

Base from U.S. Geological Survey,  
1:500,000 1974, Roads modified 1973

## Preliminary Map GEOTHERMAL ENERGY RESOURCES OF ARIZONA

Geothermal Map No. 1

Compiled by  
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February, 1978  
Produced by  
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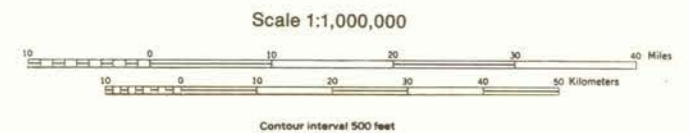
Funded by  
U.S. Department of Energy  
Division of Geothermal Energy  
Contract No. EG-77-S-02-4362

Drafted by  
D. B. Dwyer

**NOTE:** The configuration and areal extent of the potential geothermal energy resource areas shown on this map are conjectural. This map was prepared to furnish background information for investigative projects. The leasing of land and drilling for geothermal energy should only be undertaken after a thorough geological investigation.

### EXPLANATION

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| <ul style="list-style-type: none"> <li><span style="color: green;">●</span> Hot Spring &gt;30°C</li> <li><span style="border: 1px solid red; padding: 2px;"> </span> Area containing one or more water wells with temperature gradient &gt;164°C/KM</li> <li><span style="border: 1px solid blue; padding: 2px;"> </span> Area containing one or more water wells with temperature gradient 55°-164°C/KM</li> <li><span style="border: 1px solid orange; padding: 2px;"> </span> Area with potential for hot dry rock</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;"> </span> Oil/gas borehole—Celsius temperature and depth recorded</li> <li><span style="border: 1px solid black; border-radius: 50%; padding: 2px;"> </span> Tested geothermal prospect</li> <li><span style="background-color: yellow; border: 1px solid black; padding: 2px;"> </span> Extrusive igneous rocks 3,000,000 years and younger</li> </ul> | <ul style="list-style-type: none"> <li><span style="border: 1px solid red; padding: 2px;"> </span> Regions of High Chemical Geothermometers</li> <li><span style="border: 1px solid red; padding: 2px;"> </span> Regions of High Heat Flow (&gt;2.5 HFU)</li> <li><span style="border: 1px solid red; padding: 2px;"> </span> Regions of High Geothermal Gradients (&gt;150°C/KM)</li> <li><span style="border: 1px solid red; padding: 2px;"> </span> Regions of High Geothermal Gradients (&gt;36°C/KM)</li> <li><span style="border: 1px solid black; padding: 2px;"> </span> Area containing KGRA determined by Arizona State Land Department</li> <li><span style="border: 1px solid black; padding: 2px;"> </span> Area containing KGRA determined by Federal Government</li> <li><span style="border: 1px solid black; padding: 2px;"> </span> Lineaments</li> <li><span style="color: black;">*</span> Cinder cone</li> </ul> |
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<p><b>LEGEND</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid black; padding: 1px;"> </span> State Capital</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> County seat</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> City, town, or village</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> Census route</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> Built up area (shaded for areas over 5000 population)</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> County boundary</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> National boundary</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> National water refuge</li> </ul>	<p><b>POPULATION KEY</b></p> <p><b>PHOENIX</b></p> <ul style="list-style-type: none"> <li><span style="border: 1px solid black; padding: 1px;"> </span> over 100,000</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> 25,000 to 100,000</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> 10,000 to 25,000</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> 5,000 to 10,000</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> 1,000 to 5,000</li> <li><span style="border: 1px solid black; padding: 1px;"> </span> less than 1,000</li> </ul>
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### SOURCES OF DATA

- Reference No.**
1. Arizona Bureau of Mines, Outcrop of Quaternary igneous rocks, from Map of Outcrops of Tertiary and Quaternary rocks in Arizona, 1962
  2. Arizona Bureau of Mines, Correlation of Cinder Cones, from Geologic Map of Arizona, 1969
  3. Damon, P. E., Shafiqullah, M., and Lynch, D. J., Ages of volcanic fields determined by K-Ar dating at Laboratory of Isotope Geochemistry with support from N.S.F. Grant EAR 76-02590, U.S.G.S. Grant 14-08-0001-G-170 and the State of Arizona, January 1978
  4. Druitt, C. E. and Conley, J. N., Geothermal Areas, Arizona Oil & Gas Conservation Commission, August 1977
  5. Lepley, L. K., Landsat Lineament Map of Arizona, October 1977
  6. Swanberg, C. A., Morgan, Paul, Stoyer, C. H. and Witcher, J. C., Regions of High Geothermal Potential, An Appraisal Study of the Geothermal Resources of Arizona and Adjacent Areas in New Mexico and Utah and Their Value for Desalination and other Uses, July 1977

### Known Geothermal Resource Areas

- State**
1. Gila River
  2. W-C Maricopa
  3. Buckhorn-Higley
  4. SW Superstition Mtns.
  5. Roskrige Mtns.
  6. San Pedro Valley
  7. Wilcox
  8. Graham
  9. Clifton
- Federal**
- F1. Gillard Hot Springs
  - F2. Clifton Hot Springs