IEM Access & Free GIS

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http://mesonet.agron.iastate.edu

Outline

- IEM Background Info
- Free GIS components
  - PostGIS
  - UofM Mapserver
  - OpenGIS
- IEM GIS Efforts
  - IEM Access

IEM Overview

- Collect, compare, disseminate, and archive environmental data in Iowa

- Currently tracking over 650 sites in the Midwest US.

- Our goal is to bridge the gap between those that need data and those that have data.

Why GIS?

- Provides a framework for data management, analysis and display

- Provides a large community of folks able to use GIS datasets

- OpenGIS & FreeGIS provides standards to fit our software philosophy

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Free GIS

- "Free software" is a matter of liberty, not price. To understand the concept, you should think of "free" as in "free speech" or "free markets," not as in "for free" (gratis).

- IEM GIS development fits under the FreeGIS umbrella (software & data)

- http://www.freegis.org

'Free' Components

- PostgreSQL (Relational Database)
- PostGIS (Spatial Blade for PostgreSQL)
- UofM Mapserver (Internet Mapping Server)
- PHP (Application logic)
- Apache (Web Server)
- Grass (Desktop GIS)

Proprietary

- Oracle
- ArcSDE
- ArcIMS
- ASP
- Microsoft IIS
- ArcGIS

Free

- PostgreSQL
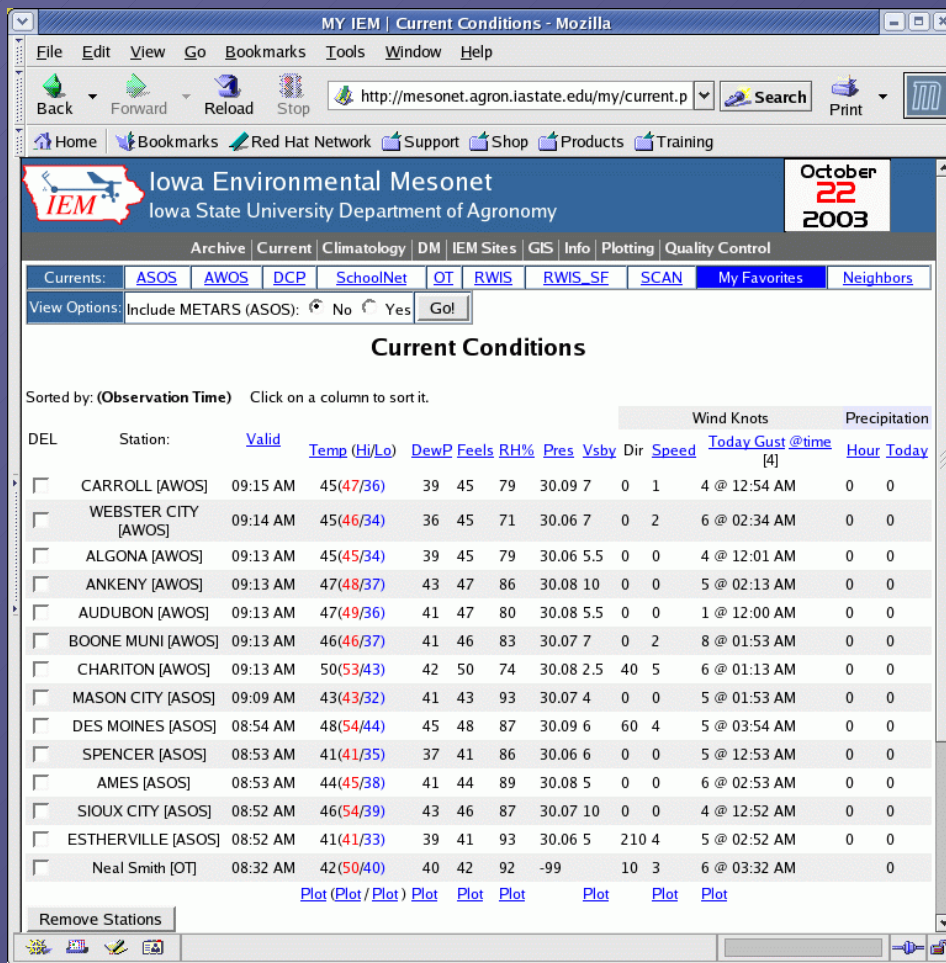- PostGIS
- Mapserver
- PHP
- Apache
- Grass

IEM Access

- Project name for our internal data management system.

- 'Access' refers to the ability for applications to seamlessly get at these data sources.

- At the simplest, it is a publicly available spatial database.

What does IEM Access hold?

- Latest observation
- Daily Summaries
- Monthly Summaries
- Growing Season Summaries
- Yearly Summaries
- Climatologies (soon)

Ex App: Current Sortables

- PHP generates a custom view of sites you are interested in

- Mapserver can generate a plot of whatever you like.

Ex App: Shapefile download

- One-click to download a dynamically generated shapefile with the current conditions in it.

- Shown plotted in JUMP (Free GIS)

http://mesonet.agron.iastate.edu
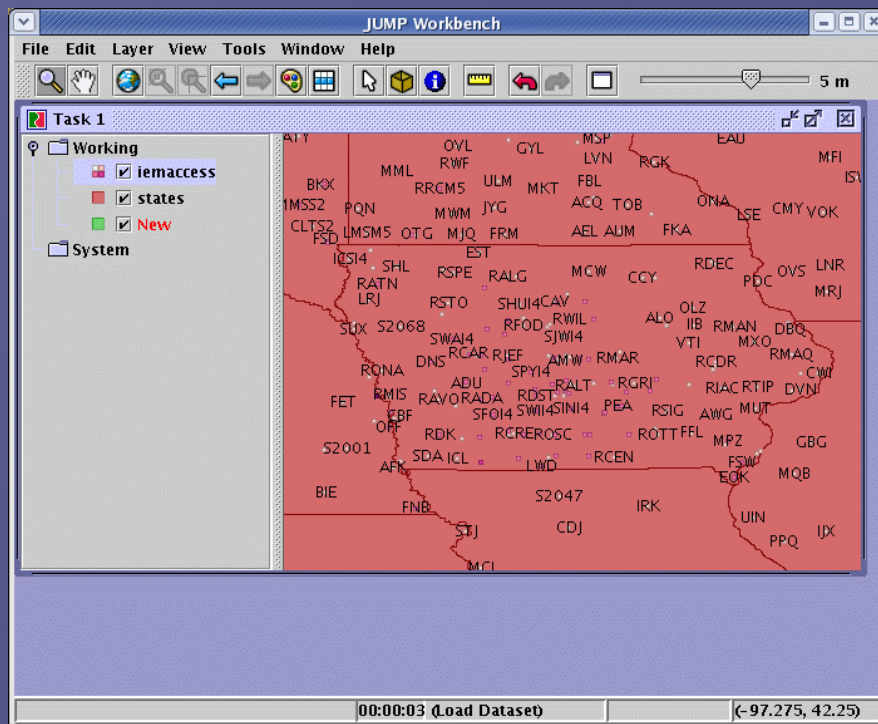
Other Applications

- Give the database your current position and ask for the nearest observation.

- Ask the database to take a site observation and compare it to its 10 nearest neighbors. (QC)

- Aggregate to some other polygon layer, ex) counties, states

PyIMS Fascade

- Allows Mapserver to appear as an ArcIMS service

- Homepage: google for 'PyIMS'

- Currently only supports RASTER

- IEM's PyIMS server is here db1.mesonet.agron.iastate.edu

- Serve nationwide NEXRAD (4326)

Mapserver WMS

- First publicly accessible RADAR WMS?
- URI: mesonet.agron.iastate.edu/wms/radar.php?
- Currently serves UTM Zone 15 North (epsg: 26915)

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Current Challenges

- Including time within GIS
- Dynamic refreshes with desktop GIS
- Inefficiencies of WMS
- 'Interoperability'

Time for demos?

- ArcExplorer
  - Talk with pyIMS server
  - Talk with WMS
    - Ortho server and Mapserver
- Website
  - Current Sortables
  - Dynamic Plotting

I'm done, questions?

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