Using GIS to serve Environmental Data in Iowa

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Outline

- What is GIS?
- Why use GIS?
- Who uses GIS?
- How the IEM utilizes GIS?
- Where are we going with GIS?
- When will I stop talking?
What is GIS?

- **a GIS is a system** of hardware, software and procedures to facilitate the management, manipulation, analysis, modeling, representation and display of georeferenced data to solve complex problems regarding planning and management of resources (NCGIA, 1990)
Why use GIS?

- Interface with many datasets
- Interface with many disciplines
- Tools to do 'portable' research

RADAR layer from the IEM with topography from ISU GIS Lab
Who uses GIS?

- Most of you probably do
- Just about everyone else does too!
- GIS framework moving into non-spatial areas.
How the IEM uses GIS?

- PostGIS, spatial blade for PostgreSQL
- Mapserver, Internet Mapping Server
- GRASS, desktop GIS
Internet Mapping Example

- Generate dynamic plots of climate data
- The data for the plot is immediately available in GIS format for download.

COOP Climate Data
Using the COOP data archive, daily averages and extremes were calculated. These numbers are not official, but we believe them to be accurate. Please make your form selections on the left hand side and then click the 'Generate Plot' button. Note: This database does not contain 2002 data yet.

Display Area:
Iowa
If you select a sub-region, the year of a record event will appear as well.

Select Parameter:
Average High Temperature

Select Date:
Month: October
Day: 1

Download Options:
GIS

Map Information:
The black and red dots signify the climate record for the station. Sites in black date back till 1893 and sites in red to 1951.
Analyzing Rainfall

- Combine NEXRAD estimates with automated observations.
- All data shown is immediately available for download.
Custom Growing Season Data

- Typical growing season data does not fit actual planting dates.
- Users pick timespan and parameter.
- Data immediately available for Excel or GIS in CDF format.
Pulling RADAR into GIS

Current Wind Barbs (knts) @ 11:33 AM 02 Nov 2003

LIVE SUPER DOPPLER 8

05 Nov 2003: ASA Meeting
http://mesonet.agron.iastate.edu
OGC Web Services

- Open GIS Consortium (OGC) develops standards for GIS systems to inter-operate
  - Web Map Service (WMS)
  - Web Feature Service (WFS)
- Dynamically bring in Ortho Quads from the ISU GIS Lab
- All generated with Open-Source software and Open GIS standards
GIS Data Services Available

• Today's NWS COOP observations
• Climate data
• Station locations
• Current & Historical RADAR composites
• Various WMS services
• High resolution rainfall (coming soon)
Where are we going with GIS?

• Expand our Web Map Service (WMS) and Web Feature Service (WFS).
  – Currently have a RADAR WMS
  – Will have a WFS before next year

• See how we can get weather and climate data to the GIS community in a Free/free and open matter.
When will I stop talking?

NOW!,
but I will start again after the break!
I'm done, questions?
http://mesonet.agron.iastate.edu

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