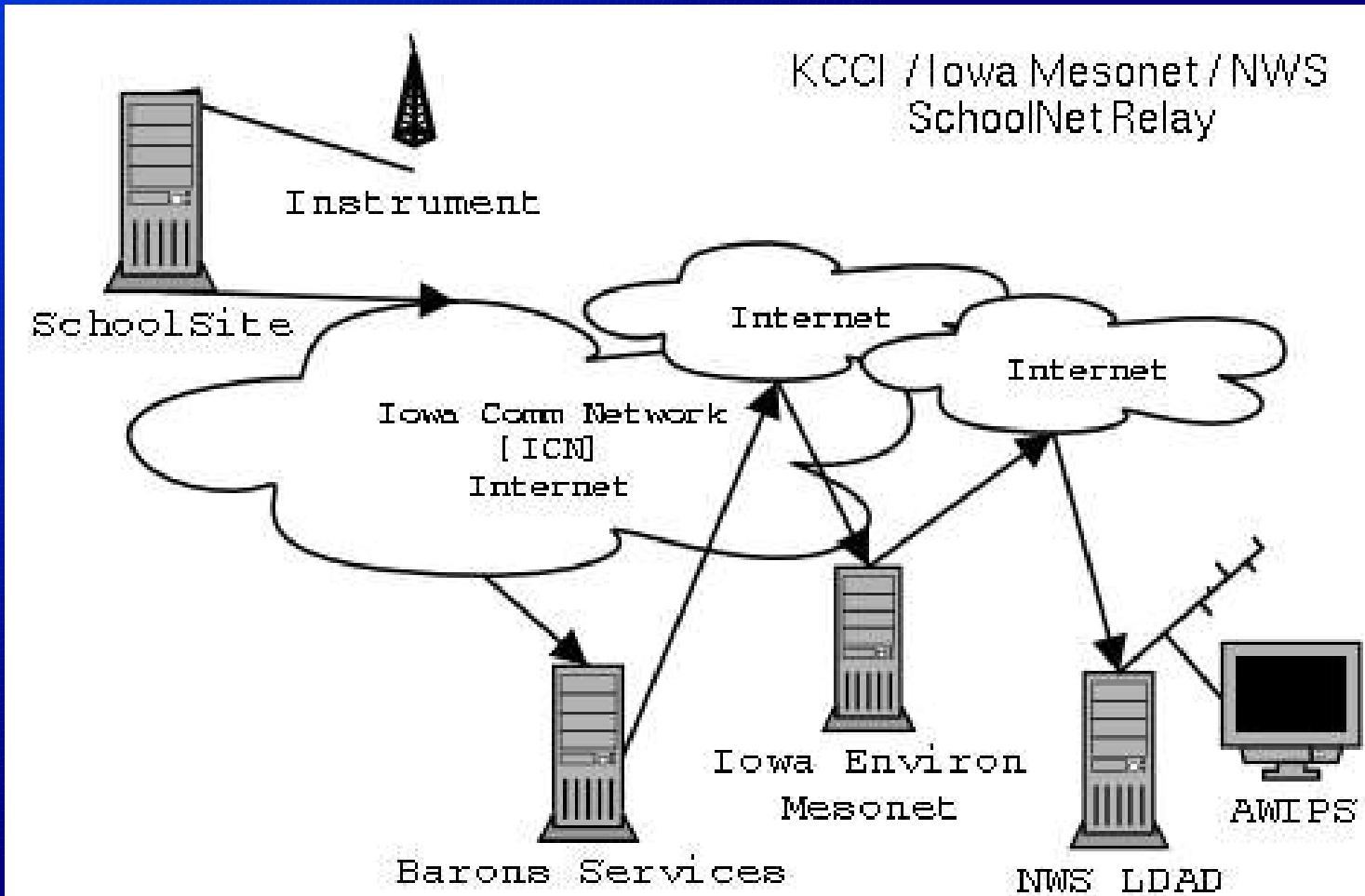
Iowa Environmental Mesonet 411

- What does 'mesonet' mean?
 - 'meso' - Spatial scale, 'net' - network
- Why 'environmental'?
 - We are interested in air quality, water quality and other non-weather datasets
- Where is 'Iowa'?
 - It is the current state you are in, soon you will all be asleep.
- Abbreviated 'IEM'

More on the IEM

- Project of the Department of Agronomy at Iowa State University
- We are data pigs.
- Look to meet the growing data needs of users in the State and elsewhere.
- KCCI SchoolNet is one of the many networks that send data to us.

Data Flow



Data Formatting

C 074 Min 02/17/03 ENE 00MPH 000K 460F 007F 084%
30.08" 00.00"D 00.07"M 00.00"R

D 074 Max 02/17/03 ENE 10MPH 050K 460F 021F 100%
30.20" 00.00"D 00.07"M 00.00"R

E 074 12:01 02/17/03 ENE 03MPH 046K 460F 020F 099%
30.09F 00.00"D 00.07"M 00.00"R

Your site produces roughly 6 obs per minute!

Converted Data Formats

METAR

SAUS43 KDMX 171536

METAR

QJEI 171535Z 05004KT M13/M14 A3009 RMK T11281144
P0000 70000=

Comma Delimited

SAEI4,2003/02/17 15:35:00,-11.7, 13.3,2,180,0.0,0.0,30.09

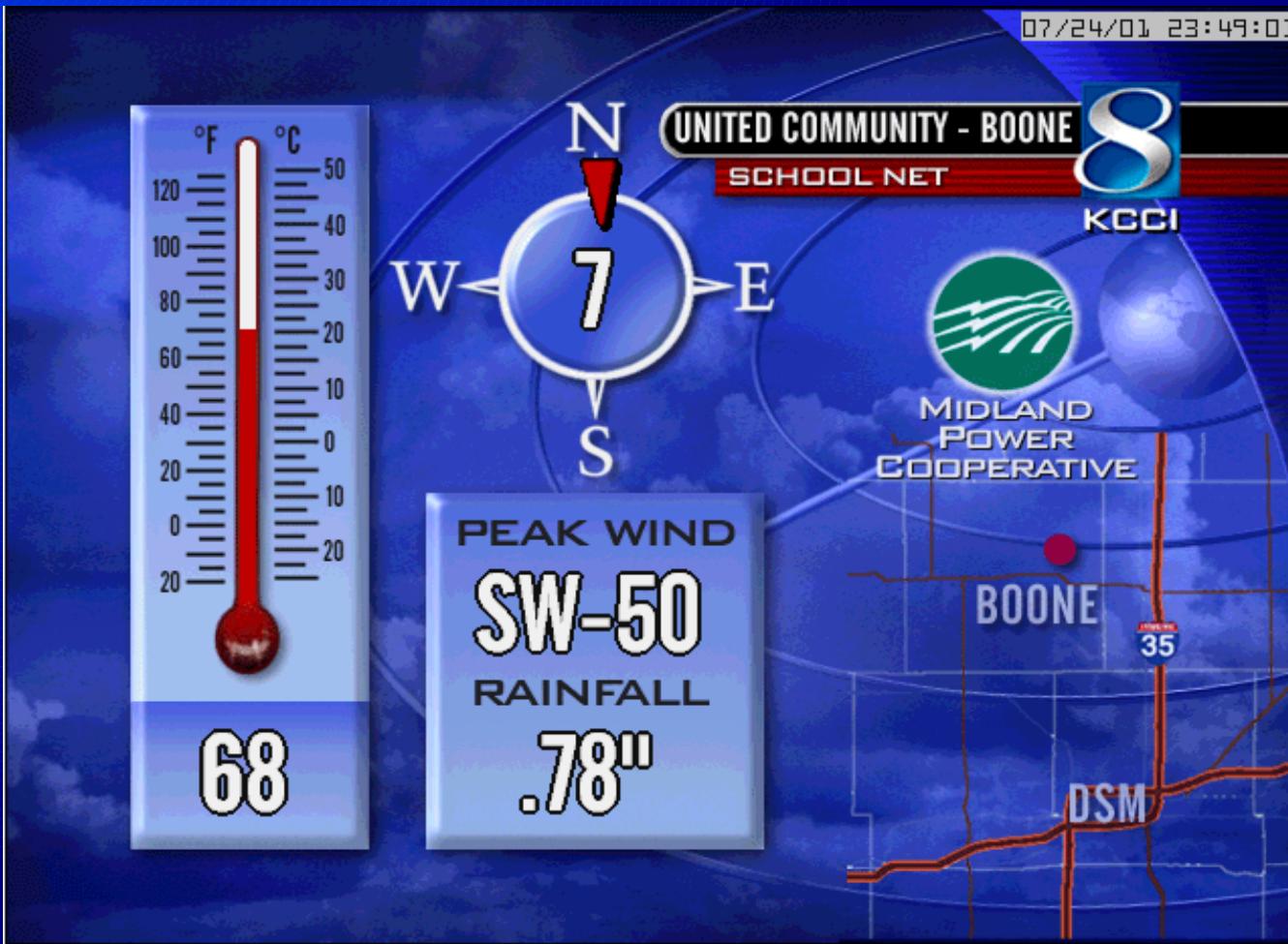
SHEF

.B DMX 0221 C DH22/TA/PPH/PPT/PPQRS/PPDRS/PCIRP

SADI4 35 / 0.00 / 0.00 / 0.00 / 0.00 / 0.68

SchoolNet8 Data Users

KCCI uses it!



SchoolNet8 Data Users

- Storm Prediction Center [SPC]
 - Norman, Oklahoma
 - In charge of providing **timely** forecasts of extreme weather.
 - Use schoolNet8 data to help identify *mesoscale* boundaries critical in severe weather forecasting

SchoolNet8 Data Users

- River Forecast Center [RFC]
 - Chanhassen, MN
 - In charge of analyzing and forecasting river flood conditions. Hydrological data.
 - Use SchoolNet8 precipitation totals for their water analysis.
 - The SchoolNet8 network has doubled the hydrological observing sensors in Central Iowa.

SchoolNet8 Data Users

- Forecast Systems Laboratory [FSL]
 - Boulder, Colorado
 - Data collected under the MADIS project.
 - Data is used in very detailed and heavily quality controlled surface analysis programs.
 - This data is then included in some operational weather forecasting models run in D.C.

SchoolNet8 Data Users

- National Weather Service [NWS]
 - Des Moines, IA
 - Receiving data in three different formats
 - Use data in hydrological applications, surface analysis, severe weather awareness, winter weather awareness.
 - Are automatically alerted of 50+ MPH wind gusts and heavy rainfall.

NWS Auto Alerts

- Previously, KCCI would have to manually relay observations to the weather service.
- Now, the IEM automatically generates warnings that appear on forecaster workstations.

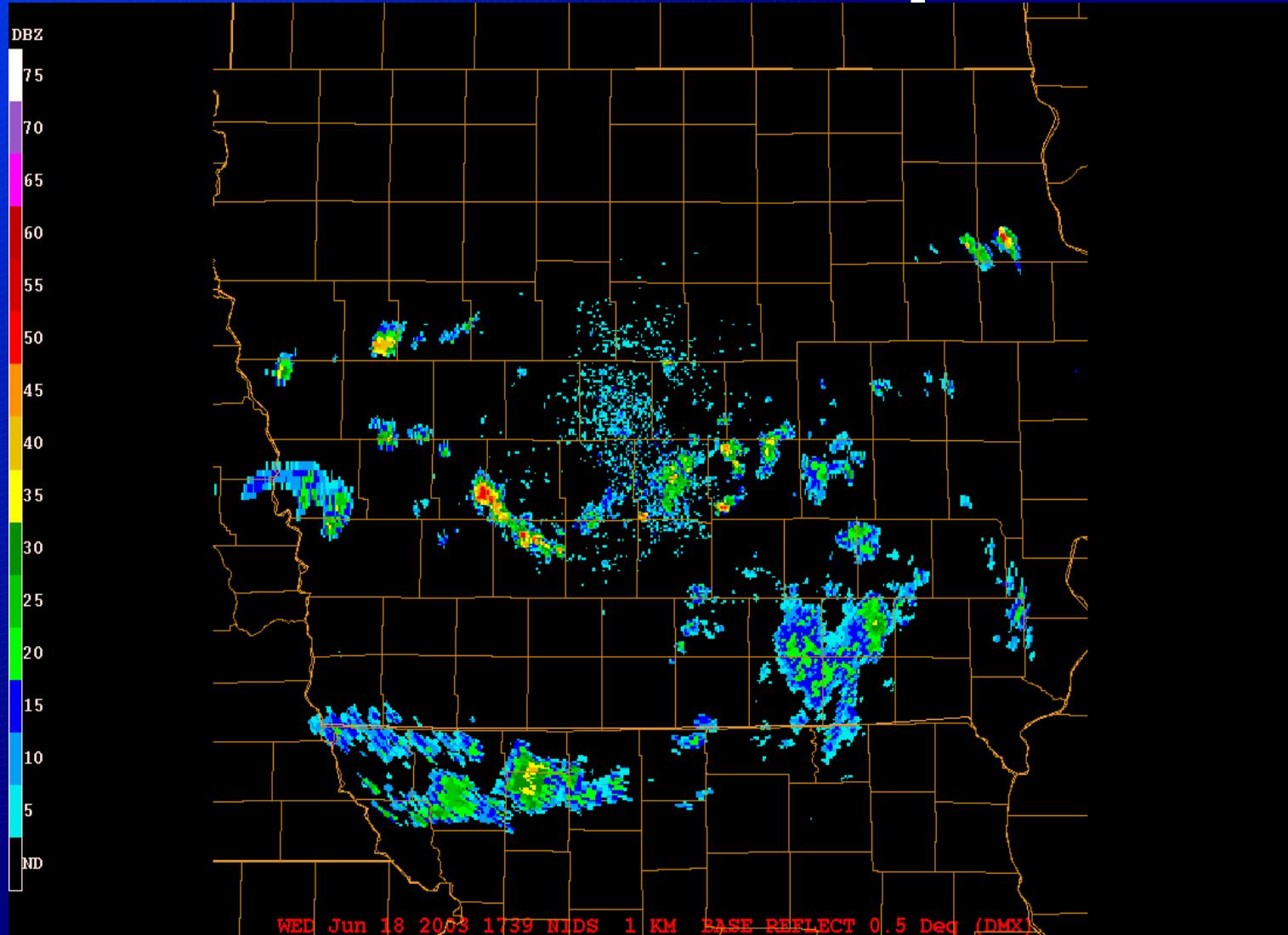
NWS AWIPS alerts

The screenshot shows the NWS AWIPS software interface. The menu bar includes File, Edit, Options, Version, Tools, Scripts, Products, and Help. Below the menu is a toolbar with buttons for AFOS Browser, Load History, WMO Search, Enter Editor, Accum, Update Obs, and Clear. There are also input fields for AFOS Cmd, WMO TAAii CCCC, and AWIPS ID. The main window displays a radar map titled "LIVE SUPER DOPPLER B" showing precipitation intensity over a geographic area. Labels on the map include Breda, Mount Carmel, Lidderdale, Arcadia, Maple River, Carroll, Glidden, Ralston, Scranton, Halbur, Willey, Manning, Templeton, and Dedham. Two men are seated at a desk in a control room, looking at multiple computer monitors displaying weather data. One man is pointing at a monitor while the other looks on.

18 June 2003: Nevada SchoolNet

- A good example of how data from your school can make a difference in your community.

RADAR Loop



At 1:34 PM, an alert is generated

KCCI SchoolNet8 Wind Gust Alert

Time: 01:34 pm -- 18 June 2003

Site: NEVADA COMMUN

Gust: 58 MPH

At 1:37 PM, the NWS warns

137 PM CDT WED JUN 18 2003

THE NATIONAL WEATHER SERVICE IN DES MOINES HAS ISSUED A

* SEVERE THUNDERSTORM WARNING FOR...
EASTERN STORY COUNTY IN CENTRAL IOWA

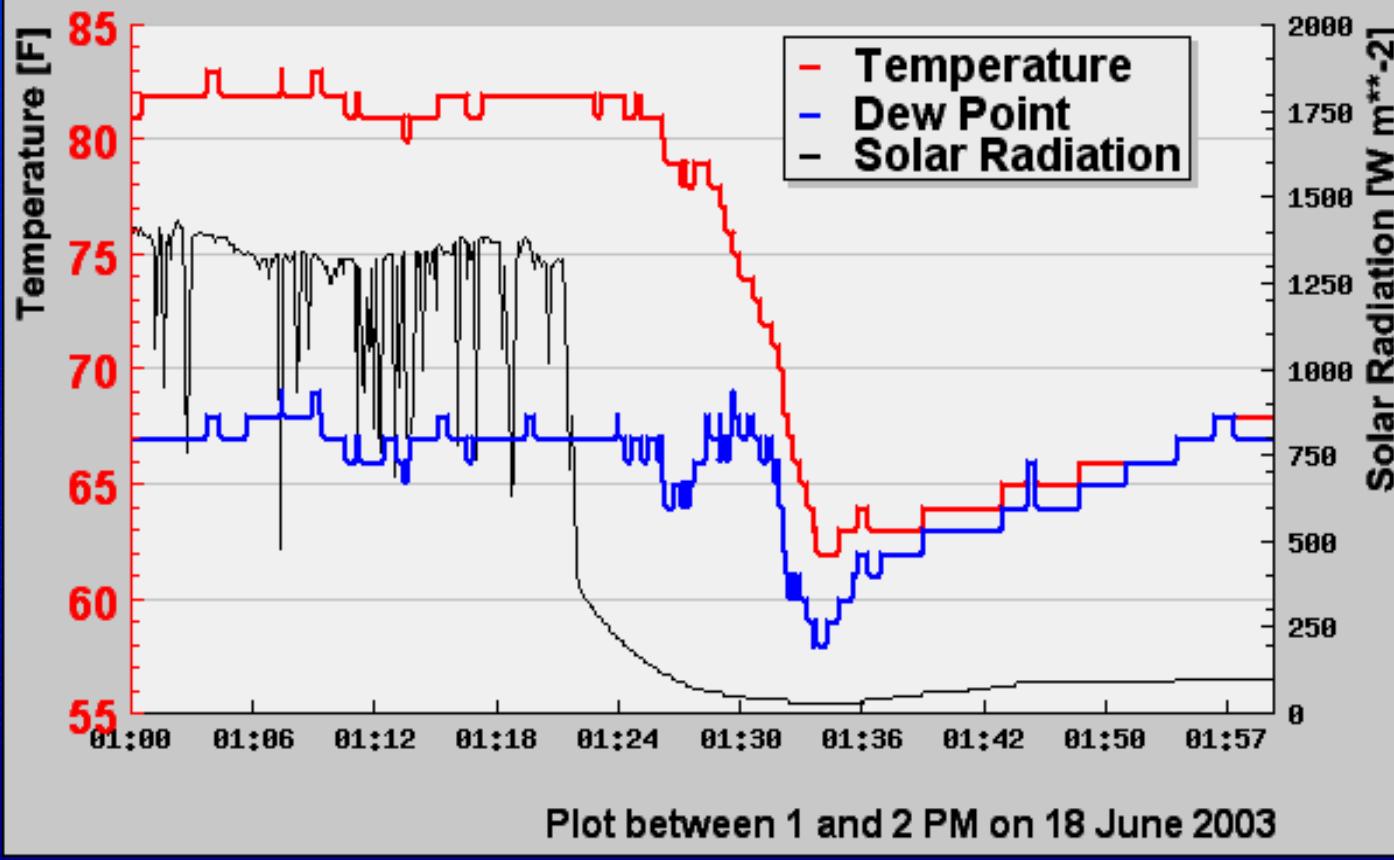
* UNTIL 230 PM CDT

7 MILES WEST OF COLLINS AROUND 150 PM AND
NEAR MAXWELL AROUND 155 PM.

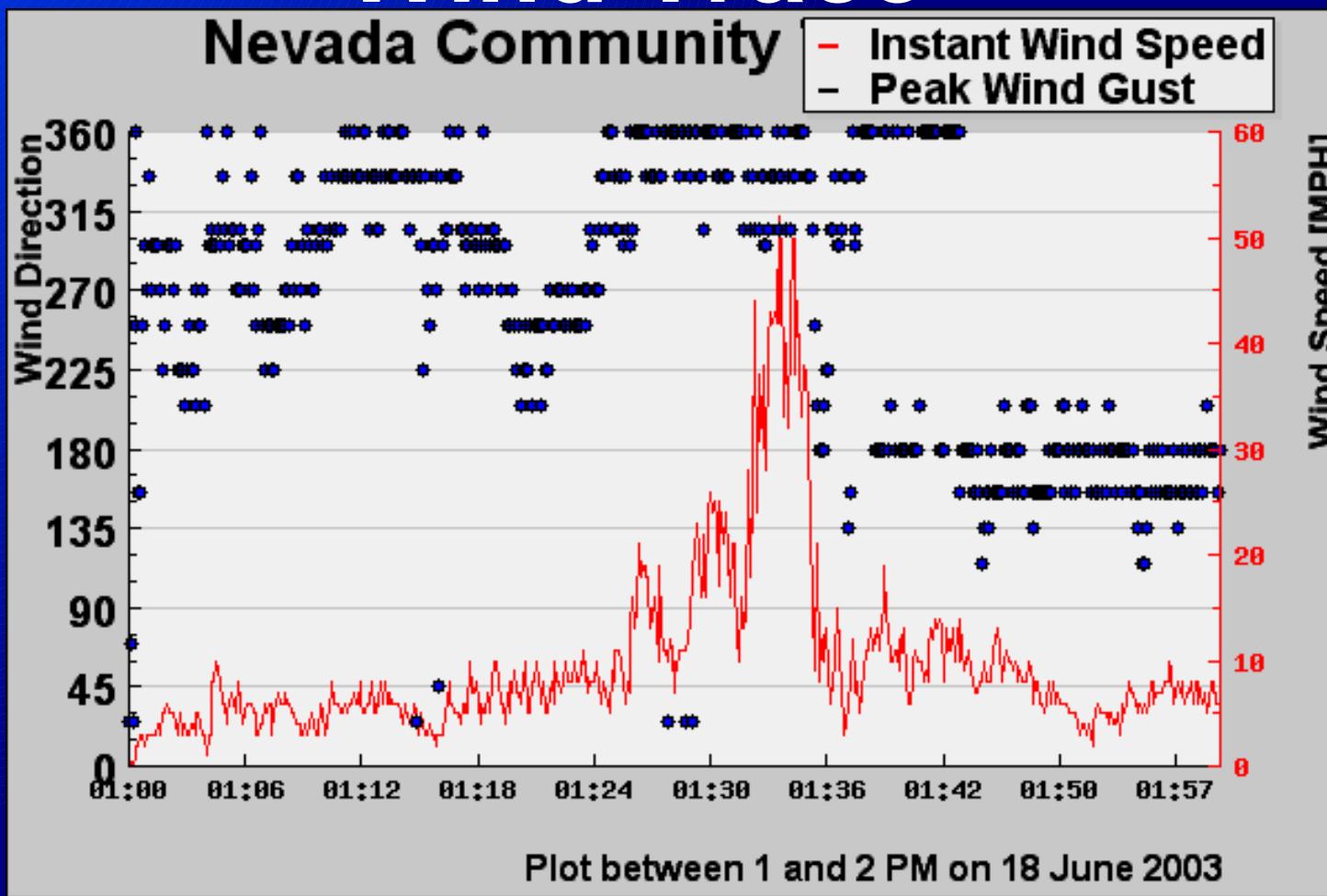
DAMAGING WINDS OF 60 TO 70 MILES AN HOUR ARE LIKELY IN THE WARNED AREA. THE KCCI SCHOOLNET SITE IN NEVADA REPORTED 58 MPH WINDS AT 134 PM.

Temperature Trace

Nevada Community Time Series

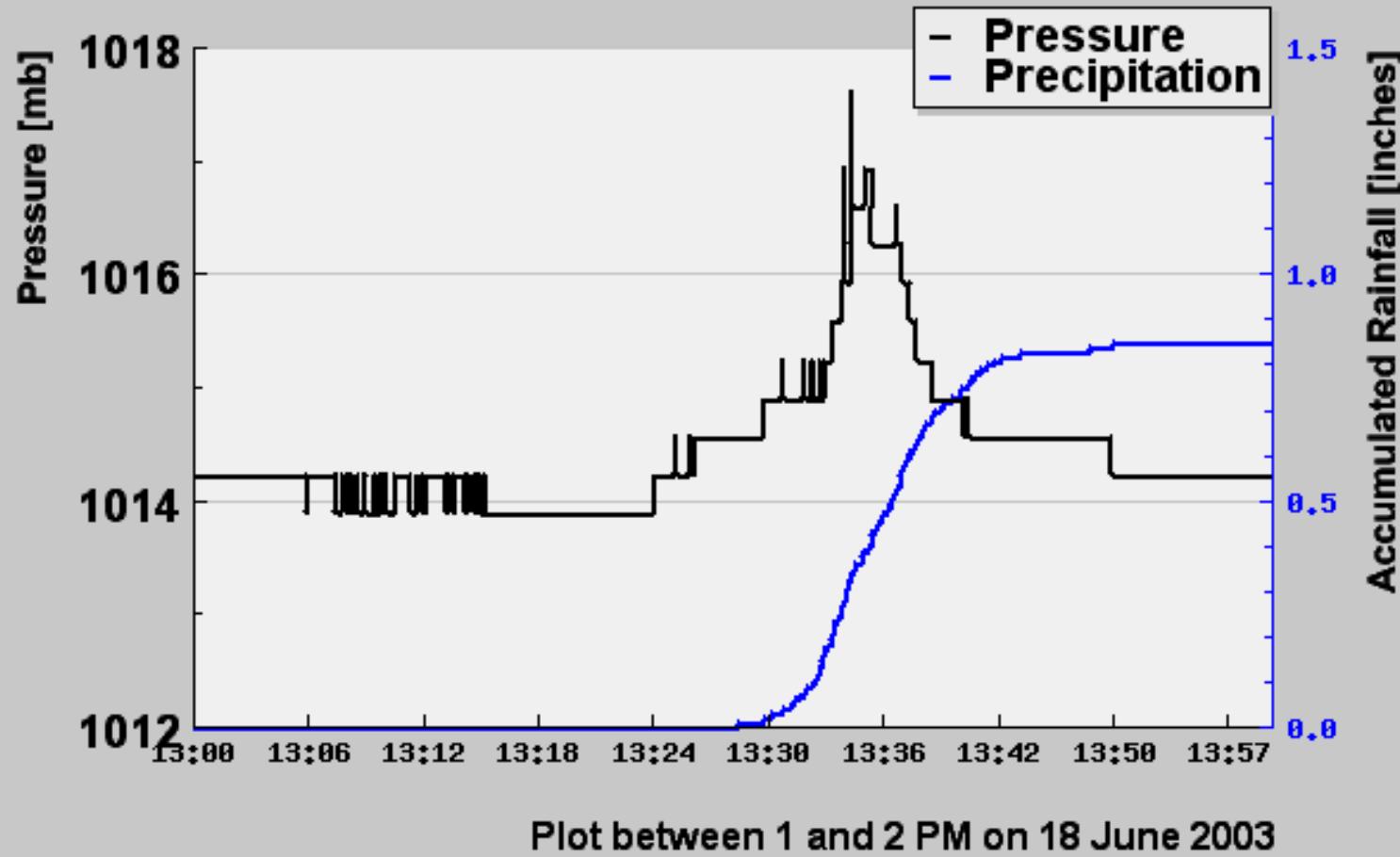


Wind Trace



Pressure/Rainfall Trace

Nevada Community Time Series



IEM Tracker

IEM Tracker

- System to manage metadata about sites
- Most of you have probably gotten the emails from “Iowa Environ Mesonet”
- Since the system came online on 25 June 2002, it has generated over 11,000 tickets
- Most of these tickets are generated from the automated data tracking system

What are offline alerts?

- When ‘online’, your site is streaming observations to the Internet at roughly 6 obs per minute.
- A process on the IEM server monitors this feed and once the most recent ob is 30 minutes old, a trouble ticket is generated and site contacts are emailed.

Understanding the Ticket.

| *** IEM TRACKER REPORT *** |

ID : SC0I4

Station Name : COLO ELEM _ COLO

Status Change : [OFFLINE] Site is NOT reporting to the IEM

Trouble Ticket# : 3704

Last Observation : 2003-02-17 23:53:00.00

More about the tickets

- Probably 50% of the tickets are network related and out of your hands.
- 5% of the tickets are responded to with further information
- IEM tracker has improved network performance for each of the networks it monitors.

SchoolNet8 Performance

- Fewest Tickets
 - 5 Bedford
 - 5 Bloomfield
 - 10 NW Webster
- Highest Online %
 - 93 Jefferson
Scranton
 - 92 Afton
 - 92 River Woods DSM
- Most Tickets
 - 89 Colo
 - 88 Adel
 - 70 Panora
- Lowest Online %
 - 61 Clarion
 - 69 Murray
 - 73 Pella

Keep those clocks set!

- Data on the IEM website is given a timestamp of the current IEM system clock and **NOT** the timestamp on the observation.
- The precipitation counters are adversely impacted by drifting clocks.
- It makes it a bit more difficult to calculate daily precipitation totals.

Download Data Archive



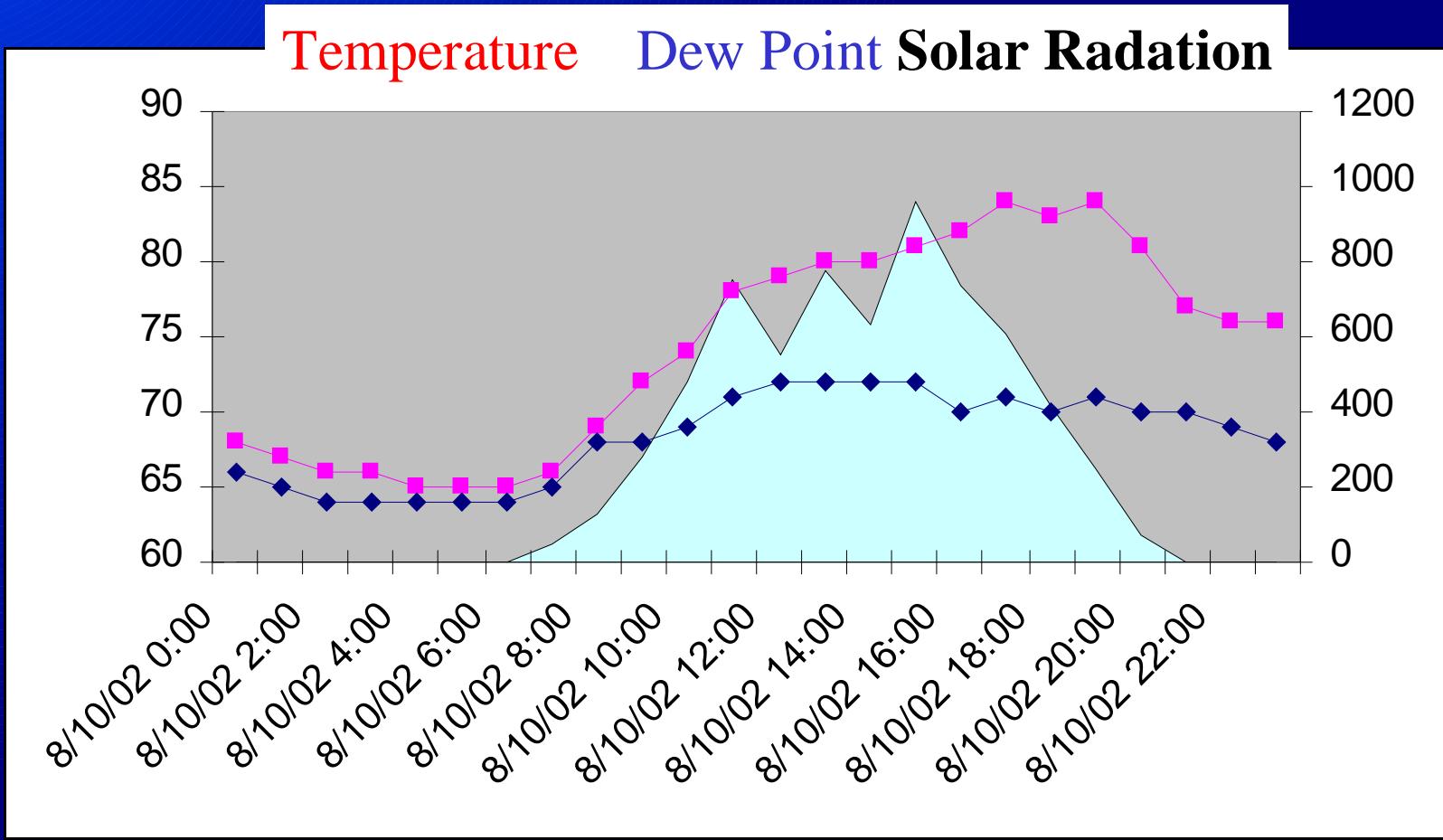
<http://kcci.mesonet.agron.iastate.edu>



Data Archives

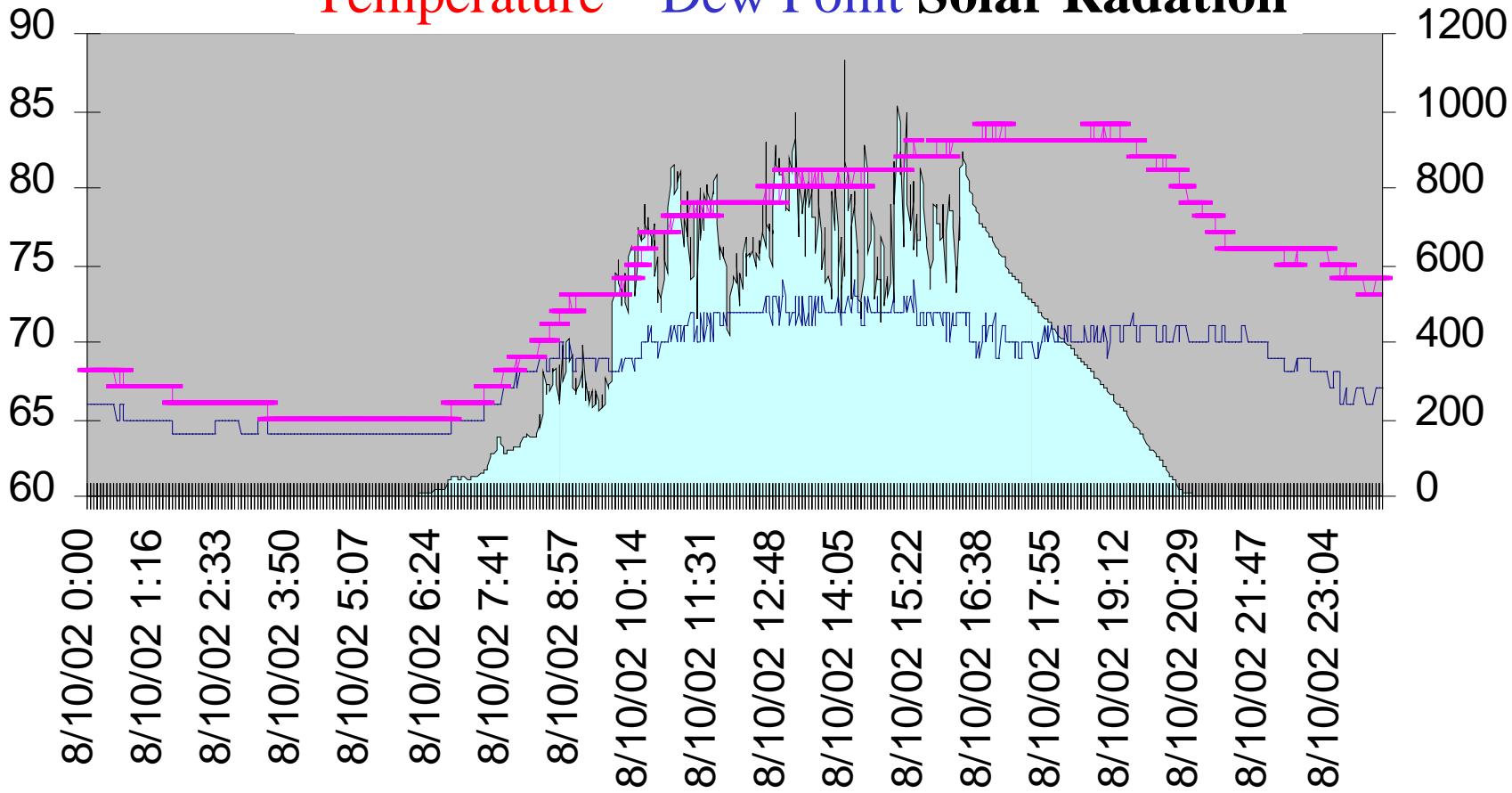
- 1 minute data archive exists since 12 Feb 2002, this is available on-line
- Since 10 Jul 2002, every observation is archived, but not readily available. I can fill these data requests if you send me an email.

Hourly data

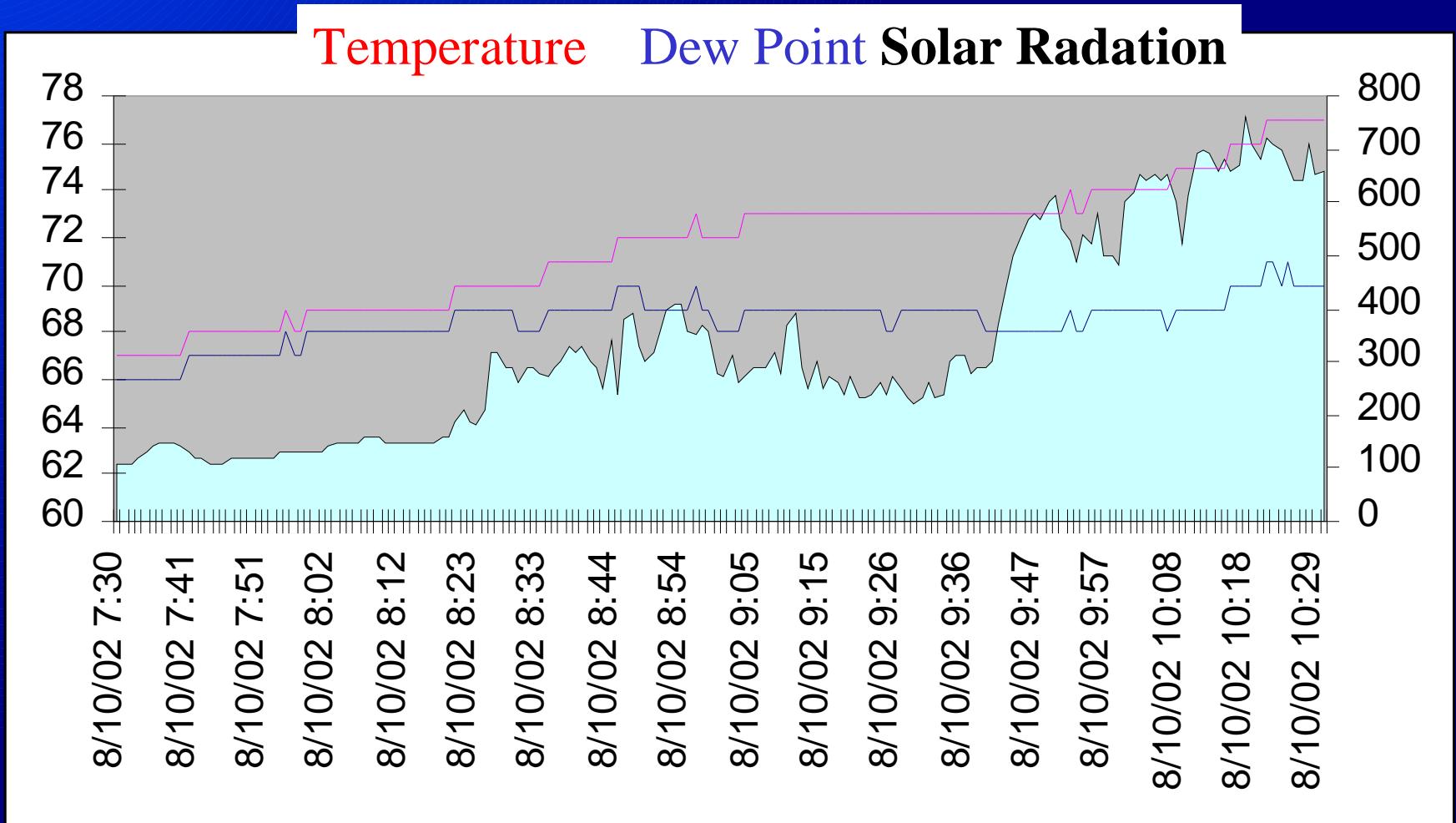


Minute Data

Temperature Dew Point Solar Radation

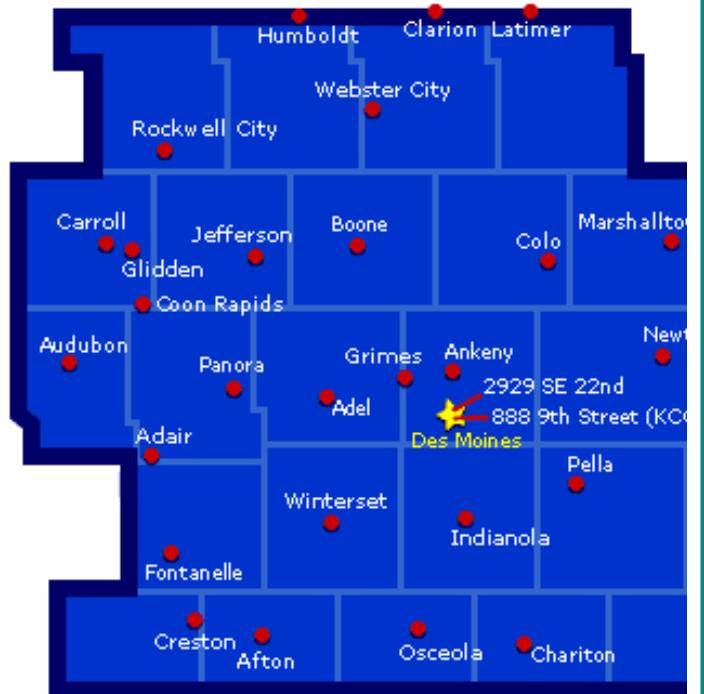


10 second data!



WWW Resources

Circa 2001



Real-Time School Net Information

Emerson Elementary/Indianola

Time	01/09/02 21:37
Temperature	45 F
Humidity	63%
Dew Point	33 F
Wind	W-6
Pressure	29.93
Solar	0
Feels Like	42 F
Rain for the day	0.00
Rain for the month	0.00
Rain Rate	0.00
High Rain Rate	0.00
High Temperature	57 F
Low Temperature	44 F
High Humidity	63%
Low Humidity	46%
High Pressure	29.93
Low Pressure	29.71
High Wind	NW-19
Low Wind	Calm
High Solar	28

Circa 2002

Netscape: TheIowaChannel.com - School Net 8

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop N

Bookmarks Netsite: <http://www.theiowachannel.com/schoolnet8/> What's Related

Red Hat Network Support Shop Products Training

THEIOWACHANNEL.COM
IOWA'S NEWS LEADER WEATHER

KCCI Auto Career Travel Law House & Home Shopping Yellow Pages

Home News Weather Sports Ames Liveli Politics Health Money Tech Entertainment KCCI Education Dating Weddings Real Estate Family Food

LIVE SUPER DOPPLER SCHOOL NET 8 IN PARTNERSHIP WITH: CIPCO Power To Deliver The Power To Grow

Home Current Conditions Charts/Plots Download Info

Welcome to the KCCI SchoolNet8 website sponsored by [CIPCO](#) and it's member cooperatives!

Current Conditions
Live SchoolNet8 data from your site or all sites in the network!

Charts/Plots
View data time series plots. Meteorological plots. Precip totals and more...

Download
Download historical SchoolNet8 observations from the archive.

Information
SchoolNet8 Site information. Information for site admins.

What's New in February?
With this new [dynamic plotting](#) application you can select the KCCI SchoolNet8 sites you want to plot and the data variable to plot.

And there is more! You can dynamically limit the sites you monitor on the sortable [current conditions](#) page. Look for new features to appear on the KCCI SchoolNet8 website each month!

The KCCI SchoolNet8 is a collection of weather observing stations located at schools throughout Central Iowa that report live information via the Internet. While we make every effort to provide reliable and timely data, data presented at this website is provided as-is and without warranty.

The SchoolNet8 section of the KCCI website is hosted and designed by [The Iowa Environmental Mesonet](#) of [Iowa State University](#).

KCCI SchoolNet8 sponsored by: [CIPCO](#)
WebSite powered by: [Iowa Environmental Mesonet](#)
17 February 2003 02:55 PM



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



Circa 2003

File Edit View Web Go Bookmarks Tabs Help

http://fedora

Google < Google GROUPS < Dictionary < Bookmarks

↳ CSS ↳ IEM ↳ JPortfolio Login

IEM | 1 Min | KCCI Scho |

Support your SchoolNet8 station by clicking on the banner.

LIVE SUPER DOPPLER 8 IN PARTNERSHIP WITH: Midland Power Cooperative

Home Current Conditions Charts/Plots Download Info Site Guide

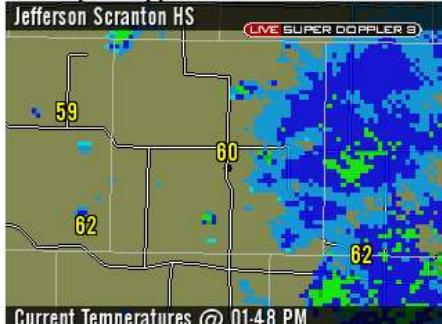
Live SchoolNet8 Information for Jefferson Scranton HS

Latest WebCam Still Image:



Jefferson Scranton WebCam Mon Sep 22 13:45:05 CDT 2003
Internet service by: Jefferson Telephone Co.

Live Super Doppler8:
Jefferson Scranton HS



LIVE SUPER DOPPLER 8

Current Temperatures @ 01:48 PM

Plot: Temperature Go

Real-Time School Net Information

View: Jefferson Scranton HS

Compare Station Go!
-or- Select from map

Station	Jefferson Scranton HS
Date/Time	Sep 22 01:47 PM
Temperature	60 F
Relative Humidity	73 %
Dew Point	51 F
Wind	WNW @ 8 mph
Pressure	29.955
Solar	270 W/m^2
Feels Like	58 F
Rain for the Day	00.00 in
Rain for the Month	01.72 in
High Temperature	63 F
Low Temperature	50 F
High Humidity	100 %
Low Humidity	70 %
High Pressure	29.97"
Low Pressure	29.91"
High Wind	NW @ 21 mph
Low Wind	0 mph
High Solar	1000 W/m^2

Done.



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



Which website is which?

IEM | School Network - Galeon

File Edit View Tab Settings Go Bookmarks Tools Help

100 http://mesonet.agron.iastate.edu/schoolnet/

Google ke so long to run < Google GROUPS > Dictionary Bookmarks

IEM JPortfolio Login

redhat.com F Re: GEMPAK IEM | School Portfolio Disc

Iowa Environmental Mesonet
Iowa State University Department of Agronomy

February 17 2003

[Archive](#) | [Current](#) | [Climatology](#) | [IEM Sites](#) | [GIS](#) | [Info](#) | [Plotting](#) | [Quality Control](#)

School Network

Sampled: 3x / hour
Reports: Continuously
Stations: 47 (KCCI)
Stations: 14 (KELO)

[KCCI Locations](#)
[KELO Locations](#)

Select Network: [SCHOOL NET 8](#) [SchoolNet8](#) [KELOLAND LIVE DOPPLER](#) [WeatherNet](#)

Current Data

- [Current Conditions](#) (sortable)
- [Where's it raining?](#)
- [GIS READY! GIS Shapefile](#)

Station Plots

- [20 Min Mesonet \[SchoolNet\]](#)
- [Rapid Update every Minute](#)
- [Zoomed in on Des Moines](#)
- [Solar Radiation](#)
- Barometer: millibar or inches
- [Visible Satellite Overlay](#)
- [Des Moines NEXRAD Overlay](#)
[Loop]

[Plotting Time Series](#)

http://mesonet.agron.iastate.edu/schoolnet/totals/0204_pmon.gif

TheIowaChannel.com - School Net 8 - Mozilla

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop http://www.theiowachannel.com/schoolnet8/ Search Print

Home Bookmarks JPortfolio Login

Iowa Soil Erosion Project TheIowaChannel.com - School Net 8

Part Of The IBS Network

Search Site/Keyword Web Yellow Pages Contact the Station Sign up for E-News

THEIOWACHANNEL.COM
IOWA'S NEWS LEADER

KCCI

Ask A Professional Auto Dating Career Education Food Family House and Home

Home News I Saw It On KCCI Weather Sports Ames Livelink Politics Health Money Tech Entertainment

CIPCO
CENTRAL IOWA POWER COOPERATIVE

LIVE SUPER DOPPLER SCHOOL NET 8 IN PARTNERSHIP WITH: CIPCO Power To Deliver The Power To Grow

Home Currents Download Info Site Guide WebCams

Welcome to the KCCI SchoolNet8 website sponsored by CIPCO and its member cooperatives!

Click to select your site from a map

Doppler Radar

Live Super Doppler!
Shown: [Creston HS](#) SchoolNet sponsored by [CIPCO](#)

Creston HS

Current Temperatures @ 10:52 PM

- Live Super Doppler for your SchoolNet8 Site
- Pick your site from a map
- Live Super Doppler with multiple sites

Quick Links:
♦ [Sortable Currents](#)

Sites with Web Cameras:
♦ Carroll
♦ Creston
♦ Humboldt
♦ Jefferson
♦ Marshalltown
♦ Pella
♦ Webster City

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Questions?



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