Outline

1. The National Geothermal Data System
2. The Eastern Perspective
3. Our Data
4. Next steps
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Virginia Division of Geology and Mineral Resources
Data for the NGDS

Geologic Maps
Geothermal Publications
Geologic Units - descriptions and geochemistry
Thermal Springs - descriptions and aqueous chemistry
Heat Pump Installations
Gravity Data – station measurements and maps
Bottom Hole Temperatures
Heat Flow measurements
Thermal Conductivity
Borehole Data – Lithologic and Geophysical logs from Geothermal, Water, and Oil/Gas Wells
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Welcome to NGDS, information for discovery, evaluation, and development of geothermal resources.

NGDS is your source for access to information resources on geothermal energy from a national network of data providers. Data are contributed by academic researchers, private sector participants, and state and federal agencies, primarily the Department of Energy. Access, view, and download data with this free and easy online search tool.

Find Data
Search Catalog
Types of Data
Data Contributors

Tools & Apps
Access Apps
For Developers
Register Apps

NGDS Featured in September 2013 EARTH article:
Digitizing Earth: Developing a cyberinfrastructure for the geosciences

Help
Glossary
USGS Tutorials
Using Apps

Share Data

Participants
Association of American State Geologists
Boise State University
U. S. Geological Survey
Southern Methodist University
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1. The National Geothermal Data System
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What can we do with the data?
Virginia Well Database

- 60+ Geothermal wells
- 40,000+ Water wells
- 1,400+ Oil/Gas wells
Depth to Bedrock

Data from 5,800+ wells
700 installations from VA Division of Energy rebates, school systems, installation companies.
Temperature at Depth
Temperature at Depth

600m above sea level
2000 feet above sea level
300m above sea level

Temperature at Depth

300m above sea level
Temperature at Depth

150m above sea level
Temperature at Depth

Sea Level
Temperature at Depth

150m below sea level
Temperature at Depth

750m below sea level
2000 feet above sea level

1050m below sea Level
2000 feet above sea level

1200m below sea Level
Heat flow (mW/m²)

\[ Q = K \frac{dT}{dz} \]

Thermal Conductivity
(ability to conduct heat)
1. Identify down-hole stratigraphy
2. Assign generalized thermal conductivity per unit
3. Calculate weighted mean thermal conductivity per well

Thermal Gradient
(°/Δ depth)
1. Calculate gradient per well
2. Use a geothermal well equilibrium temperature log as a control
3. Use regional mean annual air temperature as anchor
Division of Geology and Mineral Resources

The Division of Geology and Mineral Resources (DGMR) serves as Virginia's geological survey. DGMR performs investigations aimed at reducing risk from geologic hazards and encouraging sustainable development through the wise use of mineral, land, water, and energy resources. In addition to publishing maps and reports, DGMR maintains repositories of geological and geophysical data, as well as rock, fossil, and core samples. With our staff of experienced geoscientists, we are uniquely positioned to provide expert assistance in matters pertaining to the geology and mineral resources of the Commonwealth.