

Circular 23

Geothermal Resources in Arizona: A Bibliography

by
Susanna S. Calvo

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State of Arizona
Bureau of Geology and Mineral Technology
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University of Arizona
Tucson

INTRODUCTION

Since 1977 considerable work has been accomplished in order to locate, understand and evaluate geothermal resources in the State of Arizona. Much of this work has been performed by Geothermal Project geologists of the State of Arizona Bureau of Geology and Mineral Technology. Additional reports addressing problems associated with geothermal development were produced by the Arizona Geothermal Commercialization Team of the Department of Chemical Engineering, University of Arizona. This bibliography references all reports and maps generated by these two groups. In addition, to provide a more comprehensive listing of geothermal energy in Arizona, all available "geothermal" papers from other sources have been included, most of them written in the last few decades. Older reports dating back to 1867, on thermal waters and mineral springs of Arizona and the southwest U.S., also have been listed.

Papers authored by geologists of the Geothermal Project are primarily evaluations of the geothermal potential of specific sites. Reports prepared by the Commercialization Team evaluate the potential for geothermal-energy use in Arizona and cover legislative issues, financial feasibility, area development plans, technical applications for space heating and cooling, and mining and agricultural needs.

Additional references have been incorporated into the bibliography because they provide background in the technical disciplines that support geothermal-energy research in Arizona: geology, hydrology, geophysics and geochemistry. Certain of these publications highlight Arizona localities later explored for geothermal resources; others propose geologic and geophysical models for the occurrence of thermal waters in the deep, alluvium-filled basins of southern and western Arizona. Some papers use geologic, hydrologic and geophysical data to define basin structures and alluvial stratigraphy, which control the occurrence, volume and movement of thermal water. Geochemical studies of well and spring waters discuss water quality and provide estimates of maximum water temperatures at depth. Publications on the thermal characteristics and structure of the crust beneath both the Colorado Plateau and the Basin and Range physiographic provinces are listed because they contain heat flow and thermal gradient data. Much of the regional geothermal data has been summarized on two large-scale maps showing the resource potential of Arizona (References # 82 and # 220).

Finally, selected references on general geology and hydrology have been included in this bibliography because they contain original data on temperatures of well, springs and water quality.

The various types of publications included in this bibliography have been annotated by symbols, shown below under SYMBOL AND ABBREVIATION KEY.

Index headings under SUBJECT AND AREA INDEX group publications by subject and location. Although many cross-references are included, it is advisable to check all possible categories for papers pertinent to one's interests. Specific locations are listed by county (see map preceding INDEX).

Federal funding for the Geothermal Project of the State of Arizona Bureau of Geology and Mineral Technology was provided by the U.S. Department of Energy, Division of Geothermal Energy, and the U.S. Department of Interior, Bureau of Reclamation. The Arizona Geothermal Commercialization Team received funding from the U.S. Department of Energy, Division of Geothermal Energy, and project administration from the Arizona Solar Energy Commission.

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SYMBOL AND ABBREVIATION KEY

Symbols:

- 4.** Bold numeral indicates report on open-file at, or produced in conjunction with, the State of Arizona Bureau of Geology and Mineral Technology
- (G) Geophysical study
- (H) Report contains heat-flow and geothermal-gradient data
- (O) Older publication, may contain incomplete or obsolete data
- (T) Report contains some thermal well and spring data

Abbreviations:

- AMS Army Map Service
- HDR Hot dry rock
- M.y. Million years

AVAILABILITY OF REPORTS AND MAPS

State of Arizona Bureau of Geology and Mineral Technology publications and open-file reports may be obtained or reviewed at 845 N. Park Ave., Tucson, Arizona 85719 (602/626-2733).

Arizona theses and dissertations are shelved in the libraries at:

- University of Arizona, Tucson 85721 (602/626-0111)
- Arizona State University, Tempe 85281 (602/965-5081)
- Northern Arizona University, Flagstaff 86001 (602/523-9011)

Current compilations of graduate theses on Arizona geology are available from the Arizona Geological Society, P.O. Box 40952, Tucson, Arizona 85717 (Digests XII and XIII), and at the State of Arizona Bureau of Geology and Mineral Technology.

U.S. Geological Survey (U.S.G.S.) publications may be obtained at the following addresses:

- Superintendent of Documents, U.S. Government Printing Office,
Washington, DC 20402 (*texts*)
- U.S.G.S., Western Distribution Branch, Box 25286, Federal Center,
Denver, CO 80225 (*maps*)
- U.S.G.S., Western Distribution Branch, Open-file Services Section,
Box 25425, Federal Center, Denver, CO 80225 (*open-file reports*)

Other government documents may be obtained from the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

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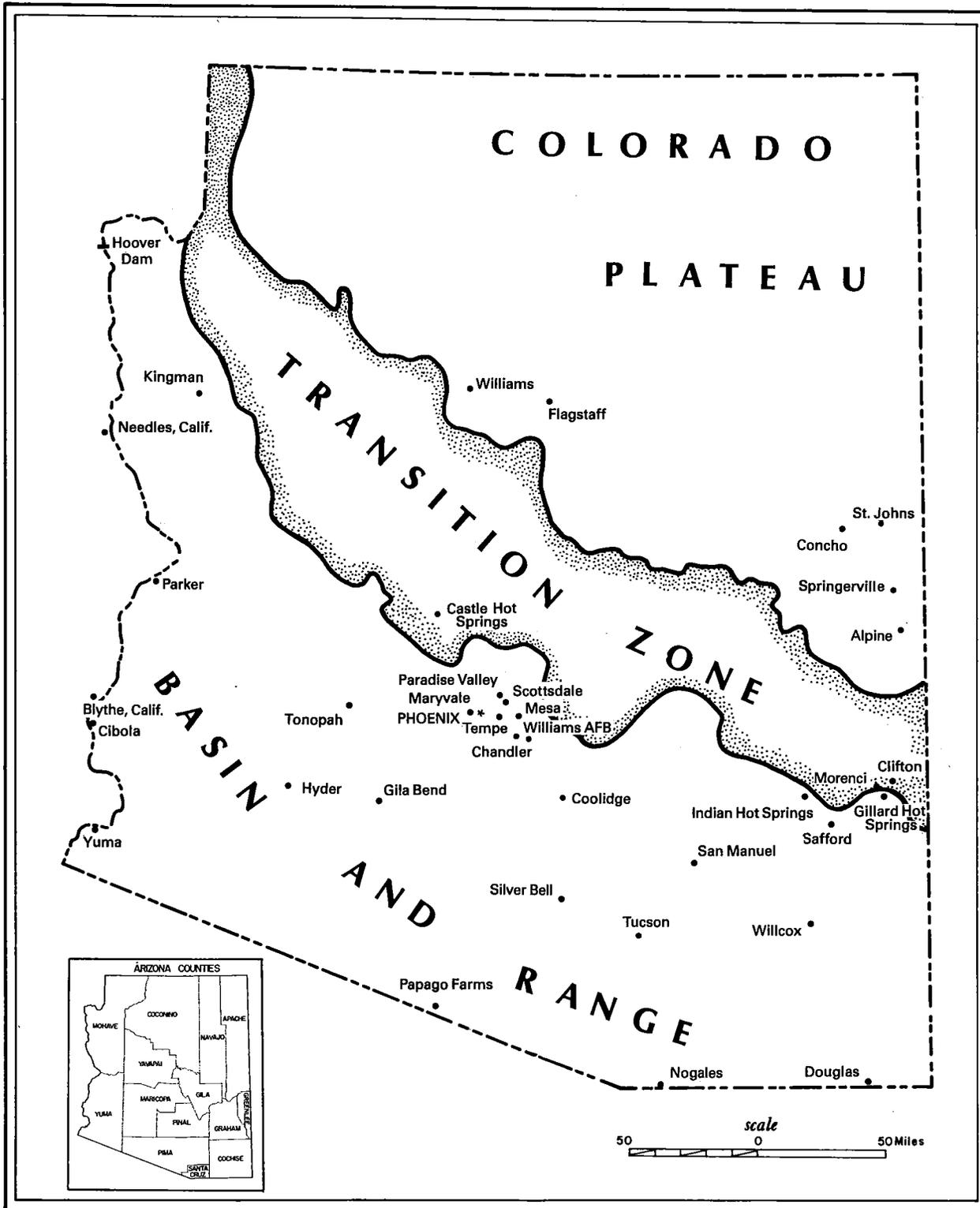
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