KCCI SchoolNet8
and the Iowa Mesonet

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Iowa State University
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 other than confusion.
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 has provided us a valuable network to meet various needs.
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
SchoolNet8 Data Users
SchoolNet8 Data Users

• Storm Prediction Center [SPC]
  – Norman, Oklahoma
  – In charge of providing timely forecasts and watches of extreme weather.
  – Use schoolNet8 data to 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 NCEP models.
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.
- You can also sign up on the web site to receive these alerts!
17 Sept 2003: Nevada School Presentation

NWS AWIPS alerts

KCCI SNET OB: [06:54] 96 MPH GUST SGLI4 Glidden Ralston _ Glidden
LATEST OB: [06:54] 65/64 70MPH from NNW  P: 01.25" RR: 00.00"

Iowa Environmental Mesonet  http://mesonet.agron.iastate.edu
WWW Resources
IEM Tracker
IEM Tracker

- System to record 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 6800 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.

<table>
<thead>
<tr>
<th>IEM TRACKER REPORT</th>
<th>New Ticket Generated: # 7002</th>
</tr>
</thead>
<tbody>
<tr>
<td>-------------------</td>
<td>-----------------------------</td>
</tr>
</tbody>
</table>

Station Name : [IKV] - ANKENY  
Status Change : [OFFLINE] Site is NOT reporting to the IEM  
Last Observation : 2003-09-17 09:56:00.00  

Other Currently ‘Open’ Tickets for this Site:

<table>
<thead>
<tr>
<th>#</th>
<th>OPENED_ON</th>
<th>TICKET TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>--None--</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Most Recently ‘Closed’ Trouble Tickets for this Site:

<table>
<thead>
<tr>
<th>#</th>
<th>CLOSED_ON</th>
<th>TICKET TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>6653</td>
<td>2003-08-30 05 AM</td>
<td>Site Offline</td>
</tr>
<tr>
<td>6564</td>
<td>2003-08-28 07 AM</td>
<td>Site Offline</td>
</tr>
<tr>
<td>6400</td>
<td>2003-08-22 12 PM</td>
<td>Site Offline</td>
</tr>
<tr>
<td>6354</td>
<td>2003-08-22 06 AM</td>
<td>Site Offline</td>
</tr>
<tr>
<td>5850</td>
<td>2003-08-16 05 AM</td>
<td>Site Offline</td>
</tr>
</tbody>
</table>
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.
Trouble Ticket Stats

- Fewest Tickets
  - 3 Bedford
  - 4 NW Webster
  - 8 Iowa Christian

- Highest Online %
  - Jefferson
  - NW Webster
  - Afton

- Most Tickets
  - 75 Colo
  - 63 Mount Ayr
  - 59 Panora

- Lowest Online %
  - Pella
  - Leon
  - Clarion

NEVADA: 12 tickets totaling 4 days of offline time (#8 best)
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.
Data Archives

- 1 minute data archive exists since 14 Feb 2002, this is available on-line
- Since 10 Jul 2002, every observation is archived, but not readily available
- Quickly accessible summary data is coming soon.
Hourly temperatures

8/10/02 1:00 8/10/02 3:00 8/10/02 5:00 8/10/02 7:00 8/10/02 9:00 8/10/02 11:00 8/10/02 13:00 8/10/02 15:00 8/10/02 17:00 8/10/02 19:00 8/10/02 21:00 8/10/02 23:00

Series 1
20 minute temperatures

![Graph showing temperature variations over time](image-url)
10 minute temperatures

http://mesonet.agron.iastate.edu
1 minute temperatures
1 minute data!

Temperature  Dew Point  Solar Radiation...

Iowa Environmental Mesonet  http://mesonet.agron.iastate.edu
18 June 2003: Nevada SchoolNet

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

Plot between 1 and 2 PM on 18 June 2003

Iowa Environmental Mesonet  http://mesonet.agron.iastate.edu
Wind Trace

Nevada Community

- Instant Wind Speed
- Peak Wind Gust

Plot between 1 and 2 PM on 18 June 2003

Iowa Environmental Mesonet
http://mesonet.agron.iastate.edu
Pressure/Rainfall Trace

Nevada Community Time Series

Plot between 1 and 2 PM on 18 June 2003

[Graph showing pressure and accumulated rainfall over time]
Questions?

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