Energy Information: Maps & Data to use with GIS

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What we’ll cover today:

Data
Analysis
Examples
GIS Services
Think about the data you will need
Energy Map Sources

Maps at MIT – search **Barton** or **Geoweb**: 
- Platts in Rotch Library (7-238)
- Petroleum Economist in Dewey Library (E5)
- USGS in Hayden Library (14S-134)

Maps on the web
Energy Data Sources

Data at MIT – search Geoweb or Barton:

• Platts, All China Marketing Research Co., and Global Water Intelligence

Data on the web

• MassGIS Transmission Lines [http://www.mass.gov/mgis/trnslns.htm]
• Department of Energy Data Explorer [http://www.osti.gov/dataexplorer/]
• National Renewable Energy Laboratory [http://www.nrel.gov/gis/]
• Open Energy Info [http://en.openei.org/]
• USGS Energy Program [http://energy.usgs.gov/]
Consumer Expenditures

Examples:

• Household expenditures on:
  – Utilities, fuels, and public services Natural gas
  – Electricity
  – Fuel oil and other fuels
  – Telephone
  – Water and other public services

• Transportation expenditures on Gasoline and motor oil

• Public transportation expenditures

Available in the MIT GIS Lab:

• Geolytics Estimates Premium
• ESRI’s Business Analyst
Demographics

Packages available in the MIT GIS Lab for easy mapping of demographics:

- **Geolytics**
  - US Demographics from 1960 – present
  - Normalized data very helpful for comparing change over time

- **ESRI’s Business Analyst**

Online sources of demographics:


- US Census Bureau website - [http://www.census.gov/](http://www.census.gov/)

- Social Explorer - [http://libraries.mit.edu/get/explorer](http://libraries.mit.edu/get/explorer)
  - US demographics from 1790 - present
A diverse, international collection of GIS data maintained by MIT GIS services.

MIT GeoWeb: Access through any web browser

MIT Tool built to run in ESRI ArcMap

Tool available for use with the ESRI software through MIT.

http://web.mit.edu/geoweb
Example search results from Originator: Platts in MIT Geoweb

http://web.mit.edu/geoweb
ArcMap example using Energy Data from the MIT Geodata Repository
ArcMap example using energy and population data from the MIT Geodata Repository
ArcMap example using Energy Data from the MIT Geodata Repository
DesalData
ArcMap example using DesalData
Think about the type of analysis you want to do
Spatial Statistics

- ESRI’s ArcGIS – ArcToolbox
- GeoDa – open source spatial data analysis software
  http://geodacenter.asu.edu/

GIS Workshops during IAP:
Spatial Statistics: Spatial Autocorrelation,
  Friday, 1/17 1-3pm
Spatial Statistics: Regression,
  Wednesday, 1/22 1-3pm
Seek examples of how others have done the type of work you want to attempt
Find examples

Case studies and resources listed by ESRI for studying industries, including electric, gas, mining, petroleum and renewable energy:

http://www.esri.com/industries/

China Data Online - http://libraries.mit.edu/get/chinadata
Statistics and reports on China's population, economy, and industries at the national, provincial, city, county, and industrial levels, including Census data.

Desal Data - http://libraries.mit.edu/get/desaldata
Desalination plant listings, incorporating the IDA Inventory, market analysis and economic forecasting from Global Water Intelligence.
MIT Libraries’ Research Guides

Energy: http://libguides.mit.edu/energy

Social Science Data Services:
http://libraries.mit.edu/guides/subjects/data/

GIS Services, Maps, Data and Mapping:
http://libguides.mit.edu/gis
GIS Services @MIT

http://libguides.mit.edu/gis

- help thinking through project ideas
- tools for mapping and spatial analysis
- help identifying relevant data sources

Quote:

“Thank you for all your help. I learned a lot and you saved me so much time!”
GIS workshops during IAP


- Introduction to GIS
- GIS level 2
- Spatial Statistics: Spatial Autocorrelation
- Spatial Statistics: Regression
- Interpolation in ArcGIS
- Resources for Free and Open GIS Data
- Using Network Analyst in ArcMap
- Hydrology Tools with GIS
- Python Programming in ArcGIS: An Introduction to Scripting for Geographic Analysis Systems
MIT GIS Services

- GIS lab hours - [http://libguides.mit.edu/gis/](http://libguides.mit.edu/gis/)
  email: [gishelp@mit.edu](mailto:gishelp@mit.edu)
- Class and general workshop support
- Loan GPS units
- Access to GIS data: Geodata Repository
  - MIT GeoWeb & ESRI ArcMap Interface