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**CAES (Center for Advanced Energy Studies)
and
Advanced Scientific Computing
Nuclear Science and Technology**

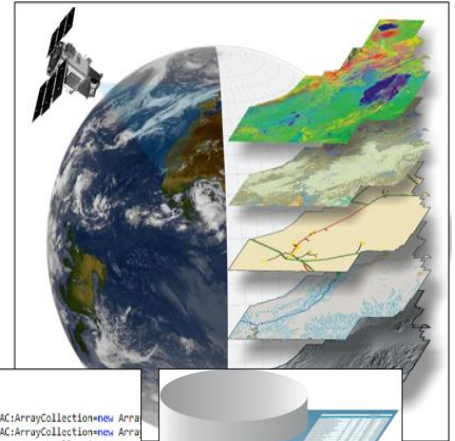
About me

- Undergraduate degree in Geography at University of Denver
- Master's degree in Remote Sensing and GIS at University of Wisconsin in Madison
- 13 years performing work in GIS at Idaho National Laboratory



Today's Webinar

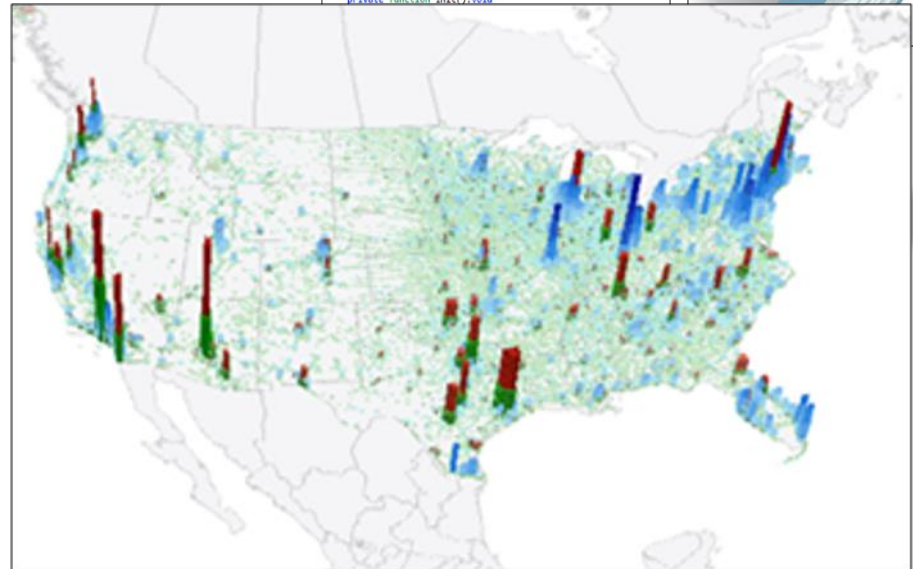
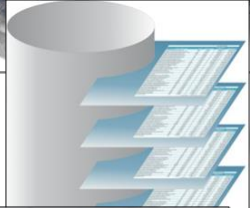
- What is GIS?
- How is it used?
- Benefits
- Geothermal Applications
- Software
- Data Resources
- Q&A



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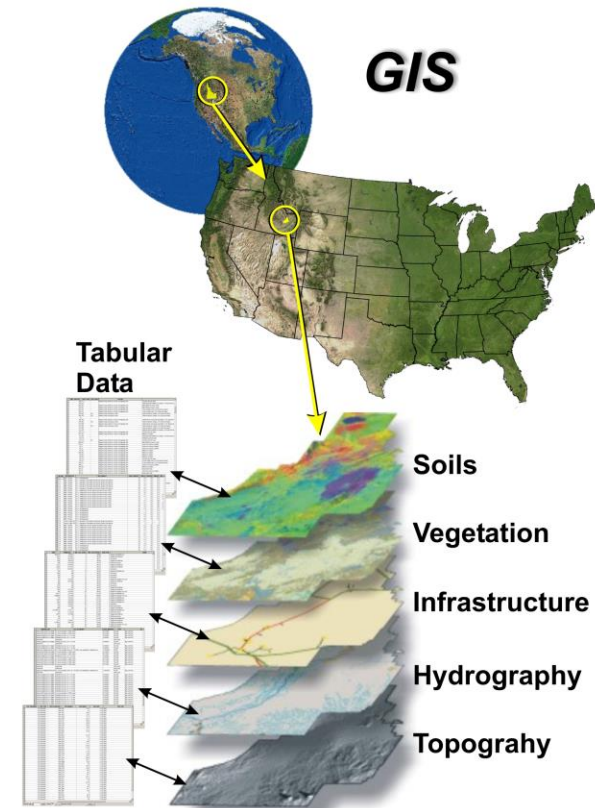
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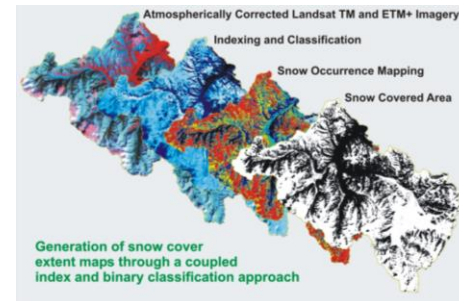
What is GIS?

- A Geographic Information System is a tool used to display, organize, process, store, analyze, and create spatial data.
- Its strength is the ability to visualize information with geography, it reveals deeper insights into data such as patterns and relationships.
- Visualization in 2D and 3D
- Field of information science
 - Statistics
 - Mathematics
 - Databases
 - Computer Science
- Made up of data, software, and computers



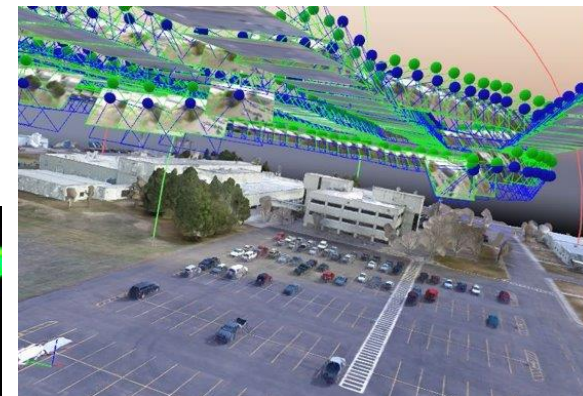
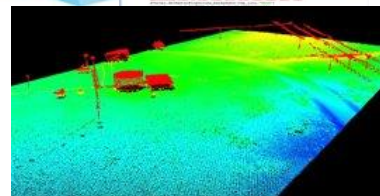
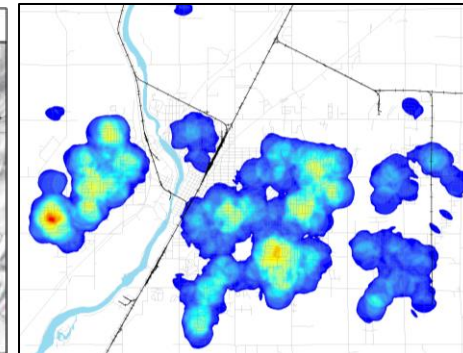
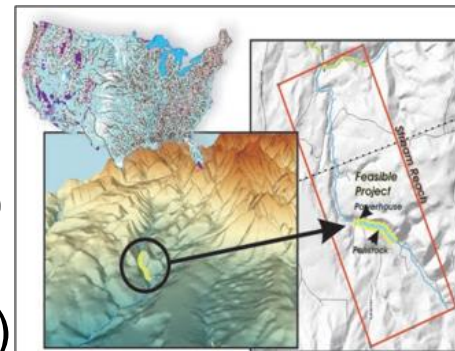
How is GIS used?

- Forecasting
- Knowledge for decisions
- Monitoring change
- Understanding trends
- Identifying problems



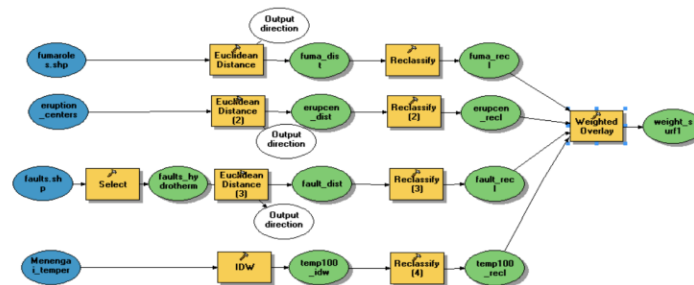
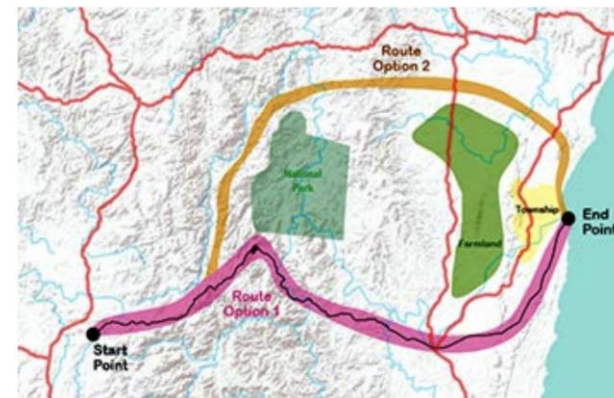
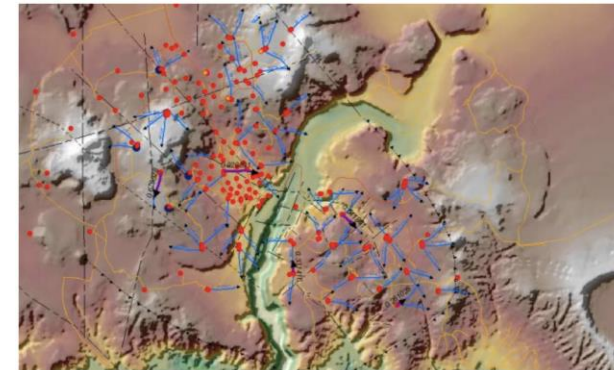
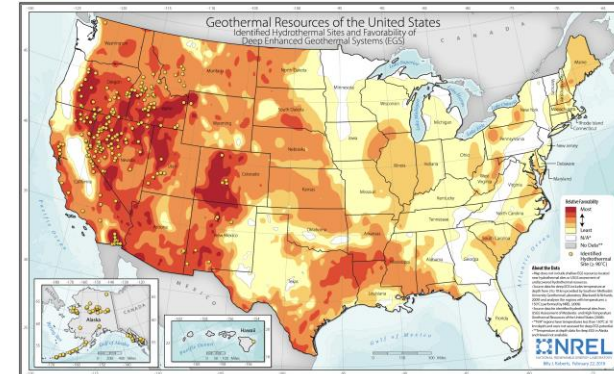
Benefits of a GIS

- Improve communications (visual)
- Data repository
- Technology ready (cloud, mobile)
- Reduce costs (routing)



Geothermal applications of GIS

- Mapping geothermal resource potential
- Locating geothermal power plants
- Understanding geothermal gradients
- Analysis of geologic structures
- Pipeline routing
- Well planning



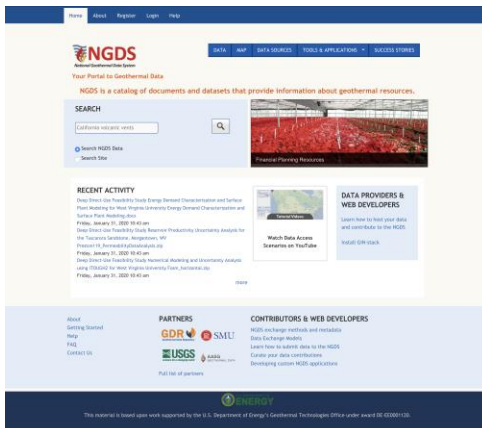
GIS Desktop Software

- Open Source (free)
 - GRASS
 - MapWindow
 - QGIS
- Proprietary
 - MapInfo
 - Esri



Geothermal Data Resources

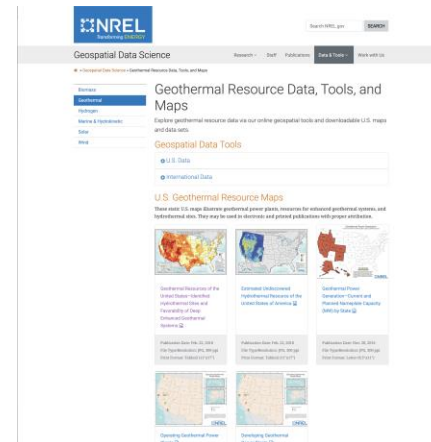
- Data Resources
 - National Geothermal Data System
<http://geothermaldata.org/>
 - DATA.GOV
<https://www.data.gov/>
 - National Renewable Energy Laboratory
<https://www.nrel.gov/gis/geothermal.html>



The screenshot shows the NGDS website interface. At the top, there are navigation links for Home, About, Register, and Login. Below that, a search bar is prominently displayed with the text "Your Portal to Geothermal Data". A "SEARCH" section includes a search box and a "Search NGDS Data" button. To the right, there is a "RECENT ACTIVITY" section with a list of news items and a "DATA PROVIDERS & WEB DEVELOPERS" section with logos for various organizations like GDR, SMU, and USGS.



The screenshot shows the DATA.GOV website. The header includes the DATA.GOV logo and navigation links for DATA, TOPICS, IMPACT, APPLICATIONS, DEVELOPERS, and CONTACT. The main content area features a "GET STARTED" section with a search bar and a "Browse Topics" section with icons for various categories like Agriculture, Climate, Consumer, Education, Energy, Finance, Health, Small Government, Manufacturing, Maritime, Ocean, Public Safety, and Science & Research. Below this, there is a featured article titled "Hourly Electric Grid Monitor reports new information on U.S. electricity demand, net generation, and interchange collected by the U.S. Energy Information Administration".



The screenshot shows the NREL Geospatial Data Science website. The header includes the NREL logo and navigation links for Home, About, Publications, Data & Tools, and Work with Us. The main content area features a "Geothermal Resource Data, Tools, and Maps" section with a search bar and a "Geospatial Data Tools" section. Below this, there is a "U.S. Geothermal Resource Maps" section with several map thumbnails and a "Geothermal Resource Data" section with a list of data products.

Questions?

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