

ARIZONA BUREAU OF GEOLOGY  
AND  
MINERAL TECHNOLOGY

A C T I V I T I E S

1980 - 1982

Dr. William P. Cosart  
Acting Director  
134 Geology & Mines Bldg.  
University of Arizona  
Tucson, AZ 85721  
602-626-1401

Dr. Larry D. Fellows  
Assistant Director and  
State Geologist  
Geological Survey Branch  
845 N. Park Avenue  
Tucson, AZ 85719  
602-626-2733

Dr. William G. Davenport  
Assistant Director  
Mineral Technology Branch  
133 Geology & Mines Bldg.  
University of Arizona  
Tucson, AZ 85721  
602-626-1361

## ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY

- established as Arizona Bureau of Mines in 1915
- name changed and mission redefined in 1977  
(ARS 27-150 to 155, as amended)
- a scientific, investigative, and information agency



### PURPOSE:

- to conduct research and provide information for use by the legislature, governmental agencies, industry, and the public.

### POWERS AND DUTIES:

- investigate, describe, and interpret the geological setting of Arizona, including its natural hazards and limitations, its natural attributes, and its mineral and energy resources;
- conduct research and development activities concerning the exploration for and the mining and processing of the mineral resources of Arizona;
- publish or otherwise make available the results of all research and investigation undertaken by the Bureau;
- provide lectures, talks, displays, and exhibits;
- operate and maintain a central repository for reports, books, maps, and other publications regarding the geology, mineral resources, and associated technologies present or practiced in Arizona;
- operate and maintain a central repository for rock cores, well cuttings, and related subsurface samples;
- conduct qualitative tests of ores and mineral specimens obtained in Arizona.

(The Arizona Department of Mineral Resources serves as a bureau of mining information in conjunction with the Bureau of Geology and Mineral Technology (ARS 27-102).)

### ORGANIZATION AND BUDGET:

- a Division of the University of Arizona, administered by the Board of Regents and supervised by the President of the University or his designate; Dean of the College of Mines, at the request of the President, is also Director of the Bureau;
- consists of a Geological Survey Branch (the State Geological Survey) and a Mineral Technology Branch; Assistant Director responsible for the Geological Survey Branch is the State Geologist;
- a line item in the Organized Research Budget; 1982-83 appropriation: \$491,951; 15.33 FTE (Attachment "A")

BUREAU PUBLICATIONS AVAILABLE FOR PURCHASE: (Attachment "B")

PROJECTS COMPLETED, 1980-82: (Attachment "C")

PROJECTS IN PROGRESS, JANUARY 1983: (Attachment "D")



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ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGY

STATE-FUNDED POSITIONS - January 1, 1983

Office of the Director

William P. Cosart, Acting Director . . . . .	0.40
Karen Videbeck, Administrative Assistant II . . . . .	0.42
Rozanne Altamirano, Secretary II . . . . .	0.57

Geological Survey Branch

Larry D. Fellows, Assistant Director and State Geologist . . . . .	1.0
H. Wesley Peirce, Principal Geologist . . . . .	1.0
Stephen J. Reynolds, Assistant Geologist . . . . .	1.0
Jon E. Spencer, Assistant Geologist . . . . .	1.0
Thomas G. McGarvin, Research Assistant . . . . .	1.0
Joseph R. LaVoie, Senior Technician . . . . .	1.0
Kenneth Matesich, Graphic Artist III . . . . .	1.0
Anne M. Candea, Associate Editor . . . . .	1.0
Edna M. Balint, Secretary III . . . . .	1.0
Clara Garcia, Secretary I . . . . .	0.44
Stephen J. Naruk, Graduate Assistant . . . . .	0.5

Mineral Technology Branch

William G. Davenport, Assistant Director . . . . .	--
Robert T. O'Haire, Associate Mineralogist . . . . .	1.0
Meliton M. Garcia, Industrial Hygienist . . . . .	1.0
----, Senior Metallurgist . . . . .	1.0
----, Research Metallurgist . . . . .	1.0

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 15.33

## GRANT AND CONTRACT FUNDED POSITIONS:

Orlo E. Childs, Adjunct Professor;  
 Director, Mining and Mineral Resources, Institute;  
 Director, COSUNA (Correlation of Stratigraphic Units of  
 North America) Project

Robert E. Scarborough, Research Assistant II  
 Donald E. Gest, Research Assistant II  
 Susan Calder, Research Assistant I  
 Jennifer Fogle, Secretary III

## LIST OF AVAILABLE PUBLICATIONS



Revised - February 1983

Arizona Bureau of Geology and Mineral Technology

SPECIAL PAPERS

- |   |        |
|---|--------|
| 1. Late Cenozoic Geology of the White Mountains, AZ. R. K. Merrill, T. L. Pewe (1977) . . . . .   | \$4.50 |
| 2. Guidebook to the Geology of Central Arizona. Eds. D. M. Burt, T. L. Pewe (1978) . . . . .  | 6.00   |
| 3. The 1887 Earthquake in San Bernardino Valley, Sonora: Historical Accounts and Intensity Patterns in Arizona.<br>S. M. DuBois, A. W. Smith (1980) . . . . . | 6.00   |

BULLETINS

- |  |        |
|--|--------|
| 137. Arizona Lode Gold Mines and Gold Mining. E. D. Wilson, J. B. Cunningham, G. M. Butler. (1934; revised 1967) .     | \$2.75 |
| 162. Pegmatite Deposits of the White Picacho District, Maricopa and Yavapai Counties, Arizona. R. H. Jahns (1952) .    | 1.25   |
| 165. One Hundred Arizona Minerals. R. T. Moore (1955) . . . . .  | .75    |
| 167. Some Rare-Earth Mineral Deposits in Mohave County, Arizona. E. W. Heinrich (1960) . . . . .                       | .50    |
| 168. Gold Placers and Placering in Arizona. E. D. Wilson and others (1961) . . . . .                                   | 2.00   |
| 171. A Resume of the Geology of Arizona. E. D. Wilson (1962) . . . . .   | 1.50   |
| 173. Bibliography of the Geology and Mineral Resources of Arizona, 1848-1964. R. T. Moore, E. D. Wilson (1965) . . .   | 3.00   |
| 174. Guidebook 1 - U.S. Highway 666. E. D. Wilson (1965) . . . . .   | 1.50   |
| 175. Field Tests for the Common Mineral Elements. G. H. Roseveare (1966) . . . . .                                     | 1.00   |
| 176. Geologic Guidebook 2 - Arizona Highways 77 and 177. H. W. Peirce (1967) . . . . .                                 | 1.25   |
| 177. Mineral Deposits of the Fort Apache Indian Reservation, Arizona. R. T. Moore (1968) . . . . .                     | 1.25   |
| 179. Mineral Deposits of the Gila River Indian Reservation, Arizona. E. D. Wilson (1969) . . . . .                     | 1.00   |
| 180. Mineral and Water Resources of Arizona (1969) . . . . .   | 4.50   |
| 182. Coal, Oil, Natural Gas, Helium, and Uranium in Arizona. H. W. Peirce, S. B. Keith, J. C. Wilt (1970) . . . . .    | 4.50   |
| 183. Geologic Guidebook 3 - Arizona Highways 85, 86, and 386. S. B. Keith (1971) . . . . .                             | 1.00   |
| 184. Geologic Guidebook 4 - Arizona Highways 87, 88, and 188. C. Royse, M. Sheridan, H. W. Peirce (1971) . . . . .     | .75    |
| 185. Arizona Well Information. H. W. Peirce, J. R. Scurlock (1972) . . . . .   | 2.00   |
| 186. Geology of the Virgin and Beaverdam Mountains, Arizona. R. T. Moore (1972) . . . . .                              | 2.00   |
| 187. Index of Mining Properties in Cochise County, Arizona. S. B. Keith (1973) . . . . .                               | 1.00   |
| 190. Bibliography of the Geology and Mineral Resources of Arizona, 1965-1970. J. S. Vuich, J. C. Wilt (1974) . . . . . | 2.00   |
| 191. Index of Mining Properties in Santa Cruz County, Arizona. S. B. Keith (1975) . . . . .                            | 1.50   |
| 192. Index of Mining Properties in Yuma County, Arizona. S. B. Keith (1978) . . . . .                                  | 3.00   |
| 193. Arizona Earthquakes 1776-1980. S. M. DuBois, A. W. Smith, N. K. Nye, T. A. Nowak, Jr. (1982) . . . . .            | 20.00  |

CIRCULARS

- |   |        |
|---|--------|
| 17. Utilization of Municipal Waste Water for Froth Flotation of Copper and Molybdenum Sulfides. W. Fisher,<br>S. Rudy (1976) . . . . .                          | \$ .75 |
| 18. Chemical Analyses of Coal Samples from the Black Mesa Field, Arizona. R. T. Moore and others (1977) . . . . .   | .50    |
| 19. A Survey of Uranium Favorability of Paleozoic Rocks in the Mogollon Rim and Slope Region, East-Central<br>Arizona. H. W. Peirce and others (1977) . . . . . | 1.75   |
| 20. Geology of the Socorro Peak Area, Western Harquahala Mountains. R. J. Varga (1977) . . . . .  | 1.00   |
| 21. The Mississippian and Pennsylvanian Systems in the United States - Arizona. H. W. Peirce (1981) . . . . .   | 2.50   |
| 22. Index to Road Logs and River Logs in Arizona, 1950-1980. J. R. LaVoie, T. G. McGarvin (1981) . . . . .  | 1.50   |
| 23. Geothermal Resources in Arizona - a Bibliography. S. Calvo (1982) . . . . .   | 3.00   |

OPEN FILE REPORTS

A Study of Uranium Favorability of Cenozoic Sedimentary Rocks, Basin and Range Province, Arizona: Part I  
 General Geology and Chronology of Pre-Late Miocene-Cenozoic Sedimentary Rocks. R. B. Scarborough,  
 J. C. Wilt, Report 79-1429 (1979) . . . . . \$12.00

Guidebook to Fieldtrip 15, Phoenix-Black Mesa-Page, Arizona. H. W. Peirce, W. J. Breed, Report 79-4 (1979) . . . . . 4.50

Radioactive Occurrences and Uranium Production in Arizona. R. B. Scarborough, Report 81-1, with Maps (1981) . . . . . 45.00

Historical Seismicity in Arizona: Final Report. S. M. DuBois, M. L. Sbar, T. A. Nowak, Jr., Report 82-2, with  
 Maps (1982) . . . . . 20.00

MAPS

All maps are printed in color at a scale of approximately 16 miles/inch (1:1,000,000) unless otherwise stated.  
Mail orders for folded maps only.

1. Base Map of Arizona (not in color) . . . . . .25

3. County Geologic Map Series, approximately 6 miles/inch (1:375,000)

3-1 Cochise County (1959) . . . . . .75

3-2 Coconino County (1960) . . . . . 1.00

3-3 Gila County . . . . . .75

3-4 Graham-Greenlee Counties (1958) . . . . . .75

3-6 Mohave County (1959) . . . . . .75

3-7 Navajo-Apache Counties (1960) . . . . . 1.00

3-9 Pinal County (1959) . . . . . .75

3-10 Yavapai County (1958) . . . . . .75

3-11 Yuma County (1960) . . . . . .75

4. Metallic Mineral Occurrence Maps

4-2 Map of Known Metallic Mineral Occurrences in Arizona, Excluding Base and Precious Metals (1969) . . . . . .75

5. Map of Known Nonmetallic Mineral Occurrences in Arizona (1965) . . . . . .75

7. Geologic Cross Sections of Arizona, scale approximately 3 miles/inch. A free index of the cross sections,  
 printed in color on the Base Map of Arizona, is included with the purchase of any of the following maps:

7-1 Sheet One, Sections 1, 2, and 3 (1962) . . . . . 1.00

7-2 Sheet Two, Sections 4, 5, and 6 (1962) . . . . . 1.00

7-3 Sheet Three, Sections 7 and 8 (1962) . . . . . 1.00

12. Map of Arizona showing Principal Power and Transportation Facilities (1963) . . . . . .50

13. Geologic Map of Arizona, scale approximately 8 miles/inch (1:500,000) (1969) . . . . . 6.00

14. Geologic Map and Cross Sections of Arizona, scale approximately 40 miles/inch (1:2,500,000) (1977) . . . . . .25

15. Geothermal Resources of Arizona, scale approximately 8 miles/inch (1:500,000) (1982) . . . . . 1.00 \*

16. Historical Epicenters in Arizona 1830-1980. S. M. DuBois, T. A. Nowak, A. W. Smith, N. K. Nye (1982) . . . . . 3.00

17. Index of Published Geologic Maps of Arizona, 1903-1982. (set of 6 maps) R. B. Scarborough, M. L. Coney (1982) . . . . . 5.00

\* Cost includes mailing charge only

FOLIO SERIES

1. Environmental Geology of the McDowell Mountains Area, Maricopa County, Arizona. G. E. Christenson,  
 D. G. Welsch, T. L. Pewe, 10 maps, scale 1:24,000 . . . . . 10.00

G1-1A and G1-1-B sold as a set at \$2.50; remaining maps in this series available at \$1.25 each, as follows:  
 Map G1-1-C Land Slopes (1979); Map G1-1-D Caliche (1979); Map G1-1-E Ground Water (1979); Map G1-1-F  
 Material Resources (1979); Map G1-1-G Geologic Hazards (1979); Map G1-1-H Excavation Conditions (1979);  
 Map G1-1-I Waste Disposal (1980); and Map G1-1-J Construction Conditions (1980)

NEWSLETTER

FIELDNOTES, quarterly publication; subscription available at no charge by contacting the Bureau of Geology and Mineral  
Technology at 845 N. Park Ave., Tucson, AZ 85719 (602/626-2733).

PREPAYMENT required on all orders. Make check to Bureau of Geology and Mineral Technology. Send order and check to the  
Bureau of Geology and Mineral Technology at 845 N. Park Ave., Tucson, AZ 85719.

Orders are shipped via U. P. S. ; street address is required for fastest delivery.

Shipping and handling charges as follows:

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20.01 - 30.00	add 4.50
30.01 - 40.00	add 6.00
40.01 - 50.00	add 7.50
50.01 - 100.00	add 10.00

Orders under \$1.00 add \$.75; over \$100.00 add 10%

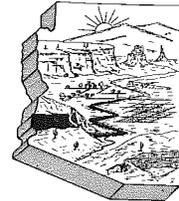
FOREIGN - add 40%

ARIZONA BUREAU OF GEOLOGY AND MINERAL TECHNOLOGYPROJECTS COMPLETED, 1980-1982:

<u>Title</u>	<u>Date</u>	<u>Publication Format</u>	<u>Funding Source</u>
1887 Earthquake in San Bernardino Valley, Sonora . . . . .	1980	Special Paper 3	U.S. Geological Survey Nuc.Reg.Comm., ABGMT *
The Mississippian & Pennsylvanian Systems in Arizona . . . . .	1981	Circular 21	ABGMT
Index to Road & River Logs in Arizona . . . . .	1981	Circular 22	ABGMT
Radioactive occurrences and uranium production in Arizona . . . . .	1981	Open-File Report 81-1	U.S. Dept. of Energy
Geologic road log between Tucson and Salome . . . . .	1981	Open-File Report 81-2	ABGMT
Residual Bouguer gravity maps of Arizona (23 maps, 1:250,000 scale)	1981	Open-File Report 81-24	U.S. Dept. of Energy
Geologic mapping along Salt River, Roosevelt Dam to Granite Reef Dam (1:24,000 scale) . . . . .	1981	Open-File Report 81-30	U.S. Bureau of Reclamation
Geologic map of South Mountains (1:24,000 scale). . . . .	1982	Open-File Report 82-1	ABGMT
Historical seismicity in Arizona: final report . . . . .	1982	Open-File Report 82-2	U.S. Geological Survey Nuc.Reg.Comm., ABGMT
Geologic data compilation and assessment of mineral potential in selected wilderness study areas, Safford Dist. . . . .	1982		U.S. Bureau of Land Management
Geothermal resources in Arizona - a bibliography . . . . .	1982	Circular 23	U.S. Dept. of Energy, ABGMT
Geologic map of Western Harquahala Mountains (1:12,000 scale) . . . . .	1982	Open-File Report 82-6	ABGMT
Geothermal resources of Arizona - (map, 1:500,000 scale) . . . . .	1982	Map 15	U.S. Dept. of Energy, Nat'l Oceanic & Atmos. Admin.
Entry of mineral production & occurrence data into CRIB . . . . .	1982	--	U.S. Geological Survey
Quaternary geologic maps of Arizona (1:250,000 scale) . . . . .	1982	Open-File	U.S. Geological Survey, ABGMT
Arizona earthquakes 1776-1980 . . . . .	1982	Bulletin 193	U.S. Geological Survey, Nuc.Reg.Comm., ABGMT
Historical epicenters in Arizona: 1830-1980 (1:1,000,000 scale) . . . . .	1982	Map 16	U.S. Geological Survey, Nuc.Reg.Comm., ABGMT
Index of published geologic maps 1903-1982 (6 maps, 1:1,000,000 scale) . . . . .	1982	Map 17	ABGMT

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## PROJECTS IN PROGRESS, JANUARY 1983:

Title	Funding Source
Mineralized districts in Arizona (map, 1:1,000,000 scale) . . . . .	U.S. Geological Survey, ABGMT *
Geology of South Mountains . . . . .	ABGMT
Outcrop map of rocks of Laramide age (1:1,000,000 scale) . . . . .	ABGMT
Geology and occurrence of uranium in Arizona	Dept. of Energy, ABGMT
Quaternary faults in Arizona (map, 1:500,000 scale) . . . . .	U.S. Geological Survey, ABGMT
Basin and Range faulting and volcanism in Arizona (map, 1:500,000 scale) . . . . .	U.S. Geological Survey
Compilation of geology of Phoenix 1°x2° sheet (1:250,000 scale) . . . . .	ABGMT
Compilation of geology of Tucson and Nogales 1°x2°sheet (1:250,000 scale) . . . . .	U.S. Geological Survey, ABGMT
Geology and mineral deposits of the Little Harquahala and Granite Wash Mountains . . . . .	ABGMT
Geochemistry and mineral potential of granitic rocks in Arizona . . . . .	ABGMT
Teachers resource guide for environmental education . . . . .	Arizona Dept. of Education, ABGMT and other agencies
Potential geothermal resources in Arizona: final report . . . . .	Dept. of Energy, ABGMT
Assessment of geologic hazards in Arizona (map, 1:1,000,000 scale) . . . . .	U.S. Geological Survey, ABGMT
Bibliography of geologic hazards in Arizona .	U.S. Geological Survey, ABGMT
Geology and hydrology of the Basin and Range province in Arizona . . . . .	U.S. Geological Survey, ABGMT
Run-off processes along the Rillito and Pantano Rivers in Arizona . . . . .	ABGMT
Index of theses on Arizona geology . . . . .	ABGMT
Geology and occurrence of molybdenum in Arizona . . . . .	U.S. Geological Survey, ABGMT

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