

GROUNDWATER TEMPERATURES OF MISSOURI SPRINGFIELD PLATEAU PHYSIOGRAPHIC REGION

Geology and Digital Compilation by
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MAP DESCRIPTION

The Springfield Plateau region is composed of Mississippian-age limestones that overlie Ordovician and Cambrian strata, or the St. Francis and Ozark aquifers. These aquifers are an important groundwater resource base as they house some of the freshest and the largest volume of groundwater in the state. The limestones in this region have weathered to form karst features that allow sufficient groundwater movement.

Groundwater temperatures throughout the map range from mid-50°F to mid-60°F in the uppermost aquifer. The temperatures are permissible for the GSPH system use. Areas of higher and lower temperatures are scattered throughout the map area and range from upper 40°F values to values higher than 80°F. No values reached 90°F.

The Springfield Plateau has several areas with higher temperatures; if higher temperatures are at depths greater than 1,000 feet. The city of Joplin has three wells that have temperatures of 70°F or higher, as are three wells in the western half of Greene County. Individual wells in southeast Jasper County and at Monett in Barry County are also higher than 70°F. In addition, one well southeast of the city of Springfield has a temperature at 80°F or higher at a depth of 2,186 feet.

DATA COLLECTION

New data collected included existing regional and commercial water well and spring. Pre-existing data used in this project was collected from multiple sources for greater detail: Missouri Department of Natural Resources, Division of Geology and Land Survey (DGLS) written data files, U.S. Geological Survey (USGS) National Water Information System (NWIS) electronic data files, U.S. Environmental Protection Agency (USEPA) STORET electronic data files. Data is collected by the Missouri Department of Natural Resources in part with funding from the U.S. Department of Energy (DOE) through the PCOR regional partnership. Spring temperatures were obtained from DGLS files. Data from landfill monitoring wells was obtained from the Missouri Department of Natural Resources, Solid Waste Management Program records.

Temperature data on the map was contoured to all data collected at a depth of less than 1,000 feet, in intervals of 10°F. With the exception of the inset, data points that are not labeled are deeper than 1,000 feet and were not contoured.

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Legend

Data Points

- Collected
- ▲ Oil and Gas
- PCOR
- ⊕ Springs
- ◆ USGS

Temperature Depth

Data Temperature (Degrees Fahrenheit)

- 40-49
- 50-59
- 60-69
- 70-79
- 80+

Contour Temperature (Degrees Fahrenheit)

- 50
- 60

Base Data

- Springfield Plateau
- Roads
- Rivers
- Lakes
- Municipal
- County
- State

