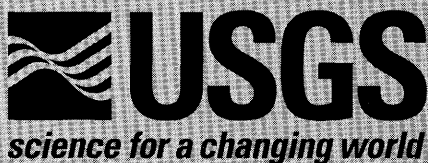


**U.S. Department of the Interior  
U.S. Geological Survey**

# **Publications of the U.S. Geological Survey, 2000**

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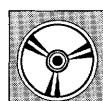




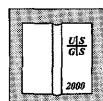
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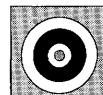
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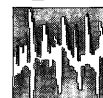
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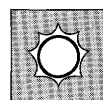
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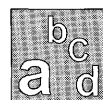
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\* No new publications in this series for this year.

## Publications of the U.S. Geological Survey

This catalog is a list of (1) books and maps<sup>1</sup> that were published during 2000 and (2) articles by U.S. Geological Survey personnel in non-U.S. Geological Survey journals and books that came to our attention in 2000; it supplements the permanent catalogs “Publications of the Geological Survey, 1879–1961,” “Publications of the Geological Survey, 1962–1970,” and “Publications of the U.S. Geological Survey, 1971 through 1981.” These permanent catalogs, as well as some others, are available under the conditions indicated below from USGS Information Services, Box 25286, Federal Center, Denver, CO 80225. The catalogs are also available over the counter at any of the U.S. Geological Survey offices that sell books.

Permanent catalogs “Publications of the Geological Survey, 1879–1961” and “Publications of the Geological Survey, 1962–1970” may be purchased in paperback book form for \$6 and as microfiche for \$4.

Permanent catalog “Publications of the U.S. Geological Survey, 1971 through 1981” may be purchased in paperback book form (two volumes, publications listing and index) for \$15 and as a set of microfiche for \$8.

Supplements for 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, and 1999 may be purchased in paperback book form and are priced as follows: 1982, \$3; 1983, \$3; 1984, \$3.25; 1985, \$3.75; 1986, \$4.25; 1987, \$4; 1988, \$3.75; 1989, \$4; 1990, \$4.50; 1991, \$4.25; 1992, \$5; 1993, \$7.50; 1994, \$7.50; 1995, \$7.50; 1996, \$7.50; 1997, \$7.50; 1998, \$7.50; 1999, \$7.50.

The quarterly catalog “New Publications of the U.S. Geological Survey” may be obtained free on request. Subscribers to this catalog are requested to provide notice for change of address promptly, giving new and old addresses and zip codes. Those wishing to be placed on a free subscription list for the quarterly catalog “New Publications of the U.S. Geological Survey” or wishing to change their address should write to the U.S. Geological Survey, 903 National Center, Reston, VA 20192.

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“New Publications of the U.S. Geological Survey” is also available electronically through the USGS at <http://pubs.usgs.gov/publications/>.

The U.S. Geological Survey Publications Data Base includes comprehensive bibliographic information on USGS reports and maps published from 1880 to the present and references for non-USGS publications with USGS authors published from 1983 to date—a total of approximately 110,000 publications. Free public access to the data base is provided as a public service by the U.S. Geological Survey at <http://usgs-georef.cos.com> and through the USGS home page at <http://www.usgs.gov>.

<sup>1</sup>Individual topographic quadrangle maps are not listed; they are shown on State indexes to topographic maps, which are free on application to USGS Information Services, Box 25286, Federal Center, Denver, CO 80225, and to offices where books and maps are sold over the counter. These indexes also show commercial dealers in each State.

## AVAILABILITY OF BOOKS AND MAPS BY MAIL

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Prices listed in the quarterly catalogs include cost of domestic surface transportation. Delivery is via USPS First Class or UPS Ground. For other delivery services, actual shipping costs will be billed. Please provide your courier account number if you request billing through a specific courier service. A \$5.00 handling charge is applicable on each order.

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Professional Papers, Bulletins, Water-Supply Papers, Techniques of Water-Resources Investigations, Circulars, single copies of "Preliminary Determination of Epicenters," the annual catalog "Publications of the U.S. Geological Survey," topographic and thematic maps, and some miscellaneous reports, including some from the foregoing series that have gone out of print at the Superintendent of Documents, are obtainable by mail from

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Open-file reports should be ordered according to instructions under appropriate headings in this announcement. An order form for USGS open-file reports is provided at the end of each quarterly catalog.

## AVAILABILITY OF BOOKS AND MAPS OVER THE COUNTER

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ANCHORAGE, Alaska—Rm. 101, 4230 University Dr.  
DENVER, Colorado—Bldg. 810, Federal Center  
MENLO PARK, California—Rm. 3128, Bldg. 3, 345  
Middlefield Rd.  
RESTON, Virginia—Rm. 1C402, USGS National Center,  
12201 Sunrise Valley Dr.  
SPOKANE, Washington—Rm. 135, U.S. Post Office Bldg.,  
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USGS maps are also sold by commercial dealers throughout the United States. For the nearest authorized USGS Business Partner, call 1-888-ASK-USGS or check [http://mapping.usgs.gov/esic/map\\_dealers/](http://mapping.usgs.gov/esic/map_dealers/) on the World Wide Web.

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Domestic remittance should be made by check or money order (payable to Superintendent of Documents) or charged to VISA or MasterCard. Please add 25 percent for mailing to countries outside the U.S.A. and its possessions.

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Those wishing to be placed on a free subscription list of the catalog "New Publications of the U.S. Geological Survey" should apply in writing to the U.S. Geological Survey, 903 National Center, Reston, VA 20192. Subscribers to this announcement are requested to provide notice for change of address promptly, giving new and old addresses and zip codes. Include a current address label. Send changes to U.S. Geological Survey, 903 National Center, Reston, VA 20192.

### IMPORTANT NOTICE

Prices of Government publications are subject to change. Increases in costs make it necessary for the Superintendent of Documents to increase the selling prices of many publications offered. As it is not feasible for the Superintendent of Documents to correct the prices manually in all previous announcements and publications stocked, the prices charged may differ from the prices in the announcements and publications.

The minimum for any USGS book publication is \$1.50 with the exception of circulars, which are free in limited quantities. This minimum applies to all publications previously advertised.





## DIGITAL DATA SERIES

The Digital Data Series encompasses a broad range of digital data, including computer programs, interpreted results of investigations, comprehensive reviewed data bases, spatial data sets, digital images and animation, and multimedia presentations that are not intended for printed release. Scientific reports in this series cover a wide variety of subjects on all facets of U.S. Geological Survey investigations and research that are of lasting scientific interest and value. Releases in the Digital Data Series offer access to scientific information that is available in digital form; the information is primarily for viewing, processing, and (or) analyzing by computer.

**DDS-0029. CALIFORNIA.** The October 17, 1989, Loma Prieta, California, earthquake; selected photographs, by J. K. Nakata, C. E. Meyer, H. G. Wilshire, J. C. Tinsley, III, W. S. Updegrave, D. M. Peterson, S. D. Ellen, R. A. Haugerud, R. J. McLaughlin, G. R. Fisher and M. F. Diggles. 1999. One CD-ROM. (This is a free product, for over the counter distribution only at USGS Earth Science Information Center, Room 3128, Bldg. 3, 345 Middlefield Rd., Menlo Park, CA 94025.) Available on the web at <http://geopubs.wr.usgs.gov/dds/dds-29/>

This CD-ROM was produced in accordance with the ISO 9660 Level 2 standard and Apple Computer's hierarchical-file-system (HFS) standard. The data and text on this CD-ROM require either a UNIX workstation, Macintosh or compatible computer, or IBM or compatible personal computer, all equipped with a CD-ROM drive.

**DDS-0052. U. S. Geological Survey mineral databases; MRDS and MAS/MILS,** by E. J. McFaul, G. T. Mason, Jr., W. B. Ferguson and B. R. Lipin. 2000. Two CD-ROMs.

These CD-ROMs were produced in accordance with the ISO 9660 standard and are designed to be run in a Windows 95, 98, or NT environment.

**DDS-0056. ALASKA.** Aeromagnetic, gravity anomaly, and derivative maps of the Craig and Dixon Entrance 1-degree by 3-degree quadrangles of Southeastern Alaska, by J. C. Wynn, R. P. Kucks and D. J. Grybeck. 1999. One CD-ROM.

Requirements: Files on this disc were generated on a PC under Microsoft Windows 95 operating system and are intended for PC's using Windows, but the images and text can be viewed using a Macintosh computer. This CD-ROM disc was produced in accordance with the ISO 9660 Format and Apple HFS standard.

**DDS-0057. MONTANA.** Stratigraphic framework of Lower and Upper Cretaceous rocks in central and eastern Montana, by S. M. Condon. 2000. One CD-ROM.

This CD-ROM was produced in accordance with the ISO 9660 standard and can be accessed by any computer system that has the appropriate software to read ISO 9660 discs. The minimum system requirements to read the data on this disc are as follows: (1) Windows 95 or higher, (2) IBM or compatible personal computer, (3) 16 MB RAM, (4) Microsoft MSCDEX version 2.1 or later, (5) CD-ROM drive with ISO 9660 software drive, (6) Hard disk drive, (7) VGA color graphics system, and (8) Adobe Acrobat Reader software, version 3.0 or later.

**DDS-0059. ALASKA.** Organic geochemistry data of Alaska, compiled by C. N. Threlkeld, R. C. Obuch and G. L. Gunther. 2000. One CD-ROM.

The data and text on this CD-ROM require a computer system with a CD-ROM reader capable of reading the ISO 9660 standard. Any standard text viewer or editor (such as vi, notepad, or WordPad) and any web browser capable of handling ASCII tables can be utilized to open the documents on this CD-ROM.

**DDS-0060. U.S. Geological Survey World Petroleum Assessment 2000; description and results,** by U. S. Geological Survey, World Energy Assessment Team. 2000. Four CD-ROMs. Available on the web at <http://greenwood.cr.usgs.gov/energy/WorldEnergy/DDS-60/>

Supported systems and minimum requirements to use the data with the software provided on this disc are as follows: Macintosh, Apple Power Macintosh or compatible computer. Mac OS software version 7.1.2 or later, 4.5 MB of available RAM (6.5 MB recommended), and 8 MB of available hard-disk space. Windows; i486™ or Pentium processor-based personal computer, Microsoft Windows 95, Windows 98, or Windows NT 4.0 with Service Pack 3 or later, 10 MB of available RAM on Windows 95 and Windows 98 (16 MB recommended), 16 MB of available RAM on Windows NT (24 MB recommended) and 10 MB of available hard-disk space. Versions of Adobe Acrobat Reader software are available for IBM AIX, DEC OSF/1, HP-UX, SGI IRIX, LINUX, Sun Solaris X86 and Sun Solaris SPARCstation.

**DDS-0061. CALIFORNIA.** Año Nuevo to Santa Cruz, California; a photographic tour of the coastline, by Henry Chezar and F. L. Wong. 2000. One CD-ROM. Available on the web at <http://geopubs.wr.usgs.gov/dds/dds-61/>

This CD-ROM should work with most PC-compatible, Apple Macintosh, or Unix systems available at press time. The CD-ROM was produced in accordance with the ISO 9660 level 2 standard and Apple Computer's hierarchical-file-system (HFS) standard. The data and text on this CD-ROM require an IBM or compatible personal computer equipped with a CD-ROM drive. The PC should have an 80486/66 or higher processor (Pentium recommended), Microsoft Windows 95, 98, or NT or higher, 8 megabytes RAM (64-MB recommended), and a VGA color monitor that can display 256 colors (16.7 million recommended). All images can be viewed with any software that can read JPEG (.jpg) files.

**DDS-0064. USGS mineral deposit models,** edited by D. B. Stoeser and W. D. Heran. 2000. One CD-ROM.

This CD-ROM was produced in accordance with the ISO 9660 standard and is intended for use under Microsoft Windows 95, 98, NT or 2000. Acrobat Reader version 3 or greater is required to view the report files.

**DDS-0066. COLORADO.** Assessment of the alluvial sediments in the Big Thompson River valley, Colorado, by Adrienne Barnett and K. J. Ellefsen. 2000. Available on the web at <http://greenwood.cr.usgs.gov/pub/dds/dds-066/>

System requirements for Acrobat Reader 4.0 (1) i486 or Pentium processor-based personal computer, (2) Microsoft Windows 95, Windows 98, or Windows NT 4.0 with Service Pack 3 or later, (3) 8 MB of RAM on Windows 95 and Windows 98 (16 MB rec-



ommended), (4) 16 MB of RAM on Windows NT (24 MB recommended), and (5) 10 MB of available hard disk space.



## BOOKS

### PROFESSIONAL PAPERS

Professional Papers are mainly comprehensive scientific reports of wide and lasting interest and importance to professional scientists and engineers. Included are reports on the results of resource studies, and of topographic, hydrologic, and geologic investigations. They also include collections of related papers addressing different aspects of a single scientific topic.

- P 1177-B. NORTH CAROLINA. The Outer Banks of North Carolina, by Robert Dolan and Harry Lins. Prepared in cooperation with the National Park Service. 2000. 49 p. (Reprint.)
- P 1413-A. WASHINGTON, OREGON, IDAHO. Summary of the Columbia Plateau Regional Aquifer-System Analysis, Washington, Oregon, and Idaho, by J. J. Vaccaro. 1999. p. A1-A51. (Regional Aquifer-System Analysis; Columbia Plateau.)
- P 1416-H. Hydrology of the Coastal Lowlands aquifer system in parts of Alabama, Florida, Louisiana, and Mississippi, by Angel Martin, Jr. and C. D. Whiteman, Jr. 1999. p. H1-H51. 8 plates in pocket. (Regional Aquifer-System Analysis; Gulf Coastal Plain.)
- P 1423-A. The Midwestern Basins and Arches regional aquifer system in parts of Indiana, Ohio, Michigan, and Illinois; summary, by E. F. Bugliosi. 1999. p. A1-A46. (Regional Aquifer-System Analysis; Midwestern Basins and Arches.)
- P 1423-C. Regional ground-water flow and geochemistry in the Midwest Basins and Arches aquifer system in parts of Indiana, Ohio, Michigan, and Illinois, by S. M. Eberts and L. L. George. 2000. p. C1-C103. (Regional Aquifer-System Analysis; Midwest Basin and Arches.) Available on the web at <http://water.usgs.gov/pubs/pp/pp1423-c/>
- P 1424-C. WASHINGTON. Geologic framework of the Puget Sound aquifer system, Washington and British Columbia, by M. A. Jones. 1999. p. C1-C31. 18 plates in pocket. (Regional Aquifer-System Analysis; Puget-Willamette Lowland.)
- P 1500-K-R. UTAH. Assessment of regional earthquake hazards and risk along the Wasatch Front, Utah, edited by P. L. Gori and W. W. Hays, U.S. Geological Survey. 2000. (Chapters K-R are issued as a single volume and are not available separately.)

Introduction, by P. L. Gori and W. W. Hays, U.S. Geological Survey. p. 1-7.

K. Site amplification in the Salt Lake City-Ogden-Provo urban corridor and the implications for earthquake-resistant design, by W. W. Hays, U.S. Geological Survey. p. K1-K22.

L. UTAH. Predicting strong ground motion in Utah, by K. W. Campbell, U.S. Geological Survey. p. L1-L31.

M. UTAH. Probabilistic analysis of earthquake ground-shaking hazards along the Wasatch Front, Utah, by R. R. Youngs, F. H. Swan, and M. S. Power, GeoMatrix Consultants; D. P. Schwartz, U.S. Geological Survey; and R. K. Green, Woodward-Clyde Consultants. p. M1-M74.

N. UTAH. Relative ground response in Salt Lake City and areas of Springville-Spanish Fork, Utah, by K. W. King, R. A. Williams, and D. L. Carver, U.S. Geological Survey. p. N1-N24.

O. UTAH. In situ Poisson's ratio measurements near Provo, Utah, by R. D. Miller and D. W. Steeples, Kansas Geological Survey; K. W. King, U.S. Geological Survey; and R. W. Knapp, Kansas Geological Survey. p. O1-O10.

P. UTAH. Earthquake losses in central Utah, by S. T. Algermissen and E. P. Arnold, U.S. Geological Survey; K. V. Steinbrugge, El Carrito, CA; and M. G. Hopper and P. S. Powers, U.S. Geological Survey. p. P1-P29.

Q. UTAH. Isoseismals of some historical earthquakes affecting the Wasatch Front area, Utah, by M. G. Hopper, U.S. Geological Survey. p. Q1-Q25.

R. Seismic-risk methods and estimates for utility systems and state-owned buildings along the Wasatch Front, by C. E. Taylor, Dames and Moore; and D. B. Ward, Structural Facilities. p. R1-R28.

P 1591. Lava Falls Rapid in Grand Canyon; effects of late Holocene debris flows on the Colorado River, by R. H. Webb, T. S. Melis, P. G. Griffiths, J. G. Elliott, T. E. Cerling, R. J. Poreda, T. W. Wise and J. E. Pizzuto. 1999. p. 90. 90 p., 1 plate in pocket.

P 1600. IDAHO. Stratigraphy and depositional environments of middle Proterozoic rocks, northern part of the Lemhi Range, Lemhi County, Idaho, by R. G. Tysdal. 2000. 40 p.

P 1608. NEVADA. Geophysical framework of the southwestern Nevada volcanic field and hydrogeologic implications, by V. J. Grauch, D. A. Sawyer, C. J. Fridrich and M. R. Hudson. 1999. 39 p. Available on the web at <http://greenwood.cr.usgs.gov/pub/pppapers/p1608>

P 1613. HAWAII. Magma migration and resupply during the 1974 summit eruptions of Kilauea Volcano, Hawai'i, by J. P. Lockwood, R. I. Tilling, R. T. Holcomb, F. W. Klein, A. T. Okamura and D. W. Peterson. 1999. 37 p.

P 1614. ALASKA. Geologic studies in Alaska by the U. S. Geological Survey, 1997, edited by K. D. Kelly, U.S. Geological Survey. 1999. 160 p.

Geologic setting of Mississippian vein-breccias at the Kady Zn-Pb-Cu-Ag prospect; plumbing system for a failed sedex deposit?, by M. B. Weldon, Alaska Division of Geological and Geophysical Surveys. p. 5-34.

ALASKA. Chemical and isotopic data for rocks and ores from the Upper Triassic Greens Creek and Woewodski Island volcanogenic massive sulfide deposits, Southeastern Alaska, by R. J. Newberry, University of Alaska; and D. A. Brew, U.S. Geological Survey. p. 35-55.

ALASKA. Core lithofacies analysis and fluvio-tidal environments in the AK 94 CBM-1 well, near Wasilla, Alaska, by R. M. Flores, U.S. Geological Survey; M. D. Myers, Alaska Department of Natural Resources; G. D. Stricker, U.S. Geological Survey; and J. A. Houle, Alaska Department of Natural Resources. p. 57-72.

ALASKA. Lower Paleozoic deep-water facies of the Medfra area, central Alaska, by J. A. Dumoulin, D. C. Bradley, A. G. Harris, and J. E. Repetski, U.S. Geological Survey. p. 73-103.



- Alagogshak Volcano; a Pleistocene andesite-dacite stratovolcano in Katmai National Park, by Wes Hildreth, Judy Fierstein, M. A. Lanphere, and D. F. Siems, U.S. Geological Survey. p. 105-113.
- ALASKA. Gravity changes during the 26 years following the 1964 Alaskan earthquake, by D. F. Barnes, U.S. Geological Survey. p. 115-122.
- ALASKA. Metal cycling along the northwestern Seward Peninsula, Alaska; a possible natural cause of metal contamination in the Arctic, by C. C. Parnow, R. J. Goldfarb, K. D. Kelley, and G. S. York, U.S. Geological Survey. p. 123-137.
- Major-element, trace-element, and strontium-isotope systematics of natural waters in the Fairbanks mining district; constraints from local geology, by R. J. Goldfarb, U.S. Geological Survey; G. L. Farmer, University of Colorado; B. A. Cieutut, ERM Southwest; and A. L. Meier, U.S. Geological Survey. p. 139-150.
- ALASKA. U. S. Geological Survey reports on Alaska released in 1997, compiled by J. P. Galloway and Susan Toussaint, U.S. Geological Survey. p. 151-155.
- ALASKA. Reports about Alaska in non-USGS publications released in 1997 that include USGS authors, compiled by J. P. Galloway and Susan Toussaint, U.S. Geological Survey. p. 157-160.
- P 1615. ALASKA. Geologic studies in Alaska by the U. S. Geological Survey, 1998, edited by K. D. Kelley and L. P. Gough, U.S. Geological Survey. 2000. 224 p. Available on the web at <http://greenwood.cr.usgs.gov/pub/ppapers/p1615/>
- ALASKA. New geochronological evidence for the timing of early Tertiary ridge subduction in Southern Alaska, by D. C. Bradley, U.S. Geological Survey; Randall Parrish, British Geological Survey; William Clendenen, Brown University; Daniel Lux, University of Maine; P. W. Layer, University of Alaska at Fairbanks; Matthew Heizler, New Mexico Institute of Mining and Technology; and D. T. Donley, U.S. Geological Survey. p. 5-21.
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- ALASKA. Stratigraphic variation in petrographic composition of Nanushuk Group sandstones at Slope Mountain, North Slope, Alaska, by M. J. Johnsson, California Coastal Commission; and N. K. Sokol, Bryn Mawr, PA. p. 83-100.
- ALASKA. Regional baseline geochemistry and environmental effects of gold placer mining operations on the Fortymile River, eastern Alaska, by R. B. Wanty, Bronwen Wang, U.S. Geological Survey; Jim Vohden, Alaska Department of Natural Resources; P. H. Briggs, and A. L. Meier, U.S. Geological Survey. p. 101-110.
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- ALASKA. Postglacial vegetation history of the Kachemak Bay area, Cook Inlet, South-Central Alaska, by T. A. Ager, U.S. Geological Survey. p. 147-165.
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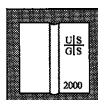
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GNIS, developed by the Geographic Names Office, Mapping Applications Center, National Mapping Division, is the basis for the Digital Gazetteer of the United States (CD-ROM) and includes all names in the data base as of July 1999, as well as the necessary software for searching, analyzing, and exporting the data. The software must be installed onto an IBM-compatible hard disk before the data can be used. The CD-ROM, which can be purchased for \$57 plus \$5.00 shipping, contains the National Geographic Names Data Base (NGNDB), Antarctica Geographic Names Data Base (AGNDB), Topographic Map Names Data Base (TMNDB), and Reference Data Base (RDB). Each record in the NGNDB, AGNDB, and TMNDB can contain a variety of location and description fields. All can be displayed, and most can be searched. Not all fields, however, contain data. The RDB contains one field—bibliography. The CD-ROM is no longer accompanied by a users manual. The installation procedures, readme file, and trouble shooting guide are provided in WordPerfect, HTML, and PDF formats. All necessary information regarding startup procedures are listed in the "Getting\_Started" directory on the CD.

The GNIS CD-ROM may be ordered from: Information Services, U.S. Geological Survey, DFC, Building 810, MS 306, Denver, CO 80225, or by telephoning 1-888-ASK-USGS. Prepayment is required. Please make check or money order payable to: U.S. Department of the Interior—USGS. VISA, MasterCard, American Express, and Discover Card are accepted. Prices are subject to change.

Information and Technical Specifications may be requested from: U.S. Geological Survey, Manager GNIS, 523 National Center, Reston, VA 20192. 703-648-4544.



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### METAL INDUSTRY INDICATORS

The Metal Industry Indicators (MII) is a monthly newsletter (free) that analyzes and forecasts the economic health of five metal industries with composite leading and coincident indexes: primary metals, steel, copper, primary and secondary aluminum, and aluminum mill products. The MII was developed by the former U.S. Bureau of Mines in cooperation with the Center for International Business Cycle Research at Columbia University. In late 1996, the USGS assumed sole responsibility for producing the indexes and publishing the MII. Each month, these indexes are analyzed along with any economywide occurrences that would affect the metal industries. Order single copy from Publication Distribution, Pittsburgh Research Center, P.O. Box 18070, Pittsburgh, PA 15236 (send self-addressed label). Also available by Mines FaxBack (703-648-4999) and on the Internet (<http://minerals.usgs.gov/minerals/pubs/>). *Mailing list additions or changes:* USGS, Publication Services Section, 984 National Center, Reston, VA 20192.

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The Mineral Industry Surveys (MIS's) are periodic statistical and economic reports (free) designed to provide timely statistical data on production, distribution, stocks, and consumption of significant mineral commodities. The surveys are issued monthly, quarterly, annually, or at other regular intervals, depending on the need for current data. The MIS's are published by commodities as well as by States. Order single copy from Publication Distribution, Pittsburgh Research Center, P.O. Box 18070, Pittsburgh, PA 15236 (send self-addressed label). Also available by Mines FaxBack (703-648-4999) and on the Internet (<http://minerals.usgs.gov/minerals/pubs/>). *Mailing list additions or changes:* USGS, Publication Services Section, 984 National Center, Reston, VA 20192. A series of international MIS's is also available, by Mines FaxBack only.

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### MINERALS YEARBOOK

The Minerals Yearbook discusses the performance of the worldwide minerals and materials industry during a calendar year, and it provides background information to assist in interpreting that performance. Content of the individual Minerals Yearbook volumes follows:

Volume I, Metals and Minerals, contains chapters about virtually all metallic and industrial mineral commodities important to the U.S. economy. Chapters on survey methods, summary statistics for domestic nonfuel minerals, and trends in mining and quarrying in the metals and industrial minerals industries in the United States are also included.

Volume II, Area Reports: Domestic, contains a chapter on the minerals industry of each of the 50 States and Puerto Rico and the Administered Islands. This volume also has chapters on survey methods and summary statistics for domestic nonfuel minerals.

Volume III, Area Reports: International, is published as four separate reports. These reports collectively contain the latest available mineral data on more than 190 foreign countries and discuss the importance of minerals to the economies of these nations and the United States. Each report begins with an overview of the region's mineral industries during the year. It continues with individual country chapters that examine the mining, refining, processing, and utilization of minerals in each country of the region and how they relate to U.S. industry. Most chapters include production and industry structure tables, information about Government policies and programs affecting the country's minerals industry, and an outlook section.

For information on the latest products, please contact Linda Borden 703-648-4753. Information is also available on the Internet (<http://minerals.usgs.gov/minerals/pubs/>).



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Fact Sheets are used to disseminate timely information on scientific and technical programs of the U.S. Geological Survey and are available, at no cost, from USGS Information Services, Box 25286, Denver, CO 80225.

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OF 90-0503. CALIFORNIA. Digital recordings of aftershocks of the 17 October 1989 Loma Prieta, California, earthquake, by C. S. Mueller and Gary Glassmoyer. 1990. Available on the web at [http://nsmg.wr.usgs.gov/GEOS/LPE/OFR\\_90-503/Loma\\_Prieta.html](http://nsmg.wr.usgs.gov/GEOS/LPE/OFR_90-503/Loma_Prieta.html)

OF 91-0151. National Water-Quality Assessment Program; Red River of the North, by J. D. Stoner. 1991. 2 p. (NC, Da, M, Wb.)

OF 92-0164. Report on the U.S. Geological Survey's evaluation program for standard reference samples distributed in April 1992; T-119 (trace constituents), M-122 (major constituents), N-34 (nutrients), N-35 (nutrients), and Hg-144 (mercury), by H. K. Long and J. W. Farrar. 1992. 100 p. (NC, Da, M, Wb.)

OF 92-0474. Fact sheet; glaciers on Mount Rainier, by C. L. Driedger. 1992. Available on the web at <http://vulcan.wr.usgs.gov/Volcanoes/Rainier/Glaciers/OFR92-474/OFR92-474.html>

OF 93-0111. WASHINGTON. Water fact sheet; history of landslides and debris flows at Mount Rainier, Washington, by K. M. Scott and J. W. Vallance. 1993. Available on the web at <http://vulcan.wr.usgs.gov/Volcanoes/Rainier/Hazards/OFR93-111/OFR93-111.html>



- OF 93-0124. Volcano fact sheet; glacier-generated debris flows at Mount Rainier, by J. S. Walder and C. L. Driedger. 1993. Available on the web at <http://vulcan.wr.usgs.gov/Volcanoes/Rainier/Hazards/OFR93-124/OFR93-124.html>
- OF 93-0641. Floods and flood plains, by J. A. Moreland. 1993. Available on the web at <http://water.usgs.gov/pubs/OFR93-641/index.html>
- OF 93-0642. Drought, by J. A. Moreland. 1993. Available on the web at <http://water.usgs.gov/pubs/FS/OFR93-642/index.html>
- OF 94-0313. WASHINGTON. Water fact sheet; evolution of sediment yield from Mount St. Helens, Washington, 1980-1993, by J. E. Costa. 1994. Available on the web at [http://vulcan.wr.usgs.gov/Projects/Sediment\\_Trans/OFR94-313/OFR94-313.html](http://vulcan.wr.usgs.gov/Projects/Sediment_Trans/OFR94-313/OFR94-313.html)
- OF 94-0645. ANALOG; a program for estimating paleoclimate parameters using the method of modern analogs, by P. N. Schweitzer. 1994. Available on the web at <http://geochange.er.usgs.gov/pub/tools/analog/doc/analog.html>
- OF 95-0114. Technical manual for the experimental acoustic flow monitor, by K. C. Hadley and R. G. LaHusen. 1995. 24 p., 2 over-size sheets. (NC, Da, M, Wb.)
- OF 95-0415. Standards for illustrations in reports of the U. S. Geological Survey, Water Resources Division, compiled by R. A. Miller and B. H. Balthrop. 1995. 239 p. (NC, Da, M, Wb.)
- OF 95-0421. Living with a volcano in your backyard; volcanic hazards at Mount Rainier, by J. S. Walder and C. L. Driedger. 1995. Available on the web at <http://vulcan.wr.usgs.gov/Volcanoes/Rainier/Hazards/OFR95-421/framework.html>
- OF 95-0642. WASHINGTON. Volcano hazards fact sheet; history and hazards of Mount Rainier, Washington, by T. W. Sisson. 1995. Available on the web at <http://vulcan.wr.usgs.gov/Volcanoes/Rainier/Hazards/OFR95-642/OFR95-642.html>
- OF 95-0670. OREGON. Geologic map of the Tillamook Highlands, northwest Oregon Coast Range; a digital database, by R. E. Wells, P. D. Snavely, Jr., N. S. MacLeod, M. M. Kelley, M. J. Parker, J. S. Fenton and T. J. Felger. 1995. Available on the web at <http://wrgis.wr.usgs.gov/open-file/of95-670/>
- OF 95-0810. Acid deposition sensitivity map of the Southern Appalachian Assessment area; Virginia, North Carolina, South Carolina, Tennessee, Georgia, and Alabama, by J. D. Pepper, A. E. Grosz, T. H. Kress, T. K. Collins, G. B. Kappesser, C. M. Huber and J. R. Webb. 1995. Available on the web at <http://minerals.er.usgs.gov/acid/>
- OF 96-0053. ALASKA. Preliminary geologic map of Northeast Chichagof Island, Alaska, by S. M. Karl. 1999. 12 p., 1 over-size sheet, scale 1:63,360 (1 inch = 1 mile). (NC, Da, M, A, S; Alaska Resource Library Information Services [ARLIS], 3150 "C" St., Suite 100, Anchorage, AK 99503; Alaska Dep. of Natural Resources, Div. of Geol. & Geophys. Surv., 794 University Ave., Suite 200, Fairbanks, AK 99709-3645.)
- OF 96-0171. MUDMASTER; a program for calculating crystallite size distributions and strain from the shapes of X-ray diffraction peaks, by D. D. Eberl, V. A. Drits, Jan Srodon and R. Nüesch. 1996. (NC, Da, M, Wb.) Available on the web at <ftp://brrcftp.cr.usgs.gov/pub/ddeberl/>
- OF 96-0208. NEW MEXICO. Computer input and output files associated with ground-water-flow simulations of the Albuquerque Basin, central New Mexico, 1901-94, with projections to 2020; (supplement one to U.S. Geological Survey Water-Resources Investigations Report 94-4251), by J. M. Kernodle. 1996. Two CD-ROMS. (NC, Da, M, Wb.)
- These CD-ROMs were produced in accordance with the ISO 9660 CD-ROM Standard and are therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed.
- OF 96-0210. NEW MEXICO. Computer input and output files associated with ground-water-flow simulations of the Albuquerque Basin, central New Mexico, 1901-95, with projections to 2020; (supplement three to U.S. Geological Survey Water-Resources Investigations Report 94-4251), by J. M. Kernodle. 1996. Two CD-ROMS. (NC, Da, M, Wb.)
- These CD-ROMs were produced in accordance with both ISO 9660 CD-ROM Standard and are therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed.
- OF 96-0227. OREGON. Willamette Basin, Oregon; nitrogen in streams and ground water, 1980-90, by B. A. Bonn, D. A. Wentz and S. R. Hinkle. 1996. (NC, Da, M, Wb.)
- OF 96-0263. USGS response to an urban earthquake; Northridge '94. 1996. Available on the web at <http://geohazards.cr.usgs.gov/northridge/norpub1.htm>
- OF 96-0274. High-resolution seismic-reflection surveys of Lake Baikal, Siberia, 1990-1992, by S. M. Colman, D. S. Foster and Josephine Hatton. 1996. Available on the web at <http://woodshole.er.usgs.gov/data1/CDROMS/baik-seis96.274/>
- OF 96-0291. NEVADA, CALIFORNIA. Digital bedrock geologic map database of the Beatty 30 × 60-minute quadrangle, Nevada and California, by M. D. Carr, D. A. Sawyer, Kathryn Nimz, Florian Maldonado and W. C. Swadley. 1996. 16 p., 2 over-size sheets, scale 1:100,000 (1 inch = about 1.6 miles). Available on the web at <http://wrgis.wr.usgs.gov/open-file/of96-291/>
- OF 97-0093. NEVADA. Digital geologic map of the Springfield 7.5' quadrangle, Nevada, by S. A. Minor. 1997. Available on the web at <ftp://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0093/readme.txt>
- OF 97-0137-A. Assessment of the coal resources of the Kyrgyz Republic; coal character and distribution, geology, mining, and importance to the nation's future, by E. R. Landis, N. H. Bostick, H. J. Gluskoter, C. D. Harrison, D. W. Huber and E. A. Johnson. 1997. Available on the web at <http://energy.er.usgs.gov/products/openfile/OFR97-137A/index.htm>
- OF 97-0272. The areal extent of continuous type gas accumulations in Lower Silurian Clinton Sands and Medina Group sandstones of



the Appalachian Basin and the environments affected by their development, by C. J. Wandrey, R. T. Ryder, V. F. Nuccio and K. L. Aggen. 1997. Available on the web at <http://energy.cr.usgs.gov/appbasin/>

OF 97-0289. Digital compilation of landslide overview map of the conterminous United States. 1997. Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0289/>

OF 97-0299. USGS certificate of analysis; coal, lower Bakerstown CLB-1, by S. A. Wilson. 1997. Available on the web at <http://energy.er.usgs.gov/products/openfile/OFR97-299/index.htm>

OF 97-0361. COLORADO. Data for water levels, water quality, lithology, and surface-water discharge in the vicinity of Lincoln Park, Colorado, 1961 through 1996, by E. R. Banta. Prepared in cooperation with the Colorado Department of Public Health and Environment. 1997. 16 p., 1 over-size sheet, one 3 1/2 inch DS/HD IBM compatible computer diskette. (NC, Da, M, Wb; USGS, WRD, Room H-2101, Bldg. 53, Denver Federal Ctr., Mail Stop 415, Box 25046, Denver, CO 80225-0046; and Norwest Bank Bldg., Suite 200, 201 West 8th St., Pueblo, CO 81003-3031.)

OF 97-0455. MINNESOTA, WISCONSIN, MICHIGAN. Digital geologic map and mineral deposits of the Lake Superior region; Minnesota, Wisconsin, Michigan, by W. F. Cannon, T. H. Kress, D. M. Sutphin, G. B. Morey and Joyce Meints. 1997. Available on the web at <http://minerals.er.usgs.gov/pubs/of97-455/superior.html>

OF 97-0470-B. Map showing geology, oil and gas fields, and geologic provinces of the Arabian Peninsula, by R. M. Pollastro, A. S. Karshbaum and R. J. Viger. 1999. One CD-ROM. (NC, Da, M.) (Updated, 2.0 version.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0470-b/>

Recommended configuration depends upon viewing format to be used. Macintosh computer (Macintosh II series with 68020 or greater processor, including all Power Macintosh computers), with MacOS 7.0 or later. 4 MB application RAM for 680x0-based Macintosh or Power Macintosh with Virtual Memory turned on; 5227 KB for Power Macintosh with Virtual Memory turned off. 20 MB hard disk space, plus 4.4 MB additional temporary disk space available during installation. Intel -x86-based personal computer (386 minimum; 486, Pentium, or Pentium Pro recommended), with Microsoft Windows 3.1, Microsoft Windows for Workgroups, Microsoft Windows 95, Microsoft Windows NT 3.51 or 4.0, 32 MB application RAM minimum, 64 MB recommended. 17 MB hard disk space, plus 7 MB additional temporary disk space display graphic card with resolution 1024 x 768 or at least 800 x 600 available during installation. Sun SPARCstation with SunOS(TM) 4.1.3 or later, or Solaris(R) 2.3, 2.4, or 2.5 operating system software and OpenWindows(TM) (version 3.0 or later), Motif(TM) window manager (1.2.3 or later), OpenLook version 3.0, or Common Desktop Environment (CDE) 1.0. (Acrobat Reader will not run under Solaris 2.0, 2.1, or 2.2). 12 megabytes of available hard disk space and 32 MB RAM. HP workstation, 9000 series workstation model 700 or 800, with HP-UX(TM) 9.0.3 or later operating system software, X Window System(TM) X11R5 with HP-VUE or CDE 1.0. 12 megabytes of available hard disk space and 32 MB RAM. Silicon Graphics workstation with IRIX(TM)

5.3 or later operating system software. 12 megabytes of available hard disk space and 32 MB RAM. IBM RS/6000 workstation with AIX(R) 4.1 or later operating system and CDE 1.0 or Motif window manager. 12 megabytes of available hard disk space and 32 MB RAM.

OF 97-0470-C. Map showing geology, oil and gas fields, and geologic provinces of South Asia, by C. J. Wandrey and B. E. Law. 1999. One CD-ROM. (NC, Da, M.) (Updated, 2.0 version.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0470-c/>

Recommended configuration depends upon viewing format to be used. Macintosh computer (Macintosh II series with 68020 or greater processor, including all Power Macintosh computers), with MacOS 7.0 or later. 4 MB application RAM for 680x0-based Macintosh or Power Macintosh with Virtual Memory turned on; 5227 KB for Power Macintosh with Virtual Memory turned off. 20 MB hard disk space, plus 4.4 MB additional temporary disk space available during installation. Intel -x86-based personal computer (386 minimum; 486, Pentium or Pentium Pro recommended), with Microsoft Windows 3.1, Microsoft Windows for Workgroups, Microsoft Windows 95, Microsoft Windows NT 3.51 or 4.0, 32 MB application RAM minimum, 64 MB recommended. 17 MB hard disk space, plus 7 MB additional temporary disk space display graphic card with resolution. 1024 x 768 or at least 800 x 600 available during installation. Sun SPARCstation with SunOS(TM) 4.1.3 or later, or Solaris(R) 2.3, 2.4, or 2.5 operating system software and OpenWindows(TM) (version 3.0 or later), Motif(TM) window manager (1.2.3 or later), OpenLook version 3.0, or Common Desktop Environment (CDE) 1.0. (Acrobat Reader will not run under Solaris 2.0, 2.1, or 2.2). 12 megabytes of available hard disk space and 32 MB RAM. HP workstation, 9000 series workstation model 700 or 800, with HP-UX(TM) 9.0.3 or later operating system software, X Window System (TM) X11R5 with HP-VUE or CDE 1.0. 12 megabytes of available hard disk space and 32 MB RAM. Silicon Graphics workstation with IRIX(TM) 5.3 or later operating system software. 12 megabytes of available hard disk space and 32 MB RAM. IBM RS/6000 workstation with AIX(R) 4.1 or later operating system and CDE 1.0 or Motif window manager. 12 megabytes of available hard disk space and 32 MB RAM.

OF 97-0470-D. Maps showing geology, oil and gas fields, and geologic provinces of South America, compiled by C. J. Schenk, R. J. Viger and C. P. Anderson. 1999. One CD-ROM. (NC, M, Da.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0470-d/>

Recommended configuration depends upon viewing format to be used. Macintosh computer (Macintosh II series with 68020 or greater processor, including all Power Macintosh computers), with MacOS 7.0 or later. 4 MB application RAM for 680x0-based Macintosh or Power Macintosh with Virtual Memory turned on; 5227 KB for Power Macintosh with Virtual Memory turned off. 20 MB hard disk space, plus 4.4 MB additional temporary disk space available during installation. Intel -x86-based personal computer (386 minimum; 486, Pentium, or Pentium Pro recommended), with Microsoft Windows 3.1, Microsoft Windows for Workgroups, Microsoft Windows 95,





Microsoft Windows NT 3.51 or 4.0, 32 MB application RAM minimum, 64 MB recommended. 17 MB hard disk space, plus 7 MB additional temporary disk space display graphic card with resolution 1024 x 768 or at least 800 x 600 available during installation. Sun SPARCstation with SunOS(TM) 4.1.3 or later, or Solaris(R) 2.3, 2.4, or 2.5 operating system software and OpenWindows(TM) (version 3.0 or later), Motif(TM) window manager (1.2.3 or later), OpenLook version 3.0, or Common Desktop Environment (CDE) 1.0. (Acrobat Reader will not run under Solaris 2.0, 2.1, or 2.2.). 12 megabytes of available hard disk space and 32 MB RAM. HP workstation, 9000 series workstation model 700 or 800, with HP-UX(TM) 9.0.3 or later operating system software, X Window System(TM) X11R5 with HP-VUE or CDE 1.0. 12 megabytes of available hard disk space and 32 MB RAM. Silicon Graphics workstation with IRIX(TM) 5.3 or later operating system software. 12 megabytes of available hard disk space and 32 MB RAM. IBM RS/6000 workstation with AIX(R) 4.1 or later operating system and CDE 1.0 or Motif window manager. 12 megabytes of available hard disk space and 32 MB RAM.

OF 97-0470-G. Maps showing geology, oil and gas fields and geologic provinces of Iran, compiled by R. M. Pollastro, F. M. Persits and D. W. Steinshouer. 1997. Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0470-g/>

OF 97-0473. Archive of the ISIS sidescan sonar and navigation field data collected on USGS Cruise 95009 1-14 August, 1995, by W. W. Danforth, Brynn Bemis, W. C. Schwab and V. F. Paskevich. 1997. Seven-disc set. (NC, Da, M.) CD-R disc-on demand.

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OF 97-0485. Archive of the ISIS sidescan sonar and navigation field data collected on USGS Cruise 97009 (24 Feb.-8 Mar. 1997); 44 lines, by Brynn Bemis, W. C. Schwab and V. F. Paskevich. 1997. Ten-disc set. (NC, Da, M.) CD-R disc-on demand.

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OF 97-0588. Documentation of AIR2D, a computer program to simulate two-dimensional axisymmetric air flow in the unsaturated zone, by C. J. Joss and A. L. Baehr. 1997. 106 p. 106 p., one 3.5 DS/HD IBM compatible computer diskette. (NC, Da, M, Wb.)

OF 97-0721. Geologic road log from Vanadzor to the coal deposits of Antaramut, Antaramut to Dzoragyukh, and Dzoragyukh to Vaagni, north-central Armenia, by Florian Maldonado, Artur Martirosyan, Samvel Harutunian, Gourgen Malkhasian and B. S. Pierce. 1999. 10 p. (NC, M, Da.)

OF 97-0737. COLORADO. Revised preliminary geologic map of the New Castle Quadrangle, Garfield County, Colorado, by R. B. Scott and R. R. Shroba. 1997. Map-on-demand. Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0737/>

OF 97-0739. Reconnaissance surficial and bedrock map of the Antaramut-Dzoragyukh area, north-central Armenia, by Florian

Maldonado, Artur Martirosyan, Samvel Harutunian and Gourgen Malkhasian. Prepared in cooperation with the Armenian Ministry of the Environment and Interior Resources. 1997. 1 over-size sheet, scale 1:10,000 (1 inch = about 833 feet). (NC, M, Da.)

OF 97-0852. COLORADO. Revised preliminary geologic map of the Rifle Quadrangle, Garfield County, Colorado, by R. R. Shroba and R. B. Scott. 1997. Map-on-demand. Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-97-0852/>

OF 98-0009. IDAHO. Hydrologic and meteorological data for an unsaturated-zone study area near the radioactive waste management complex, Idaho National Engineering and Environmental Laboratory, Idaho, 1990-96, by K. S. Perkins, J. R. Nimmo and J. R. Pittman. Prepared in cooperation with the U.S. Department of Energy. 1998. 13 p. (NC, Da, M, Wb.)

OF 98-0039. Using geographic information systems with specific examples for the aggregate industry, by Roger Melick, T. L. Furman, W. H. Langer and H. Van Brenk. 1998. Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-98-0039-report.htm>

OF 98-0135. ALASKA. Geology of Akutan Island, Alaska, by D. H. Richter, C. F. Waythomas, R. G. McGimsey and P. L. Stelling. 1998. 1 over-size sheet, scale 1:48,000 (1 inch = 4,000 feet). Available on the web at <http://geopubs.wr.usgs.gov/open-file/of98-135/>

OF 98-0177. Mississippi Basin Carbon Project science plan, by E. T. Sundquist, R. F. Stallard, N. B. Bliss, H. W. Markewich, J. W. Harden, M. J. Pavich and W. E. Dean, Jr. 1998. Available on the web at <http://geochange.er.usgs.gov/pub/info/plans/mbcp/sp.shtml>

OF 98-0203. RayGUI; a graphical user interface for interactive ray-tracing (rayinvr), by Jeremy Loss, I. A. Pecher and U. S. ten Brink. 1998. Available on the web at [http://abacus.er.usgs.gov/raygui/documentation/cover\\_ray.html](http://abacus.er.usgs.gov/raygui/documentation/cover_ray.html)

OF 98-0219-E. IDAHO. Geochemistry of the Payette National Forest, Idaho, by K. C. Watts, Jr. and H. D. King. 1999. 44 p. (NC, M, Da, S; Idaho Geol. Surv., Univ. of Idaho Campus, Morrill Hall, Room 332, Moscow, ID 83843.)

OF 98-0234. UTAH. Sevier-age thrust fault structures control the location of base- and precious-metal mining districts in the Oquirrh Mountains, Utah, by E. W. Tooker. 1998. 66 p. (NC, Da, M; Utah Geol. Surv., 1594 West North Temple, Salt Lake City, UT 84114-6100.)

OF 98-0236. CALIFORNIA. A microearthquake survey of the Mammoth Mountain area, Long Valley Caldera, California, summer 1997, by G. R. Foulger, B. R. Julian, D. P. Hill, G. Sharer, L. E. Foulger, R. Perlroth, N. Dotson, A. M. Pitt and E. Brodsky. 1998. 63 p. (NC, Da, M; California Dep. of Conservation, Div. of Mines and Geol., Mail Stop 14-34, Library, 801 K St., Sacramento, CA 95814-3532; 185 Berry St., Suite 210, San Francisco, CA 94107-1728; and State Office Bldg., 107 South Broadway, Los Angeles, CA 90012.)

OF 98-0245. GEORGIA. Geologic map of the Atlanta 30' x 60' quadrangle, Atlanta, Georgia, by M. W. Higgins, T. J. Crawford, R. L. Atkins and R. F. Crawford. 1998. 19 p., 4 over-size sheets, scale 1:100,000 (1 inch = about 1.6 miles). (NC; Georgia Geol.





- Surv., Room 400, 19 Martin Luther King, Jr. Dr., S.W., Atlanta, GA 30334.)
- OF 98-0266. NEVADA. Nature and continuity of the Sundance Fault, Yucca Mountain, Nevada, by C. J. Potter, R. P. Dickerson and W. C. Day. Prepared in cooperation with the U.S. Department of Energy, Nevada Operations Office. 1999. 16 p., 3 over-size sheets, scale 1:2,400 (1 inch = 200 feet). (NC, Da, M, Wb; ESIP, Earth Sci. Investigation Program, Yucca Mountain Project Branch, USGS, WRD, Box 25046, Mail Stop 421 Federal Ctr., Denver, CO 80225; U.S. Dep. of Energy Technical Library, P.O. Box 98518, Mail Stop 505, Las Vegas, NV 89193-8518; OSTI, U.S. Dep. of Energy, Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831.)
- OF 98-0275. NEW YORK, PENNSYLVANIA, NEW JERSEY. Hydrogeology of the Port Jervis area, in Orange County, New York; Pike County, Pennsylvania; and Sussex County, New Jersey, by J. D. Garry. Prepared in cooperation with the New York State Department of Environmental Conservation. 1999. 4 over-size sheets. (NC, Da, M, Wb.)
- OF 98-0371. CONNECTICUT. The Quaternary geologic map of Connecticut and Long Island Sound basin, by J. R. Stone, J. P. Schafer, E. H. London, R. S. Lewis, Mary DiGiacomo-Cohen and W. B. Thompson. Prepared in cooperation with the Connecticut Department of Environmental Protection, Geological and Natural History Survey. 1998. 21 p., 1 over-size sheet, scale 1:175,000 (1 inch = about 2.76 miles). (NC, Da, M; Connecticut Geol. and Natural History Surv., 79 Elm St., Hartford, CT 06106-5127.)
- OF 98-0513-A. CALIFORNIA. Estimates of ultimate recovery of oil from California's giant fields (>100 million barrels), 1923-1995, by M. E. Tennyson. 1998. 165 p. (NC, M, Da; California Dep. of Conservation, Div. of Mines and Geol., Mail Stop 14-34, Library, 801 K St., Sacramento, CA 95814-3532; 185 Berry St., Suite 210, San Francisco, CA 94107-1728; and State Office Bldg., 107 South Broadway, Los Angeles, CA 90012.)
- OF 98-0516. Bouguer gravity anomaly map of the Dead Sea fault system, Jordan and Israel, by U. S. ten Brink, M. Rybakov, A. Al-Zoubi, M. Hassounah, A. Batayneh, U. Frieslander, V. Goldschmit, M. Daoud and Y. Rotstein. 1998. 1 over-size sheet, scale 1:250,000 (1 inch = about 4 miles). (NC, Da, M.)
- OF 98-0521. NEW MEXICO. Map of Quaternary faults and folds in New Mexico and adjacent areas, by M. N. Machette, S. F. Personius, K. I. Kelson, K. M. Haller and R. L. Dart. 1998. 1 over-size sheet, scale 1:750,000 (1 inch = about 12 miles). (Map-on-demand.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-98-0521/>
- OF 98-0530. NEVADA. Pre-construction geologic section along the Cross Drift through the potential high-level radioactive waste repository, Yucca Mountain, Nye County, Nevada, by C. J. Potter, W. C. Day, C. A. San Juan, D. S. Sweetkind and R. M. Drake, II. Prepared in cooperation with the U.S. Department of Energy, Nevada Operations Office. 1998. 22 p., 1 over-size sheet. (NC, Da, M, Wb; ESIP-Earth Science Investigations Program, Yucca Mountain Project Branch, USGS, WRD, Box 25046, Mail Stop 421 Federal Ctr., Denver, CO 80225; U.S. Dep. of Energy Technical Library, P.O. Box 98518, Mail Stop 505, Las Vegas, NV 89193-8518; OSTI-U.S. Dep. of Energy, Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge, TN 37831.)
- OF 98-0581. UTAH. Geologic map of the Oquirrh Mountains and adjoining south and western Traverse Mountains, Tooele, Salt Lake and Utah counties, Utah, by E. W. Tooker and R. J. Roberts. 1998. 2 over-size sheets, scale 1:50,000 (1 inch = about 4,200 feet). (NC, Da, M; Utah Geol. Surv., 1594 West North Temple, Salt Lake City, UT 84114-6100.)
- OF 98-0590. Archive of sidescan-sonar and DGPS navigation field data collected on USGS cruise ALPH98013 September 10-23, 1998, by J. F. Denny, W. C. Schwab, W. W. Danforth, T. F. O'Brien, D. S. Foster, D. R. Nichols and B. J. Irwin. 1998. 46-disc set. (NC, Da, M.) CD-R disc-on-demand.
- This CD-ROM (Compact Disc-Read Only Memory) has been produced in accordance with the ISO 9660 CD-ROM Standard and is therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed.
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- OF 98-0635. NEVADA. The climatic and hydrologic history of southern Nevada during the late Quaternary, by R. M. Forester, J. P. Bradbury, C. Carter, A. B. Elvidge-Tuma, M. L. Hemphill, S. C. Lundstrom, S. A. Mahan, B. D. Marshall, L. A. Neymark, J. B. Paces, S. E. Sharpe, J. F. Whelan and P. E. Wigand. Prepared in cooperation with the U.S. Department of Energy, Nevada Operations Office. 1999. 63 p. (NC, Da, M, Wb; ESIP-Earth Sci. Investigations Program, Yucca Mountain Project Branch, USGS, WRD, Box 25046, Mail Stop 421 Federal Ctr., Denver, CO 80225; U.S. Dep. of Energy Technical Library, P.O. Box 98518, Mail Stop 505, Las Vegas, NV 89193-8518; OSTI-U.S. Dep. of Energy, Office of Sci. and Technical Information, P.O. Box 62, Oak Ridge, TN 37831.)
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System software requirements: access to ArcInfo 7.1.1 or above, Adobe Illustrator 7.0 or other graphics software that can read Illustrator files. Adobe Acrobat Reader (provided on this disc). Microsoft Word 7.0 for Windows 95 or equivalent word-processing software, and Microsoft Excel 7.0 for Windows 95. Adobe Illustrator requirements: 80386 or better CPU; Math coprocessor recommended; Windows 3.0 or higher but not Windows 95: 4 Mb of RAM, 8 Mb strongly recommended; 15 Mb of disk space; Super VGA graphics system, 256 colors, 640×480 pixels minimum, 1024×768 pixels strongly recommended; Microsoft-compatible mouse; and Windows-supported printer.

OF 99-0008. NEW HAMPSHIRE. Bedrock geologic map of the Windham Quadrangle, Rockingham and Hillsborough counties, New Hampshire, by G. J. Walsh and S. F. Clark, Jr. 1999. Available on the web at <http://pubs.usgs.gov/openfile/of99-8/>

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OF 99-0037. Archive of Datasonics SIS-1000 chirp subbottom data collected during USGS cruise ALPH 98013 New York Bight, 8 September-23 October, 1998, by D. S. Foster, W. C. Schwab, W. W. Danforth, J. F. Denny, J. C. Hill, B. J. Irwin, D. R. Nichols and T. F. O'Brien. 1999. Nine-disc set. (NC, Da, M.) CD-R disc-on-demand.

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OF 99-0050-H. The Niger Delta petroleum system; Niger Delta province, Nigeria, Cameroon, and Equatorial Guinea, Africa, by M. L. Tuttle, R. R. Charpentier and M. E. Brownfield. 1999. 65 p. (NC, M, Da.)

A. Tertiary Niger Delta (Akjata-Agbada) petroleum system (No. 701901), Niger Delta province, Nigeria, Cameroon, and Equatorial Guinea, Africa, by M. L. Tuttle, M. E. Brownfield and R. R. Charpentier. p. 4-44.

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OF 99-0050-M. Petroleum systems of the Po Basin Province of northern Italy and the northern Adriatic Sea; Porto Garibaldi (biogenic), Meride/Riva di Solto (thermal), and Marnoso Arenacea (thermal), by S. J. Lindquist. 1999. 19 p. (NC, M, Da.)

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OF 99-0063. NEW HAMPSHIRE. Lineament map of Area 9 of the New Hampshire bedrock aquifer assessment, north-central New Hampshire, by S. F. Clark, Jr., E. W. Ferguson, H. A. Short, G. J. Marcoux and R. B. Moore. Prepared in cooperation with the New Hampshire Department of Environmental Services, Water Division. 1999. 1 over-size sheet, scale 1:48,000 (1 inch = 4,000 feet). (NC, Da, M, Wb.)

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- OF 99-0147-B. IDAHO. Chemical composition of weathered and less weathered strata of the Meade Peak phosphatic shale member of the Permian Phosphoria Formation; B, Measured sections C and D, Dry Valley, Caribou County, Idaho, by J. R. Herring, S. A. Wilson, L. A. Stillings, A. C. Knudsen, M. E. Gunter, R. G. Tysdal, R. I. Grauch, G. A. Desborough and R. A. Zielinski. Prepared in cooperation with the U.S. Bureau of Land Management; U.S. Forest Service; Agrium U.S.; FMC Corporation; J.R. Simplot Company; Rhodia; Solutia. 2000. 33 p. (NC, M, Da, S; Idaho Geol. Surv., Univ. of Idaho Campus, Morrill Hall, Room 332, Moscow, ID 83843.)
- OF 99-0148-B. SOUTH CAROLINA, GEORGIA. Geologic maps and block diagrams of the Barite Hill gold-silver deposit and vicinity, South Carolina and Georgia, by S. H. Clark. 1999. 3 p., 3 over-size sheets, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M; Georgia Geol. Surv., Room 400, 19 Martin Luther King, Jr. Dr., S.W., Atlanta, GA 30334; South Carolina Geol. Surv., 5 Geology Rd., Columbia, SC 29210-9998.)
- OF 99-0150. VIRGINIA. Digital geologic map of Loudoun County, Virginia, by C. S. Southworth, W. C. Burton, J. S. Schindler, A. J. Froelich, Remo Nardini, Peter Chirico and J. E. Reddy. 1999. One CD-ROM. (NC, Da, M; Virginia Div. of Mineral Resources, Natural Resources Bldg., Alderman and McCormick Rds., P.O. Box 3667, Charlottesville, VA 22903.)
- This CD-ROM is intended for use with Macintosh, Windows 95/98/NT or UNIX computers. Version 1.0 of ArcExplorer is provided on the CD for Windows 95/98/NT users. ArcInfo export files for UNIX/NT workstations were created in ArcInfo v.7.1.1. This CD-ROM was produced in accordance with the ISO 9660 CD-ROM standard.
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- H. Donald "The Kid" Curry, Death Valley's first ranger-geologist, by V. L. Santucci and T. G. Nyborg. p. 1.
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- CALIFORNIA, NEVADA. Looking beneath the surface, a three-dimensional geophysical view of the Death Valley region, California and Nevada, by R. J. Blakely, R. L. Morin and C. C. Faunt. p. 47-51.
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Deformation of Quaternary deposits and ground surface caused by bedrock fault movements; trenching studies and model experiments, by Keiichi Ueta, Kazuo Tani, Nobuhiro Onizuka, Takahiro Kato and Katsuyuki Maruyama. p. 88-91.

Recent surface-faulting events along the southern part of the Itoigawa-Shizuoka tectonic line, central Japan, by Shinji Toda, Daisuke Miura, Shintaro Abe, Katsuyoshi Miyakoshi and Daiei Inoue. p. 92-96.

Faulting processes of the 1955 Futatsui earthquake ( $M = 5.9$ ), Akita Prefecture, inferred from pre- and coseismic elevation changes, by Taku Komatsubara and Yasuo Awata. p. 97-103.

Subaqueous sand blow deposits induced by the 1995 southern Hyogo Prefecture (Kobe) earthquake, Japan, by Akihisa Kitamura, Eiji Tominaga and Hideo Sakai. p. 104.

OF 99-0401. ALASKA. Characteristics of the Alaskan 1-km Advanced Very High Resolution Radiometer data sets used for analysis of vegetation biophysical properties, by C. J. Markon. 1999. 86 p. (NC, Da, M, Wb.)

OF 99-0402. GPS and GIS-based data collection and image mapping in the Antarctic Peninsula, by R. D. Sanchez. 1999. 11 p. (NC, Da, M.)

OF 99-0403. Evaluation of high-resolution digital images for the landscape characterization of colonia settlements, by R. D. Sanchez. 1999. 20 p. (NC, Da, M.)

OF 99-0404. NEW MEXICO. Digital aeromagnetic data from the Sandoval-Santa Fe, Belen, and Cochiti airborne surveys; covering areas in Rio Arriba, Sandoval, Santa Fe, Socorro, and Valencia counties, New Mexico, by U. S. Geological Survey, Sander Geophysics and Geoterrex-Dighem. 1999. One CD-ROM. (NC, M, Da; New Mexico Bur. of Mines & Mineral Resources, Campus Station, Socorro, NM 87801.)

This CD-ROM was produced in accordance with ISO 9660 standards. The minimum system requirements to access the data and access the report with the software provided on the CD-ROM are: (1) IBM-compatible personal computer, 386 microprocessor, (2) 4MB RAM, 7MB available hard disk space, (3) CD-ROM drive and mouse, and (4) Microsoft Windows 3.1, 95, or NT.

OF 99-0405. Analysis resource assessment method for conventional oil and accumulations; the "ASSESS" method, by R. A. Crovelli. 1999. 34 p. (NC, M, Da.)

OF 99-0406. ARIZONA. Digital mining claim density map for federal lands in Arizona; 1996, by P. C. Hyndman and H. W. Campbell. 1999. 23 p. (NC, Da, M; Arizona Geol. Surv., 416 West Congress St. #100, Tucson, AZ 85701-1315; USGS, Library, Suite 355, 520 North Park Ave., Tucson, AZ 85719.) Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-406/>



OF 99-0407. UTAH. Digital mining claim density map for federal lands in Utah; 1996, by P. C. Hyndman and H. W. Campbell. 1999. 18 p. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-407/>

OF 99-0408. WASHINGTON. Digital mining claim density map for federal lands in Washington; 1996, by P. C. Hyndman and H. W. Campbell. 1999. 18 p. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-408/>

OF 99-0409. CALIFORNIA. Digital mining claim density map for federal lands in California; 1996, by P. C. Hyndman and H. W. Campbell. 1999. 21 p. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-409/>

OF 99-0410. COLORADO. Digital mining claim density map for federal lands in Colorado; 1996, by P. C. Hyndman and H. W. Campbell. 1999. 21 p. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-410/>

OF 99-0411. NEW MEXICO. Digital mining claim density map for federal lands in New Mexico; 1996, by P. C. Hyndman and H. W. Campbell. 1999. 20 p. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-411/>

OF 99-0412. Co-rich Fe-Mn crusts from the Marshall Islands (Leg 1) and hydrothermal and hydrogenetic Fe-Mn deposits from Micronesia (Leg 2), KODOS 98-3 cruise, West Pacific, by J. R. Hein, Jai-Woon Moon, Kyeong-Yong Lee, J. S. Dowling, Ki-Hyune Kim, Malia Burrows, S. H. Park, Youn-ji Choi, A. A. Schuetze, H. S. Jung, Hyun-Sub Kim, G. C. Lee, Cheong-Kee Park, S. K. Son and Chan-Young Park. 1999. 63 p. (NC, Da, M.)

OF 99-0413. Sediment color and reflectance record from Ocean Drilling Program Hole 625B, Gulf of Mexico (marine isotope stage 5 interval), by H. J. Dowsett. 1999. 19 p. (NC, Da, M.)

OF 99-0414-B. WASHINGTON. Geologic datasets for weights-of-evidence analysis in Northeast Washington; 3, Minerals-related permits on national forests, 1967-1998, by D. E. Boleneus. 1999. One 3 1/2 inch computer diskette. (NC, Da, M, S; Washington DNR/Geol. & Earth Resources Library, 1111 Washington St., S.E., Olympia, WA 98501.) Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-414>

Files are available in Microsoft Word 97, Adobe Acrobat PDF, Microsoft Excel97, JPG, or text formats.

OF 99-0415. Hawaiian Volcano Observatory; summary 93, part I; seismic data, January to December 1993; chronological summary, by J. S. Nakata, P. G. Okubo, A. H. Tomori, W. R. Tanigawa, T. Mattox, C. Heliker and Margaret Mangan. 1999. 74 p. (NC, Da, M; USGS Library, Hawaiian Volcano Observatory, P.O. Box 51, Hawaii National Park, 96718-0051.)

OF 99-0419. Probabilistic method for estimating future growth of oil and gas reserves, by R. A. Crovelli and J. W. Schmoker. 1999. 23 p. (NC, Da, M.)

OF 99-0420. Central West Antarctica aeromagnetic data; a web site for distribution of data and maps, by R. E. Sweeney, C. A. Finn, D. D. Blankenship, R. E. Bell and J. C. Behrendt. 1999. 15 p. (NC, M, Da.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-report/ofr-99-0420/>

OF 99-0421. WASHINGTON. Preliminary geologic map of the Uncas 7.5' quadrangle, Callam and Jefferson counties, Washing-

ton, by P. J. Haeussler, J. C. Yount and R. E. Wells. 1999. (NC, Da, M, S; Washington DNR/Geol. & Earth Resources Library, 1111 Washington St. S.E., Olympia, WA 98501.) Available on the web at <http://wrgis.wr.usgs.gov/open-file/of99-421/>

OF 99-0422. Geographic information systems (GIS) compilation of geophysical, geologic, and tectonic data for the Circum-North Pacific, by M. L. Greninger, S. L. Klemperer, W. J. Nokleberg, D. S. Aitken, B. S. Bennett, K. L. Brennan, R. W. Buhmann, S. G. Byalobzhesky, S. P. Gordey, R. A. Hansen, P. P. Hearn, Jr., T. G. Hildenbrand, A. M. Hittelman, J. M. Journeay, A. I. Khanchuk, Boris Khlebnikov, D. P. Mathieux, J. W. Monger, B. A. Natalin, L. M. Parfenov, R. W. Saltus, D. T. Sandwell, Thomas Simkin, G. F. Ulmishek, F. H. Wilson and M. F. Diggles. 1999. One CD-ROM. (NC, Da, M, A, S; Alaska Resource Library Information Services [ARLIS], 3150 "C" St., Suite 100, Anchorage, AK 99503; Alaska Dep. of Natural Resources, Div. of Geol. & Geophys. Surv., 794 University Ave., Suite 200, Fairbanks, AK 99709-3645.) Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-422/>

This CD-ROM was produced in accordance with the ISO 9660 Level 2 and Apple Computer's hierarchical file system (HFS) standards. The minimum system requirements to use the data with the software provided on the disc are as follows: Windows 95/98 or NT; IBM or compatible personal computer with a 486 or higher processor (Pentium II or higher recommended) Microsoft Windows 95/98 or NT (NT needs ServicePack 3 to use ArcExplorer 1.1), 64 megabytes RAM (128 recommended), a 13 inch or larger BGA color monitor with 256 colors, and a CD-ROM drive. Macintosh; Macintosh 68030 or higher processor (PowerPC recommended) running System 7 or later with 64 or more megabytes RAM (128 recommended), a 13 inch or larger color monitor, and a CD-ROM Drive. ArcView 3.1 and ArcExplorer 1.1 are not available for Macintosh computers.

OF 99-0423. VIRGINIA. Geologic map of the Green Bay 7.5-minute quadrangle, Prince Edward County, Virginia, by J. D. Peper and P. C. Hackley. 1999. 25 p., 2 over-size sheets, scale 1:24,000 (1 inch = 2,000 feet). (NC; Virginia Div. of Mineral Resources, Natural Resources Bldg., Alderman and McCormick Rds., P.O. Box 3667, Charlottesville, VA 22903.)

OF 99-0426. FLORIDA. Results of time-domain electromagnetic soundings in Everglades National Park, Florida, by D. V. Fitterman, Maria Deszcz-Pan and C. E. Stoddard. 1999. One CD-ROM. (NC, M, Da; Dep. of Natural Resources, Div. of Resource Management, 903 West Tennessee St., Tallahassee, FL 32304.)

Compatible operating environments or systems: Mac OS 7.1.2 or later, Microsoft Windows 95, 98, or NT. Minimum hardware requirements: CD-ROM drive Macintosh system: Power Macintosh, 4.5 MB of available RAM, 8 MB of available hard-disk space. Windows system: 486 or Pentium processor-based system, 16 MB of available RAM, 10 MB of available hard-disk space.

OF 99-0427. COLORADO. Spatial geologic data model for the Gunnison, Grand Mesa, Uncompahgre national forests mineral resource assessment area, southwestern Colorado and digital data for the Leadville, Montrose, Durango, and the Colorado parts of the Grand Junction, Moab, and Cortez 1 x 2 degree geologic maps, by W. C. Day, G. N. Green, D. H. Knepper, Jr. and R. C. Phillips.





1999. One CD-ROM. (NC, M, Da; Vicki J. Cowart, Colorado Geol. Surv., 1313 Sherman St., Room 715, Denver, CO 80203-2227; Chief, Geotechnical Services Branch, Office of the State Engineer, 1313 Sherman St., Room 818, Denver, CO 80203-2277.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0427/>
- Requirements: A CD-ROM drive, a color display monitor and a mouse. To take full advantage of the databases ARC/INFO software and hardware is required.
- OF 99-0430. Public review draft; digital cartographic standard for geologic map symbolization (PostScript implementation). Prepared in cooperation with the Geologic Data Subcommittee of the Federal Geographic Data Committee. 1999. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-430/>
- OF 99-0432. FLORIDA. Lithostratigraphy, geophysics, biostratigraphy, and strontium-isotope stratigraphy of the surficial aquifer system of eastern Collier County and northern Monroe County, Florida, by S. D. Weedman, F. L. Paillet, L. E. Edwards, K. R. Simmons, T. M. Scott, B. R. Wardlaw, R. S. Reese and J. L. Blair. Prepared in cooperation with the Florida Geological Survey; South Florida Water Management District. 1999. 125 p. Available on the web at <http://pubs.usgs.gov/openfile/of99-432/>
- OF 99-0433. ALASKA. National Geochemical Database; U. S. Geological Survey RASS (Rock Analysis Storage System) geochemical data for Alaska, by E. A. Bailey, D. B. Smith, C. C. Abston, Matthew Granitto and K. A. Burleigh. 1999. (NC, Da, M, A, S; Alaska Resource Library Information Service [ARLIS], 3150 "C" St., Suite 100, Anchorage, AK 99503; Alaska Dep. of Natural Resources, Div. of Geol. & Geophys. Surv., 794 University Ave., Suite 200, Fairbanks, AK 99709-3645.) Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-433>
- OF 99-0434. CALIFORNIA. Calibration formulae and values for velocity seismometers used in the 1998 Santa Clara Valley, California Seismic Experiment, by A. G. Lindh, J. P. Eaton, Mary O'Neill Allen, J. H. Healy, S. W. Stewart and Lu Damerell. 2000. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-434/>
- OF 99-0435. NEVADA, ARIZONA. Principal facts for gravity stations and physical property measurements in the Lake Mead 30' x 60' quadrangle, Nevada and Arizona, by V. E. Langenheim, J. G. Davidson, M. L. Anderson and H. R. Blank, Jr. 1999. 15 p. (NC, Da, M; Nevada Bur. of Mines and Geol., Univ. of Nevada, Reno, NV 89557; Arizona Geol. Surv., 416 West Congress St. #100, Tucson, AZ 85701-1315; USGS, Library, Suite 355, 520 North Park Ave., Tucson, AZ 85719.) Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-435/>
- OF 99-0436. Archive of sparker data collected during USGS cruise ALPH 98013 New York Bight, 10-22 September 1998, by D. S. Foster, W. C. Schwab, W. W. Danforth, J. F. Denny, J. C. Hill, B. J. Irwin, D. R. Nichols and T. F. O'Brien. 1999. Six-disc set. (NC, Da, M.) CD-R disc-on-demand.
- This CD-ROM (Compact Disc-Read Only Memory) has been produced in accordance with the ISO 9660 CD-ROM Standard and is therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed.
- OF 99-0438. IDAHO. Digital geologic map of part of the Thompson Falls 1:100,000 quadrangle, Idaho, by R. S. Lewis and P. D. Derkey. 1999. 32 p. (NC, Da, M, S; Idaho Geol. Surv., Morill Hall, Rm. 332, Univ. of Idaho Campus, Moscow, ID 83843.) Available on the web at <http://wrgis.wr.usgs.gov/open-file/of99-438/>
- OF 99-0440. CALIFORNIA. Preliminary aeromagnetic anomaly map of California, by C. W. Roberts and R. C. Jachens. 1999. 14 p. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-440/of99-440.pdf>
- OF 99-0446. CALIFORNIA. Seismic velocities and geological conditions at twelve sites subjected to strong ground motion in the Northridge, California, earthquake; a revision of OF 96-740, by J. F. Gibbs, J. C. Tinsley, III, D. M. Boore and W. B. Joyner. 1999. 142 p. (NC, Da, M; California Dep. of Conservation, Div. of Mines and Geol., Mail Stop 14-34, Library, 801 K St., Sacramento, CA 95814-3532; 185 Berry St., Suite 210, San Francisco, CA 94107-1728; and State Office Bldg., 107 South Broadway, Los Angeles, CA 90012.)
- OF 99-0447. A note on historic and Quaternary faults in western Taiwan, by M. G. Bonilla. 1999. 5 p. (NC, Da, M.) Available on the web at <http://wrgis.wr.usgs.gov/open-file/of99-447>
- OF 99-0449. LOUISIANA. Seismic reflection results of the GYRE 1997 cruise at the Bryant Canyon of the Louisiana Gulf Coast, by J. W. Nealon, W. P. Dillon and D. C. Twichell. 1999. Three CD-ROMs. (NC, Da, M.) Available on the web at <http://woodshole.er.usgs.gov/cdroms/ofr99-449/disc1/starthere.html>
- The information contained on these CD-ROMs may be accessed as ASCII text files or as HyperText Markup Language (HTML), a standard language utilized by the Internet World Wide Web. Development of the CD-ROM documentation and user interface in HTML allows access to the information by a variety of WWW information browsers (i.e. Netscape, Microsoft Internet Explorer) to facilitate browsing and locating information and data.
- OF 99-0450. MONTANA. Geologic map datasets of the Custer and Gallatin national forests of south-central Montana, in ARC/INFO format, by G. N. Green, B. S. Van Gosen, A. B. Wilson and J. T. Silkwood. 1999. One CD-ROM. (NC, M, Da, S; Montana Bur. of Mines & Geol., Montana Coll. of Mineral Sci. & Technol., Butte, MT 59701.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0450/>
- Requirements: a CD-ROM drive, a color display monitor and a mouse. To take full advantage of the databases ARC/INFO software and sufficient hardware are required.
- OF 99-0451. Trends and status of flow, nutrients, and sediments for selected nontidal sites in the Chesapeake Bay watershed, 1985-98, by M. J. Langland, J. D. Blomquist, L. A. Sprague and R. E. Edwards. 2000. 46 p. (NC, Da, M, Wb.)
- OF 99-0452. PENNSYLVANIA. Evaluation of geophysical logs and slug tests, phase II, at AIW Frank/Mid-County Mustang Superfund Site, Chester County, Pennsylvania, by R. W. Conger, D. J. Goode and R. A. Sloto. Prepared in cooperation with the U.S. Environmental Protection Agency. 2000. 28 p. (NC, Da, M, Wb.)





OF 99-0456. Streamflow information for the next century; a plan for the National Streamflow Information Program of the U.S. Geological Survey. 1999. 13 p. (NC, Da, M, Wb.) Available on the web at <http://water.usgs.gov/osw/99-456.pdf>

OF 99-0459. ALASKA. Water-quality data for the Talkeetna River and selected sites in national parks, Cook Inlet basin, Alaska, 1998, by S. A. Frenzel and J. M. Dorava. Prepared in cooperation with the National Park Service; Denali National Park and Preserve; Katmai National Park and Preserve; Lake Clark National Park and Preserve. 1999. 58 p. (NC, Da, A, M, Wb; USGS, WRD, 641 West Willoughby Ave. Room 202, Juneau, AK 99801.)

OF 99-0461. IOWA. Selected hydrologic data from the Cedar Rapids area, Linn County, Iowa, April 1996 through March 1999, by R. A. Boyd, R. K. Kuzniar and P. M. Schulmeyer. Prepared in cooperation with the City of Cedar Rapids, Iowa. 1999. 241 p. (NC, Da, M, Wb.)

OF 99-0462. NEW HAMPSHIRE. Construction and calibration of numerical ground-water-flow models of the western half of the Milford-Souhegan glacial-drift aquifer, Milford, New Hampshire, by P. T. Harte, R. H. Flynn and T. J. Mack. 1999. 76 p., 2 over-size sheets, scale 1:10,000 (1 inch=about 833 feet.) (NC, Da, M, Wb.)

OF 99-0464. Methods of analysis by the U. S. Geological Survey National Water Quality Laboratory; determination of whole-water recoverable arsenic, boron, and vanadium using inductively coupled plasma-mass spectrometry, by J. R. Garbarino. 2000. 15 p. (NC, Da, M, Wb.)

OF 99-0466. Report of the river master of the Delaware River for the period December 1, 1996 to November 30, 1997; with a section on water quality, by W. E. Harkness, B. E. Krejmas, W. J. Carswell, Jr., A. G. Reif and H. L. Darling. 1999. 94 p. (NC, Da, M, Wb.)

OF 99-0467. Inventory of selected freshwater-ecology studies from the New England coastal basins (Maine, New Hampshire, Massachusetts, Rhode Island), 1937-97, by Steven Tessler, J. F. Coles and K. M. Beaulieu. National Water-Quality Assessment Program. 1999. 30 p. (NC, Da, M, Wb.)

OF 99-0470-G. Map showing geology, oil and gas fields, and geologic provinces of Iran, by R. M. Pollastro, F. M. Persits and D. W. Steinshouer. 1999. One CD-ROM. (NC, M, Da.)

Minimum requirements to use the data on this disc depend on files that are to be used (see readme file for specifics). (1) Intel -x86 based personal computer (486, Pentium or Pentium II recommended). Microsoft Windows 95, Microsoft NT 3.51 or 4.0, 32 MB RAM minimum, 64 MB recommended, 30 MB hard disk space, (2) Macintosh computer with 678020 (Macintosh II series) or greater processor. MacOS 7.0 or later, 4MB application RAM, 30MB hard disk space, (3) Sun SPARCstation, Sun OS™ 4.1.3 or later, or Solaris 2.3, 2.4, 2.5 operating system. Openwindows™ (version 3.0 or later), MOTIF™ windows manager (1.2.3 or later), OpenLook version 3.0, or Common Desktop Environment (CDE) 1.0 or later, 12 MB of available hard disk space, 32 MB RAM, (4) HP workstation 9000 series 700 or 800, HP-UX™ 9.0.3 or later operating system, X Windows System™, x11R5 with HP-VUE or CDE 10.12 MB available hard disk space, 32 MB RAM, (5) Silicon Graphics workstation ALX 4.1 or later operating system, CDE 1.0 or Motif™ window manager, 12 MB available hard disk space, 32 MB RAM, (6) IBM RS/6000 workstation, AIX4.1 or later operating system, CDE

1.0 or Motif™ window manager, 12 MB available hard disk space, 32 MB RAM.

OF 99-0471. IOWA. Physical characteristics of stream subbasins in the upper Wapsipinicon River, upper Cedar River, Shell Rock River and Winnebago River basin, southern Minnesota and northern Iowa, by C. A. Sanocki. Prepared in cooperation with the Minnesota Department of Transportation. 2000. 10 p., 1 over-size sheet. (NC, Da, M, Wb.)

OF 99-0473. IDAHO. Radiochemical and chemical constituents in water from selected wells and springs from the southern boundary of the Idaho National Engineering and Environmental Laboratory to the Hagerman area, Idaho, 1998, by R. C. Bartholomay, B. V. Twining and L. J. Campbell. Prepared in cooperation with the U.S. Department of Energy; Idaho Department of Water Resources. 1999. 28 p. (NC, Da, M, Wb.)

OF 99-0474. IOWA. Physical characteristics of stream subbasins in the Des Moines River, upper Des Moines River, and east fork Des Moines River basins, southwestern Minnesota and northwestern Iowa, by C. A. Sanocki. Prepared in cooperation with the Minnesota Department of Transportation. 2000. 10 p., 1 over-size sheet. (NC, Da, M, Wb.)

OF 99-0501. COLORADO, SOUTH DAKOTA, WYOMING. Locatable mineral reports for Colorado, South Dakota, and Wyoming provided to the U. S. Forest Service in Fiscal Year 1999, by A. B. Wilson. 1999. 144 p. (NC, M, Da; Vicki J. Cowart, Colorado Geol. Surv., 1313 Sherman St., Room 715, Denver, CO 80203-2277; Chief, Geotechnical Services Branch, Office of the State Engineer, 1313 Sherman St., Room 818, Denver, CO 80203-2277; Dep. of Water & Natural Resources, South Dakota Geol. Surv., Science Ctr., Univ. of South Dakota, Vermillion, SD 57069; Geol. Surv. of Wyoming, P.O. Box 3008, University Station, Laramie, WY 82071.)

OF 99-0502. ALASKA. Alaska aeromagnetic compilation; digital grids and survey data, by R. W. Saltus, G. G. Connard and P. L. Hill. 1999. One CD-ROM. (NC, M, Da, A, S; Div. of Geol. & Geophys. Surv., 794 University Avenue, Suite 200, Fairbanks, AK 99709-3645; U.S. Dep. of Interior, Alaska Resources Library, 3150 C St. #100, Anchorage, AK 99503-3916.)

This CD-ROM was produced in accordance with the ISO 9660 Level One standard. To access the data and text on this CD-ROM requires an HTML 2.0 or higher compatible browser capable of loading GIF images and a computer capable of accessing an ISO 9660 compatible CD-ROM. Operating systems that can access these data include Windows, Mac OS, OS/2, and UNIX. The computer should have at least 32 MB of free physical and/or virtual memory and a display capable of at least 256 colors. It is recommended that the computer have at least a 90 MHz processor and 32 MB of RAM. The HTML browsers Netscape Navigator version 4.5 and Internet Explorer version 4.0 are known to work with this CD-ROM.

OF 99-0503. ALASKA. Alaska digital aeromagnetic database description, by G. G. Connard, R. W. Saltus, P. L. Hill, L. Carlson and B. Milicevic. 1999. Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0503/DBDESC.HTM>

OF 99-0504. CALIFORNIA. Landslides in Alameda County, California; a digital database extracted from preliminary



- photointerpretation maps of surficial deposits by T.H. Nilsen in USGS Open-File Report 75-277, by Sebastian Roberts, M. A. Roberts, E. M. Brennan and R. J. Pike. 2000. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-504/>
- OF 99-0515. HAWAII. Use of magnetic methods in the investigation of an ancient Hawaiian fishpond; 'Aimakara'a Fishpond, Hawai'i, by Ka'eo Duarte and Jim Kauahikaua. 1999. 11 p. (NC, Da, M; USGS Library, Hawaiian Volcano Observatory, P.O. Box 51, Hawaii National Park, HI 96718-0051.)
- OF 99-0517. Earthquake probabilities in the San Francisco Bay region; 2000 to 2030, a summary of findings, by Working Group on California Earthquake Probabilities. 1999. 60 p. (NC, Da, M; California Dep. of Conservation, Div. of Mines and Geol., Mail Stop 14-34, Library, 801 K St., Sacramento, CA 95814-3532; 185 Berry St., Suite 210, San Francisco, CA 94107-1728; and State Office Bldg., 107 South Broadway, Los Angeles, CA 90012.) Available on the web at <http://wrgis.wr.usgs.gov/open-file/of99-517/>
- OF 99-0518. VIRGINIA. Inventory of debris flows and floods in the Lovington and Horseshoe Mountain, VA, 7.5' quadrangles from the August 19/20, 1969, storm in Nelson County, VA, by B. A. Morgan, III, Giulio Iovine, Peter Chirico and G. F. Wiczorek. 1999. 9 p., 1 over-size sheet. (NC, Da, M; Virginia Div. of Mineral Resources, Natural Resources Bldg., Alderman and McCormick Rds., P.O. Box 3667, Charlottesville, VA 22903.)
- OF 99-0520. Publications of the Volcano Hazards Program 1998, by Manuel Nathenson. 1999. 8 p. (NC, Da, M.)
- OF 99-0521. Bibliography of recent papers in the biomedical literature on the health impacts of geologic processes and materials, compiled by N. M. Harris and R. B. Finkelman. 1999. 37 p. (NC, Da, M.)
- OF 99-0525. ALASKA. Alaska resource data file; Ketchikan Quadrangle, by H. C. Berg. 1999. 433 p. (NC, Da, M, A, S; Alaska Resource Library Information Services [ARLIS], 3150 "C" St., Suite 100, Anchorage, AK 99503; Alaska Dep. of Natural Resources, Div. of Geol. & Geophys. Surv., 794 University Ave., Suite 200, Fairbanks, AK 99709-3645.) Available on the web at <http://ardf.wr.usgs.gov/quads/html/Ketchikan.html>
- OF 99-0526-A. WISCONSIN, MICHIGAN. Aeromagnetic survey of parts of the Fond Du Lac and Sheboygan 1:100,000 quadrangles, Wisconsin and Michigan. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-B. WISCONSIN, MICHIGAN. Aeromagnetic survey of parts of the Oconomowoc and Milwaukee 1:100,000 quadrangles, Wisconsin and Michigan. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-C. WISCONSIN, MICHIGAN. Aeromagnetic survey of parts of the Oconomowoc, Milwaukee, Lake Geneva and Racine 1:100,000 quadrangles, Wisconsin and Michigan. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-D. WISCONSIN, MICHIGAN. Aeromagnetic survey of parts of the Winona and La Crosse 1:100,000 quadrangles, Wisconsin and Michigan. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-E. WISCONSIN. Aeromagnetic survey of part of the Black River Falls 1:100,000 quadrangle, Wisconsin. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-F. WISCONSIN. Aeromagnetic survey of the Sparta 1:100,000 quadrangle, Wisconsin. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-G. WISCONSIN, IOWA. Aeromagnetic survey of the Richland Center and part of the Decorah 1:100,000 quadrangles, Wisconsin and Iowa. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-H. WISCONSIN, IOWA. Aeromagnetic survey of the Oelwein and part of the Dubuque North 1:100,000 quadrangles, Wisconsin and Iowa. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-I. WISCONSIN. Aeromagnetic survey of the Wisconsin Dells and parts of the Wisconsin Rapids, Appleton, and Fond Du Lac 1:100,000 quadrangles, Wisconsin. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
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- OF 99-0526-K. WISCONSIN. Aeromagnetic survey of the Monroe and part of the Lake Geneva 1:100,000 quadrangles, Wisconsin. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-L. WISCONSIN, MICHIGAN. Aeromagnetic survey of parts of the Escanaba and Manistique 1:100,000 quadrangles, Wisconsin and Michigan. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 inches). (NC, Da, M.)
- OF 99-0526-M. WISCONSIN, MICHIGAN. Aeromagnetic survey of parts of the Marinette and Washington Island 1:100,000 quadrangles, Wisconsin and Michigan. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-N. WISCONSIN, MICHIGAN. Aeromagnetic survey of parts of the Sturgeon Bay and Crystal Lake 1:100,000 quadrangles, Wisconsin and Michigan. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0526-O. WISCONSIN, MICHIGAN. Aeromagnetic survey of parts of the Appleton, Manitowoc, and adjacent 1:100,000 quadrangles, Wisconsin and Michigan. 1999. 1 over-size sheet, scale 1:100,000 (1 inch = about 1.6 miles). (NC, Da, M.)
- OF 99-0527. WISCONSIN. Aeromagnetic surveying Wisconsin of 1998-99; digital data files, by R. E. Bracken and S. W. Nicholson. 1999. One CD-ROM. (NC, Da, M.)
- This CD-ROM has been produced in accordance with the ISO 9660 CD-ROM Standard and is therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed.
- OF 99-0528. ALASKA. Geochemical data for stream-sediment, lagoon sediment, heavy-mineral-concentrate, water, and rock samples collected in the western part of the Teller 1 x 3 degree quadrangle, Alaska, by C. C. Parnow, K. D. Kelley, R. J. Goldfarb



- and A. L. Meier. 1999. One 3 1/2 inch DS/HD computer diskette. (NC, M, Da, A, S; Div. of Geol. & Geophys. Surv., 794 University Ave., Suite 200, Fairbanks, AK 99709-3645; U.S. Dep. of Interior, Alaska Resources Library, 3150 C St. #100, Anchorage, AK 99503-3916.)
- OF 99-0529. Magnetic susceptibilities of minerals, by Sam Rosenblum and I. K. Brownfield. 2000. 37 p. Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0529/>
- OF 99-0530-A. Geologic information and analytical results for samples of drill core from the Myszków porphyry copper-molybdenum deposit, southern Poland, by M. A. Chaffee, R. G. Eppinger, Krzysztof Lason and Jadwiga Słószarz. 1999. 118 p. (NC, M, Da.)
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- Disk 1 contains an ASCII README file and the report in MS Word 97 (DOC) and Corel WordPerfect version 7 (WPD) formats. Disk 2 contains analytical data in dBase IV (DBF) and Lotus 1-2-3 version 2 (WK1) formats.
- OF 99-0531. NEVADA, CALIFORNIA. Elemental analyses of modern dust in southern Nevada and California, by M. C. Reheis, J. R. Budahn and P. J. Lamothe. 1999. (NC, M, Da; California Dep. of Conservation, Div. of Mines and Geol., Mail Stop 14-34, Library, 801 K St., Sacramento, CA 95814-3532; 185 Berry St., Suite 210, San Francisco, CA 94107-1728; and State Office Bldg., 107 South Broadway, Los Angeles, CA 90012; Nevada Bur. of Mines & Geol., Univ. of Nevada-Reno, Reno, NV 89557-0088.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0531/>
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- OF 99-0533-A. NEVADA. Geologic evaluation of the Oasis Valley basin, Nye County, Nevada, by C. J. Fridrich, S. A. Minor and E. A. Mankinen. Prepared in cooperation with the U.S. Department of Energy. 1999. 55 p. (NC, M, Da; Nevada Bur. of Mines & Geol., Univ. of Nevada-Reno, Reno, NV 89557-0088.)
- OF 99-0534. pick\_xwell; a program for interactive picking of crosswell seismic and radar data, by K. J. Ellefsen. 1999. (NC, Da, M.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0534/>
- OF 99-0535. Middle Pliocene paleoenvironmental reconstruction; PRISM2, by H. J. Dowsett, J. A. Barron, R. Z. Poore, R. S. Thompson, T. M. Cronin, S. E. Ishman and D. A. Willard. 1999. (NC, Da, M.) Available on the web at <http://pubs.usgs.gov/openfile/of99-535/>
- OF 99-0536. TENNESSEE, NORTH CAROLINA. Geologic maps of the Mount Guyot, Luftee Knob, and Cove Creek Gap 7.5-minute quadrangles, Great Smoky Mountains National Park, Tennessee and North Carolina, by A. P. Schultz. 1999. 9 p., 3 over-size sheets, scale 1:24,000 (1 inch = 2,000 feet). (NC.)
- OF 99-0537. MONTANA. Analytical results for 35 mine-waste tailings cores and six bed-sediment samples, and an estimate of the volume of contaminated material at Buckeye Meadow on upper Basin Creek, northern Jefferson County, Montana, by D. L. Fey, S. E. Church and C. J. Finney. 1999. 59 p. (NC, M, Da, S; Montana Bur. of Mines & Geol., Montana Coll. of Mineral Sci. & Technol., Butte, MT 59701.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0537/>
- OF 99-0540. NEVADA. Digital mining claim density map for federal lands in Nevada; 1996, by P. C. Hyndman and H. W. Campbell. 1999. 20 p. Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-540/>
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- OF 99-0546. WISCONSIN, MICHIGAN. Digital bedrock geologic map of the Ashland and northern part of the Ironwood 30'x 60' quadrangles, Wisconsin and Michigan, by W. F. Cannon, L. G. Woodruff, S. W. Nicholson, C. A. Hedgman and R. Barber-Delach. 1999. One CD-ROM. (NC, Da, M.) Available on the web at <http://pubs.usgs.gov/openfile/of99-546/>
- This CD-ROM was produced in accordance with the ISO 9660 Standard. Data is intended for use on either UNIX platforms or Windows 95, 98, or NT.
- OF 99-0547. MICHIGAN, WISCONSIN. Preliminary digital geologic map of the Penokean (early Proterozoic) continental margin in northern Michigan and Wisconsin, by W. F. Cannon and Doug Otko. 1999. One CD-ROM. (NC, Da, M.) Available on the web at <http://pubs.usgs.gov/openfile/of99-547/>
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- OF 99-0548. IDAHO. Digital map of surficial geology, wetlands, and deepwater habitats, Coeur d'Alene River valley, Idaho, by A. A. Bookstrom, S. E. Box, B. L. Jackson, T. R. Brandt, P. D. Derkey and S. R. Munts. 1999. 121 p. (NC, Da, M, S; Idaho Geol. Surv., Morill Hall, Room 332, Univ. of Idaho Campus, Moscow, ID 83843.) Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-548/>
- OF 99-0552. VIRGINIA. <sup>40</sup>Ar/<sup>39</sup>Ar age-spectrum data for amphibole, muscovite, biotite, and K-feldspar samples from metamor-



- phic rocks in the Blue Ridge Anticlinorium, northern Virginia, by M. J. Kunk and W. C. Burton. 1999. 110 p. (NC, M, Da; Virginia Div. of Mineral Resources, P.O. Box 3667, Charlottesville, VA 22903.)
- OF 99-0553-A. COLORADO. Land and federal mineral ownership coverage for northwestern Colorado, by L. R. Biewick, T. J. Mercier, Pam Levitt, Doug Deikman and Bob Vlahos. 1999. (NC, M, Da; Vicki J. Cowart, Colorado Geol. Surv., 1313 Sherman St., Room 715, Denver, CO 80203-2277; Chief, Geotechnical Services Branch, Office of the State Engineer, 1313 Sherman St., Room 818, Denver, CO 80203-2277.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0553-a/>
- OF 99-0553-B. UTAH. Land and mineral ownership coverage for the Uinta Basin, Wasatch Plateau and surrounding areas, north-eastern Utah, by L. R. Biewick and G. A. Green. 1999. (NC, M, Da; Utah Geol. Surv., 1594 West North Temple, Suite 3110, P.O. Box 146100, Salt Lake City, UT 84114-6100.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0553-b/>
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- OF 99-0558. Oil and gas plays (1995), federal lands, and land use; land cover of the onshore Gulf Coast region of the United States, by C. P. Anderson, C. J. Schenk and R. M. Pollastro. 1999. One CD-ROM. (NC, M, Da.)
- This CD-ROM was produced in accordance with the ISO 9660 CD-ROM Standard and is therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed.
- OF 99-0560. CALIFORNIA. Cruise report for 01-99-SC; Southern California Earthquake Hazards Project, by W. R. Normark, J. A. Reid, R. W. Sliter, David Holton, C. E. Gutmacher, M. A. Fisher and J. R. Childs. 1999. 60 p. (NC, Da, M; California Dep. of Conservation, Div. of Mines and Geol., Mail Stop 14-34, Library, 801 K St., Sacramento, CA 95814-3532; 185 Berry St., Suite 210, San Francisco, CA 94107-1728; and State Office Bldg., 107 South Broadway, Los Angeles, CA 90012.) Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-560/>
- OF 99-0561. A brief review of borehole geophysical logging activities in Armenia, by B. S. Pierce and Grigor Grigorian. 1999. 90 p. (NC, Da, M.)
- OF 99-0562-A. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)
- The system requirements to run the ProfileData program are: a personal computer with a Pentium or equivalent processor, a color monitor, Microsoft Windows 95, Windows NT 4.0 or later, 16 Mbytes of RAM, 3 Mbytes of free disk space on the C drive, and a Microsoft compatible mouse or equivalent pointing device.
- OF 99-0562-B. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)
- The system requirements to run the ProfileData program are: a personal computer with a Pentium or equivalent processor, a color monitor, Microsoft Windows 95, Windows NT 4.0 or later, 16 Mbytes of RAM, 3 Mbytes of free disk space on the C drive, and a Microsoft compatible mouse or equivalent pointing device.
- OF 99-0562-C. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)
- The system requirements to run the ProfileData program are: a personal computer with a Pentium or equivalent processor, a color monitor, Microsoft Windows 95, Windows NT 4.0 or later, 16 Mbytes of RAM, 3 Mbytes of free disk space on the C drive, and a Microsoft compatible mouse or equivalent pointing device.
- OF 99-0562-D. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)
- The system requirements to run the ProfileData program are: a personal computer with a Pentium or equivalent processor, a color monitor, Microsoft Windows 95, Windows NT 4.0 or later, 16 Mbytes of RAM, 3 Mbytes of free disk space on the C drive, and a Microsoft compatible mouse or equivalent pointing device.
- OF 99-0562-E. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)
- The system requirements to run the ProfileData program are: a personal computer with a Pentium or equivalent processor, a color monitor, Microsoft Windows 95, Windows NT 4.0 or later, 16 Mbytes of RAM, 3 Mbytes of free disk space on the C drive, and a Microsoft compatible mouse or equivalent pointing device.
- OF 99-0562-F. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)



The system requirements to run the ProfileData program are: a personal computer with a Pentium or equivalent processor, a color monitor, Microsoft Windows 95, Windows NT 4.0 or later, 16 Mbytes of RAM, 3 Mbytes of free disk space on the C drive, and a Microsoft compatible mouse or equivalent pointing device.

OF 99-0562-G. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)

The system requirements to run the ProfileData program are: a personal computer with a Pentium or equivalent processor, a color monitor, Microsoft Windows 95, Windows NT 4.0 or later, 16 Mbytes of RAM, 3 Mbytes of free disk space on the C drive, and a Microsoft compatible mouse or equivalent pointing device.

OF 99-0562-H. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)

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OF 99-0562-I. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)

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OF 99-0562-L. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)

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OF 99-0562-M. ALASKA. Aerial gamma-ray surveys of the conterminous United States and Alaska, by J. S. Duval. 1999. One CD-ROM. (NC, Da, M.)

The system requirements to run the ProfileData program are: a personal computer with a Pentium or equivalent processor, a color monitor, Microsoft Windows 95, Windows NT 4.0 or later, 16 Mbytes of RAM, 3 Mbytes of free disk space on the C drive, and a Microsoft compatible mouse or equivalent pointing device.

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OF 99-0570. A seismic-reflection investigation of gas hydrates and sea-floor features of the upper continental slope of the Garden Banks and Green Canyon regions, northern Gulf of Mexico; report for cruise G1-99-GM (99002), by Alan Cooper, D. C. Twichell and P. E. Hart. 1999. 19 p. (NC, Da, M.) Available on the web at <http://geopubs.wr.usgs.gov/open-file/of99-570/>

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OF 99-0573. ALASKA. Alaska resource data file; Solomon Quadrangle, by T. L. Hudson. 1999. 360 p. (NC, Da, M, A, S; Alaska Resource Library Information Service [ARLIS], 3150 "C" St., Suite 100, Anchorage, AK 99503; Alaska Dep. of Natural Resources, Div. of Geol. & Geophys. Surv., 794 University Ave., Suite 200, Fairbanks, AK 99709-3645.) Available on the web at <http://ardf.wr.usgs.gov/quads/html/Solomon.html>



- OF 99-0574. ALASKA. Alaska resource data file; Livengood Quadrangle, by C. J. Freeman and Janet Schaefer. 1999. 464 p. (NC, Da, M, A, S; Alaska Resource Library Information Services [ARLIS], 3150 "C" St., Suite 100, Anchorage, AK 99503; Alaska Dep. of Natural Resources, Div. of Geol. & Geophys. Surv., 794 University Ave., Suite 200, Fairbanks, AK 99709-3645.) Available on the web at <http://ardf.wr.usgs.gov/quads/html/Livengood.html>
- OF 99-0576. NEVADA. Geochemical data for environmental studies of mercury mines in Nevada, by J. E. Gray, M. G. Adams, J. G. Crock and P. M. Theodorakos. 1999. One CD-ROM. (NC, Da, M; Nevada Bur. of Mines & Geol., Univ. of Nevada-Reno, Reno, NV 89557-0088.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0576/>
- Compatible operating environments or systems are: Microsoft Windows 3.1, 95, 98, or NT; minimum hardware requirements: CD-ROM drive, color graphics monitor, mouse, 386 microprocessor, 1 MB RAM, and 7 MB available hard disk space.
- OF 99-0577. CALIFORNIA. Principal facts for 300 gravity stations in the vicinity of Los Angeles and Hollywood, California, by J. G. Davidson, M. J. Berg and J. C. Hamilton. 1999. 14 p. (NC, Da, M; California Dep. of Conservation, Div. of Mines and Geol., Mail Stop 14-34, Library, 801 K St., Sacramento, CA 95814-3532; 185 Berry St., Suite 210, San Francisco, CA 94107-1728; and State Office Bldg., 107 South Broadway, Los Angeles, CA 90012.)
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- OF 99-0580. COLORADO. Geochemical baselines and maps showing acid-neutralizing capacity and potential release of total dissolved solids of stream and spring waters from different rock compositional types from mountainous watersheds in the Gunnison, Uncompahgre, and Grand Mesa National Forest, Colorado, by W. R. Miller. 1999. 107 p. (NC, M, Da; Vicki J. Cowart, Colorado Geol. Surv., 1313 Sherman St., Room 715, Denver, CO 80203-2227; Chief, Geotechnical Services Branch, Office of the State Engineer, 1313 Sherman St., Room 818, Denver, CO 80203-2277.)
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- OF 99-0584. ALASKA. Geochemical data for stream-sediment, heavy-mineral-concentrate, and rock samples collected from the Fortyseven Creek gold-arsenic-antimony-tungsten prospect, southwestern Alaska, by J. E. Gray, G. K. Lee, R. M. O'Leary and P. M. Theodorakos. 1999. 22 p. (NC, M, Da, S, Div. of Geol. & Geophys. Surv., 794 University Ave., Suite 200, Fairbanks, AK 99709-3645; U.S. Dep. of Interior, Alaska Resources Library, 3150 C St. #100, Anchorage, AK 99503-3916.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-99-0584/>
- OF 99-0585. CALIFORNIA. Physical, chemical, and isotopic data for samples from the Anderson Spring area, Lake County, California, 1998-1999, by C. J. Janik, Fraser Goff, M. L. Sorey, J. J. Rytuba, E. M. Counce, E. M. Colvard, M. Huebner, L. D. White and A. Foster. 1999. 27 p. (NC, Da, M; California Dep. of Conservation, Div. of Mines and Geol., Mail Stop 14-34, Library, 801 K St., Sacramento, CA 95814-3532; 185 Berry St., Suite 210, San Francisco, CA 94107-1728; and State Office Bldg., 107 South Broadway, Los Angeles, CA 90012.)
- OF 99-0586. Archive of SIS-1000 CHIRP subbottom data, collected during USGS cruise GYRE 99002, Gulf of Mexico, 9-22 April, 1999, by D. S. Foster, D. C. Twichell, W. W. Danforth, B. J. Irwin, D. R. Nichols and T. F. O'Brien. 1999. Three CD-ROMs. (NC, Da, M.)
- These CD-ROMs have been produced in accordance with the ISO 9660 CD-ROM Standard and are therefore capable of being read on any computing platform that has appropriate CD-ROM driver software installed.
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System requirements: CD-ROM drive with ISO 9660 software drive, software capable of reading SEG-Y format data files, ASCII text files, and PDF format graphics files. Technical information can also be accessed by software capable of reading MS-WORD97 and Internet-format files. Display software for viewing the SEG-Y format files is provided for IBM P/C compatible systems only.

OF 00-0298. COLORADO. Databases and spatial data model for mineralized areas, mines, and prospects in the Grand Mesa, Uncompahgre, and Gunnison (GMUG) national forests, Colorado, by A. B. Wilson, G. T. Spanski, M. J. Crane and M. D. Woodard. 2000. One CD-ROM. (NC, M, Da; Vicki J. Cowart, Colorado Geol. Surv., 1313 Sherman St., Room 715, Denver, CO 80203-2277; Chief, Geotechnical Services Branch, Office of the State Engineer, 1313 Sherman St., Room 818, Denver, CO 80203-2277.) Available on the web at <http://greenwood.cr.usgs.gov/pub/open-file-reports/ofr-00-0298/>

Minimum system requirements: Windows 95, Pentium processor, 8 MB memory (32 MB recommended).

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- Harmsen. 1998. 2 sheets. Lat 50° to 70°, long 130° to 170°. Scale 1:7,500,000 (1 inch = about 118 miles). Both sheets, 48 1/2 by 36 1/2 inches (in color). Available on the web at <http://greenwood.cr.usgs.gov/pub/i-maps/i-2679/>
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- I-2681. COLORADO. Geologic map of the Silverton and Howardsville quadrangles, southwestern Colorado, by R. G. Luedke and W. S. Burbank. 2000. Lat 37°45' to 37°52'30", long 107°30' to 107°45'. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 56 by 41 inches (in color). (Accompanied by 11 page text.)
- I-2687. NEVADA. Isostatic gravity map of the Battle Mountain 30 x 60 minute quadrangle, north-central Nevada, by D. A. Ponce and R. L. Morin. 2000. Lat 40°30' to 41°, long 116° to 117°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 54 by 30 inches (in color).
- I-2690. MONTANA, WYOMING. Geologic map of the Ennis 30' x 60' quadrangle, Madison and Gallatin counties, Montana, and Park County, Wyoming, by K. S. Kellogg and V. S. Williams. 2000. Lat 45° to 45°30', long 111° to 112°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 42 by 35 inches (in color). (Accompanied by 16 page text.) (Supersedes Open-File Report 97-851.)
- I-2691. NEVADA. Geologic map of the Alligator Ridge area, including the Buck Mountain East and Mooney Basin Summit quadrangles and parts of the Sunshine Well NE and Long Valley Slough quadrangles, White Pine County, Nevada, by C. J. Nutt. 2000. Lat 39°37'30" to 39°52'30", long 115°25'30" to 115°37'30". Scale 1:24,000 (1 inch = 2,000 feet). Sheet 41 1/2 by 57 inches (in color).
- I-2695. ALASKA. Geologic map of the McCarthy D-1 Quadrangle, Alaska, by D. H. Richter, J. C. Ratte, W. P. Leeman and Martin Menzies. 2000. Lat 61°45' to 62°, long 143° to 141°22'30". Scale 1:63,360 (1 inch = 1 mile). Sheet 40 by 31 inches (in color).
- I-2697. CALIFORNIA. Geologic map of the Tower Peak Quadrangle, central Sierra Nevada, California, by Clyde Wahrhaftig. 2000. Lat 38° to 38°15', long 119°30' to 119°45'. Scale 1:62,500 (1 inch = about 1 mile). Sheet 38 1/2 by 24 inches (in color).
- I-2701. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 1 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, J. L. Baker and T. S. Unger. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 2000. Lat 42°05' to 42°12', long 70°25' to 70°36'. Scale 1:25,000 (one centimeter on the map represents 250 meters on the sea floor). Sheet 27 by 35 inches (in color).
- I-2702. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 2 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, T. S. Unger and J. L. Baker. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 1999. Lat 42°05' to 40°12', long 70°14' to 70°24'. Scale 1:25,000 (1 inch = about 2,083 feet). Sheet 27 by 34 inches (in color).
- I-2703. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 3 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, J. L. Baker and T. S. Unger. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 1999. Lat 42°05' to 42°12', long 70°03' to 70°13'. Scale 1:25,000 (1 inch = about 2,083 feet). Sheet 27 by 34 inches (in color).
- I-2704. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 4 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, T. S. Unger and J. L. Baker. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 2000. Lat 42°13' to 42°19', long 70°25' to 70°36'. Scale 1:25,000 (one centimeter on the map represents 250 meters on the sea floor). Sheet 27 by 35 inches (in color).
- I-2705. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 5 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, J. L. Baker and T. S. Unger. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 1999. Lat 42°12' to 42°19', long 70°14' to 70°24'. Scale 1:25,000 (1 inch = about 2,083 feet). Sheet 27 by 35 inches (in color).
- I-2706. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 6 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, T. S. Unger and J. L. Baker. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 1999. Lat 42°12' to 42°19', long 70°02' to 70°13'. Scale 1:25,000 (1 inch = about 2,083 feet). Sheet 27 by 35 inches (in color).
- I-2709. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 9 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, J. L. Baker and T. S. Unger. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 2000. Lat 42°20' to 42°26', long 70°03' to 70°13'. Scale 1:25,000 (one centimeter on the map represents 250 meters on the sea floor). Sheet 27 by 35 inches (in color).
- I-2710. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 10 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, T. S. Unger and J. L. Baker. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 2000. Lat 42°27' to 42°33', long 70°25' to 70°36'. Scale 1:25,000 (one centimeter on the map represents 250 meters on the sea floor). Sheet 27 by 35 inches (in color).
- I-2711. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 11 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, J. L. Baker and T. S. Unger. Prepared in cooperation with the National Oceanic and Atmospheric Administration. 2000. Lat 42°27' to 42°33', long 70°14' to 70°24'. Scale 1:25,000 (one centimeter on the map represents 250 meters on the sea floor). Sheet 27 by 35 inches (in color).
- I-2712. MASSACHUSETTS. Sun-illuminated sea floor topography of Quadrangle 12 in the Stellwagen Bank National Marine Sanctuary off Boston, Massachusetts, by P. C. Valentine, T. S. Unger and J. L. Baker. Prepared in cooperation with the National Oceanic and



Atmospheric Administration. 2000. Lat 42°27' to 42°33', long 70°02' to 70°13'. Scale 1:25,000 (one centimeter on the map represents 250 meters on the sea floor). Sheet 27 by 35 inches (in color).

I-2720. A tapestry of time and terrain, by J. F. Vigil, R. J. Pike and D. G. Howell. 2000. Lat 29°30' to 50°, long 70° to 120°30'. Scale 1:3,500,000 (1 inch = about 55 miles). Sheet 55 by 40 inches (in color). (Accompanied by 24 page text.) Available on the web at <http://tapestry.usgs.gov>

I-2722. MISSOURI. Geologic map of the Powder Mill Ferry Quadrangle, Shannon and Reynolds counties, Missouri, by R. C. McDowell and R. W. Harrison. 2000. Lat 37°07'30" to 37°15', long 91°07'30" to 91°15'. Scale 1:24,000 (1 inch = 2000 feet). Sheet 54 by 33 inches (in color). Available on the web at <http://pubs.usgs.gov/i-maps/i-2722/>

I-2725. NEBRASKA. Geologic map and cross sections showing configuration of bedrock surfaces, Broken Bow 1°×2° quadrangle, east-central Nebraska, by V. L. Souders. 2000. Lat 41° to 42°, long 98° to 100°. Scale 1:250,000 (1 inch = about 4 miles). Sheet 44 by 34 inches (in color). (Accompanied by 11 page text.) Available on the web at <http://greenwood.cr.usgs.gov/pub/i-maps/i-2725/>

I-2726. OHIO, PENNSYLVANIA, NEW YORK. Stratigraphic framework and depositional sequences in the Lower Silurian regional oil and gas accumulation, Appalachian Basin; from Jackson County, Ohio, through northwestern Pennsylvania, to Orleans County, New York, by R. T. Ryder. 2000. Two sheets. Lat 38° to 42°, long 78° to 82°. Scale 1:1,000,000 (1 inch = about 16 miles). Sheet 1, 54 by 25 inches; sheet 2, 48 by 32 inches (both in color). (Accompanied by 8 page text.)

I-2728. IDAHO. Geologic map of the Blackbird Mountain Quadrangle, Lemhi County, Idaho, by R. G. Tysdal, K. V. Evans and K. I. Lund. 2000. Lat 45° to 45°07'30", long 114°22'30" to 114°30'. Scale 1:24,000 (1 inch = 2000 feet). Sheet 44 by 34 inches (in color). Available on the web at <http://greenwood.cr.usgs.gov/pub/i-maps/i-2728/>

I-2750-A. COLORADO. 3-D image of urban areas and mountains of the northern Front Range, Colorado, by N. S. Fishman, J. M. Evans, R. J. Olmstead and W. H. Langer. 2000. Sheet 34 by 22 inches (in color). (Accompanied by 4 page text.) Available on the web at <http://greenwood.cr.usgs.gov/pub/i-maps/i-2750-a/>

#### MISCELLANEOUS FIELD STUDIES MAPS

Multicolor or black and white maps on topographic or planimetric bases; quadrangle or irregular areas; various scales. Pre-1971 maps show bedrock geology in relation to specific mining or mineral-deposit problems; the majority of post-1971 maps are preliminary black and white maps on various subjects such as environmental studies or Wilderness mineral investigations.

MF-2329. Map showing inventory and regional susceptibility for Holocene debris flows, and related fast-moving landslides in the conterminous United States, by E. E. Brabb, J. P. Colgan, T. C. Best, Andrew Barron, Michael Sinor and Joanne Vinton. 1999. Two sheets. Scale 1:2,500,000 (1 inch = about 40 miles). Sheets 1 and 2, 48 by 58 inches (both in color). (Accompanied by 42 page text.) Available on the web at <http://geopubs.wr.usgs.gov/map-mf/mf2329/>

MF-2330. Bituminous coal production in the Appalachian Basin; past, present, and future, by R. C. Milici. 1999. 4 sheets. Lat 30° to 50°, long 75° to 90°. Scale 1:2,500,000 (1 inch = about 40 miles). Sheet 1, 31 by 24 inches; sheet 2, 35 by 24 inches; sheet 3, 34 by 24 inches; sheet 4, 35 by 35 inches (all in color). Available on the web at <http://pubs.usgs.gov/mf-maps/mf-2330/>

MF-2332. CALIFORNIA. Geologic map and map database of the Palo Alto 30' × 60' quadrangle, California, by E. E. Brabb, R. W. Graymer and D. L. Jones. 2000. Two sheets. Lat 37° to 37°30', long 122° to 123°. Scale 1:100,000 (1 inch = 4,000 feet). Sheet 1, 37 1/2 by 34 inches; sheet 2, 37 by 34 inches (both in color). (Accompanied by 32 page text.) (Supersedes Open-File Report 98-348.) Available on the web at <http://greenwood.cr.usgs.gov/pub/mf-maps/mf-2332/>

MF-2334. NEW MEXICO. Preliminary geologic map of the Loma Machete Quadrangle, Sandoval County, New Mexico, by S. F. Personius, M. N. Machette and B. D. Stone. 2000. Lat 35°15' to 35°22'30", long 106°37'30" to 106°45'. Scale 1:24,000 (1 inch = 2000 feet). Sheet 42 by 33 inches (in color). Available on the web at <http://greenwood.cr.usgs.gov/pub/mf-maps/mf-2334/>

MF-2337. CALIFORNIA. Geologic map and map database of parts of Marin, San Francisco, Alameda, Contra Costa, and Sonoma counties, California, by M. C. Blake, Jr., R. W. Graymer and D. L. Jones. 2000. Lat 37°45' to 38°15', long 122°15' to 122°53'. Scale 1:75,000 (1 inch = 6,250 feet). Scale 50 by 34 1/2 inches in color. (Accompanied by 31 page text.) Available on the web at <http://geopubs.wr.usgs.gov/map-mf/mf2337/>

MF-2342. CALIFORNIA. Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco counties, California, by R. W. Graymer. 2000. Lat 37°37'30" to 38°, long 122° to 122°22'30". Scale 1:50,000 (1 inch = about 4,200 feet). Sheet 34 1/2 by 49 inches (in color). Available on the web at <http://geopubs.wr.usgs.gov/map-mf/mf2342/>

MF-2343. ARIZONA. Geologic map of the upper Parashant Canyon and vicinity, Mojave County, northwestern Arizona, by G. H. Billingsley, M. L. Harr and J. L. Wellmeyer. 2000. Lat 36°15' to 36°30', long 113°15' to 113°30'. Scale 1:31,680 (1 inch = 2,640 feet). Sheet 39 by 44 inches (in color). (Accompanied by 27 page text.) Available on the web at <http://geopubs.wr.usgs.gov/map-mf/mf2343/>

MF-2345. CALIFORNIA. Seafloor rocks and sediments of the continental shelf from Monterey Bay to Point Sur, California, by S. L. Eittreim, R. J. Anima, A. J. Stevenson and F. L. Wong. 2000. Five sheets. 36°15' to 37°, long 121°45' to 122°15'. Scale 1:100,000 (1 inch = about 1.6 miles). Sheets 36 by 48 inches (in color). Available on the web at <http://geopubs.wr.usgs.gov/map-mf/mf2345/>

MF-2346. WASHINGTON. Map showing recent and historic landslide activity on coastal bluffs of Puget Sound between Shilshole Bay and Everett, Washington, by R. L. Baum, E. L. Harp, U.S. Geological Survey; and W. A. Hultman, Shannon & Wilson. 2000. Lat 47°57'30" to 47°42'30", long 122°22'30" to 122°15'. Scale 1:24,000 (1 inch = 2,000 feet). Sheet 44 by 62 inches (in color). Available on the web at <http://greenwood.cr.usgs.gov/pub/mf-maps/mf-2346/>



MF-2348. NEW MEXICO. Log and data from a trench across the Hubbell Spring fault zone, Bernalillo County, New Mexico, by S. F. Personius, U.S. Geological Survey; M. C. Eppes, University of New Mexico; S. A. Mahan, U.S. Geological Survey; D. W. Love, New Mexico Bureau of Mines and Mineral Resources; D. K. Mitchell, and Anne Murphy, University of New Mexico. 2000. Lat 34°45' to 35°30', long 106°15' to 107°. Sheet 95 by 36 inches (in color). Available on the web at <http://greenwood.cr.usgs.gov/pub/mf-maps/mf-2348/>

MF-2350. Geologic map of the Jermanis coal field, central Armenia, by M. E. Brownfield, Artur Martirosyan, B. S. Pierce and E. A. Johnson. 2000. Lat 45°05' to 45°02', long 39°57' to 39°59'. Scale 1:10,000 (1 inch = about 833 feet). Sheet 44 by 34 inches (in color). (Accompanied by 17 page text.) Available on the web at <http://greenwood.cr.usgs.gov/pub/mf-maps/mf-2350/>

MF-2351. UTAH. Correlation of Middle Jurassic San Rafael Group and related rocks from Bluff to Monticello in southeastern Utah, by R. B. O'Sullivan. 2000. Sheet 40 by 34 inches. Available on the web at <http://greenwood.cr.usgs.gov/pub/mf-maps/mf-2351/>

## HYDROLOGIC INVESTIGATIONS ATLASES

Multicolored or black and white maps on topographic or planimetric bases presenting a wide range of geohydrologic data; both regular and irregular areas.

HA-0725. Water levels and ground-water discharge, regional aquifer system of the Midwestern basins and arches region, in parts of Indiana, Ohio, Illinois, and Michigan, by S. M. Eberts. 1999. 3 sheets. Sheet 1, lat 38° to 42°, long 82° to 88°; sheets 2 and 3, lat 38° to 42°, long 83° to 88°. Sheets 1 and 3, 40 by 30 inches; sheet 2, 40 by 29 inches (all in color.)

HA-0730-N. Ground-water atlas of the United States; Segment 13; Alaska, Hawaii, Puerto Rico and the U.S. Virgin Islands, by J. A. Miller, R. L. Whitehead, S. B. Gingerich, D. S. Oki and P. G. Olcott. 1999. p. N1-N36. Lat 19° to 70°, long 60° to 170°. Varying scales. All sheets 18 by 23 inches (in color).

HA-0732-B. Hydrogeology and hydrogeologic terranes of the Blue Ridge and Piedmont physiographic provinces in the Eastern United States, by T. O. Mesko, L. A. Swain and E. F. Hollyday. 1999. Lat 33° to 41°, long 74° to 86°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheet 41 by 34 inches (in color).

HA-0743. SOUTH DAKOTA. Distribution of hydrogeologic units in the Black Hills area, South Dakota, by M. L. Strobel, U.S. Geological Survey; G. J. Jarrell, South Dakota School of Mines and Technology; J. F. Sawyer, South Dakota Department of Environment and Natural Resources; J. R. Schleicher, National Association of Geology Teachers; and M. D. Fahrenbach, South Dakota Department of Environment and Natural Resources. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources and the West Dakota Water Development District. 1999. Three sheets. Lat 44° to 44°45', long 103° to 104°. Sheets 1 and 2, scale 1:100,000 (1 inch = about 1.6 miles). Sheets 37 by 48 inches (in color).

HA-0744-A. SOUTH DAKOTA. Altitude of the top of the Inyan Kara Group in the Black Hills area, South Dakota, by J. M. Carter, U.S. Geological Survey; and J. A. Redden, South Dakota School of Mines and Technology. Prepared in cooperation with the South

Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 1999. 2 sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheets 1 and 2, 37 by 48 inches (both in color).

HA-0744-B. SOUTH DAKOTA. Altitude of the top of the Minnekahta Limestone in the Black Hills area, South Dakota, by J. M. Carter, U.S. Geological Survey; and J. A. Redden, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 1999. 2 sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheets 1 and 2, 37 by 48 inches (both in color).

HA-0744-C. SOUTH DAKOTA. Altitude of the top of the Minnelusa Formation in the Black Hills area, South Dakota, by J. M. Carter, U.S. Geological Survey; J. A. Redden, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 1999. 2 sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheets 1 and 2, 37 by 48 inches (both in color).

HA-0744-D. SOUTH DAKOTA. Altitude of the top of the Madison Limestone in the Black Hills area, South Dakota, by J. M. Carter, U.S. Geological Survey; J. A. Redden, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 1999. 2 sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheets 1 and 2, 37 by 48 inches (both in color).

HA-0744-E. SOUTH DAKOTA. Altitude of the top of the Deadwood Formation in the Black Hills area, South Dakota, by J. M. Carter, U.S. Geological Survey; J. A. Redden, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 1999. 2 sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Sheets 1 and 2, 37 by 48 inches (both in color).

HA-0745-A. SOUTH DAKOTA. Potentiometric surface of the Inyan Kara Aquifer in the Black Hills area, South Dakota, by M. L. Strobel, J. M. Galloway, U. S. Geological Survey; G. R. Hamade and G. J. Jarrell, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 2000. Two sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Both sheets 37 by 48 inches (in color).

HA-0745-B. SOUTH DAKOTA. Potentiometric surface of the Minnekahta Aquifer in the Black Hills area, South Dakota, by M. L. Strobel, J. M. Galloway, U. S. Geological Survey; G. R. Hamade, and G. J. Jarrell, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 2000. Two sheets. Sheet 1, lat 44° to



44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Both sheets 37 by 48 inches (in color).

HA-0745-C. SOUTH DAKOTA. Potentiometric surface of the Minnelusa Aquifer in the Black Hills area, South Dakota, by M. L. Strobel, J. M. Galloway, U.S. Geological Survey; G. R. Hamade, and G. J. Jarrell, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 2000. Two sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Both sheets 37 by 48 inches (in color).

HA-0745-D. SOUTH DAKOTA. Potentiometric surface of the Madison Aquifer in the Black Hills area, South Dakota, by M. L. Strobel, J. M. Galloway, U. S. Geological Survey; G. R. Hamade, and G. J. Jarrell, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 2000. Two sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Both sheets 37 by 48 inches (in color).

HA-0745-E. SOUTH DAKOTA. Potentiometric surface of the Deadwood Aquifer in the Black Hills area, South Dakota, by M. L. Strobel, J. M. Galloway, U. S. Geological Survey; G. R. Hamade, and G. J. Jarrell, South Dakota School of Mines and Technology. Prepared in cooperation with the South Dakota Department of Environment and Natural Resources; West Dakota Water Development District. 2000. Two sheets. Sheet 1, lat 44° to 44°45', long 103° to 104°; sheet 2, lat 43°15' to 44°, long 103° to 104°. Scale 1:100,000 (1 inch = about 1.6 miles). Both sheets 37 by 48 inches (in color).

HA-0746-D. COLORADO. Geohydrology of the shallow aquifers in the Boulder-Longmont area, Colorado, by S. G. Robson, J. S. Heiny and L. R. Arnold. Prepared in cooperation with the Colorado Department of Natural Resources, Division of Water Resources; Colorado Water Conservation Board. 2000. Five sheets. Lat 39°54'50" to 40°20'56", long 104°56'24" to 105°17'42". Scale 1:50,000 (1 inch = about 4,200 feet). All sheets 36 by 45 inches (in color).

### SPECIAL MAPS

Japan, Korea, and Northeast China, sheet 1 in the East Asia Geographic Series. Prepared in cooperation with the Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia. 2000. Lat 29° to 47°, long 147° to 113°. Scale 1:2,500,000 (1 inch = about 40 miles). Sheet 51 by 36 inches (in color).

Southeast China, sheet 2 in the East Asia Geographic Series. Prepared in cooperation with the Coordinating Committee for Coastal Offshore Geoscience Programmes in East and Southeast Asia. 2000. Lat 17° to 34°, long 133° to 104°. Scale 1:2,500,000 (1 inch = about 40 miles). Sheet 51 by 36 inches (in color).

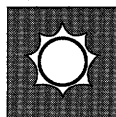
Southeast Asia, sheet 3 in the East Asia Geographic Series. Prepared in cooperation with the Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia.

2000. Lat 5° to 30°, long 110° to 89°. Scale 1:2,500,000 (1 inch = about 40 miles). Sheet 34 by 52 inches (in color).

Philippines, sheet 4 in the East Asia Geographic Series. Prepared in cooperation with the Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia. 2000. Lat 5° to 21°, long 131° to 106°. Scale 1:2,500,000 (1 inch = about 40 miles). Sheet 52 by 36 inches (in color).

Papua, New Guinea, and Solomon Islands, sheet 7 in the East Asia Geographic Series. Prepared in cooperation with the Coordinating Committee for Coastal and Offshore Geosciences Programmes in East and Southeast Asia. 2000. Lat 12° to 2°, long 166° to 141°. Scale 1:2,500,000 (1 inch = about 40 miles). Sheet 51 by 36 inches (in color).

Western Pacific Islands, sheet 8 in the East Asia Geographic Map Series. Prepared in cooperation with the Coordinating Committee for Coastal and Offshore Geoscience Programmes in East and Southeast Asia. 2000. Lat 5° to 30°, long 149° to 129°. Scale 1:2,500,000 (1 inch = about 40 miles). Sheet 33 by 52 inches (in color).



## OUTSIDE PUBLICATIONS

### ARTICLES AND REPORTS

Articles by USGS personnel in non-USGS publications recently cited in the GeoRef data base of the American Geological Institute are listed below. Non-USGS personnel who share authorship in articles with USGS personnel are indicated by an asterisk (\*) immediately following the name. **These publications are not available from the U.S. Geological Survey.**

OP-1. Dallas Abbott\*, David Sparks\*, Claude Herzberg\*, W. D. Mooney, Anatoly Nikishin\* and Y. S. Zhang\*. Quantifying Precambrian crustal extraction; the root is the answer. *Tectonophysics, in Continent formation, growth and recycling*. (P. J. Sylvester, editor). v. 322, no. 1-2, July 10, 2000. p. 163-190.

OP-2. J. D. Abraham. Physical modeling of a prototype slim-hole time-domain dielectric logging tool, *in Proceedings of the symposium on the Application of geophysics to engineering and environmental problems*. (M. H. Powers, editor and others). Wheat Ridge, CO: Environmental and Engineering Geophysical Society, 2000. p. 503-512.

OP-3. D. B. Adams (editor). *Proceedings; specialty conference on potential consequences of climate variability and change to water resources of the United States*. American Water Resources Association Technical Publication Series TPS. 99-1, 1999. 418 p.

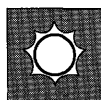
OP-4. J. K. Aggarwal\*, M. R. Palmer\*, T. D. Bullen, S. Arnorsson\* and K. V. Ragnarsdottir\*. The boron isotope systematics of Icelandic geothermal waters; I, Meteoric water charged systems. *Geochimica et Cosmochimica Acta*. v. 64, no. 4, February 2000. p. 579-585.

OP-5. T. S. Ahlbrandt, R. R. Charpentier, T. R. Klett, J. W. Schmoker, C. J. Schenk and G. F. Ulmishek. Future oil and gas resources of the world. *Geotimes*. v. 45, no. 6, June 2000. p. 24-25.

OP-6. T. S. Ahlbrandt, T. R. Klett and R. M. Pollastro. Estimates of undiscovered oil and gas in petroleum systems of the world; North Africa and Middle East examples. *Proceedings - World Petroleum*



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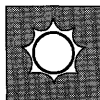
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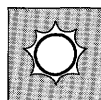
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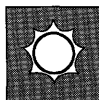
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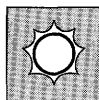
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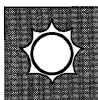
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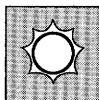


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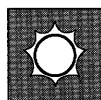
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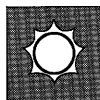


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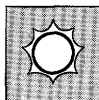




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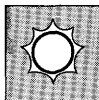
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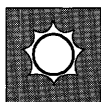
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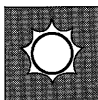
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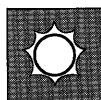




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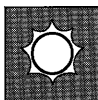
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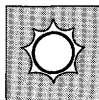
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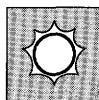




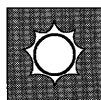
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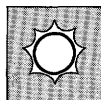
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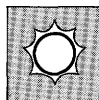


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## ABSTRACTS

Abstracts are condensed but informative summaries of presentations made at meetings of scientific and professional organizations. Typically they summarize the principal conclusions of an author's current work but contain little supporting data. Non-USGS personnel who share authorship in abstracts with USGS personnel are indicated by an asterisk (\*) immediately following



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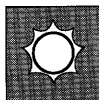
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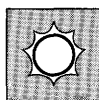
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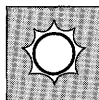


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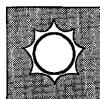




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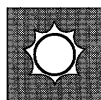
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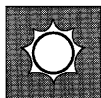


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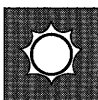
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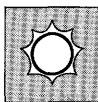
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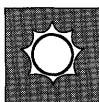




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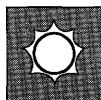
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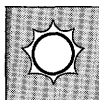
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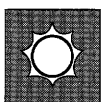
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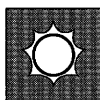




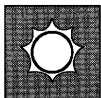
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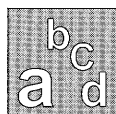


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## INDEX

This is an index of U.S. Geological Survey publications issued in 2000 and articles by U.S. Geological Survey personnel in non-U.S. Geological Survey publications that came to our attention in 2000 divided into a general index, including subjects and areas, and an author index. The index was produced from the American Geological Institute's GeoRef database, under USGS contract 98-HQ-CN-1020.

## ABBREVIATIONS USED

A-	Antarctic Geologic Map	MR-	Mineral Investigations Resources Map
B	Bulletin	MSB	Miscellaneous and Special Books
C	Circular	OC-	Oil and Gas Investigations Chart
C-	Coal Investigations Map	OM-	Oil and Gas Investigations Map
CAT	Catalog	OF	Open-File Report
CF	Coal Map	OP	Outside Publication
CP-	Circum-Pacific Map Series	P	Professional Paper
DDS-	Digital Data Series	PB-,ADA	Report available only through the National Technical Information Service
EV	Earthquakes and Volcanoes	PDE	Preliminary Determination of Epicenters
FS	Fact Sheet	SGM	Special Geologic Map
GN	General Interest Publication	SGMI	Geologic Map Index
GP-	Geophysical Investigations Map	SM	Special Map
GQ-	Geologic Quadrangle Map	STM	State Geologic Map
HA-	Hydrologic Investigations Atlas	TWI	Techniques of Water-Resources Investigations
HUM	Hydrologic Unit Map	W	Water-Supply Paper
I-	Miscellaneous or Geologic Investigations Series Map	WRI	Water-Resources Investigations Report
L-	Land Use and Land Cover Map	YR	Yearbook
MF-	Miscellaneous Field Studies Map		

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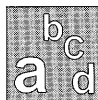


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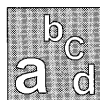
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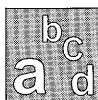
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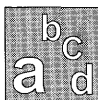
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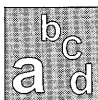


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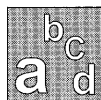
- Virginia OP-1284  
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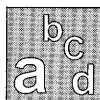
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OP-1039; OP-1364; OP-1419; OP-1471  
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   Florida C 1207; OF 99-0181; OP-362  
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   Maryland OP-1480  
   Massachusetts WRI 99-4018-C  
   Mexico OP-106  
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   New Hampshire WRI 99-4018-C  
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   OF 98-0177; OP-191  
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   WRI 99-4018-C; OF 98-0177; OF 99-0590;  
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   OP-874; OP-901; OP-1056; OP-1086; OP-1179;  
   OP-1260; OP-1292  
   Alaska OP-1470  
   California WRI 98-4217; FS 0172-96; OP-282;  
   OP-283; OP-586; OP-1431  
   Colorado FS 0164-99; OP-58; OP-1568  
   Delaware OP-1278  
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   Minnesota WRI 99-4018-C  
   Nevada WRI 99-4018-C  
   New Jersey OP-171; OP-420  
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   OP-1425  
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   Arizona OP-548  
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 cite; dolomite; magnesian calcite; magnesite;  
 siderite.  
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   Alaska OP-387  
   China OP-343; OP-967  
   Idaho OF 00-0116  
   Pacific Ocean OP-345  
   Pennsylvania OP-209  
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**Carboniferous** *see also* Lisburne Group; Missis-  
 sippian; Pennsylvanian.  
   Arkansas OP-1242; OP-1492  
   Australia OF 99-0050-P  
   Bashkirian, Kazakhstan OP-1290  
   Idaho OP-1206  
   Oklahoma OP-1242; OP-1492  
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   P 1625-A; B 1995-Y,Z; C 1180; C 1199; GN;  
   WRI 98-4109; WRI 99-4018-C; WRI 99-4047;  
   WRI 99-4109; WRI 99-4169; WRI 99-4193;  
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   WRI 99-4255; OF 00-0018; OF 00-0019;  
   OF 00-0027; OF 00-0042; OF 00-0043;  
   OF 00-0065; OF 00-0083; OF 00-0084;  
   OF 00-0085; OF 00-0086; OF 00-0097;  
   OF 00-0105-B; OF 00-0113; OF 00-0127;  
   OF 00-0155; OF 00-0193; OF 00-0198;  
   OF 00-0204; OF 00-0215; OF 00-0298;  
   OF 00-0302; OF 97-0470-B; OF 97-0470-C;  
   OF 97-0470-D; OF 97-0470-G; OF 98-0623;  
   OF 98-0638; OF 98-0795; OF 99-0008;  
   OF 99-0018; OF 99-0036; OF 99-0049;  
   OF 99-0050-B; OF 99-0153; OF 99-0181;  
   OF 99-0191; OF 99-0200; OF 99-0235;  
   OF 99-0260; OF 99-0339; OF 99-0349;  
   OF 99-0363; OF 99-0369; OF 99-0382;  
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   FS 0108-00; FS 0117-00; FS 0122-00;  
   FS 0154-99; FS 0157-99; FS 0162-96;  
   FS 0189-99; FS 0238-95; OP-10; OP-88;  
   OP-112; OP-131; OP-162; OP-170; OP-198;  
   OP-266; OP-276; OP-284; OP-313; OP-322;  
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   OP-1100; OP-1105; OP-1130; OP-1137;  
   OP-1138; OP-1150; OP-1154; OP-1155;  
   OP-1188; OP-1198; OP-1202; OP-1203;  
   OP-1208; OP-1213; OP-1224; OP-1225;  
   OP-1231; OP-1232; OP-1241; OP-1247;



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OP-1351; OP-1383; OP-1384; OP-1402;  
OP-1424; OP-1428; OP-1429; OP-1433;  
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**Cascadia subduction zone** OF 99-0369;  
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**catastrophic advance** *see* glacier surges

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**Cayuga Lake** WRI 99-4018-B

**Cd** *see* cadmium

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Louisiana OF 99-0449

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Montana DDS-0057; OF 99-0450

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**Cedar Creek Anticline** OP-1223

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**cement**

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Antarctic Ocean OP-46; OP-47; OP-50; OP-54

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**centers, spreading** *see* spreading centers

**Central Africa** *see* Equatorial Guinea

**Central America** *see* Belize; Caribbean region;  
Costa Rica; El Salvador; Guatemala; Nicara-  
gua; Panama

**Central Asia** *see* Kazakhstan

**Central Atlantic Coastal Plain** WRI 97-4139;  
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**CERCLA** *see* Superfund

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**Ceylon** *see* Sri Lanka

**CFCs** *see* chlorofluorocarbons

**Chaetoceros** OP-61

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**channels** *see also* channel geometry; streamflow;  
waterways.

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New Mexico OP-134

Oregon OP-1365

Pennsylvania OF 00-0064; OP-668

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**Charana map sheet** OP-251

**charcoal**

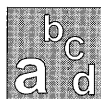
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**Charleston South Carolina** WRI 98-4150

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**Chattahoochee River** C 1126; FS 0091-95

**chemical analysis** *see also* atomic absorption;  
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- chemically precipitated rocks** *see also* chert; evaporites; flint; iron formations; phosphate rocks; tufa.  
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- Chesapeake Group** *see* Yorktown Formation
- Chester Quadrangle** I-2598
- Chi-Chi earthquake 1999** OF 99-0545; OP-333
- Chiapas Mexico** *see also* El Chichon.  
OP-557
- Chichagof Island** OF 96-0053
- Chickies Quartzite** FS 0012-00
- Chicot Aquifer** WRI 99-4035; OF 99-0177; OF 99-0178
- Chihuahua Mexico** OP-1018
- Chile**  
OP-747; OP-813; OP-1149; OP-1524  
Atacama Desert OP-80; OP-1059; OP-1060; OP-1061; OP-1148  
Lascar OP-332
- Chimana Grande Island** OP-173
- chimneys**  
Pacific Ocean OP-690
- China** *see also* Guangdong China; Guangxi China; Guizhou China; Inner Mongolia China; Shaanxi China; Sichuan China; Yunnan China.  
OF 00-0047; SM ; OP-340; OP-342; OP-411; OP-476; OP-714; OP-742; OP-747; OP-972  
Dabie Mountains OP-918  
Dachang Deposit OP-1239
- Yangtze Platform OP-343
- China Sea** OP-1139
- Chinle Formation** OP-26; OP-337; OP-461; OP-1517
- Chironomidae**  
Montana WRI 99-4019
- chloride ion**  
OF 00-0194; OP-4; OP-1508  
Arizona OP-216  
British Columbia WRI 98-4195  
California OP-1374  
Colorado WRI 98-4193; OF 00-0204  
Denmark OP-1087  
Florida WRI 99-4061  
Georgia OF 00-0151  
Louisiana OP-1513  
Minnesota OP-216  
Mississippi OP-1257; OP-1513  
Nevada OP-1305  
New Jersey WRI 98-4136  
New Mexico OP-1374  
Oklahoma WRI 99-4018-C  
Oregon OP-637  
Samoa WRI 98-4029  
Washington WRI 98-4195; FS 0057-00  
Wyoming OP-262
- chlorides** *see also* halite.  
Arkansas WRI 99-4035  
California OP-567  
New Jersey WRI 99-4016; WRI 99-4045  
Washington WRI 99-4048
- chlorinated hydrocarbons** *see also* carbon tetrachloride; chlorobenzene; chloroform; DDT; PCBs; tetrachloroethylene; trichloroethane; trichloroethylene.  
OF 00-0204; OP-103  
California WRI 99-4018-B  
Delaware WRI 98-4153  
Michigan WRI 99-4018-C; OP-587  
New York WRI 98-4104  
Tennessee FS 0044-99
- chlorine**  
OP-542; OP-1487  
Armenia MF-2350
- chloride ion**  
OF 00-0194; OP-4; OP-1508  
Arizona OP-216  
British Columbia WRI 98-4195  
California OP-1374  
Colorado WRI 98-4193; OF 00-0204  
Denmark OP-1087  
Florida WRI 99-4061  
Georgia OF 00-0151  
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Minnesota OP-216  
Mississippi OP-1257; OP-1513  
Nevada OP-1305  
New Jersey WRI 98-4136  
New Mexico OP-1374  
Oklahoma WRI 99-4018-C  
Oregon OP-637  
Samoa WRI 98-4029  
Washington WRI 98-4195; FS 0057-00  
Wyoming OP-262
- Cl-36  
California OF 99-0153  
Idaho WRI 98-4008; WRI 99-4037  
Nevada OP-515  
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- chlorite**  
British Columbia OP-402
- chlorite group** *see* chamosite
- chloroacetanilide**  
WRI 99-4018-B  
Midwest OP-621
- chlorobenzene**  
Connecticut WRI 99-4081
- chlorofluorocarbons**  
C 1195; OP-434; OP-1031  
Arizona OP-294  
British Columbia OF 99-0244  
Idaho OP-713  
New Hampshire WRI 99-4018-C  
Washington OF 99-0244
- chloroform**  
Nevada OP-491
- chlorophenols** *see* pentachlorophenol
- chlorophenothane** *see* DDT
- chlorophyll**  
Florida OP-397  
Idaho WRI 98-4123  
North Carolina WRI 98-4149  
Pennsylvania WRI 98-4144  
Texas WRI 98-4012
- Chlorophyta**  
Vermont OP-1284  
Virginia OP-1284
- Chocolate Mountains** OF 99-0368-A; OF 99-0368-B
- Chondrichthyes** OP-67
- chondrites** *see also* carbonaceous chondrites; H chondrites; L chondrites; LL chondrites.  
OP-1550
- chondrules**  
OP-9; OP-1195  
British Columbia OP-318
- Choptank River** WRI 98-4177; OP-1451
- Chordata** *see* Vertebrata
- chorology** *see* biogeography
- chromatography** WRI 99-4018-B
- chromite**  
Russian Federation OP-182
- chromite ores**  
Alaska OF 99-0391; OP-1367  
Kazakhstan OP-513
- chromium**  
OP-459; OP-744  
California WRI 99-4018-B  
Cr-51, Idaho WRI 98-4026; WRI 98-4028  
Cr-53/Cr-52 OP-39  
Massachusetts OP-437  
Pakistan OP-1264
- chromium ores** *see* chromite ores
- Chryse Planitia** OP-144; OP-860; OP-922; OP-1106; OP-1183; OP-1437; OP-1438; OP-1519; OP-1520
- Chrysophyta**  
Vermont OP-1284  
Virginia OP-1284
- Chugach Mountains** OF 00-0026; OP-771
- Chugach Terrane** P 1615; OP-1194
- Chukchi Peninsula** OP-1026; OP-1186
- CI chondrites** OP-318
- cinder cones**  
California FS 0023-00  
Indonesia OP-645



Circum-Pacific Belt *see* Circum-Pacific region

**Circum-Pacific Geospatial Data Project**

OP-981; OP-982; OP-1531; OP-1532

**Circum-Pacific region** OF 99-0422; OP-297;

OP-391; OP-982; OP-1139; OP-1375

cistern rock *see* laccoliths

Cl *see* chlorine

**Cl-36**

California OF 99-0153

Idaho WRI 98-4008; WRI 99-4037

Nevada OP-515

**Cl-37/Cl-35**

Idaho WRI 98-4008

**Cladium** OP-34

**Clark's Fork Basin** WRI 98-4137;

WRI 98-4254; OF 99-0251; OP-408

**Claron Formation** OP-1198

**clastic dikes**

California OP-1333

**clastic rocks** *see also* argillite; arkose; bentonite; black shale; breccia; claystone; conglomerate; eolianite; flysch; graywacke; marl; molasse; mudstone; red beds; sandstone; shale; siltstone; tonstein; turbidite.

California OP-581

Montana OP-743

North Carolina OP-1486

Pennsylvania OP-448; OP-449

**clastic sediments** *see also* alluvium; boulders; clay; cobbles; colluvium; dust; gravel; loess; mud; outwash; overbank sediments; pebbles; sand; silt; till.

OP-614; OP-1210; OP-1484

California OP-1062

Canada P 1424-C

New Hampshire OF 99-0462

New York WRI 98-4036

Puerto Rico OP-785

Texas OP-623

United States P 1424-C

Washington MF-2346

**clastic wedges**

Alaska OP-1236

**clathrates** OP-1036

**clay** *see also* disposal barriers.

OP-229; OP-630; OP-1571

Alaska OP-1055

California OP-371; OP-1333

Colorado OP-131

Mississippi WRI 96-4051; OP-950; OP-1515

Missouri OP-1331

Oklahoma WRI 99-4018-C

Pennsylvania OP-668

clay (soil) *see* Clay soils

clay liners *see* disposal barriers

**clay mineralogy**

OP-727; OP-842; OP-1065

Texas OP-1308

clay minerals *see* illite; kaolinite; montmorillonite; sepiolite; smectite

**Clay soils**

Colorado OP-11

clays *see* fuller's earth; kaolin deposits; vermiculite deposits

**claystone**

China OP-973

Colorado OP-1476; OP-1477

Haiti OP-91

New Mexico OP-1476

Wyoming OP-91

**Clean Air Act**

OP-30; OP-128

Gulf Coastal Plain WRI 99-4018-B

Gulf of Mexico WRI 99-4018-B

**Clean Water Act**

OF 00-0204

Oregon W 2465-C

**Clear Creek** WRI 98-4151; OP-618

**Clear Lake** OP-1506

**cleavage**

Alabama OP-1324

**Clementine Program** OP-270; OP-271;

OP-1144; OP-1151; OP-1168; OP-1169;

OP-1304; OP-1325; OP-1432; OP-1434

cliff of displacement *see* fault scarps

**cliffs**

California OP-158

Puerto Rico OP-1068

**climate change** *see also* global warming; greenhouse effect.

OF 99-0312; FS 0095-00; OP-3; OP-64; OP-82;

OP-83; OP-376; OP-630; OP-633; OP-1069;

OP-1474

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Antarctic Ocean OF 99-0312; OP-46; OP-54

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Atlantic Ocean OF 99-0312; OP-175

British Columbia OP-263

California WRI 98-4041; OF 99-0153;

OF 99-0321; OP-77; OP-529; OP-553;

OP-824; OP-896

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Idaho OP-1122

Italy OF 99-0312

Midwest HA-0725

Netherlands OP-145

Nevada WRI 98-4041; OF 98-0635;

OF 99-0153; OP-1425

New Mexico OP-1306

Norway OP-1263

Rocky Mountains OP-230

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South Dakota FS 0043-99; OP-193

Utah OP-1122

Vermont FS 0047-99

Washington FS 0047-96

climatic orbital forcing *see* orbital forcing

climatology, paleo- *see* paleoclimatology

clinoamphibole *see* hornblende

**clinoptilolite**

OP-288

Colorado OP-11

**clinopyroxene** *see also* augite; pigeonite.

Italy OP-1295

**Clinton Group** OF 97-0272

closed mines *see* abandoned mines

**clouds**

OP-1086

Alaska OF 99-0401

clouds, ash *see* ash clouds

**Cluthia cluthae** OP-114

Co (cobalt) *see* cobalt

CO<sub>2</sub> *see* carbon dioxide

**coal** *see also* ash content; coal assessment; coal fields; coal seams; coalbed methane; lignite.

P 1625-A; OF 99-0590; FS 0007-97;

FS 0038-96; FS 0094-00; OP-30; OP-246;

OP-462; OP-889; OP-1008; OP-1178; OP-1180

Alabama FS 0002-96

Alaska P 1614; OP-73

anthracite, Pennsylvania OP-228

Arkansas FS 0004-96

Armenia OF 97-0721

bituminous coal

OF 97-0299; MF-2330; OP-605

Appalachians FS 0115-99

Montana P 1625-A

Wyoming P 1625-A

China OP-200

coke coal OP-92

Colorado OF 99-0553-A; OP-1006

Great Plains P 1625-A

Illinois FS 0013-96; FS 0014-99

Indiana FS 0014-96

Kazakhstan OP-513

Michigan FS 0022-96

Mississippi FS 0024-96

Montana P 1625-A; FS 0026-96

North Dakota P 1625-A; FS 0034-96

Ohio FS 0035-96

Pennsylvania OP-107; OP-762

Rocky Mountains P 1625-A

Russian Federation OP-512

subbituminous coal, Wyoming P 1625-A

Tennessee FS 0042-96

Ukraine OP-514

Utah OF 99-0553-B

Virginia FS 0046-96

West Virginia FS 0049-96

Wyoming P 1625-A; OF 99-0553-C;

FS 0050-96; FS 0052-99

**coal assessment**

Belgium OP-211

Pakistan OP-220

coal beds *see* coal seams

**coal fields** *see also* coal mines.

FS 0123-00

Armenia B 2176; B 2177; OF 99-0561;

OF 99-0567; OF 99-0582; MF-2350

Colorado OP-119

Great Plains FS 0011-00

Montana P 1625-A

Pennsylvania OP-228

Rocky Mountains FS 0011-00

West Virginia OP-575

Wyoming P 1625-A

**coal mines**

OF 99-0590; MF-2330; FS 0157-96; OP-30;

OP-889

Appalachians FS 0115-99

Montana P 1625-A

Pennsylvania OP-107

Rocky Mountains P 1625-A

Texas OF 00-0048

West Virginia FS 0049-96

Wyoming P 1625-A; OP-734; OP-899;

OP-1464

**coal seams**

FS 0157-96

Alaska OP-983; OP-1512



- Armenia B 2175; B 2176; B 2177  
 Belgium OP-211  
 China OP-973  
 Colorado P 1625-A; OP-183; OP-767  
 Great Plains P 1625-A  
 Gulf Coastal Plain OF 00-0113; OF 00-0143  
 Montana P 1625-A; OP-406  
 New Mexico P 1625-A  
 North Dakota P 1625-A  
 Pakistan OP-220  
 Pennsylvania OP-228  
 Rocky Mountains P 1625-A  
 Texas OF 00-0048  
 United Kingdom OP-836  
 Wyoming P 1625-A; OP-406
- coalbed methane**  
 FS 0019-97; FS 0020-97; FS 0123-00; OP-156;  
 OP-252; OP-490; OP-504  
 Armenia OF 99-0567  
 Australia OP-742  
 China OF 00-0047; OP-742  
 Colorado P 1625-A; OP-183; OP-742; OP-1426  
 Germany OP-742  
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 New Mexico P 1625-A; OP-742  
 Poland OP-742; OP-1282  
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- coalfields *see* coal fields
- coalification**  
 OP-34  
 Australia OP-742  
 China OP-742  
 Colorado OP-742  
 Germany OP-742  
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 California OP-1501  
 Japan OP-1501
- Coalmont Formation P 1625-A**
- Coast Mountains OP-1338**
- Coast Ranges OF 95-0670; OF 98-0795; I-2542;  
 OP-85; OP-111; OP-1343; OP-1427; OP-1500**
- coastal features *see* shore features
- coastal plains**  
 Atlantic Coastal Plain OP-1493  
 New York OP-116  
 Virginia OP-1327
- coastal sedimentation**  
 OP-250  
 Brazil OP-12  
 California OP-226  
 North Carolina OP-871  
 South Carolina OP-871
- coastlines *see* shorelines
- cobalt**  
 California OP-989  
 Marshall Islands OF 99-0412  
 Micronesia OF 99-0412  
 Russian Federation OP-1041
- cobalt ores**  
 China OP-241  
 Pacific Ocean OP-344
- cobaltite OP-1381**
- cobbles OP-1345**
- Cockfield Aquifer WRI 98-4084**
- COCORP OP-1098**
- coda waves**  
 Polynesia OP-205
- Cody Shale OP-409**
- coefficient of permeability *see* hydraulic conductivity
- coefficients, partition *see* partition coefficients
- Coelenterata**  
 Acropora cervicornis  
 Australia OP-1472  
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- Anthozoa**  
 Alaska P 1615  
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- coeruleolactite OP-258**
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- Coeur d'Alene mining district OF 99-0548;  
 FS 0013-99; OP-38; OP-684; OP-1279**
- Coffee Sand Aquifer WRI 98-4171**
- Cohansey-Kirkwood Aquifer *see*  
 Kirkwood-Cohansey Aquifer
- coke coal OP-92**
- Coker Aquifer WRI 98-4171**
- coliform bacteria *see also* Escherichia coli.**  
 Alaska OF 99-0236  
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 Georgia OF 00-0075  
 Kansas FS 0170-99  
 Minnesota OF 00-0204  
 Missouri OF 00-0204  
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 South Carolina OF 00-0204  
 South Dakota WRI 98-4092  
 West Virginia OP-575
- Colima OP-332**
- collapse structures**  
 C 1182; OP-524  
 Colorado OP-786  
 Florida OP-1273  
 Indonesia OP-645; OP-910; OP-968  
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- collecting *see* mineral localities
- colleges *see* academic institutions
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- colluvium**  
 Nevada WRI 98-4184  
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- Colombia OP-760; OP-1116**
- Colon Archipelago *see* Galapagos Islands
- colonization**  
 Vermont OP-1284  
 Virginia OP-1284
- color alteration index**  
 Alaska OP-1136
- Colorado *see also* Alamosa River; Albuquerque  
 Basin; Colorado River; Colorado River basin;  
 Cutler Formation; Denver Basin; Denver Forma-  
 tion; Fish Canyon Tuff; Four Corners; Front**
- Range; Leadville Formation; Loveland Loess;  
 Mosquito Range; Paradox Basin; Pierre Shale;  
 Raton Basin; Rio Grande Rift; San Juan Basin;  
 San Juan Mountains; San Luis Valley; Sangre de  
 Cristo Mountains; South Platte River; Spanish  
 Peaks; Summitville Mine; Uncompahgre Uplift.**  
 DDS-0066; P 1625-A; C 1191; OF 00-0034;  
 OF 00-0042; OF 00-0204; OF 00-0298;  
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 OF 99-0501; OF 99-0553-A; OF 99-0562-E;  
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 OP-16; OP-217; OP-363; OP-399; OP-510;  
 OP-555; OP-712; OP-858; OP-914; OP-938;  
 OP-961; OP-1006; OP-1066; OP-1097;  
 OP-1165; OP-1212; OP-1270; OP-1476  
 Arapahoe County Colorado OP-1166  
 Boulder Colorado OF 99-0321; HA-0746-D;  
 OP-84  
 Boulder County Colorado OP-794  
 Cache La Poudre River OF 99-0587  
 Clear Creek County Colorado WRI 98-4151;  
 WRI 98-4193; OP-618; OP-1566  
 Colorado Springs Colorado WRI 98-4140  
 Conejos County Colorado OP-231; OP-244;  
 OP-850  
 Cortez Colorado OP-658  
 Cripple Creek Colorado OP-1269  
 Denver Colorado OP-105; OP-131; OP-720;  
 OP-959; OP-1477  
 Denver County Colorado OF 99-0321  
 Dolores County Colorado I-2667  
 Eagle County Colorado I-2656; FS 0186-99;  
 OP-337  
 El Paso County Colorado FS 0136-00  
 Elbert County Colorado OP-1166  
 Fremont County Colorado OP-348  
 Front Range urban corridor OF 99-0321;  
 OF 99-0587  
 Garfield County Colorado OF 97-0737;  
 OF 97-0852; OP-1276  
 Gilpin County Colorado OP-937  
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 Greeley Colorado OF 00-0204  
 Gunnison County Colorado WRI 99-4018-B  
 Jefferson County Colorado OP-618; OP-794  
 La Plata County Colorado OP-767  
 Larimer County Colorado OP-58; OP-60;  
 OP-130; OP-160; OP-603; OP-856  
 Las Animas County Colorado OP-183  
 Leadville Colorado OF 00-0033; OF 99-0427;  
 OP-132; OP-511; OP-825; OP-904  
 Leadville mining district OF 00-0150  
 Moffat County Colorado I-2646; I-2647;  
 OP-119  
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 OP-451; OP-711; OP-847  
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 FS 0164-99; OP-58; OP-60; OP-130; OP-160;  
 OP-603; OP-856; OP-1568  
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 OF 00-0053; OF 00-0115; OF 00-0165;

OF 99-0038; OP-230; OP-604; OP-776  
 San Juan volcanic field OP-312; OP-847  
 Sedgwick County Colorado WRI 98-4046  
 Silverton Caldera OF 99-0370  
 Slumgullion Landslide I-2672; OP-248  
 Summit County Colorado OP-19  
 Teller County Colorado OP-348; OP-444  
 Wattenberg Field OP-1426  
 Weld County Colorado OP-1426  
 White River Plateau OP-786

**Colorado Desert** OF 00-0105-B

**Colorado Plateau** *see also* Albuquerque Basin;  
 Colorado; New Mexico; Utah.  
 OP-44; OP-255; OP-337; OP-421; OP-461;  
 OP-1018

**Colorado River** P 1591; C 1126; WRI 98-4015;  
 WRI 99-4097; OF 00-0004; OF 99-0109;  
 FS 0004-99; FS 0058-95; FS 0083-96;  
 FS 0089-96; OP-786; OP-886; OP-887;  
 OP-1153; OP-1234; OP-1440

**Colorado River basin** WRI 98-4124;  
 WRI 99-4097; OF 99-0110; I-2663; OP-189

**Colorado Springs** Colorado WRI 98-4140

**Colstrip coal field** P 1625-A

**Columbia Basin** *see* Columbia River basin

**Columbia Plateau** *see also* Channeled Scabland.  
 P 1413-A; C 1144; OP-412; OP-1343;  
 OP-1373; OP-1500

**Columbia River** WRI 99-4018-B; WRI 99-4051;  
 FS 0038-99; OP-979; OP-1234; OP-1412;  
 OP-1508

**Columbia River Basalt Group** *see also* Saddle  
 Mountains Basalt.  
 OP-520

**Columbia River basin** WRI 99-4018-B;  
 WRI 99-4051; OF 00-0204; OP-936

**Columbia River plateau** *see* Columbia Plateau  
 columbium *see* niobium

**Colville Basin** OP-1354

**Colville River** OP-1049

**Comanchean** *see* Bisbee Group; Glen Rose For-  
 mation

**comets** OP-803; OP-1475

**common mica** *see* muscovite

**common salt** *see* halite

**Commonwealth of Independent States** *see* Arme-  
 nia; Dnieper-Donets Basin; Kazakhstan;  
 Kyrgyzstan; Russian Federation; Turkmenia;  
 Ukraine; Urals; Uzbekistan; Volga-Ural region

**compact-disc read-only memory** *see* CD-ROM

**composite volcano** *see* stratovolcanoes

**Comprehensive Environmental Response, Com-  
 pensation and Liability Act** *see* Superfund

**compression tectonics** *see also* transpression.

California OP-978

Canada OP-1350

New Jersey OP-912

United States OP-1350

Wyoming OP-811

**compressional waves** *see* P-waves

**computer files** *see* digital data

**computer languages**

WRI 98-4080; OF 00-0020; OF 00-0109;  
 OF 00-0111; OF 00-0140; OF 00-0141;  
 OF 97-0588

California WRI 98-4064

Kentucky WRI 98-4182

Nevada WRI 98-4064

**computer networks** *see* Internet

**computer programs** *see also* ARC/INFO; expert  
 systems; PHREEQE; SUTRA.

P 1625-A; WRI 98-4005; WRI 98-4080;

WRI 98-4234; OF 00-0020; OF 00-0044;

OF 00-0107; OF 00-0109; OF 00-0111;

OF 00-0140; OF 00-0141; OF 00-0302;

OF 94-0645; OF 95-0114; OF 96-0171;

OF 97-0588; OF 98-0203; OF 99-0095;

OF 99-0104; OF 99-0184; OF 99-0238;

OF 99-0339; OF 99-0405; OF 99-0419;

OF 99-0430; OF 99-0534; FS 0040-00;

FS 0064-95; FS 0130-95; FS 0176-99;

FS 0238-95; OP-269; OP-494; OP-506; OP-869;

OP-1123; OP-1144; OP-1169; OP-1173;

OP-1177; OP-1272; OP-1275; OP-1289;

OP-1434; OP-1551

Alaska OP-387

California OF 99-0153; FS 0103-00; OP-875;

OP-980

Colorado OP-131

Far East OP-982

Florida OF 99-0181; FS 0139-96; FS 0193-97;

OP-397; OP-729

Georgia OP-697

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Hawaii WRI 98-4142

Idaho OP-823

Iowa OP-56

Massachusetts WRI 99-4018-C; OP-56

Midwest P 1423-A

Minnesota WRI 99-4018-C

Mississippi WRI 98-4171

Nevada OP-17

New Hampshire WRI 99-4018-C

New Mexico OF 96-0208; OF 96-0210

Oklahoma WRI 98-4081

Pacific region OP-982

Puerto Rico WRI 98-4188

Texas OF 00-0065

**Con Virginia Mine** OP-174

**concealed deposits** *see* blind deposits

**concretions**

Italy OP-1522

Marshall Islands OF 99-0412

Micronesia OF 99-0412

Utah OP-461

Wyoming B 1917-U

**cone penetration tests**

California OP-371

**cones, cinder** *see* cinder cones

**Conestoga Limestone** OF 99-0452

**conferences** *see* symposia

**Confidence Hills Formation** OF 99-0153

**confined aquifers**

California OP-1016

Iowa OP-56

Maryland WRI 98-4047

Massachusetts OP-56

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Virginia OP-1161

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Florida OF 99-0181

Midwest P 1423-A

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Idaho OP-398

Marshall Islands OP-76

Micronesia OP-76

Montana OP-398

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Wyoming OP-1380

**Coniferales** *see also* Picea; Pinaceae.

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FS 0007-96; OP-92

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New Haven County Connecticut WRI 99-4081

New London County Connecticut

WRI 99-4018-C

**Connecticut River** OP-1203

**connectivity**

New Hampshire OP-188

South America OP-1403

**conodont alteration index** *see* color alteration in-  
 dex

**Conodonta**

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OP-1267; OP-1285; OP-1482

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 wetlands.

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OP-327

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Kansas FS 0187-99; OP-418

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Vermont FS 0047-99

**Consortium for Continental Reflection Profiling**  
*see* COCORP

**constructed wetlands**

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New York OP-468

**construction materials** *see also* aggregate;  
 gravel deposits; sands.

OF 99-0205

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FS 0181-99

Colorado OP-1006

New Mexico OF 00-0011-B

insulation materials

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Canada OP-717

Far East OP-476; OP-716

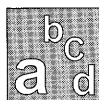
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Kenya OP-717

Middle East OP-716

Norway OP-717

South Carolina OP-718



- Surinam OP-717  
Virginia OP-717; OP-718
- contact metamorphism**  
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- contaminant plumes**  
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Delaware OP-369; OP-1278  
Maine WRI 98-4174  
Maryland WRI 99-4018-C; OP-537; OP-538  
Massachusetts WRI 98-4257; WRI 99-4018-C;  
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Michigan WRI 99-4018-C; OP-587; OP-818  
Minnesota WRI 99-4018-C; OF 00-0204;  
OP-854  
Nevada OP-1382  
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New Jersey WRI 99-4018-C; OP-171  
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- contamination, magma *see* magma contamination
- continental borderland**  
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- Continental Chief Deposit** OP-859
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- continental drift** *see also* Baltica; Gondwana; Laurentia.  
Antarctica OP-1529
- continental dunes**  
New Mexico OP-629  
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- continental margin** *see also* continental borderland.  
Alaska OP-221; OP-1026; OP-1194; OP-1236;  
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- continental platform *see* continental shelf
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- continental shelf** *see also* continental margin  
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- continental type *see* continental crust
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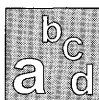
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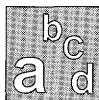




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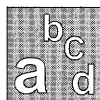
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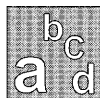
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Russian Federation OP-1584

Far East *see also* Burma; China; Indonesia; Ja-  
pan; Korea; Mongolia; Philippine Islands; Tai-  
wan; Thailand.

OP-981; OP-982; OP-1139; OP-1531;  
OP-1532

fatty acids *see* lipids

fault blocks *see* block structures

# fault scarps

Alaska OP-325  
Arizona OF 99-0400  
California OF 99-0153  
Japan OF 99-0400  
Mongolia OP-1458  
Nevada OF 99-0153  
New Mexico OP-685; OP-1400  
Russian Federation OF 99-0400  
Utah OF 99-0400  
Washington OP-1051; OP-1364; OP-1419

fault zones *see also* rift zones.

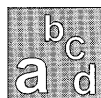
OP-29; OP-69; OP-585  
Alaska OP-1397  
California B 1995-Y,Z; OF 99-0153; OP-155;  
OP-436; OP-441; OP-581; OP-917; OP-1435;  
OP-1549  
Greece OP-202  
Mexico OP-436  
Nevada OF 98-0266; OF 99-0049; OF 99-0153;  
OP-515; OP-1127  
New Mexico WRI 98-4172; MF-2348; OP-693;  
OP-694; OP-1339  
Oregon OP-86; OP-520; OP-1577  
Russian Federation OP-1397  
Saudi Arabia OP-997  
South Dakota OP-1225  
Washington OP-1023; OP-1051; OP-1364;  
OP-1502; OP-1530; OP-1577

faults *see also* block structures; breccia;  
decollement; deformation; earthquakes; fault  
scarps; folds; foliation; fractures; geologic haz-  
ards; gouge; grabens; half grabens; horsts; linea-  
ments; nappes; scarps; seismic moment; shear  
zones; wall rocks.

OF 99-0153; OP-133; OP-1081; OP-1196;  
OP-1475; OP-1573

active faults

P 1500-K-R; GN ; OF 99-0400; OP-29;





OP-556; OP-1105; OP-1204; OP-1309  
 Alaska OF 99-0036; OP-325; OP-1213  
 British Columbia OP-1075  
 California OF 00-0146; OF 99-0153; OP-395;  
   OP-576; OP-808; OP-978; OP-980;  
   OP-1213; OP-1435; OP-1478  
 Japan OF 99-0400  
 Oregon OP-1577  
 Rocky Mountains OF 00-0260  
 Utah P 1500-K-R  
 Washington OP-1424; OP-1554; OP-1577  
 Alaska P 1614; P 1615; OP-1357  
 Arizona OF 00-0139; I-2628  
 Atlantic Coastal Plain OP-1128  
 blind faults  
   Alaska OP-325  
   California OP-552; OP-1478  
   Oregon OP-86  
 California OF 00-0002; OF 00-0154;  
   OF 00-0193; OF 99-0153; OF 99-0388;  
   OF 99-0577; OP-222; OP-335; OP-570;  
   OP-583; OP-681; OP-1262; OP-1427;  
   OP-1498; OP-1499  
 Canada OP-1350  
 China OP-918; OP-1103  
 Colorado I-2647; OP-579; OP-786; OP-1477  
 detachment faults  
   OP-686  
   California OF 99-0153  
   Nevada OF 99-0153; OF 99-0329  
 dip-slip faults, California OP-93  
 en echelon faults  
   OF 99-0400  
   California B 1995-Y,Z  
   Colorado Plateau OP-1190  
   New Mexico OP-1188  
 extension faults  
   Nevada OP-380  
   New Mexico OP-1339  
 Gulf of Mexico OP-1128  
 Hawaii P 1613  
 Hungary OP-471  
 Idaho OF 99-0371  
 Iran OF 97-0470-G  
 lateral faults, Washington OP-1254  
 left-lateral faults  
   California OP-1020  
   Nevada OP-1020  
 Maryland I-2607  
 Missouri OP-664  
 Montana OP-303; OP-407; OP-624  
 Nevada P 1608; OF 00-0134; OF 99-0153;  
   OF 99-0383; OF 99-0533-A; OP-536;  
   OP-787; OP-834  
 New Mexico OP-311  
 normal faults  
   Alaska OP-1010  
   Arkansas OP-383  
   Basin and Range Province OF 99-0321  
   California OF 99-0153; OP-728; OP-1020  
   Colorado OP-232  
   Great Basin OF 99-0321  
   Greece OP-202  
   Nevada OP-380; OP-728; OP-1020  
   New Mexico OF 99-0400; OP-45; OP-562;  
   OP-1400  
   Norway OP-1092  
   Pennsylvania OP-210  
   Texas OP-45  
 oblique-slip faults, California OP-589

Oregon OP-222  
 Pacific Ocean OP-690  
 reverse faults  
   OP-1244  
   California B 1995-Y,Z; OF 99-0153; OP-589  
   Colorado OP-232  
   Washington OP-1023  
 right-lateral faults  
   Arkansas OP-383  
   California OF 99-0153; OP-359; OP-395;  
   OP-496; OP-589; OP-1020  
   Colorado OP-232  
   Nevada OP-1020  
 Russian Federation OP-1186  
 strike-slip faults  
   OF 99-0400; OP-69; OP-597; OP-1029;  
   OP-1098; OP-1408  
   Arkansas OP-383  
   California B 1995-Y,Z; OF 99-0153; OP-111;  
   OP-122; OP-123; OP-359; OP-581;  
   OP-757; OP-1478  
   Colorado OP-1265  
   Hungary OP-212  
   Michigan OP-812  
   Mongolia OP-1458  
   Nevada OF 98-0266; OF 99-0153; OP-213  
   New Mexico OP-1265  
   Oregon OP-86  
   Pennsylvania OP-210  
   Turkmenia OP-302  
   Washington OP-1497  
 thrust faults  
   Alabama OP-1324  
   Alaska OP-1267; OP-1338  
   Appalachians OP-1360; OP-1361  
   British Columbia OP-1075  
   California OF 00-0219; OF 99-0153; OP-85;  
   OP-123; OP-1478  
   Columbia Plateau OP-1343  
   Idaho P 1600  
   Japan OP-765  
   Maryland GQ-1768  
   Nevada OP-380  
   New Mexico OP-562  
   Oregon OP-1561  
   Pacific Ocean OP-1072  
   Taiwan OF 99-0447  
   Utah OF 98-0234  
   Virginia OP-1286  
   Washington OP-334; OP-1364; OP-1502  
   Yukon Territory OP-1267  
 transfer faults, New Mexico OP-1339  
 transform faults  
   OP-1328  
   Israel OF 98-0516  
   Jordan OF 98-0516  
   Pacific Ocean OP-1072  
   United States OP-1350  
   Utah OP-1296  
   Virginia I-2607  
   Washington OP-1417; OP-1471  
   Wyoming OP-303; OP-407  
**Fayum Depression** OP-580  
 Fe *see* iron  
 features, bottom *see* bottom features  
 features, eolian *see* eolian features  
 features, erosion *see* erosion features  
 features, fluvial *see* fluvial features  
 features, glacial *see* glacial features  
 features, impact *see* impact features

features, lacustrine *see* lacustrine features  
 features, shore *see* shore features  
 features, solution *see* solution features  
 features, volcanic *see* volcanic features  
 fecal coliform bacteria *see* coliform bacteria  
**fecal pellets**  
   WRI 98-4164; OP-751  
   New Jersey WRI 99-4016  
 federal lands *see* public lands  
 Federal Republic of Yugoslavia *see* Yugoslavia  
 Federated States of Micronesia *see* Micronesia  
**feeding** OP-67  
 feeding ground *see* drainage basins  
**feldspar deposits**  
   Far East OP-716  
   Middle East OP-716  
**feldspar group** *see also* alkali feldspar;  
   plagioclase.  
   OP-1292  
   Far East OP-747  
   Oklahoma OP-1311  
   Pacific Ocean OP-344  
   Scandinavia OP-747  
**Fennoscandia** OP-725  
 Fennoscandian Shield *see* Baltic Shield  
**fens** OP-252  
**Ferrar Group** OP-1200  
**ferrihydrite** OP-1022  
**Ferris Coal** P 1625-A  
**feruvite**  
   British Columbia OP-402  
 fibrolite *see* sillimanite  
**Fidalgo Island** WRI 98-4014  
**field capacity** OP-609  
**field trips** *see also* guidebook.  
   Arizona OP-421; OP-839  
   California OF 99-0153  
   Colorado OP-84; OP-119; OP-232; OP-248;  
   OP-348; OP-688; OP-706; OP-786  
   Illinois OP-639  
   Missouri OP-639  
   Nevada OF 99-0153; OP-787  
   New Mexico OP-685; OP-706; OP-774  
   Utah OP-215  
   Wyoming OP-810  
 field, gravity *see* gravity field  
 field, magnetic *see* magnetic field  
 fields, coal *see* coal fields  
 fields, geothermal *see* geothermal fields  
 fields, oil and gas *see* oil and gas fields  
**Fillmore Formation** OP-234  
**Finger Lakes** *see also* Cayuga Lake.  
   OF 99-0191; FS 0180-99  
**Finland** OP-411; OP-747; OP-807  
**Finmarchinella logani** OP-114  
 fire clay *see* fireclay  
**Fire Island** OF 00-0241; OF 00-0242  
**fireclay**  
   Europe OP-909  
   South America OP-909  
**fires**  
   OF 99-0339; FS 0061-95  
   Florida OF 99-0181  
   New Mexico OP-134  
**firn**  
   Washington WRI 98-4090

**first occurrence**

OP-405  
Atlantic Coastal Plain OP-817

**Fish Canyon Tuff** OP-31; OP-498; OP-1223;  
OP-1379

**fission tracks**

OP-686  
Alaska OP-1378  
Appalachians OP-1360; OP-1361  
Bolivia OP-179  
Colorado OP-232; OP-1359  
Utah OP-1560

**fission-track dating**

Alaska OP-1357  
California OF 99-0153

Fissipeda *see* Ursidae

**Flaxville Aquifer** WRI 98-4079

**flexural-slip**

California OF 99-0153

**flexure**

Arkansas OP-383  
California OF 99-0153  
Utah OP-1198

**flint**

Far East OP-747  
Scandinavia OP-747

**flood basalts**

OP-996  
Oregon OP-178

flood tuff *see* ignimbrite

**floodplains**

OF 93-0641  
California OP-1374  
Colorado OF 99-0321; OF 99-0587; OP-825;  
OP-881  
France OP-374  
Hungary OP-660  
Idaho OF 99-0548  
Missouri OP-341  
Montana WRI 98-4066; OP-613  
New Mexico OP-1374  
New York FS 0180-99  
Texas WRI 98-4015

**floods** *see also* paleofloods; waterways.

OF 99-0339; OF 99-0456; FS 0052-95;  
FS 0059-95; FS 0061-95; FS 0066-95;  
FS 0140-96; OP-15; OP-144; OP-157; OP-730;  
OP-770

Alabama WRI 99-4040-A; FS 0002-96;  
OP-1124

Alaska FS 0001-96

Arizona WRI 98-4040; FS 0089-96; OP-360;  
OP-1440

Arkansas FS 0004-96

Atlantic Coastal Plain OF 99-0593

California FS 0005-96; FS 0062-95

Colorado OP-858; OP-1097

Columbia Plateau OP-1303

Florida WRI 99-4002; OP-729

Gulf of Mexico OF 99-0566; OP-892

Hawaii FS 0011-96; OP-170

Illinois FS 0013-96; FS 0014-99

Kansas FS 0001-99

Louisiana FS 0018-96

Michigan WRI 98-4024

Mississippi FS 0025-99; FS 0079-96; OP-1124

Mississippi Valley OP-612

Missouri WRI 98-4068; WRI 98-4101

Nebraska FS 0025-96

Nevada FS 0080-00; FS 0100-00

New Hampshire FS 0030-99

New York WRI 97-4252

Ohio WRI 98-4043; WRI 98-4238;  
WRI 99-4192

South Carolina OP-74

South Dakota WRI 99-4122

Texas FS 0147-99

Vermont OF 00-0055; FS 0047-99; FS 0064-00

Virginia OF 99-0518

Washington WRI 98-4009; FS 0049-99;  
FS 0111-00

Wyoming FS 0050-96

**Florida** *see also* Suwannee River.

P 1416-H; C 1151; WRI 98-4013;

WRI 99-4002; WRI 99-4020; OF 99-0181;

OF 99-0413; OF 99-0562-A; OF 99-0608;

FS 0009-96; FS 0032-98; FS 0095-97;

FS 0108-99; FS 0109-99; FS 0110-97;

FS 0144-96; FS 0163-96; FS 0179-96; OP-459;

OP-687; OP-729; OP-837; OP-1261; OP-1273;

OP-1388; OP-1436; OP-1581

Biscayne Aquifer OF 99-0181; OF 99-0426;  
FS 0058-95

Biscayne Bay OF 00-0191; OF 99-0181;  
FS 0145-96

Brevard County Florida WRI 99-4003

Broward County Florida WRI 98-4007

Collier County Florida OF 99-0432;

FS 0158-96; OP-479; OP-674

Dade County Florida OP-657; OP-674

Everglades C 1207; OF 99-0181; OF 99-0230;

OF 99-0426; FS 0061-98; FS 0061-99;

FS 0139-96; FS 0146-96; FS 0162-96;

FS 0166-96; FS 0169-96; FS 0171-95;

FS 0175-96; OP-148; OP-362; OP-657;  
OP-974

Florida Keys OF 99-0181; OP-521; OP-1473

Florida Panhandle OF 99-0589; OP-892

Hendry County Florida FS 0175-96

Highlands County Florida WRI 98-4133

Indian River County Florida OF 00-0204

Key Largo OP-801

Lafayette County Florida OF 00-0204; OP-424

Lake Okeechobee OF 99-0181; FS 0171-95;

FS 0175-96; OP-397; OP-974

Lee County Florida OF 99-0226

Martin County Florida WRI 99-4214;  
OF 00-0204

Miami Florida OF 99-0181

Monroe County Florida FS 0158-96; OP-657

Orange County Florida WRI 98-4110

Palm Beach County Florida WRI 98-4007;  
WRI 99-4061; WRI 99-4214; FS 0175-96;  
OP-148

Pensacola Florida OP-892

Pinellas County Florida OF 99-0235

Polk County Florida WRI 98-4133

Saint Lucie County Florida WRI 99-4214;  
OF 00-0204

Sarasota County Florida WRI 98-4091;  
OF 99-0396

South Florida Basin OF 00-0056; OF 99-0181;  
FS 0193-97

Southwest Florida Water Management District  
OF 00-0071; OF 99-0224; OF 99-0225;

FS 0158-96; FS 0169-96; FS 0175-96

Tampa Bay OP-1274

**Florida Bay** OF 00-0166; OF 99-0181;  
FS 0030-00; FS 0135-96; FS 0144-96;

FS 0156-96; OP-657; OP-1233; OP-1473

**Florida Keys** *see also* Key Largo.

OF 99-0181; OP-521; OP-1473

**Florida Panhandle** OF 99-0589; OP-892

Florida Straits *see* Straits of Florida

**Floridan Aquifer** WRI 98-4091; WRI 98-4133;

WRI 99-4061; OF 00-0071; OF 00-0151;

OF 00-0204; OF 99-0224; OF 99-0225;

OF 99-0235; OF 99-0608; OP-424; OP-687;

OP-837; OP-924; OP-925; OP-1261

**Florissant Lake Beds** OP-348

Flower Garden Banks *see* Garden Banks

flowstone *see* speleothems

**fluid inclusions** *see also* carbon dioxide; geo-  
logic thermometry; paleosalinity.

OP-65; OP-1008

Alaska OP-641

Arkansas OP-1492

Chile OP-1524

Colorado OP-1269

Ecuador OP-1524

Europe OP-1129

Italy OP-1120; OP-1121; OP-1527

Marshall Islands OP-413

Micronesia OP-413

Nevada OP-159; OP-174

Oklahoma OP-1492

fluids, ore-forming *see* ore-forming fluids

**fluorapatite**

Pacific Ocean OP-344; OP-345

**fluoride ion**

Europe OP-289

South America OP-289

fluorides *see* bastnaesite; cryolite; fluorite; topaz

**fluorine**

Colorado OP-1566

fluoride ion

Europe OP-289

South America OP-289

**fluorite**

China OP-1079

**fluvial currents**

Argentina OP-741

fluvial environment *see* fluviolacustrine environ-  
ment

**fluvial features** *see also* alluvial fans; alluvial

plains; arroyos; channels; drainage patterns;  
floodplains; meanders; oxbow lakes; point bars;  
rapids; rivers; streams; valleys; waterfalls.

Arizona I-2662; I-2663

California OF 99-0153

**fluvial sedimentation**

OP-1439

Arizona OP-886; OP-887; OP-1440

Arkansas OP-1117

Atlantic Coastal Plain OP-1237

Louisiana OP-287

Missouri OP-341

Utah OP-18

Washington OF 94-0313

fluvial sediments *see* stream sediments

fluvial transport *see* stream transport

**fluviolacustrine environment**

Nevada OP-736

fly ash *see* ash

**flysch**

Alaska OP-8; OP-1397

Russian Federation OP-1397



# focal mechanism

OP-279; OP-815; OP-816; OP-1126; OP-1192;  
OP-1244; OP-1318; OP-1334  
British Columbia OP-1075  
California OP-378; OP-757; OP-1501; OP-1549  
Hawaii OP-1347  
Italy OP-1347  
Japan OP-1501  
Missouri OP-139  
Oregon OP-86; OP-1577  
Tennessee OP-139  
Washington OP-265; OP-1347; OP-1411;  
OP-1577

# fold and thrust belts

Alaska OP-1405  
Idaho OP-398  
Japan OF 99-0400  
Montana OP-398  
New Mexico OP-117

# fold axes

Washington OP-1035

# folds *see also* basins; domes; flexural-slip; foliation; fractures; nappes.

OF 00-0108; OP-1105; OP-1309; OP-1456  
anticlines

Alaska OP-325; OP-1132  
California OP-1316  
Colorado OP-786  
Montana OP-407  
Wyoming OP-407; OP-429

# antiform folds

California OP-1241  
Northwest Territories OP-1301

# Arizona I-2643

California B 1995-Y,Z; MF-2342; OP-85;  
OP-589; OP-1076

# Colombia OP-1116

Colorado I-2646; I-2656; OP-232; OP-938;  
OP-1276

# Idaho I-2728; OP-1206

# isoclinal folds, Italy OP-1489

# Missouri I-2653

# monoclines

Arkansas OP-383  
Colorado I-2647  
Washington OP-1364  
Montana I-2634; OP-1054

# Nevada I-2670; I-2691

New Mexico OF 98-0521; MF-2334; OP-40  
Oregon OF 95-0670; OP-954; OP-1206

# overturned folds

Pennsylvania OP-228  
Utah OP-1198

# plunging folds, Wyoming OP-811

# recumbent folds

Nevada OP-380  
Pennsylvania OP-210  
Rocky Mountains OF 00-0260  
Saudi Arabia OP-164

# synclines

Arizona OP-1517  
California OF 99-0153; OP-1427  
Montana OP-407  
Saudi Arabia OP-1517  
Utah OP-1517  
Wyoming OP-407

# synform folds, California OP-571

Utah OF 98-0581  
Vermont GQ-1773; I-2598  
Washington OF 99-0421

Wyoming I-2661; OP-810

# foliation *see also* cleavage.

Alaska P 1615; OP-1267  
Appalachians I-2607  
Arizona OP-1517  
California OF 99-0153  
Italy OP-1489  
Michigan OP-812  
Pennsylvania OP-209; OP-210  
Saudi Arabia OP-1517  
Utah OP-1517  
Virginia OF 99-0423  
Wyoming OP-811  
Yukon Territory OP-1267

# Folly Island OP-871

Fond Du Lac Quadrangle OF 99-0526-A;  
OF 99-0526-I

# food chains

WRI 99-4018-B  
Florida FS 0166-96

# Foraminifera *see also* Rotaliina.

OF 99-0535; OP-206  
Alaska OP-1135; OP-1285; OP-1355  
Antarctic Ocean OP-46; OP-47; OP-48; OP-49;  
OP-50; OP-51; OP-52; OP-53  
Arctic Ocean OP-309  
Atlantic Coastal Plain FS 0116-00  
California P 1632; OP-583; OP-820; OP-896;  
OP-1498  
Far East OP-1139  
Florida OF 00-0191; OF 99-0181; FS 0144-96  
Gulf of Mexico OF 99-0566  
Louisiana OF 00-0211  
Maryland OP-176  
Mexico OP-106; OP-849  
Oregon OP-582  
Pacific Ocean OF 99-0397; OP-979  
Pacific region OP-1139  
Texas OF 00-0211  
Venezuela OP-173  
Washington OP-582

# fore-arc basins

Alaska OP-325  
Oregon OP-773; OP-1561  
Washington OP-1023

# foreland basins

Alaska OP-1236  
Argentina OP-741  
Australia OP-44  
Idaho OP-398  
Maine P 1624  
Montana OP-398  
Utah OP-44; OP-841  
Wyoming OP-44

# forensic geology

Alaska WRI 99-4018-B  
California FS 0096-96

# formation evaluation

Hungary OP-472

# Formosa *see* Taiwan

# Fort Tejon earthquake 1857 OF 99-0400

# Fort Union Formation *see also* Ludlow Member.

P 1625-A; OP-406; OP-648; OP-752; OP-790  
Fort Worth Texas WRI 98-4023; WRI 98-4158;  
OP-509

# Fortymile River basin P 1615; FS 0154-97

# Fortyseven Creek Deposit OF 99-0584

# fossil localities

California OF 99-0153

# fossil resins *see* resins

# fossil soils *see* Paleosols

# fossil wood

California OP-1427

# foundations *see* bridges; highways

# Fountain Formation OP-84

# Four Corners OP-243; OP-958

# Foziling Group OP-918

# fractional crystallization

New Jersey OP-912  
Pacific Ocean OP-690  
Washington OP-1507

# fracture zones

California OP-832  
Egypt OP-775  
Europe OP-725  
Florida OF 99-0235  
Iceland OP-261  
Nevada WRI 98-4132  
New Hampshire WRI 99-4018-C  
Pennsylvania WRI 99-4047  
Utah OF 98-0234

# fractures *see also* naturally fractured reservoirs.

WRI 98-4143; WRI 99-4018-C; OF 99-0238;  
OP-1089

California OF 99-0153; OF 99-0385; OP-320;  
OP-1333

Colorado I-2672; OP-363

Italy OP-1527

# joints

Missouri OP-664  
Nevada OF 98-0266  
Maine WRI 99-4050; OP-673  
Missouri FS 0101-97  
Nevada WRI 98-4063; OP-515; OP-1176  
New Hampshire WRI 98-4183;  
WRI 99-4018-C; OF 99-0063; OF 99-0064;  
OF 99-0065; OF 99-0089; OF 99-0090;  
OF 99-0091; OP-24; OP-672  
New York WRI 98-4036  
Pennsylvania WRI 98-4076; OF 99-0271-A;  
OF 99-0452; OP-617  
Utah OP-1560

# fragments OP-1420

# framework silicates *see* feldspar group; nepheline group; pollucite; silica minerals; zeolite group

# France

OP-411; OP-716  
Paris France OP-374  
Seine Valley OP-374

# Franciscan Complex OP-85; OP-395; OP-543; OP-1427; OP-1499

# Franconia Formation WRI 99-4069

Franklin District Northwest Territories *see* Queen Elizabeth Islands

# Franklin Mountains OP-234

# Frasnian

Germany OP-1349  
Nevada OP-98; OP-1349

# Fredericksburg Quadrangle I-2607

# Freeport Formation OP-762

# French Polynesia *see also* Tuamotu Islands. OP-205

# Friendly Islands *see* Tonga

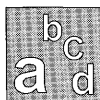
# Front Range I-2750-A; OP-58; OP-60; OP-130; OP-232; OP-596; OP-794; OP-1359

**Front Range urban corridor** OF 99-0321;  
OF 99-0587  
**Frontier Formation** OP-408; OP-429; OP-599;  
OP-600  
**Fruitland Formation** OP-742; OP-767  
**FTIR spectra** OP-42  
**Fuego de Colima** *see* Colima  
**fuller's earth**  
 Europe OP-909  
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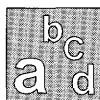
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South Carolina OP-718

Utah OP-44

Virginia OP-718

Wyoming OP-44

**heavy metals** *see also* bismuth; cadmium; cobalt; copper; iron; lead; manganese; nickel; silver; zinc.

WRI 98-4254; WRI 99-4018-B; OF 00-0016; OF 00-0204; FS 0094-00; OP-38; OP-141; OP-161; OP-550; OP-1064

Alaska P 1614; P 1619

Arizona OP-1193

California WRI 99-4018-B

Colorado OF 00-0033; OF 00-0034;

OF 00-0115; OF 99-0038; OF 99-0370;

OP-231; OP-244; OP-451; OP-881

Florida WRI 99-4020; OF 99-0226

Georgia OF 00-0075

Idaho OF 00-0239; OF 99-0548

Massachusetts WRI 99-4018-C

Montana OF 00-0003; OF 00-0004;

OF 00-0031; OF 99-0321; OF 99-0537

New Mexico OF 00-0033

Oregon WRI 98-4105

Pacific Ocean P 1615

Texas WRI 98-4158; FS 0139-99; FS 0149-99

Vermont OF 99-0564

## heavy mineral deposits

Florida OP-1581

North Carolina OP-365

## heavy minerals

Alaska OF 99-0342; OF 99-0528; OF 99-0584

Pacific Ocean OP-979

## Heceta Formation

OP-749

## Hector Mine earthquake 1999

OP-681

## Heinrich events

Atlantic Ocean OP-375

## Helena Formation

OP-238

## helium

Colorado OP-579

He-3

OP-1031

Arizona P 1591; OP-1153

Germany OP-777

United States OP-777

He-4/He-3

OP-440

Pacific Ocean OP-316

Wyoming OP-262

## Hell Creek Formation

P 1625-A; OP-634;

OP-1223; OP-1371

## hematite

OP-42; OP-43; OP-152; OP-1007; OP-1086

Hungary OP-367

## Hemphillian

California OP-1363

**Henderson Mine** OP-1566

**Henry Mountains** OP-44

**Henry's law** OP-732

**Herbert Glacier Prospect** OP-641

**herbicides** *see also* alachlor; metolachlor; triazines.

WRI 99-4018-B; OP-601; OP-879

Atlantic Coastal Plain WRI 97-4280

California WRI 99-4018-B

Gulf Coastal Plain WRI 99-4018-B

Illinois OF 99-0069

Iowa WRI 99-4018-B

Midwest FS 0046-98; OP-621; OP-878

Mississippi Valley WRI 99-4018-B

Nebraska WRI 98-4138; FS 0078-00

South Carolina OP-718

Texas WRI 99-4018-B

Virginia OP-718

## Hercynian Orogeny

China OP-1079

**Hesperian** I-2666; OP-922; OP-993; OP-1131;

OP-1438; OP-1460; OP-1519; OP-1521

**Hesse Germany** OP-1349

heterochrony *see* diachronism

**hexahydrite** OP-1323

## Hf-177/Hf-176

Atlantic Ocean OP-707

Indian Ocean OP-707

Hg *see* mercury

hidden deposits *see* blind deposits

**Higashi-Hachimantai Field** OP-636

High Plains *see* Great Plains

**High Plains Aquifer** OF 99-0222; FS 0009-00;

FS 0049-00; FS 0058-95; FS 0081-00;

FS 0091-00; FS 0124-99

## high school

Colorado OF 99-0321

high stands *see* highstands

## high-grade metamorphism

Montana OP-1054

## high-velocity zones

Colorado OP-1265

New Mexico OP-1265

## highstands

Alaska OP-1452

Louisiana OP-1541

**highways** *see also* bridges.

OF 99-0240; OF 99-0255

Alabama WRI 99-4040-A

Colorado OP-720

## Himalayas

OP-41; OP-1264

Nanga Parbat OP-442

Hispaniola *see* Haiti

**historical geology** FS 0154-99

HNO<sub>3</sub> *see* nitric acid

## Hokkaido-Nansei-Oki earthquake 1993

Japan OF 99-0400

Holland *see* Netherlands

**Hollister California** OP-532

## Holocene

MF-2329; OP-250; OP-274; OP-497; OP-630;

OP-665; OP-770; OP-1564

Alaska P 1615; GN ; OF 00-0017; OF 99-0373;

OP-357; OP-748; OP-927; OP-929; OP-985;

OP-1342; OP-1510

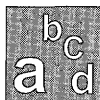
Antarctic Ocean OP-51



Appalachians OP-1361  
 Arctic Ocean OP-309  
 Arizona P 1591  
 Atlantic Coastal Plain FS 0116-00  
 Atlantic Ocean OP-375  
 British Columbia OP-263  
 California OF 00-0043; FS 0023-00; OP-77;  
 OP-165; OP-204; OP-222; OP-453; OP-518;  
 OP-553; OP-567; OP-728; OP-1316;  
 OP-1365  
 Canada OF 00-0017  
 Chile OP-1524  
 Colorado OP-232; OP-399  
 Ecuador OP-1524  
 El Salvador OP-1337  
 Florida OF 00-0191; OF 99-0181; FS 0144-96;  
 FS 0146-96; FS 0171-95; OP-801  
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 Guatemala OP-557  
 Gulf of Mexico OF 99-0181; OF 99-0566;  
 OP-622; OP-1274  
 Hawaii P 1623; GN ; FS 0074-97; OP-592  
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 OP-1491  
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 Neoglacial  
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 OP-936; OP-998; OP-1039; OP-1051;  
 OP-1364; OP-1412; OP-1419; OP-1461;  
 OP-1471  
**Holy Cross Quadrangle P 1615**  
**Honshu** *see also* Akita Japan; Hyogo Japan;  
 Itoigawa-Shizuoka tectonic line; Kinki Japan;  
 Nara Japan; Niigata Japan; Shiga Japan.  
 OP-636  
**hopanes**  
 China OP-404  
**hornblende**  
 OP-686  
 Colorado OP-498; OP-794  
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 Pennsylvania OP-209  
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**hornfels**  
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 hornstone *see* chert  
**Horseshoe Mountain Quadrangle** OF 99-0518  
**horsts**  
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**Hosgri Fault** OP-155; OP-395  
**hot dry rocks**  
 OP-295  
 Basin and Range Province OP-769  
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 Guatemala OP-332  
 Hawaii OP-332; OP-525; OP-1172; OP-1537  
 Iceland OP-261  
 Mexico OP-332  
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 Russian Federation OP-332  
 Tonga OP-931  
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 Andes OP-1149  
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 Nevada OP-536; OP-834; OP-1020; OP-1305  
 Oregon OP-568; OP-637  
 Wyoming OP-262; OP-833; OP-964  
**Houston Texas** WRI 98-4012  
**Howardsville Quadrangle** I-2681  
**Hualalai** OP-425  
**Hubbard Brook experimental forest**  
 WRI 99-4018-C; OP-68; OP-882  
**Hudson River** OP-1203  
**Hudson Valley** OF 98-0616; OP-784  
**Humboldt Range** OP-380  
**Humboldt River valley** OF 00-0161  
**humic acids**  
 California WRI 98-4147  
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**hummocks**  
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 Colorado OP-248  
 Humphreys Peak *see* San Francisco Mountain  
**humus** OP-934  
**Hungary** *see also* Danube River; Pannonian Basin.  
 OP-367; OP-469; OP-470; OP-471; OP-472  
 Borzsony Mountains OP-212; OP-578; OP-659;  
 OP-660  
 Matra Mountains OP-212; OP-578; OP-659;  
 OP-660  
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**hurricanes**  
 OF 99-0339; FS 0061-95  
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 Mississippi OP-1124  
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**hyaloclastite**  
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**Hyc Formation** OF 99-0423  
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**hydration of glass** OP-267  
**hydraulic conductivity** *see also* slug tests.  
 OF 99-0238; OF 99-0321; OP-187; OP-291;  
 OP-555; OP-661; OP-670; OP-671; OP-780  
 Appalachians OP-890  
 Arizona OP-1540  
 Arkansas WRI 98-4131  
 California OF 99-0153; OP-1152; OP-1374  
 Canada WRI 99-4018-C  
 Colorado OP-11  
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 Connecticut WRI 99-4081  
 Denmark OP-1087  
 Florida OF 99-0181; OP-148  
 Georgia OP-924; OP-925  
 Hawaii WRI 98-4142; OP-290; OP-792  
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 Kuwait OP-675  
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 Minnesota OP-194  
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 New Hampshire WRI 98-4021;  
 WRI 99-4018-C; OF 99-0462; OP-188  
 New Jersey WRI 98-4126-A  
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 New York WRI 98-4181  
 North Dakota WRI 98-4152  
 Oklahoma WRI 98-4082; WRI 99-4018-C;  
 FS 0081-00  
 Pennsylvania OF 00-0097; OF 99-0271-A  
 South Dakota WRI 98-4156  
 Texas OF 99-0271  
 United States WRI 99-4018-C  
 Utah WRI 99-4014  
 Washington WRI 92-4109  
 Wisconsin WRI 98-4179  
**hydraulic fracturing** OP-92; OP-1391  
 hydraulic gradients *see* hydraulics  
**hydraulic head**  
 OF 99-0238; FS 0077-00; OP-169; OP-392  
 Florida WRI 98-4091  
 Maryland WRI 98-4047  
 New Hampshire WRI 98-4021;  
 WRI 99-4018-C; OF 99-0239; OF 99-0462  
 New York WRI 98-4067  
 Pennsylvania WRI 98-4076; OF 99-0271-A  
 Puerto Rico WRI 97-4122  
 Virginia WRI 98-4085  
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**hydrocarbons** *see also* aliphatic hydrocarbons;  
 aromatic hydrocarbons; crude oil; diterpanes;  
 Rock-Eval; saturated hydrocarbons; steranes;  
 triterpanes.



WRI 99-4018-C; FS 0021-97; FS 0025-97;  
FS 0054-95; FS 0163-95; OP-101; OP-161;  
OP-677; OP-1179

Connecticut WRI 99-4018-C

Delaware OF 99-0253

Maryland OP-539

Michigan OP-818

Minnesota OP-854

New Hampshire WRI 99-4018-C

Ohio WRI 98-4180

Poland OP-1282

**hydrogen** *see also* deuterium; tritium.

OP-143; OP-150

Alaska OP-746

California B 2174-B

D/H

OF 00-0160; OP-319; OP-1031

California OF 99-0153; OP-394; OP-543

Chile OP-1524

Ecuador OP-1524

Florida WRI 98-4133; OF 00-0204;

OF 99-0181; OP-1261

Hawaii OP-358

Idaho OP-713

Massachusetts WRI 99-4018-C

Nevada WRI 99-4018-C; WRI 99-4042;

OF 99-0153; OP-159; OP-174

New Mexico OP-1306

New York OP-116

New Zealand OP-1270

Oklahoma WRI 99-4018-C

Oregon OP-568

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United States OP-1270

Washington OP-975

Michigan WRI 99-4018-C; OP-587

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Alaska HA-0730-N

Appalachians HA-0732-B

Arizona WRI 99-4074

Arkansas WRI 98-4000; WRI 98-4084;

WRI 98-4131; WRI 99-4035

British Columbia WRI 98-4195

California W 2370-H

Colorado HA-0746-D

Florida WRI 99-4214; OF 00-0071;

OF 99-0224; OF 99-0225; OF 99-0608

Hawaii HA-0730-N

Midwest HA-0725

Nevada WRI 96-4042; WRI 98-4209;

WRI 99-4079

New York W 2498; WRI 97-4136

North Dakota WRI 98-4152

Ohio WRI 99-4012

Pennsylvania WRI 98-4076

Puerto Rico HA-0730-N

Samoa WRI 99-4064

South Dakota HA-0745-A; HA-0745-B;

HA-0745-C; HA-0745-D; HA-0745-E

Texas OF 99-0177; OF 99-0178

Utah WRI 99-4074

Washington WRI 92-4109; WRI 98-4195

**hydrogeology** *see* ground water; hydrology;  
springs; thermal waters

**hydrologic cycle**

WRI 99-4018-C; OF 00-0204; OP-217;

OP-501; OP-611

California OF 99-0153

Florida FS 0171-95

Mississippi FS 0079-96

**hydrologic maps**

California WRI 98-4064

Iowa OF 99-0471; OF 99-0474

Louisiana WRI 99-4133

Maine OF 99-0200

Minnesota OF 99-0471; OF 99-0474

Nevada WRI 98-4064; WRI 99-4079

South Dakota WRI 99-4122

**hydrology** *see also* atmosphere; atmospheric pre-  
cipitation; basin management; bedforms; chan-  
nel geometry; floods; glaciers; hydrologic cycle;  
ice; infiltration; karst hydrology; limnology;  
NAWDEX; rain; reservoirs; rills; rivers; springs;  
tracers; water resources; waterways.

C 1173-C; C 1180; WRI 98-4004;

WRI 98-4018; WRI 98-4155; WRI 98-4192;

WRI 98-4234; WRI 99-4018-B;

WRI 99-4018-C; WRI 99-4185; OF 00-0015;

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OF 00-0204; OF 97-0588; OF 99-0112;

OF 99-0184; OF 99-0217; OF 99-0221;

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FS 0080-99; FS 0138-99; FS 0165-99;

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Ecuador OP-1524

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Florida WRI 98-4013; WRI 99-4003;

OF 00-0056; OF 99-0181; OF 99-0225;

OF 99-0426; FS 0061-98; FS 0061-99;

FS 0139-96; FS 0158-96; FS 0162-96;

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OP-148; OP-657; OP-974

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FS 0091-95; FS 0162-99; OP-10

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FS 0135-96

Hawaii WRI 98-4142; WRI 98-4159;  
WRI 99-4009

Idaho OF 99-0438; FS 0012-96

Illinois WRI 98-4035; WRI 98-4087

Indiana FS 0014-96

Iowa WRI 99-4018-B; OF 00-0067;

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Kansas WRI 98-4162; WRI 98-4163;

FS 0096-00; FS 0170-99

Lesser Antilles OF 99-0223

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Maine WRI 99-4008

Maryland C 1168; WRI 98-4047;

WRI 98-4177; OF 00-0083; OF 00-0084;

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Michigan OF 00-0204; OP-1283

Midwest P 1423-A; OF 99-0321

Minnesota WRI 99-4034; OF 00-0069; OP-194;

OP-549; OP-626; OP-953

Mississippi WRI 98-4171; OF 99-0606;

OP-950; OP-1257; OP-1399

Missouri WRI 98-4190; OP-1399

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WRI 99-4018-C; OF 98-0635; OF 99-0153;

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OF 99-0090; OF 99-0091; OF 99-0239;

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New Jersey WRI 99-4045

New Mexico OF 96-0208; OF 96-0210;

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New York WRI 98-4067; WRI 98-4069;

OP-468; OP-610

North Carolina OF 00-0204; OF 99-0536;

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North Dakota WRI 98-4152

Ohio WRI 98-4089; FS 0050-00

Oklahoma WRI 98-4082; WRI 99-4018-C;

FS 0036-96

Oregon WRI 99-4051; OF 96-0227; OP-699

Pennsylvania C 1168; WRI 98-4144;

WRI 98-4173; WRI 98-4186; OF 00-0064

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WRI 99-4048; OF 94-0313; MF-2346;

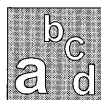
OP-1208; OP-1313

Wisconsin FS 0048-96; FS 0067-00;

FS 0109-00; FS 0167-99; OP-753

Wyoming FS 0052-99

**hydrophobic materials**



## 196 Hydropterangium • igneous rocks

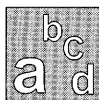
OP-550; OP-897  
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## I

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**Iceland** OP-261; OP-1547; OP-1548  
**ichnofossils** *see also* burrows; lebensspuren.  
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**icy satellites** *see also* Ariel Satellite; Callisto Sat-  
 ellite; Dione Satellite; Enceladus Satellite;  
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 lite; Triton Satellite.  
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**Idaho** *see also* Coeur d'Alene mining district;  
 Columbia Plateau; Columbia River Basalt  
 Group; Meade Peak Member; Phosphoria For-  
 mation; Saddle Mountains Basalt; Snake River  
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 OF 99-0438; OF 99-0543; OF 99-0562-L;  
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 Boise Idaho WRI 98-4123  
 Butte County Idaho OF 98-0009  
 Caribou County Idaho OF 00-0116;  
 OF 99-0147-B  
 Cassia County Idaho OP-606  
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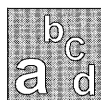
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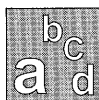
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OP-652; OP-728  
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- D/H  
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- Florida WRI 98-4133; OF 00-0204;  
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Idaho OP-713  
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Nevada WRI 99-4018-C; WRI 99-4042;  
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New York OP-116  
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Oklahoma WRI 99-4018-C  
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- He-4/He-3  
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- N-15  
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Nevada WRI 99-4042  
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Italy OF 99-0312; OP-1120; OP-1394  
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Nevada WRI 99-4018-C; WRI 99-4042;  
OF 99-0153; OP-159; OP-174; OP-652;  
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New Zealand OP-1270  
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Oklahoma WRI 99-4018-C  
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Pb-208/Pb-204  
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   Colorado OP-1414  
   Haiti OP-1414  
   Mexico OP-573  
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   Alaska P 1615; OP-641  
   China OP-1239  
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   Gulf of Mexico WRI 99-4018-B  
   Minnesota OF 00-0204  
   New Mexico OP-1306  
   New York OP-116  
   Oklahoma WRI 99-4018-C  
   Russian Federation OP-1185  
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   Colorado OP-603  
   Wyoming OP-1335  
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   Haiti OP-1414  
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   Alaska OP-8; OP-1367  
   Antarctica OF 00-0133  
   Basin and Range Province OF 99-0569  
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   Great Basin OF 99-0569  
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   Idaho OP-412  
   Italy OP-1120; OP-1491  
   Maryland OP-89  
   Mexico OP-573; OP-867  
   Montana OF 99-0321  
   New Jersey OP-912  
   New Mexico OP-456  
   Pacific Ocean OP-690  
   Russian Federation OP-182  
   Texas OP-456  
   Vermont FS 0166-99  
   Wyoming OF 99-0321  
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   Florida OP-974  
   Nevada OP-646  
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**J-M Reef** OP-1288  
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   Kobe Japan OF 99-0400  
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   Iceland OP-1548  
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   OP-1538; OP-1539; OP-1546

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**K-12 education** *see also* high school.  
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## Kady Deposit P 1614

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**Kagman Basin** WRI 98-4077

**Kagoshima earthquake 1997** OP-1501

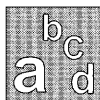
**Kaingaroo Ignimbrites** OP-1362

kalium *see* potassium

**Kamchatka Russian Federation** *see also*  
 Bezmyanny.  
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**Kane Springs Wash Complex** OP-787

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 Meade County Kansas OP-555  
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**Karatau Range** OP-1290; OP-1584

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**karst** *see also* karst hydrology; karstification; sinkholes.  
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 OF 99-0562-F; FS 0016-96  
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**Kilauea** P 1613; FS 0074-97; FS 0152-00;  
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**Kingak Shale** OP-1354; OP-1452

**Kings Bay** WRI 99-4018-C

**Kinki Japan** OF 99-0400

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**Kirkwood-Cohansey Aquifer** WRI 98-4003

**Kirwood-Cohansey aquifer system**  
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**Knoxville Deposit** OP-764

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**Kobe Japan** OF 99-0400

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**Kuparuk Formation** OP-1452

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**Kuwait** OP-675

**Kwajalein Island** WRI 94-4248

Kwangsi Chuang China *see* Guangxi China

Kweichow China *see* Guizhou China

**kyanite deposits**  
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 India OP-717  
 Kenya OP-717  
 Norway OP-717  
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**Kyrgyzstan** OF 97-0137-A

Kyushu *see* Kumamoto Japan

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L chondrites *see* Bjurböle Meteorite

L waves *see* surface waves

La *see* lanthanum

**La Crosse Quadrangle** OF 99-0526-D

**La Jolla California** OP-436

**laccoliths**  
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**lacustrine features** *see also* crater lakes; lakes.  
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 Louisiana WRI 99-4292

**lacustrine sedimentation**  
 Puerto Rico WRI 98-4188

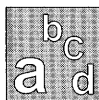
lacustrine sediments *see* lake sediments

**lagoonal sedimentation**  
 Texas OP-623

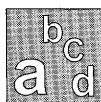
**lagoons**  
 Texas OP-623

**Laguna Madre** FS 0139-99; OP-623

**lahars**  
 OF 98-0638; OF 99-0339; FS 0071-00;  
 FS 0072-00; OP-574; OP-703; OP-1462  
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- Indonesia OP-503  
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**Lake Baikal** OF 96-0274; OP-32; OP-789  
**Lake Biwa** OF 99-0400  
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**Lake Champlain** FS 0047-99  
**Lake Erie** OP-475; OP-943  
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**Lake George Complex** OP-444  
**Lake Hopatcong Suite** OP-911; OP-912  
**Lake Lahontan**  
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**Lake Mead** WRI 99-4018-B; OF 99-0109; OP-491; OP-873  
**Lake Mead Quadrangle** OF 99-0435  
**Lake Michigan** FS 0013-96; FS 0014-96; FS 0014-99; OP-167  
**Lake Missoula**  
British Columbia OP-467  
Pacific Ocean OP-979  
Washington OP-467  
**Lake Nyos** OP-900  
**Lake Okeechobee** OF 99-0181; FS 0171-95; FS 0175-96; OP-397; OP-974  
**Lake Ontario** OF 99-0191; FS 0180-99; OP-943  
**Lake Pontchartrain** FS 0025-00; OP-1160; OP-1274  
**Lake Powell** WRI 99-4097; OF 99-0109; OF 99-0110  
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Andes OP-1148  
California OF 99-0321; OP-77; OP-165; OP-518; OP-828  
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Japan OP-423  
Louisiana FS 0025-00  
Massachusetts WRI 99-4241; OF 99-0231  
Montana WRI 99-4019  
Nevada OP-736  
Russian Federation OP-32  
South Carolina OP-683  
South Dakota OP-193  
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Utah OP-666  
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**Lake Tahoe** FS 0138-00; OP-276; OP-969  
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California OF 99-0153; OP-824  
Great Lakes OP-167; OP-943  
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Hungary OP-416  
Nevada OP-736  
North Dakota FS 0089-00  
Ohio OP-475  
Oregon OP-699  
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South Dakota WRI 99-4122  
Utah OP-666  
**lakes** *see also* crater lakes; glacial lakes; limnology; meromictic lakes.  
OP-157; OP-1203  
North Carolina WRI 99-4029  
Lamellibranchiata *see* Bivalvia  
**laminations**  
OP-827  
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Marshall Islands OP-400  
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**Lamoille Quadrangle** OP-379  
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Alaska OP-1367  
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California OP-980  
**Lance Formation** P 1625-A; OP-409; OP-648; OP-790  
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Atlantic Coastal Plain OF 99-0593  
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OF 99-0321; OF 99-0590; FS 0016-97; FS 0062-00; FS 0155-99; OP-414; OP-501; OP-791  
Alaska OF 99-0321; FS 0160-96  
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California OF 00-0061; OF 00-0073; OF 00-0074; OF 99-0409; FS 0053-95  
Colorado C 1191; OF 99-0410; OP-712  
Florida OF 00-0056; OF 99-0181; FS 0061-99; FS 0145-96; FS 0162-96; FS 0163-96  
Great Basin FS 0122-00  
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Montana WRI 98-4066; WRI 98-4079  
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North Carolina OF 00-0204  
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Virginia OF 00-0204  
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Wisconsin FS 0051-99  
land reclamation *see* reclamation  
**land subsidence** *see also* collapse structures.  
OP-739; OP-1291  
Arizona OP-1211  
California FS 0005-00; OP-1211  
Florida FS 0058-95  
Pennsylvania FS 0117-00  
**land use** *see also* basin management; conservation; constructed wetlands; deforestation; geologic hazards; impact statements; land use maps; reclamation; waste disposal.  
C 1169; C 1173-C; C 1173-D; WRI 98-4004; WRI 98-4042; WRI 98-4155; WRI 98-4164; WRI 98-4192; WRI 98-4254; WRI 99-4097; OF 00-0194; OF 00-0204; OF 98-0177; OF 98-0275; OF 99-0108; OF 99-0403; OF 99-0501; FS 0016-97; FS 0041-96; FS 0108-00; FS 0124-99; FS 0189-99; OP-534; OP-554; OP-633; OP-1298; OP-1457  
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Appalachians OF 00-0204  
Arizona WRI 99-4005; MF-2343; I-2628; FS 0004-99  
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British Columbia WRI 98-4195; OP-868  
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Colorado WRI 98-4124; WRI 98-4193; OF 00-0204; OF 99-0410; OF 99-0553-A; FS 0136-00; OP-231; OP-712; OP-1006  
Columbia Plateau P 1413-A  
Costa Rica OP-724  
Delaware OF 00-0204; FS 0009-99  
Florida C 1207; OF 00-0204; OF 99-0181; FS 0061-98; FS 0162-96; FS 0171-95; FS 0193-97  
Georgia FS 0091-95; OP-10; OP-695  
Great Basin FS 0122-00  
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Illinois OF 99-0097  
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Kansas FS 0096-00; FS 0102-00  
Louisiana WRI 99-4018-B; WRI 99-4293; OF 00-0211; OP-304; OP-1513  
Maryland OF 00-0204  
Michigan C 1156; OF 00-0204  
Midwest OP-465  
Minnesota WRI 98-4128; WRI 99-4034; OF 00-0204  
Mississippi OP-1513  
Missouri OF 00-0204; OP-664  
Montana P 1625-A; WRI 98-4079; OF 00-0080  
Nebraska WRI 96-4095; WRI 96-4239; WRI 98-4138; FS 0078-00; OP-724  
Nevada C 1170; WRI 97-4259; OF 00-0204; OP-1319  
New Jersey WRI 99-4001  
New Mexico OF 00-0204; OF 99-0411; OP-72  
New York WRI 99-4018-B; OF 00-0204; FS 0112-99; FS 0141-99  
North Carolina P 1177-B; C 1157; OF 00-0204; OP-1409  
North Dakota P 1625-A  
Oklahoma OF 00-0204; FS 0081-00  
Oregon C 1161; WRI 98-4198; WRI 99-4051  
Pennsylvania WRI 98-4144; WRI 98-4173; WRI 98-4186; FS 0168-99  
Samoa WRI 98-4029  
South Carolina OF 00-0204  
Tennessee FS 0044-99



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- Texas C 1171; WRI 98-4012; WRI 98-4158;  
OF 00-0204; OF 00-0211; OF 99-0245;  
FS 0110-00
- Utah WRI 98-4161; OF 99-0407;  
OF 99-0553-B
- Virginia C 1157; WRI 98-4025; OF 00-0204;  
FS 0173-99
- Washington WRI 92-4109; WRI 98-4195;  
OF 99-0408
- Western Australia OP-696
- Wisconsin C 1156; WRI 98-4179; FS 0051-99;  
FS 0121-00; OP-1042; OP-1445
- Wyoming P 1625-A; OF 99-0553-C
- land use maps**
- New York WRI 98-4104
- Puerto Rico WRI 99-4010
- Landers earthquake 1992**
- OP-1209
- California OF 99-0153; OP-681; OP-1501
- Japan OP-1501
- Landers earthquake 1994** OP-1029
- landfills**
- OP-450; OP-459
- Alabama WRI 98-4127
- Arizona OP-1211
- California OP-1211
- Denmark OP-1087
- Nevada FS 0179-95
- New Mexico OF 99-0271
- Oklahoma WRI 99-4018-C; OP-1311
- Texas WRI 98-4023; OF 99-0271
- Washington WRI 98-4014
- landslides** *see also* avalanches; mudflows;  
rockslides.
- OF 97-0289; OF 99-0321; OF 99-0339;  
MF-2329; FS 0061-95; FS 0150-00; OP-353;  
OP-392; OP-393; OP-428; OP-691; OP-1336;  
OP-1462
- Alaska OP-57; OP-783; OP-1010
- California OF 00-0127; OF 96-0263;  
OF 99-0504; OP-381; OP-783; OP-980;  
OP-1028; OP-1247; OP-1402
- Colorado I-2672; FS 0006-96; OP-248;  
OP-1477
- Hawaii OP-592; OP-1090
- Illinois FS 0013-96
- Micronesia OP-331
- New Mexico OP-134
- New York FS 0190-99
- Ohio FS 0035-96
- Oregon OF 99-0024; FS 0038-99
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- Vermont FS 0045-96
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- Washington MF-2346; FS 0036-00;  
FS 0047-96; FS 0049-99; OP-1134; OP-1208
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- lanthanum**
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- Laplace transformations** OP-611
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- Colorado OP-232; OP-688
- Laramie Formation** OP-1426
- Laramie Mountains** OP-1396
- larvae**
- Argentina OP-281
- Las Vegas Nevada** WRI 99-4018-B; OP-491
- Las Vegas Quadrangle** OF 99-0153;  
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- Las Vegas Valley** C 1170; WRI 97-4259;  
FS 0080-00; OP-121; OP-873
- Lascar** OP-332
- Lassen Peak** OP-96; OP-222; OP-1088;  
OP-1500
- Lassen Volcanic National Park** FS 0022-00;  
FS 0023-00
- last glacial maximum**
- OF 99-0312; OP-1474
- Chile OP-813
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right-lateral faults.
- Washington OP-1254
- Latin America** OP-1034
- latite**
- Italy OP-1394
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- Latium Italy** OP-1527; OP-1528
- laughing gas *see* nitrous oxide
- Laurentia**
- Basin and Range Province OP-234
- Colombia OP-760
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- Laurentide ice sheet**
- OP-376
- Atlantic Ocean OP-375
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- aa lava OP-701
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- Italy OP-1120; OP-1491
- Maine OP-1057
- Montana OP-238
- New Zealand OP-1362
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OP-701
- Hawaii OP-700; OP-895
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- lava domes *see* shield volcanoes
- lava lakes**
- Pacific Ocean OP-316
- lava tubes**
- Hawaii OP-700; OP-1218
- New Mexico OP-1421
- layered intrusions**
- Antarctica OF 00-0133
- Montana OP-1288
- Lazy Y Point Quadrangle** I-2646
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- C 1158; OP-128; OP-288; OP-459; OP-744
- Alaska OP-680
- California OP-989
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OP-711
- Idaho OP-684
- Massachusetts OP-185
- Montana WRI 98-4137; OF 00-0038
- Nevada OP-711
- New Jersey WRI 99-4016; WRI 99-4045  
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- OP-1523
- Alaska OP-8
- Basin and Range Province OF 99-0569
- California OF 99-0153; OP-96
- Colorado OP-1269
- Florida WRI 99-4020
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- Italy OP-1120; OP-1121; OP-1394
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- Pb-207/Pb-204
- OP-686
- Alaska OP-8
- Basin and Range Province OF 99-0569
- California OP-96
- Colorado OP-1269
- Great Basin OF 99-0569
- Italy OP-1120; OP-1121
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- Pb-207/Pb-206 OP-686; OP-723
- Pb-208/Pb-204
- OP-686
- Alaska OP-8
- Basin and Range Province OF 99-0569
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- Hawaii OP-592
- Mexico OP-1119
- Peru OP-711
- U-238/Pb-204 OP-723; OP-1416; OP-1523
- lead glance *see* galena
- lead ores** *see also* lead-zinc deposits; mississippi  
valley-type deposits.
- OP-533; OP-889
- Alaska OF 00-0005; OF 00-0022; OF 00-0023;  
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- lead-lead *see* Pb/Pb
- lead-zinc deposits** *see also* mississippi val-  
ley-type deposits.
- Alaska P 1614; P 1615; FS 0092-95
- British Columbia OP-403; OP-1392
- Europe OP-1129
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- Washington OF 99-0384-A; OF 99-0384-B
- Leadville Colorado** OF 00-0033; OF 99-0427;  
OP-132; OP-511; OP-825; OP-904
- Leadville Formation** OP-859
- Leadville mining district** OF 00-0150



**leaking underground storage tanks**

WRI 99-4018-C; OP-101  
 South Carolina WRI 99-4018-C

**leaky aquifers**

Iowa OP-56  
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**lebensspuren** *see also* burrows.

Alaska P 1614

**Lechuguilla Cave** OP-180**Ledger Dolomite** OF 99-0452**left-lateral faults**

California OP-1020  
 Nevada OP-1020

Leg 5 *see* DSDP Site 35

Leg 11 *see* DSDP Site 105

Leg 41 *see* DSDP Site 367

Leg 43 *see* DSDP Site 387

Leg 44 *see* DSDP Site 391

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Leg 95 *see* DSDP Site 603

Leg 96 *see* DSDP Site 619

Leg 100 *see* ODP Site 625

Leg 128 *see* ODP Site 798

Leg 136 *see* ODP Site 842

**Leg 139** OP-1184

Leg 162 *see* ODP Site 982

**Leg 164** *see also* ODP Site 994; ODP Site 996;  
 ODP Site 997.  
 OP-1575

Leg 165 *see* ODP Site 1002

**Leg 167** *see also* ODP Site 1016; ODP Site 1018;  
 ODP Site 1020; ODP Site 1021; ODP Site  
 1022.  
 OP-553

Leg 169 *see* ODP Site 1037; ODP Site 1038

Leg 169S *see* ODP Site 1034

Leg 170 *see* ODP Site 1041

**Leg 172** OF 99-0312

**Leg 178** *see also* ODP Site 1095; ODP Site 1096;  
 ODP Site 1097; ODP Site 1098; ODP Site  
 1099; ODP Site 1100; ODP Site 1101; ODP  
 Site 1102; ODP Site 1103.  
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lehm *see* loess

**Lemhi Range** P 1600**Leonardian**

New Mexico OP-439  
 Texas OP-439

**Lepidosiren** OP-337**Lesser Antilles**

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**LEW 86010** OP-722**LEW 87051** OP-722

Lewis Cliff Meteorites *see* LEW 86010

**Lewis thrust fault** OP-624**lexicons**

Far East OP-981; OP-982  
 Pacific region OP-981; OP-982

Li *see* lithium

**Libby Formation** OP-238

Libia *see* Libya

**libraries** FS 0154-99; OP-1201**Libya** B 2202-A; OP-580**licensing**

OP-386

California OF 99-0153

North Dakota P 1625-A

Washington OF 99-0414-B

**lichens**

New Mexico OP-72

**Lick Observatory Quadrangle** OP-85**ligands**

OP-43  
 California WRI 99-4018-B  
 Europe OP-289  
 South America OP-289

**light nonaqueous phase liquids**

Minnesota OP-854

lightweight aggregate *see* aggregate

**lignite**

Alaska OP-1512  
 Colorado P 1625-A  
 Great Plains OP-1385  
 Gulf Coastal Plain OP-1385  
 North Dakota P 1625-A

**Liguria Italy** OP-1372**Lijiangyong Deposit** OP-967**limestone**

Atlantic Ocean OP-192; OP-264  
 Bahamas OP-1222  
 Belize OP-292  
 Far East OP-747  
 Florida OP-479  
 Marshall Islands OP-76  
 Micronesia OP-76  
 Nevada OP-479  
 Puerto Rico WRI 97-4122; OP-1068  
 Scandinavia OP-747  
 South Dakota HA-0744-D  
 Utah OF 00-0012

**limestone deposits** OP-137**limnology** *see also* paleolimnology.

OP-633  
 California OP-276; OP-663  
 Nevada OP-276  
 Russian Federation OP-32; OP-789  
 Wisconsin OP-1042

**Limon Basin** OP-97**Limon Group** OP-126**lineaments** *see also* fault zones.

Antarctica OP-247  
 Florida OF 99-0235  
 Great Lakes region OP-1224  
 Mississippi Valley FS 0200-96  
 Nevada OF 99-0329  
 New Hampshire OF 99-0063; OF 99-0064;  
 OF 99-0065; OF 99-0089; OF 99-0090;  
 OF 99-0091  
 Pennsylvania OP-448  
 Utah OF 98-0234

**lineation** *see also* folds; foliation; slickensides.

California OP-917

liners *see* disposal barriers

Lipari Islands *see* Stromboli

**lipids**

California WRI 99-4018-B  
 Oregon OP-94

**liquefaction** *see also* liquefaction potential.

OF 99-0400; OP-29; OP-393; OP-1564  
 Arizona OP-1108  
 California OF 96-0263; OF 99-0400; OP-95;  
 OP-564; OP-980  
 Canada OP-1350

Japan OF 99-0400

Mississippi Valley OP-893; OP-894

Rocky Mountains OF 00-0260

Turkey C 1193

United States C 1193; OP-1350

Washington OP-1039

**liquefaction potential**

California OF 00-0127; OP-371; OP-427  
 Japan OP-427  
 Utah P 1500-K-R

**liquid chromatography** WRI 99-4018-B;

OF 00-0204; OP-781; OP-1535

liquid inclusions *see* fluid inclusions

**liquid waste** *see also* waste water.

WRI 99-4018-B

**Lisburne Group** OP-1135; OP-1285; OP-1482;  
 OP-1552

**Lithic Ridge Tuff** OP-1176**lithium**

OF 99-0093  
 Alaska OP-680

**lithium ores**

Andes OP-1148

**lithogeochemistry** *see also* metamorphic rocks;  
 sedimentary rocks; weathering.

Alaska P 1615; OP-8; OP-221  
 Basin and Range Province OF 99-0569  
 California OP-96  
 Great Basin OF 99-0569  
 Guatemala OP-557  
 Mexico OP-557; OP-867  
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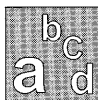
lithologic traps *see* stratigraphic traps

**Lithoprobe**

Ontario OP-426  
 Washington OP-1539

**lithostatic pressure** OP-1418**lithostratigraphy**

P 1625-A; GN ; I-2620; I-2666; I-2726;  
 FS 0024-97; OP-1047; OP-1519  
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 Alaska P 1614; P 1615; I-2677; I-2695  
 Algeria B 2202-A; B 2202-B  
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 OP-50; OP-51; OP-52; OP-53; OP-54  
 Appalachians OF 99-0002; I-2607; FS 0115-99  
 Arctic Ocean OP-309  
 Arizona OF 00-0138; OF 00-0139;  
 OF 99-0399; I-2308; I-2628  
 Arkansas WRI 98-4002  
 Armenia B 2175; B 2176; MF-2350  
 California B 1995-Y,Z; OF 00-0147;  
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 MF-2342; I-2542; OP-1498  
 Colorado P 1625-A; OF 00-0041; I-2646;  
 I-2647; I-2656; I-2667; OP-183; OP-214;  
 OP-348; OP-688; OP-1276  
 Far East OP-981; OP-982; OP-1531  
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 Georgia OF 99-0148-B  
 Great Plains P 1625-A  
 Hawaii OF 99-0312  
 Hungary OP-416  
 Idaho P 1600; OF 00-0116; OF 99-0147-B;  
 OP-522  
 Illinois I-2669  
 Japan OF 99-0400  
 Libya B 2202-A  
 Louisiana OP-826



- Maine P 1624; OF 99-0546  
 Maryland GQ-1768; I-2607; OP-286  
 Mexico OP-106; OP-849  
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 Montana DDS-0057; P 1625-A; I-2634; OP-743  
 Morocco B 2202-B  
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 Nevada OF 00-0134; OF 96-0291; OF 98-0635; OF 99-0049; OF 99-0153; OF 99-0555; I-2670  
 New Hampshire WRI 99-4018-C  
 New Mexico P 1625-A; MF-2334; OP-40; OP-439; OP-562  
 New York WRI 98-4070  
 New Zealand OP-558  
 North Dakota P 1625-A; OP-634  
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 Pacific Ocean OP-979  
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 Pennsylvania OP-273; OP-740  
 Rocky Mountains P 1625-A; OP-876  
 Russian Federation OF 99-0050-O; OF 99-0379  
 South Carolina OF 99-0148-B; OP-726  
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 Texas OF 00-0048; OP-439  
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 Vermont GQ-1773; I-2598  
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**Littlefield Quadrangle** I-2628  
**Littleton Formation** OP-235  
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 California OP-853  
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 Mississippi OP-1124  
 New Jersey OP-705  
 North Carolina FS 0034-99; OP-705  
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 Puerto Rico OP-785  
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**Livengood Quadrangle** OF 99-0574  
**Livermore Field** OP-1310  
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**Llano Estacado** OP-629  
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**loam**  
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**Lofoten Islands** OP-1092  
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**Loma Machete Quadrangle** MF-2334; OP-310  
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**Long Island W 2498**; WRI 97-4136; WRI 98-4067; WRI 98-4069; WRI 98-4070; WRI 98-4181; OF 00-0241; OF 00-0242; OP-116; OP-610  
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**Long Valley** OP-736; OP-1235; OP-1413  
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**Lopez Island** FS 0057-00  
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 P 1416-H; OF 99-0449; OF 99-0562-C; FS 0018-96; OP-166; OP-201; OP-851; OP-852; OP-947; OP-1102; OP-1366; OP-1541  
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 Lake Pontchartrain FS 0025-00; OP-1160; OP-1274
- Livingston Parish Louisiana OP-287  
 Mississippi Delta WRI 99-4018-B; OF 00-0211; OP-113; OP-526; OP-733; OP-977  
 Pointe Coupee Parish Louisiana WRI 99-4193; WRI 99-4292  
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- Love waves** OP-1210  
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**low-grade metamorphism**  
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 Lower Cretaceous *see* Albian; Aptian; Barremian; Bisbee Group; Blackleaf Formation; Burro Canyon Formation; Cedar Mountain Formation; Glen Rose Formation; Inyan Kara Group; Kootenay Formation; Neocomian; Torok Formation  
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 OP-195  
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 Columbia Plateau OP-1343  
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 Italy OP-1489  
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 Lower Devonian *see* Emsian; Littleton Formation  
 lower Eocene *see* Aquia Formation; Wilcox Group; Willwood Formation; Wind River Formation  
**lower mantle**  
 OP-240  
 Tonga OP-931  
 lower Miocene *see* Saucian  
**Lower Mississippi Valley** OP-1117  
 lower Neogene *see* Miocene  
 Lower Ordovician *see* Arenigian; El Paso Group; Fillmore Formation; Saint George Group  
 lower Paleocene *see* Danian; K-T boundary  
**lower Patapsco Aquifer**  
 Maryland OF 00-0086  
 Lower Permian *see* Cherry Canyon Formation; Leonardian  
 lower Precambrian *see* Archean  
**Lower Silesia** OP-1282  
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**Lowry Field** OP-1166  
**lowstands**  
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**Ludlow Member** OP-634; OP-1223; OP-1371  
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**Luisian**  
 California OP-1498  
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**lunar craters** OP-1167; OP-1169  
**lunar crust** OF 99-0321  
**lunar highlands** OP-723  
**lunar mantle** OP-1523  
**lunar soils** OP-270; OP-991; OP-1157; OP-1167;

OP-1169; OP-1251; OP-1415; OP-1416;  
OP-1468

LUST *see* leaking underground storage tanks

Luzon *see* Mount Pinatubo

### lysimeters

Minnesota OP-493

Lysorophus OP-337

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Maastrichtian *see* Maestrichtian

macerals *see* vitrinite

machine-readable data *see* digital data

Mackenzie Delta OP-1094; OP-1114; OP-1301

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WRI 99-4018-C; OF 99-0602; HA-0744-D;

HA-0745-D

Madison Group OF 99-0260; HA-0744-D

Madison Quadrangle OF 99-0526-J

Madison Wisconsin OP-1001; OP-1042

### Maestrichtian

Montana DDS-0057

### mafic magmas

Oregon OP-1000

Washington OP-1000

maghemite OP-1017; OP-1022

### magma chambers

OP-523; OP-524; OP-996

Alaska OP-356

California OP-368; OP-832; OP-880; OP-1227

Hawaii OP-140; OP-425; OP-1537

Italy OP-908; OP-1120; OP-1522

Oregon OP-33

magma contamination OP-996

magma reservoir *see* magma chambers

**magmas** *see also* crystal fractionation; fractional crystallization; magma chambers; magmatic differentiation.

OP-268; OP-483; OP-542; OP-563; OP-1205;  
OP-1468

Alaska OP-221; OP-719

Arizona OP-218

California WRI 98-4217; OP-96; OP-204;

OP-283; OP-377; OP-457; OP-482; OP-805;  
OP-1009; OP-1506

Colorado OP-1269; OP-1398

Guatemala OP-557

Hawaii P 1613; OP-1172

Iceland OP-261

Italy OP-151; OP-1121; OP-1489; OP-1491

mafic magmas

Oregon OP-1000

Washington OP-1000

Mexico OP-557; OP-867

Montana OP-136; OP-339; OP-1288

Oregon OP-1009

Utah OP-1113; OP-1198

Washington OP-883

### magmatic differentiation

Alaska OP-356

Mexico OP-573

### magmatism

OP-542; OP-1468

Alaska P 1615

Bolivia OP-251

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OF 99-0339; OP-283; OP-453; OP-545;

OP-586; OP-1009; OP-1020; OP-1227;  
OP-1235

China OP-1239

Colorado OP-822; OP-1265; OP-1269

Hawaii OP-1218

Hungary OP-212; OP-471

Iceland OP-261

Maine OP-1057

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Montana OF 99-0321; OP-303

Nevada OP-366; OP-787; OP-1020

New Mexico OP-1265

Oregon OP-33; OP-843; OP-1009

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### magnesian calcite

Far East OP-476

### magnesian silicates

Far East OP-476

magnesian spar *see* dolomite

### magnesite

Brazil OP-1341

Far East OP-476

### magnesite deposits

Far East OP-476

### magnesium

OP-288; OP-1243

Alabama WRI 98-4127

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British Columbia OP-1245

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Marshall Islands OP-949

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Pacific Ocean OP-1307

Scandinavia OP-411

magnesium calcite *see* magnesian calcite

magnesium silicates *see* magnesian silicates

### magnetic anomalies

OP-1156; OP-1587

Alaska OP-1132; OP-1194

Antarctica OP-247

Atlantic Ocean OP-1015

California OF 99-0440; OP-395

Colorado OP-1166; OP-1265

Great Lakes region OP-1224

Hawaii OF 99-0557

Idaho OP-1279

Nevada OF 00-0134

New Mexico OP-310; OP-385; OP-1100;  
OP-1265

Oklahoma OP-1166

Oregon OP-86

Pennsylvania OP-448

Puerto Rico OF 99-0557

Saudi Arabia OP-997

Wyoming OF 00-0198

### magnetic field

Colorado OP-131

Idaho OF 99-0371; OP-823

Japan OP-423

Pacific region OF 99-0422

### magnetic inclination

California OP-755

### magnetic intensity

Atlantic Ocean OP-1015

magnetic iron ore *see* magnetite

**magnetic methods** *see also* magnetic anomalies; magnetometers.

DDS-0056; P 1608; OF 00-0027; OF 00-0042;

OF 00-0155; OF 00-0163; OF 00-0219;

OF 99-0371; OF 99-0388; OF 99-0404;

OF 99-0420; OF 99-0502; OF 99-0503;

OF 99-0515; OF 99-0526-A; OF 99-0526-B;

OF 99-0526-C; OF 99-0526-D; OF 99-0526-E;

OF 99-0526-F; OF 99-0526-G; OF 99-0526-H;

OF 99-0526-I; OF 99-0526-J; OF 99-0526-K;

OF 99-0526-L; OF 99-0526-M; OF 99-0526-N;

OF 99-0526-O; OF 99-0527; FS 0163-95;

FS 0238-95; OP-93; OP-131; OP-354; OP-519;

OP-520; OP-959; OP-978; OP-1006; OP-1023;

OP-1066; OP-1067; OP-1098; OP-1099;

OP-1155; OP-1188; OP-1189; OP-1190;

OP-1225; OP-1254; OP-1542; OP-1554

### magnetic minerals

OF 99-0529; OP-299; OP-1571

California OF 98-0752

**magnetic properties** *see also* magnetic susceptibility.

OP-229; OP-1017

Great Lakes OP-167

Idaho OP-1122

New Mexico OP-310; OP-385

Utah OP-1122

### magnetic survey maps

Nevada OF 00-0134

### magnetic susceptibility

OF 99-0321; OF 99-0529; OP-1571

Arizona OF 99-0435

California OF 98-0752; OF 99-0321; OP-755

Nevada OF 99-0435

New Mexico MF-2348

Pacific Ocean OP-979

Pennsylvania OP-448

South Dakota OP-193

magnetism, paleo- *see* paleomagnetism

**magnetite** *see also* iron ores.

OP-150; OP-259; OP-1022; OP-1381; OP-1571

Alaska OP-1132

Idaho OF 99-0371

Wyoming OF 00-0198

magnetization *see* remanent magnetization

### magnetometers

OP-133; OP-678

Chile OP-1059; OP-1061

Pennsylvania OP-448

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Antarctic Ocean OP-46; OP-47; OP-48; OP-49;

OP-50; OP-51; OP-52; OP-53; OP-54

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Arkansas OP-1294

California OF 00-0147; OP-1386

Hungary OP-416

Mexico OP-106

New Mexico OP-1379

North Dakota OP-1223

Texas OP-1294

Wyoming OP-1223

**magnetotelluric methods** *see also*

audiomagnetotelluric methods.

OP-1500

**Magothy Aquifer** W 2498; WRI 98-4069;

WRI 98-4181; OF 00-0084; OP-116



**Magothy Formation** OP-154**main shocks**

OF 99-0565  
British Columbia OP-1075  
Colombia OP-1116

**Maine**

P 1624; WRI 98-4042; WRI 99-4008;  
OF 99-0200; OF 99-0467; OF 99-0546;  
FS 0019-96; OP-1057; OP-1162; OP-1287;  
OP-1485  
Hancock County Maine OP-673  
Penobscot Bay OP-1542  
Penobscot County Maine OP-245  
Sagadahoc County Maine OF 99-0380  
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WRI 99-4050

**Malacostraca**

Colorado Plateau OP-337

**malathion**

California WRI 99-4018-B

**Mammalia**

Pacific Ocean P 1615  
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**Mammoth Lakes earthquakes**

California OP-1252

**Mammoth Mountain** WRI 98-4217;

OF 98-0236; FS 0172-96; OP-282; OP-283;  
OP-586; OP-1227; OP-1431

**Manada Hill Member** OP-273**Manassas Sandstone** I-2607**Mancos Shale** OP-958

Mandibulata *see* Crustacea; Insecta

**manganese**

OF 99-0529; OP-288  
Andes OP-1149  
Colorado OF 00-0204; OP-618; OP-711;  
OP-825  
Minnesota WRI 98-4175  
Nevada OP-711  
North Dakota WRI 98-4175  
Pacific Ocean OP-345; OP-1307  
Pennsylvania OP-107  
Peru OP-711

manganese nodules *see* nodules

**manganese ores**

China OP-241; OP-342; OP-343; OP-967  
Kazakhstan OP-513  
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Micronesia OF 99-0412  
Nevada OP-1305  
Pacific Ocean OP-344  
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**manganese oxides**

Andes OP-1149  
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**mantle** *see also* asthenosphere; hot spots; isos-  
tasy; sea-floor spreading.

OP-1; OP-772; OP-996; OP-1083  
Alaska OP-1367  
Antarctica OP-1200  
California OF 99-0388; OP-96; OP-865;  
OP-866; OP-1150; OP-1506  
Columbia Plateau OP-1343

lower mantle

OP-240

Tonga OP-931

Missouri OP-139

Montana OP-136; OP-339

Tennessee OP-139

Washington OP-1546

**mantle plumes**

OP-1083

Alaska OP-223

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map scales *see* cartographic scales

**maps**

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Iowa OF 99-0526-G; OF 99-0526-H  
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OF 99-0526-C; OF 99-0526-D;  
OF 99-0526-L; OF 99-0526-M;  
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Louisiana WRI 99-4109; WRI 99-4193;  
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China OF 00-0047  
Colorado OP-183  
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Appalachians OF 95-0810  
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WRI 99-4185  
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Colorado OF 97-0737; OF 97-0852; I-2646;

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Far East SM

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Hawaii HA-0730-N

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Pacific region SM

Papua New Guinea SM

Philippine Islands SM

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 Eniwetok Atoll OP-413; OP-949
- Marshall Sandstone** OP-1281
- marshes *see* salt marshes; tidal marshes
- Martian meteorites *see* SNC Meteorites
- Martinsburg Formation** OP-273
- Maryland** *see also* Blue Ridge Province; Chesa-  
 peake Bay; Choptank River; Culpeper Basin;  
 Delmarva Peninsula; Gettysburg Basin;  
 Magothy Aquifer; Newark Supergroup; Potomac

River; Salisbury Embayment; Susquehanna River basin.  
 OF 00-0083; OF 00-0204; I-2607; OP-89; OP-766  
 Anne Arundel County Maryland OF 00-0085; OF 00-0086  
 Baltimore Maryland OF 99-0213  
 Frederick County Maryland GQ-1768  
 Harford County Maryland WRI 98-4037; WRI 98-4047; WRI 99-4018-C; OP-537; OP-538; OP-539  
 Montgomery County Maryland GQ-1768  
 Patuxent River WRI 98-4177; FS 0053-00; OP-176  
 Prince Georges County Maryland OF 00-0085; OF 00-0086

### Marysvale Utah OP-1113

#### mass extinctions

Colorado OP-706  
 Germany OP-1349  
 Nevada OP-1349  
 New Mexico OP-706

**mass movements** *see also* avalanches; debris avalanches; debris flows; lahars; landslides; mudflows; rockfalls; rockslides.

OP-144; OP-922  
 Alaska OP-1263  
 California FS 0005-96  
 Norway OP-1263  
 South America OP-1403

**mass spectroscopy** *see also* inductively coupled plasma methods.

WRI 99-4018-B; OF 00-0204

**mass wasting** *see* mass movements

#### Massachusetts

WRI 98-4042; WRI 98-4075; WRI 99-4006; OF 99-0467; FS 0104-00  
 Barnstable County Massachusetts OP-437; OP-793  
 Boston Harbor OP-1037  
 Boston Massachusetts OF 99-0363; I-2701; I-2704; I-2709; I-2710; I-2711; I-2712  
 Cape Cod WRI 98-4011; WRI 99-4018-C; OP-129; OP-184; OP-185; OP-308; OP-477; OP-478; OP-508; OP-738; OP-1203  
 Massachusetts Bay OF 99-0363; I-2702; I-2703; I-2705; I-2706  
 Middlesex County Massachusetts  
 WRI 99-4241; OF 99-0231  
 Norfolk County Massachusetts WRI 98-4257  
 Worcester County Massachusetts OP-56

**Massachusetts Bay** *see also* Boston Harbor.  
 OF 99-0363; I-2702; I-2703; I-2705; I-2706

**Massachusetts Military Reservation**  
 WRI 99-4018-C

#### massive sulfide deposits

OP-272; OP-1112; OP-1484; OP-1580  
 Alaska P 1614; P 1615; OP-1268  
 British Columbia OP-403  
 California OP-989  
 Canada OP-795  
 Maine OP-1162; OP-1287; OP-1485  
 Nevada OP-1305  
 New Brunswick OP-1162  
 North Carolina OP-1486  
 Pacific Ocean P 1615; OP-690; OP-1184  
 United States OP-795  
 Vermont OF 99-0564  
 Wyoming OP-458

**Matagorda Bay** WRI 98-4038

materials (educational) *see* educational resources

**Mather Gorge Formation** OP-1286

**Matra Mountains** OP-212; OP-578; OP-659; OP-660

#### Matuyama Chron

California OF 99-0321; OP-755

**Maui** P 1618; WRI 98-4142; WRI 98-4159; WRI 99-4090; OP-290

**Mauna Kea** OP-425

**Mauna Loa** P 1613; OP-425; OP-1125

**maximum likelihood** OF 99-0339

**Mayak Mine** OP-182

**Mayday Mine** OF 00-0034; OP-132

**Mazama Ash** OP-168

**McCarthy Quadrangle** I-2695

**McGowan Creek Formation** OP-522

**McHugh Complex** P 1615

**McLaughlin Deposit** OP-764

**McShan Formation** OP-154

**Meade Peak Member** OF 00-0009; OF 00-0116; OF 99-0147-B; OP-1187

**meanders** OP-665

mechanical erosion *see* abrasion

**Medfra Quadrangle** P 1614; P 1615

**Medicine Lake** OF 00-0043; OP-204; OP-453; OP-545; OP-567; OP-1150

**Medicine Lake Highland** OP-1088; OP-1500

**Medicine Lake Volcano** *see* Medicine Lake

**Medina Formation** OF 97-0272

**Mediterranean Sea** *see* East Mediterranean

**Medvezhy Creek Mine** OP-182

**meerschau** *see* sepiolite

**Meeteetse Formation** OP-406; OP-409

meetings *see* symposia

**Melanesia** *see* Solomon Islands

#### melange

California OP-85

Pakistan OP-1264

**Memphis Sand** WRI 98-4002

**Memphis Tennessee** OP-139; OP-946; OP-1459

**menaccanite** *see* ilmenite

**Mendocino fracture zone** OP-764; OP-865; OP-1072

**Merapi** OP-503; OP-645; OP-910; OP-968

**Mercalli scale**, modified *see* modified Mercalli scale

**Merced Formation** OP-158; OP-395

**mercury** *see also* methylmercury.

WRI 99-4018-B; OF 92-0164

Alaska P 1619; FS 0072-94; OP-296

California WRI 99-4018-B; FS 0061-00; OP-989

Florida C 1207; OF 99-0181; FS 0166-96

Nevada OF 99-0576

Oregon OP-237

Texas WRI 98-4038

Wisconsin FS 0051-99

#### mercury ores

Alaska FS 0072-94

California OP-764; OP-1020

Nevada OP-1020; OP-1305

**Meride-Riva di Solto Field** OF 99-0050-M

#### meromictic lakes

California OP-663

**Mesaverde Group** *see also* Williams Fork Formation.

OP-406; OP-407; OP-408; OP-409; OP-430

**Mesoproterozoic** *see* Apache Group; Belt Supergroup; Bonner Formation; Helena Formation

#### mesothermal processes

Alaska OP-1268

**Mesozoic** *see also* Cretaceous; Jurassic; Triassic.  
 OP-1143; OP-1484

Alaska OP-221; OP-641

Basin and Range Province OF 99-0569

Brunswick Formation OF 00-0097;

OF 99-0271-A; OP-617

California OF 99-0374

China OP-404

Franciscan Complex OP-85; OP-395; OP-543;

OP-1427; OP-1499

Glen Canyon Group OP-658

Great Basin OF 99-0569

Great Valley Sequence I-2542

McHugh Complex P 1615

Montana OP-181

Navajo Sandstone MF-2351; I-2667; OP-461

Nevada OF 99-0049; OP-1305

Oregon OF 99-0374

Pennsylvania OP-448

**meta-ophiolite** *see* ophiolite

**meta-turbidite** *see* turbidite

#### metabasalt

OP-1484

Alaska OP-221

Pennsylvania OP-209

#### metabolites

WRI 99-4018-B; OP-608; OP-788; OP-879;

OP-1102; OP-1535; OP-1536

Iowa OP-1448

Louisiana OP-602

Massachusetts OP-477

Midwest OF 99-0321; OP-621

Minnesota WRI 99-4018-C

New York WRI 99-4018-B

#### metagraywacke

OP-1484

California OP-85

**metagneous rocks** *see* metabasalt; metarhyolite; metatuff

**metal ores** *see also* aluminum ores; antimony ores; arsenic ores; base metals; chromite ores; cobalt ores; copper ores; gold ores; iron ores; lead ores; lead-zinc deposits; lithium ores; manganese ores; mercury ores; metallogeny; molybdenum ores; nickel ores; niobium ores; platinum ores; polymetallic ores; rare earth deposits; silver ores; tin ores; titanium ores; tungsten ores; uranium ores; zinc ores.

DDS-0052; DDS-0064; OF 99-0501; OP-295;

OP-354; OP-386; OP-814; OP-1025; OP-1483

Alaska P 1614; OF 99-0342; OF 99-0525;

OF 99-0573; OF 99-0574; OP-120; OP-296; OP-1268

California OF 00-0105-B

Colorado OP-711; OP-712

Hungary OP-578; OP-659

Maine OF 99-0546

Montana OP-1288

Nevada OP-711

Pacific Ocean OP-690; OP-1184

Peru OP-711



Saudi Arabia OP-164  
 Utah OF 99-0571  
 Washington OF 00-0014-A; OF 00-0014-B;  
 OF 99-0414-B  
 Wisconsin OF 99-0546  
 Wyoming OP-810  
 Yugoslavia OP-845

metallic meteorites *see* iron meteorites

**metallageny**  
 Alaska OP-653; OP-1338  
 Bolivia OP-179  
 Canada OP-297; OP-795  
 Idaho OF 98-0219-E  
 Italy OP-1393  
 Nevada OP-1104  
 Russian Federation OP-653  
 United States OP-297; OP-795  
 Wyoming OP-458; OP-809

**metallurgy**  
 Brazil OP-340  
 California OP-340  
 China OP-340  
 North Carolina OP-340

**metals** *see also* actinides; alkali metals; alkaline earth metals; aluminum; arsenic; bismuth; cadmium; chromium; cobalt; copper; iron; lead; manganese; mercury; molybdenum; nickel; niobium; platinum group; rare earths; rhenium; silver; thallium; tin; titanium; trace metals; tungsten; vanadium; zinc; zirconium.  
 WRI 99-4185; OF 00-0034; OF 99-0321;  
 OF 99-0588; FS 0021-97; OP-1064  
 Alaska P 1615; OF 99-0342; FS 0092-95  
 Arizona OP-293; OP-294  
 California OF 00-0105-B; OF 99-0531  
 Colorado OF 00-0034; OF 00-0150; OP-99;  
 OP-231; OP-244; OP-312; OP-712; OP-776;  
 OP-847; OP-850; OP-937  
 Far East OP-714  
 Idaho OF 99-0548  
 Japan Sea OP-708  
 Maryland OF 00-0204  
 Massachusetts WRI 99-4241  
 Michigan OP-1503  
 Minnesota OF 00-0078  
 Montana P 1625-A; OF 00-0034; OF 00-0079;  
 OF 00-0080  
 Nevada OF 00-0161; OF 99-0531  
 North Dakota P 1625-A  
 Oregon WRI 98-4105; WRI 98-4125

precious metals  
 OF 00-0195; OP-1559  
 Chile OP-1524  
 Colorado OP-1006  
 Ecuador OP-1524  
 Nevada OP-174; OP-1305  
 Utah OF 98-0234  
 Texas OF 99-0245  
 Virginia OF 00-0204  
 West Virginia OP-575  
 Wisconsin OF 99-0270  
 Wyoming P 1625-A

**metamorphic core complexes**  
 Nevada OP-380

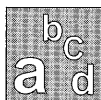
metamorphic processes *see* metamorphism

**metamorphic rocks** *see also* amphibolite facies; crystalline rocks; eclogite facies; granulite facies; greenschist facies; metasomatic rocks; prehnite-pumpellyite facies.  
 OP-1025  
 Alaska P 1615; OP-1338  
 amphibolites  
 OP-1484  
 Alaska OP-221; OP-641  
 Colorado OP-794  
 Appalachians I-2607  
 blueschist, Pakistan OP-1264  
 California OF 99-0153; I-2697; OP-615  
 gneisses  
 California OP-63  
 Colombia OP-760  
 Colorado OP-794  
 Mexico OP-760; OP-848  
 Michigan OP-812  
 Montana OP-1054  
 Pennsylvania OP-448; OP-449; OP-593  
 granite gneiss, Pennsylvania OP-209  
 greenschist, Alaska OP-641; OP-1136  
 greenstone  
 OP-1484  
 Alaska OP-221  
 hornfels  
 OP-268  
 Maine OP-1287  
 marbles  
 OP-268  
 China OP-1079  
 metabasalt  
 OP-1484  
 Alaska OP-221  
 Pennsylvania OP-209  
 metagraywacke  
 OP-1484  
 California OP-85  
 metapelite OP-1484  
 metaplutonic rocks, Alaska OP-8  
 metarhyolite, Pennsylvania OP-209  
 metasedimentary rocks  
 Alaska P 1615  
 Appalachians OP-1360  
 California OF 99-0153; OP-543  
 Idaho P 1600  
 Nevada OF 99-0555  
 New Hampshire WRI 99-4018-C  
 Pacific Ocean P 1615  
 Pennsylvania OP-593  
 metatuff, Montana OP-238  
 metavolcanic rocks  
 Alaska P 1614  
 Montana OP-238  
 North Carolina OP-1486  
 Pennsylvania OP-448  
 migmatites  
 Italy OP-1489  
 New Hampshire OP-235  
 Pennsylvania OP-209  
 mylonites  
 California OF 99-0153  
 Michigan OP-812  
 Nevada OP-615; OP-1319  
 New Hampshire OP-24  
 phyllites, Pennsylvania OP-209  
 quartzites  
 OP-268  
 Mexico OP-849  
 Wisconsin OP-1067

schists  
 California OP-63  
 Colorado OP-794  
 New Hampshire WRI 98-4183; OP-235  
 slates, China OP-1079  
 tourmalinite  
 OP-1483  
 British Columbia OP-403; OP-1246; OP-1392  
 Virginia OF 99-0423; OF 99-0552  
 Wyoming OP-811; OP-1396

**metamorphism** *see also* greenschist facies; P-T-t paths.  
 Alaska OP-221; OP-1136; OP-1346  
 anchimetamorphism  
 Arkansas OP-1242; OP-1492  
 Oklahoma OP-1242; OP-1492  
 Appalachians I-2607  
 burial metamorphism, California B 2174-B  
 California B 2174-A; OF 99-0153; OF 99-0374;  
 OP-63; OP-85; OP-239  
 Colorado OP-794  
 contact metamorphism  
 OP-268; OP-1008  
 New Mexico OP-117  
 epizonal metamorphism, New Zealand OP-78  
 Far East OP-747  
 high-grade metamorphism, Montana OP-1054  
 Idaho OF 99-0390  
 low-grade metamorphism  
 Alabama OP-1324  
 Argentina OP-186  
 Maine OF 99-0546  
 Maryland GQ-1768  
 Nevada OP-380  
 New Hampshire OP-235  
 Oregon OF 99-0374  
 Pennsylvania OP-209  
 prograde metamorphism  
 Alaska OP-1338  
 Virginia OP-1286  
 regional metamorphism  
 Alaska P 1615; OP-1338  
 British Columbia OP-1246  
 California OF 99-0153  
 New Mexico OP-117  
 retrograde metamorphism  
 California OF 99-0153  
 Virginia OP-1286  
 Saudi Arabia OP-164  
 Scandinavia OP-747  
 shock metamorphism  
 OP-138  
 Arizona OP-421; OP-1517  
 Cuba OP-1033  
 Saudi Arabia OP-1517  
 Utah OP-1517  
 thermal metamorphism OP-319; OP-1195  
 Virginia OF 99-0552  
 Wisconsin OF 99-0546  
 Wyoming I-2661; OP-1396

**Metan Subgroup** OP-741  
**metapelite** OP-1484  
**metaplutonic rocks**  
 Alaska OP-8  
**metarhyolite**  
 Pennsylvania OP-209  
**metasedimentary rocks** *see also* metagraywacke; metapelite.  
 Alaska P 1615  
 Appalachians OP-1360





- California OF 99-0153; OP-543  
 Idaho P 1600  
 Nevada OF 99-0555  
 New Hampshire WRI 99-4018-C  
 Pacific Ocean P 1615  
 Pennsylvania OP-593
- metasomatic rocks**  
 greisen  
   OP-1483  
   Nevada OP-213  
 Nevada OF 99-0329  
 skarn  
   OP-268; OP-1011; OP-1483  
   British Columbia OP-807  
   Far East OP-747  
   Finland OP-807  
   India OP-807  
   Nevada OP-213  
   Pennsylvania OP-449  
   Russian Federation OP-1185  
   Scandinavia OP-747  
   United States OP-807  
   Utah OF 98-0234  
   Uzbekistan OP-807
- metasomatism**  
 OP-1415  
 Hungary OP-367  
 hydrothermal alteration  
   OP-259; OP-272; OP-354; OP-1483  
   Alaska OP-719  
   Bolivia OP-179  
   British Columbia OP-402; OP-403; OP-1245  
   China OP-1103  
   Colorado OP-99; OP-1566  
   Hungary OP-470; OP-578; OP-660  
   Nevada OP-470  
   North Carolina OP-759  
   Utah OP-1113  
   Washington OP-926  
 Montana OP-339  
 Nevada OP-1305  
 Pennsylvania OP-762  
 wall-rock alteration  
   Colorado OP-711; OP-1006  
   Nevada OP-711  
   Peru OP-711
- metasomatites *see* metasomatic rocks
- metatuff**  
 Montana OP-238
- metaturbidite *see* turbidite
- metavolcanic rocks**  
 Alaska P 1614  
 Montana OP-238  
 North Carolina OP-1486  
 Pennsylvania OP-448
- Meteor Crater** OP-421; OP-1517
- meteor craters**  
 OP-803; OP-1069  
 Saudi Arabia OP-963
- meteoric iron *see* iron meteorites
- meteorite flux**  
 British Columbia OP-318
- meteorites** *see also* chondrules.  
 Allende Meteorite OP-1013  
 Arizona OP-1517  
 Asuka Meteorites OP-722  
 Bjurböle Meteorite OP-319; OP-1195  
 carbonaceous chondrites  
   OP-138; OP-1065
- British Columbia OP-318  
 Chainpur Meteorite OP-319; OP-1195  
 Chile OP-1061  
 chondrites OP-1550  
 Dhajala Meteorite OP-319; OP-1195  
 iron meteorites OP-1550  
 LEW 86010 OP-722  
 octahedrite, Saudi Arabia OP-963  
 Saudi Arabia OP-1517  
 Semarkona Meteorite OP-319; OP-1195  
 Shergotty Meteorite OP-1123  
 SNC Meteorites OP-153  
 Utah OP-1517
- methane** *see also* coalbed methane.  
 WRI 99-4018-C; OF 99-0590; OP-103;  
 OP-1036; OP-1255; OP-1475  
 Alaska OP-746; OP-1263  
 Antarctica OF 99-0312  
 Atlantic Coastal Plain OP-1128  
 Atlantic Ocean OP-864; OP-1575  
 Bering Sea OP-1455  
 California WRI 98-4147; WRI 99-4018-B  
 Colorado FS 0164-99; OP-1568  
 Costa Rica OP-1302  
 Gulf of Mexico OF 99-0570; OP-1128  
 Michigan WRI 99-4018-C; OP-587  
 Minnesota WRI 99-4018-C  
 Montana OP-1220  
 Northwest Territories OP-1114; OP-1301  
 Norway OP-1263  
 Oklahoma WRI 99-4018-C
- methl tert-butyl ether**  
 WRI 99-4018-C; OF 99-0240; OP-486  
 Georgia WRI 98-4233  
 South Carolina WRI 99-4018-C  
 Texas FS 0010-00
- methoxychlor *see* DDT
- methyl mercury *see* methylmercury
- methyl tert-butyl ether**  
 WRI 98-4042; WRI 99-4018-C; OP-104;  
 OP-486; OP-677  
 New Jersey WRI 99-4018-B  
 South Carolina WRI 99-4018-C  
 Texas FS 0010-00
- methylation**  
 Alaska OP-1002  
 Florida OF 99-0181
- methylmercury**  
 WRI 99-4018-B  
 Alaska OP-1002  
 Florida OF 99-0181
- Metis Regio Quadrangle** OP-1130
- metolachlor**  
 WRI 99-4018-B; OP-1535  
 California WRI 98-4017; WRI 99-4018-B  
 Iowa WRI 99-4018-B  
 Louisiana WRI 99-4018-B  
 Midwest WRI 99-4018-B; OF 99-0321  
 New York WRI 98-4104; WRI 99-4018-B
- metribuzin** WRI 99-4018-B
- Mexico**  
 OP-137; OP-760; OP-909; OP-1119  
 Baja California OP-436  
 Chiapas Mexico OP-557  
 Chihuahua Mexico OP-1018  
 Colima OP-332  
 El Chichon OP-867; OP-1073  
 Oaxaca Mexico OP-573  
 Popocatepetl OP-21; OP-332
- Sierra Madre del Sur OP-573  
 Sierra Madre Oriental OP-106  
 Sonora Mexico OP-849  
 Tamaulipas Mexico OP-848
- Mexico City earthquake 1985**  
 California OP-980
- Mg *see* magnesium
- Miami Florida** OF 99-0181
- Miami Limestone** OP-479
- mica group *see* annite; biotite; glauconite; muscovite; paragonite; phlogopite
- Michigan** *see also* Lake Superior region.  
 P 1423-A; P 1423-C; C 1156; WRI 98-4024;  
 OF 00-0204; OF 99-0349; OF 99-0526-A;  
 OF 99-0526-B; OF 99-0526-C; OF 99-0526-D;  
 OF 99-0526-L; OF 99-0526-M; OF 99-0526-N;  
 OF 99-0526-O; OF 99-0547; OF 99-0562-F;  
 HA-0725; FS 0022-96; OP-92; OP-463;  
 OP-1283  
 Baraga County Michigan WRI 98-4060  
 Calhoun County Michigan OP-1281  
 Gogebic County Michigan OP-135  
 Huron County Michigan OP-447; OP-1281  
 Iosco County Michigan WRI 99-4018-C;  
   OP-587  
 Kent County Michigan WRI 98-4006  
 Lapeer County Michigan OP-1281  
 Marquette Michigan OP-812; OP-1503  
 Marquette Range OF 00-0010  
 Ontonagon County Michigan OP-135  
 Oscoda County Michigan WRI 99-4018-C;  
   OP-818  
 Porcupine Mountains OP-135  
 Saginaw County Michigan WRI 99-4018-B  
 Tuscola County Michigan OP-1281
- Michigan Upper Peninsula *see* Porcupine Mountains
- Michoacan earthquake 1985 *see* Mexico City earthquake 1985
- microbiology, geological *see* geomicrobiology
- microcline**  
 China OP-1079  
 Colorado OP-444  
 Far East OP-716  
 Middle East OP-716
- microearthquakes**  
 California OF 98-0236; OP-532; OP-757;  
   OP-1387
- microfossils *see* Conodonta; problematic microfossils
- Micronesia** *see also* Mariana Islands; Marshall Islands.  
 OP-331
- microprobe, electron *see* electron probe
- microscopy, electron *see* electron microscopy
- microseismicity *see* seismicity
- Mid-Continent *see* Midcontinent
- Mid-continent Rift *see* Keweenaw Rift
- Mid-Indian Ridge** OP-707
- mid-ocean ridge basalts**  
 California OP-1009  
 Oregon OP-1009
- mid-ocean ridges** *see also* East Pacific Rise.  
 Pacific Ocean OP-344  
 Russian Federation OP-1186
- Midcontinent** OF 99-0321; OP-628; OP-1224
- Midcontinent Rift System *see* Keweenaw Rift
- Middendorf Formation** OP-154

**middles** *see also* packrat middens.

Chile OP-80

**Middle America Trench** OP-1302

**Middle East** *see also* Iran; Iraq; Israel; Jordan; Turkey.

OP-6

Dead Sea Rift OF 98-0516

middle Eocene *see* Sparta Sand

middle Miocene *see* Calvert Formation; Luisian

Middle Ordovician *see* Llanvirnian; Simpson Group

Middle Silurian *see* Clinton Group; Niagaran

Middle West (United States) *see* Midwest

**Midland Basin** OP-45

midoceanic ridges *see* mid-ocean ridges

**Midwest** P 1423-A; P 1423-C; WRI 99-4018-B;

OF 99-0321; HA-0725; FS 0046-98; OP-465;

OP-621; OP-878; OP-1108; OP-1224; OP-1533

**migmatites**

Italy OP-1489

New Hampshire OP-235

Pennsylvania OP-209

**Mikawa earthquake 1945** OF 99-0400

Milankovitch forcing *see* orbital forcing

**Milankovitch theory**

OF 99-0312; FS 0095-00; OP-82

Nevada OP-1425

**Milford-Souhegan Aquifer** OF 99-0462

**military facilities**

WRI 99-4018-C; FS 0041-96

California WRI 99-4018-B; OF 00-0061

Delaware WRI 98-4153; OF 99-0253;

FS 0009-99; OP-369; OP-1278

Florida WRI 98-4110

Georgia OF 00-0075

Idaho WRI 99-4037

Kansas OP-364

Maryland WRI 98-4037; WRI 98-4047;

WRI 99-4018-C; OP-539

Massachusetts WRI 99-4018-C; WRI 99-4241; OP-308

Michigan WRI 99-4018-C; OP-818

Missouri WRI 98-4068; FS 0101-97

Nevada WRI 96-4042

New Jersey WRI 99-4018-C

New Mexico OF 99-0271

Pennsylvania WRI 98-4010; WRI 98-4129

South Carolina WRI 99-4018-C

Tennessee FS 0042-96

Texas WRI 98-4023; OF 99-0271; OP-509

**military geology**

Pennsylvania OP-115

millierite *see* nickel ores

**Milligans Formation** OF 99-0050-P

**Milwaukee Quadrangle** OF 99-0526-B;

OF 99-0526-C

**Milwaukee Wisconsin** OF 99-0270; OP-1101

**mine dewatering**

Florida WRI 99-4002

Nevada OP-616

**mineral assessment** *see also* blind deposits; geochemical anomalies; geochemical methods; geophysical methods; geophysical surveys; ore guides; PROSPECTOR; remote sensing; stream sediments.

OF 98-0039; OF 99-0556; FS 0023-97;

FS 0099-00; OP-110; OP-137; OP-386; OP-577;

OP-814; OP-889; OP-948; OP-1112; OP-1330;

OP-1381; OP-1457; OP-1481; OP-1559;

OP-1580

Alaska P 1616; OF 00-0005; OF 00-0021;

OF 00-0022; OF 00-0023; OF 00-0024;

OF 00-0025; OF 00-0028; OF 00-0029;

OF 00-0030; OF 00-0117; OF 00-0118;

OF 00-0119; OF 00-0120; OF 00-0121;

OF 00-0122; OF 99-0392; OF 99-0393;

OF 99-0525; OF 99-0573; OF 99-0574;

OF 99-0579

Arizona OF 99-0399; OP-255

Colorado OF 99-0321

Great Plains OP-1385

Gulf Coastal Plain OP-1385

Hungary OP-578; OP-659

Kazakhstan OP-513

Montana OP-339

Nevada OP-213; OP-366; OP-1305; OP-1444

New Zealand OP-78

North Carolina OP-365

Oregon OP-1444

Pacific Ocean OP-690

Russian Federation OP-512

Ukraine OP-514

Utah OP-1113; OP-1296

Vermont FS 0045-96

Washington OF 00-0014-A; OF 00-0014-B;

OF 99-0414-B

mineral chemistry *see* crystal chemistry

**mineral deposits, genesis** *see also* besshi-type deposits; carlin-type deposits; cyprus-type deposits; endogene processes; epithermal processes; exhalative processes; geochemical controls; hydrothermal alteration; kuroko-type deposits; magmatism; mantos; mesothermal processes; metallogeny; metasomatism; mississippi valley-type deposits; ore-forming fluids; paragenesis; placers; porphyry copper; porphyry molybdenum; quartz veins; sedimentation; supergene processes; syngensis; volcanism; wall-rock alteration; weathering.

OF 99-0556; FS 0023-97; OP-295; OP-920;

OP-1112; OP-1322; OP-1330

Alaska P 1614; P 1615; OF 99-0525;

OF 99-0573; OF 99-0574; OP-641; OP-1378

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Colorado OP-312

Hungary OP-659

Montana OP-1288

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OF 00-0195; OF 99-0321; FS 0181-99; OP-62;

OP-110; OP-889; OP-1330

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**mineral resources** *see also* mineral deposits, genesis; mineral economics; strategic minerals. DDS-0064; C 1199; OF 97-0455; OF 98-0039; OF 99-0501; FS 0038-96; FS 0041-96; FS 0099-00; OP-577; OP-814; OP-819; OP-1025; OP-1559

Alabama FS 0002-96

Alaska P 1614; P 1615; OF 99-0528;

FS 0001-95; FS 0001-96; FS 0092-95

Arizona OF 99-0399; OF 99-0406; I-2308;

I-2643; FS 0003-96; OP-255

Arkansas FS 0004-96

British Columbia OP-799

California OF 99-0153; OF 99-0368-A;

OF 99-0368-B; OF 99-0409; MF-2332;

FS 0005-96; OP-615

Colorado OF 00-0298; OF 99-0410;

OF 99-0427; OF 99-0553-A; I-2646; I-2656;

I-2681; FS 0006-96; OP-712; OP-1006

Commonwealth of Independent States OP-474

Connecticut FS 0007-96

Europe OP-474

Great Lakes region OF 99-0349

Idaho OF 99-0543; FS 0013-99

Indiana FS 0014-96

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Maine OF 99-0546; FS 0019-96

Maryland I-2607

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Montana FS 0026-96

Nevada OF 99-0540; FS 0028-96; OP-615

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Pacific region OF 99-0422; OP-391

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Pennsylvania OP-593

Rocky Mountains OP-876

Saudi Arabia OP-164

Tennessee FS 0042-96

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Utah OF 99-0407; OF 99-0553-B; FS 0044-96

Vermont I-2598; FS 0045-96

Virginia I-2607; FS 0046-96

Washington OF 99-0408

West Virginia FS 0049-96

Wisconsin OF 99-0546; FS 0051-99

Wyoming OF 99-0542; OF 99-0553-C; I-2661;

FS 0050-96

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mineral soap *see* bentonite

**mineral-water interface** OP-1381

mineralogy *see* aluminosilicates; carbonates;

chlorides; hydrates; mineral inventory; nitrates;

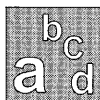
orthosilicates; oxides; phosphates; silicates; sul-

fates; sulfides; tellurides

**minerals** OF 00-0144

mines *see* abandoned mines

mining *see* surface mining; underground mining



**mining geology** *see also* coal mines; open-pit mining; reclamation; surface mining; underground mining.

OP-110  
Alaska P 1615; OP-1268  
Arizona OP-421  
Colorado OP-119; OP-1006  
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Hungary OP-578  
Idaho OP-1187  
Montana P 1625-A  
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South America OP-909  
Washington OF 00-0014-A; OF 00-0014-B  
Wyoming P 1625-A

mining, open-pit *see* open-pit mining

**Minnekahta Aquifer** OF 99-0602; HA-0745-B

**Minnekahta Limestone** OF 99-0260;  
HA-0744-B

**Minnelusa Aquifer** WRI 98-4156; OF 99-0602;  
HA-0745-C

**Minnelusa Formation** OF 99-0260; HA-0744-C

**Minnesota** *see also* Lake Superior region; Mississippi River; Red River; Upper Mississippi Valley.

C 1169; WRI 98-4126; WRI 98-4175;  
WRI 99-4018-B; WRI 99-4034; OF 00-0069;  
OF 00-0204; OF 91-0151; OF 99-0471;  
OF 99-0474; OF 99-0562-D; I-1420(NM-14);  
OP-216; OP-217; OP-298; OP-756; OP-1270;  
OP-1533

Bemidji Minnesota WRI 99-4018-C;  
OF 99-0321; OP-549; OP-854  
Clearwater County Minnesota OP-191  
Goodhue County Minnesota WRI 99-4069;  
OF 00-0078  
Hubbard County Minnesota OP-953  
Kandiyohi County Minnesota OP-191  
Mille Lacs County Minnesota OP-493  
Sherburne County Minnesota WRI 98-4128  
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minor planets *see* asteroids

**Miocene** *see also* Imperial Formation; Monterey Formation; Santa Fe Group; Tamiama Formation.

OP-686  
Antarctic Ocean OP-53  
Argentina OP-281; OP-741  
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Atlantic Coastal Plain OP-817  
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California B 1995-Y,Z; OF 00-0154;  
OF 99-0153; OP-382; OP-553; OP-1427  
Calvert Formation I-2607  
Chile OP-1524  
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Columbia River Basalt Group OP-520  
Crater Flat Tuff WRI 98-4132; OF 99-0153  
Ecuador OP-1524  
Florida OF 99-0181  
Hungary OP-212  
Indian Ocean OP-707  
Luisian, California OP-1498  
Mississippi OP-1515  
Nevada OF 98-0266; OF 99-0153; OP-174;  
OP-384  
Oregon OP-178; OP-1111  
Paintbrush Tuff WRI 98-4058; WRI 98-4132;

OF 98-0530  
Pakistan OP-1264  
Pennsylvania OP-668  
Saddle Mountains Basalt P 1413-A  
Saucasian, California OP-1498  
Topopah Spring Member OP-1176  
Utah OP-1198; OP-1560  
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**miogeosynclines**

California OF 99-0153  
Mexico OP-849  
Nevada OF 99-0329

miospores *see* pollen

**mirabilite**

California OP-473  
Canada OP-473  
Texas OP-473

**Miranda Satellite** OP-422

**mires** *see also* bogs; fens; marshes; peatlands;  
swamps.

OP-730; OP-1107  
Louisiana OP-201  
Ohio OP-475

**Mirror Lake** WRI 98-4183; WRI 99-4018-C;  
OF 99-0239; OP-188; OP-672; OP-882

mirrorstone *see* muscovite

miscellaneous minerals *see* mineral inventory

**Mississippi** *see also* Mississippi River; Sparta Sand.

P 1416-H; WRI 96-4305; WRI 98-4171;  
WRI 99-4018-B; OF 99-0562-C; OF 99-0606;  
FS 0024-96; FS 0025-99; FS 0079-96; OP-892;  
OP-909; OP-950; OP-1102; OP-1124; OP-1257;  
OP-1399; OP-1515

Harrison County Mississippi OP-1115;  
OP-1513

Hinds County Mississippi OP-1115  
Jackson County Mississippi WRI 96-4051;  
OP-88

Jones County Mississippi OP-1115  
Lee County Mississippi OP-1115

Leflore County Mississippi OP-733

Pascagoula River basin OP-1256

Sunflower County Mississippi OP-733

**Mississippi Canyon** OP-1096

**Mississippi Delta** WRI 99-4018-B; OF 00-0211;  
OP-113; OP-526; OP-733; OP-977

**Mississippi Embayment** OP-639

**Mississippi River** WRI 99-4035; OF 00-0078;  
OP-602; OP-612; OP-1012; OP-1063;  
OP-1107; OP-1234; OP-1574

**Mississippi River basin** WRI 96-4305;  
WRI 98-4084; WRI 98-4126; WRI 98-4131;  
WRI 99-4018-B; WRI 99-4034; WRI 99-4193;  
WRI 99-4292; OF 00-0204; OF 98-0177;  
FS 0025-00; OP-304; OP-878; OP-994;  
OP-1012; OP-1102; OP-1399

Mississippi River delta *see* Mississippi Delta

**Mississippi Valley** *see also* Arkansas; Illinois;  
Iowa; Minnesota; Mississippi; Mississippi  
Embayment; Mississippi River; Missouri; Tennessee.

FS 0200-96; OP-894  
Lower Mississippi Valley OP-1117  
Upper Mississippi Valley OP-612; OP-994

**mississippi valley-type deposits**

OP-838  
Canada OP-795

Poland OF 99-0394  
United States OP-795

**Mississippian**

Alaska P 1614; OP-1267; OP-1285; OP-1346;  
OP-1378

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Madison Group OF 99-0260; HA-0744-D

Mexico OP-849

Michigan OP-1281

New Mexico OP-45

Pennsylvania OP-449

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Utah OF 00-0012

Virginia OF 99-0423

Yukon Territory OP-1267

**Missouri** *see also* Mississippi Embayment; Mississippi River; New Madrid region; Ozark Mountains; Upper Mississippi Valley.

OF 00-0204; OF 99-0562-C; FS 0032-00;  
OP-341; OP-909; OP-946; OP-1102  
Johnson County Missouri WRI 98-4068  
Linn County Missouri WRI 98-4190  
Montgomery County Missouri WRI 98-4101  
Ozark County Missouri WRI 98-4164  
Phelps County Missouri OP-1099  
Platte County Missouri WRI 98-4190  
Pulaski County Missouri FS 0101-97  
Reynolds County Missouri I-2722  
Saint Louis Missouri OP-139; OP-1399  
Shannon County Missouri I-2653; I-2722  
Vernon County Missouri WRI 98-4190  
Viburnum Trend OP-664

**Missouri River** WRI 99-4018-B; OP-990;  
OP-1353; OP-1371

**mitigation**

C 1182; WRI 99-4007; OF 00-0204;  
OF 93-0641; OF 98-0039; OF 99-0205;  
OF 99-0590; FS 0055-95; FS 0061-95;  
FS 0075-00; FS 0150-00; OP-607; OP-891;  
OP-971; OP-1390  
Alaska OP-332; OP-783  
California OF 00-0127; OF 96-0263;  
OF 99-0560; OP-783

Chile OP-332

Colombia OP-1116

Delaware OF 00-0204

Great Lakes region OF 99-0349

Guatemala OP-332

Hawaii FS 0152-00; OP-332

Idaho FS 0013-99

Mexico OP-332

Nevada OF 00-0204

Nicaragua OP-332

North Carolina OF 00-0204

Oregon W 2465-C; OP-1454

Russian Federation OP-332

South Dakota WRI 99-4122

Texas FS 0101-00

Turkey C 1193

United States C 1193

Utah P 1500-K-R; WRI 99-4189

Virginia OF 99-0518

Washington OP-926; OP-1454

Wisconsin FS 0109-00

**Miyagi earthquake 1978**

California OP-427

Japan OP-427

MM scale *see* modified Mercalli scale

Mn *see* manganese



Mo *see* molybdenum

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**Mobile Bay** OP-1274

**Mobile River basin** OP-28; OP-330; OP-1579

**modern analogs**

OF 94-0645

Alaska OP-1405

Colorado Plateau OP-337

**MODFLOW**

WRI 98-4005; WRI 98-4234; OF 99-0184;  
OF 99-0217; OF 99-0238; OP-506; OP-555;  
OP-670

Alaska WRI 98-4088

Arizona OP-840

California WRI 98-4041; OF 99-0153

Florida OF 99-0181

Minnesota WRI 99-4018-C

Mississippi WRI 98-4171

Nevada WRI 98-4041

New York WRI 98-4067

Texas WRI 98-4023

Wisconsin OP-1042

**modified Mercalli scale**

GN; OF 99-0565

California OP-1003; OP-1030

New Jersey OP-305

Pennsylvania OP-305

Utah P 1500-K-R

**Modoc Plateau** OP-1343

**Moenkopi Formation** OP-461

Mogollon-Datil volcanic field *see* Datil-Mogollon  
volcanic field

Mohave Desert *see* Mojave Desert

**Mohave Mountains** I-2308

**Mohorovicic discontinuity**

OP-1259

California OP-866

Montana OP-136

Ontario OP-426

**Mojave Basin** OP-1373

**Mojave Desert** OF 00-0147; OF 99-0153;  
OF 99-0321; OP-63; OP-87; OP-394; OP-552;  
OP-1018; OP-1221; OP-1374; OP-1478

Mojave Mountains *see* Mohave Mountains

**molasse**

Maine P 1624

**Mollusca**

Alaska OP-81; OP-1315

Ammonites

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Baculites

North Dakota OP-1223

Wyoming OP-1223

Bivalvia, California WRI 99-4018-B

California WRI 99-4018-B; OP-158

Florida OF 00-0191; OF 99-0181; FS 0144-96

Gastropoda

Alaska OP-1026

Mexico OP-848

Russian Federation OP-1026

North Carolina OP-365

South Dakota OP-193

Utah OF 99-0101

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**Molokai** OP-592

**molybdenite**

Colorado OP-1566

molybdenite porphyry *see* porphyry molybdenum

**molybdenum**

Colorado OF 97-0361

**molybdenum ores** *see also* porphyry molybde-  
num.

OF 99-0556; OP-889

Alaska P 1619; OF 00-0118; OF 00-0122;

OP-653

China OP-1103

Colorado OF 99-0347; OP-1566

Poland OF 99-0530-A; OF 99-0530-B

Russian Federation OP-653; OP-1185

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**moment tensors**

California OP-757

South Africa OP-584

**monazite**

Brazil OP-340

California OP-340

China OP-340

New Hampshire OP-235

North Carolina OP-340

**Mongolia** OP-1458

**Monitor Butte Member** OP-26

**Mono Lake** OP-663

**monoclines**

Arkansas OP-383

Colorado I-2647

Washington OP-1364

Monocotyledoneae *see* Gramineae

**Monroe Quadrangle** OF 99-0526-K

**monsoons**

Chile OP-80

**Montana** *see also* Absaroka Supergroup;

Bearpaw Formation; Bighorn Basin; Blackleaf

Formation; Clark's Fork Basin; Fort Union For-

mation; Frontier Formation; Glacier National

Park; J-M Reef; Judith River Formation;

Kootenay Formation; Lance Formation; Lewis

thrust fault; Mesaverde Group; Powder River ba-

sin; Stillwater Complex; Two Medicine Forma-

tion; Wasatch Formation; Yellowstone National

Park; Yellowstone River.

DDS-0057; WRI 98-4079; WRI 98-4100;

WRI 99-4019; OF 00-0003; OF 00-0004;

OF 00-0034; OF 00-0080; OF 99-0450;

OF 99-0562-I; FS 0026-96; OP-339; OP-411;

OP-1220

Beaverhead County Montana OP-398

Big Horn County Montana P 1625-A;

WRI 98-4066

Blaine County Montana OP-136

Carbon County Montana OP-862

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OP-303

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OF 00-0038; OF 00-0099; OF 00-0114;

OF 99-0537

Lincoln County Montana OP-238

Madison County Montana I-2690

Missoula County Montana WRI 98-4137

Park County Montana OF 99-0321; I-2634

Powder River County Montana P 1625-A;

OP-613

Rosebud County Montana P 1625-A;

WRI 98-4066

Stillwater County Montana OP-181

Tobacco Root Mountains OP-1054

Treasure County Montana P 1625-A

Yellowstone National Park County Montana  
OP-303

**Monte Somma** OP-1393; OP-1491

**Monterey Bay** DDS-0061; MF-2345;

FS 0026-00

**Monterey Formation** OP-1386

**Monticello Utah** MF-2351

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**monzogranite**

Colorado OP-822

**monzonites**

Colorado OP-1398

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**Moon** *see also* Clementine Program; Galileo Pro-  
gram; KREEP; lunar craters; lunar crust; lunar  
highlands; lunar mantle; lunar soils; maria.

OP-138; OP-277; OP-1243; OP-1401

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Taurus-Littrow OP-1169

**Mooney Basin Summit Quadrangle** I-2691

**moraines**

Alaska OP-944

California OP-276

Nevada OP-276

MORB *see* mid-ocean ridge basalts

**Morgan Hill earthquake 1984**

California OP-1494

**Mormon Point Formation** OF 99-0153

**Morocco** B 2202-B

morphology *see* functional morphology

**Morrison Formation** MF-2351; OP-658

moscovite *see* muscovite

**Mosquito Range** OP-859

**Mossbauer spectroscopy** OP-1496

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motion, strong *see* strong motion

mounds, algal *see* algal mounds

**Mount Adams** OP-355; OP-497

**Mount Baker** FS 0059-00

**Mount Belknap Volcanics** OP-1113

**Mount Etna** OP-151; OP-908

**Mount Guyot Quadrangle** OF 99-0536

**Mount Hood** OF 99-0339; FS 0060-00;

OP-1088; OP-1229; OP-1376

**Mount Jefferson** OF 99-0024

Mount Lassen *see* Lassen Peak

**Mount Mazama** OP-33; OP-1365

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tional Park

**Mount McKinley Quadrangle** P 1614

**Mount Pinatubo** OP-1073; OP-1369

**Mount Rainier** OF 00-0027; OF 92-0474;

OF 93-0111; OF 93-0124; OF 95-0421;

OF 95-0642; OF 99-0339; FS 0065-97;

OP-926; OP-975; OP-1000; OP-1134;

OP-1347; OP-1423; OP-1461; OP-1463;

OP-1500; OP-1507

**Mount Saint Helens** OF 94-0313; FS 0027-00;

FS 0036-00; OP-361; OP-561; OP-643;

OP-737; OP-883; OP-936; OP-1088; OP-1229;

OP-1313; OP-1423



**Mount Spurr** OP-275; OP-719

**Mouydir Field** B 2202-B

movements, mass *see* mass movements

Mt. Lassen *see* Lassen Peak

## **mud**

Alaska OP-1044

Brazil OP-12

California OP-828

Oklahoma OP-1311

Pacific Ocean OP-1307

## **mud banks**

Brazil OP-12

## **mud flats** OP-1107

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## **mud mounds**

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## **Muddy Creek Formation** OP-479

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Washington OF 95-0642; OP-643

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## **mudstone**

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Maine OP-1057

Maryland OP-286

New Zealand OP-558

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Virginia OP-286

Wyoming B 1917-U

## **mullite**

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Canada OP-717

India OP-717

Kenya OP-717

Norway OP-717

Surinam OP-717

Virginia OP-717

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California OP-457

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## **museums**

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## **mylonites**

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## **Myszkow Deposit** OF 99-0530-A; OF 99-0530-B

## **N**

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## **N-15**

OF 00-0204

Gulf of Mexico WRI 99-4018-B; OP-1012

Nevada WRI 99-4042

Puerto Rico WRI 99-4040

## **N-15/N-14**

OP-806; OP-1248

Florida OF 00-0204; OF 99-0181

Gulf of Mexico WRI 99-4018-B

Montana WRI 98-4079

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## **n-alkanes** OF 00-0204

Na *see* sodium

Na-montmorillonite *see* montmorillonite

## **Nabesna Quadrangle** OP-1389

## **Nacatoch Aquifer** WRI 98-4130

## **Namib Desert** OP-488

## **Namibia**

Namib Desert OP-488

## **Nanga Parbat** OP-442

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## **Nankai Trough** OP-765

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## **Nanoflagellata** WRI 99-4018-C

## **Nanushuk Group** P 1615; OP-1236; OP-1354

## **Naokelekan System** OP-1404

## **naphthalene**

OP-147

Minnesota WRI 99-4018-C

## **Naples Italy** OP-1522

## **nappes**

Pennsylvania OP-210

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## **Nara Japan** OF 99-0400

## **Narragansett Bay** WRI 99-4153

## **NASA**

Greenland OP-442

## **national forests**

OF 99-0501

Colorado OF 00-0298

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National Oceanic and Atmospheric Administration *see* NOAA

## **National Petroleum Reserve Alaska**

OF 00-0286; OP-1236; OP-1354; OP-1452

national policy *see* public policy

National Uranium Resource Evaluation Program *see* NURE

National Water Data Exchange *see* NAWDEX

National Water Information System-II *see*

NWIS-II

National Water-Quality Assessment Program *see* NAWQA

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**natural gas** *see also* gas hydrates; gas seeps; methane; stratigraphic traps; structural traps.

DDS-0060; OF 00-0044; OF 99-0321;

OF 99-0405; OF 99-0419; FS 0070-00;

FS 0119-00; OP-5; OP-278; OP-782; OP-987;

OP-1056; OP-1141; OP-1320

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Arkansas OP-1242

California OP-1091

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coalbed methane

FS 0019-97; FS 0020-97; FS 0123-00;

OP-156; OP-252; OP-490; OP-504

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Colorado P 1625-A; OP-183; OP-742;

OP-1426

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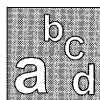
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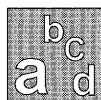


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 California OF 00-0105-B; OF 99-0368-A; OF 99-0368-B  
**Nutmeg Valley Superfund Site** WRI 99-4081  
**NWIS-II** FS 0027-98  
**Nyes Road Member** OP-273  
 Nyos *see* Lake Nyos



## O

O *see* oxygen

O-16/O-18 *see* O-18/O-16

**O-18**

Idaho OP-1543

**O-18/O-16** *see also* geologic thermometry.

OF 00-0160; OF 99-0312; OF 99-0535;

OP-806; OP-1031

Alaska P 1615; OF 99-0312; OP-8; OP-81

Antarctic Ocean OF 99-0312

Antarctica OF 00-0133; OF 99-0312

Arizona OP-294

Atlantic Ocean OF 99-0312; OP-264

Basin and Range Province OF 99-0569

California P 1632; OF 99-0153; OP-77;

OP-204; OP-394; OP-441; OP-518; OP-529;

OP-543; OP-553; OP-567; OP-896; OP-1506

Caribbean Sea OF 00-0035; OF 99-0312

Chile OP-1524

China OP-1239

Colorado FS 0164-99; OP-363; OP-822;

OP-856; OP-961; OP-1269

Ecuador OP-1524

England OF 99-0312

Florida WRI 98-4133; OF 00-0204; OP-1261

Great Basin OF 99-0569

Greenland OP-1109

Gulf of Mexico WRI 99-4018-B; OF 99-0566;  
OP-1012

Hawaii OF 99-0312; OP-358; OP-592

Hungary OP-367

Idaho OP-713; OP-1122

Italy OF 99-0312; OP-1120; OP-1394

Massachusetts WRI 99-4018-C

Nevada WRI 99-4018-C; WRI 99-4042;

OF 99-0153; OP-159; OP-174; OP-652;  
OP-872

New Mexico OP-1306

New Zealand OP-1270

Ohio OP-1446

Oklahoma WRI 99-4018-C

Pacific Ocean OF 99-0397; OP-690

Puerto Rico WRI 97-4122

Rocky Mountains OP-230

Russian Federation OP-789

South Dakota OP-193

United States OP-1270

Utah OP-666; OP-1122

Vermont FS 0166-99

Washington OP-975

Wisconsin WRI 98-4179

**Oahu** *see also* Koolau Range.

OF 99-0312; OP-79; OP-249; OP-328; OP-895

**Oakland California** MF-2342; OP-359;

OP-1028; OP-1402

**Oasis Valley** P 1608; WRI 98-4184;

OF 99-0049; OF 99-0533-A

**Oaxaca Complex** OP-760

**Oaxaca Mexico** OP-573

**Obedenidae** P 1615

**oblique-slip faults**

California OP-589

**obsidian**

OP-267; OP-563

California OF 99-0153

obsidian hydration *see* hydration of glass

**ocean bottom seismographs**

Pacific Ocean OP-13

Washington OP-1530

**ocean circulation** *see also* bottom currents;  
ocean currents.

Atlantic Coastal Plain FS 0076-00

Atlantic Ocean OP-804

California P 1632; WRI 99-4018-B

Florida OF 99-0181

Gulf of Mexico FS 0156-96

Massachusetts OP-1037

ocean crust *see* oceanic crust

**ocean currents**

California OP-553

**Ocean Drilling Program** *see also* Leg 100; Leg  
128; Leg 136; Leg 139; Leg 162; Leg 164; Leg  
165; Leg 167; Leg 169; Leg 169S; Leg 170;  
Leg 172; Leg 178.

OP-192; OP-779; OP-1403

**ocean floors** *see also* bathymetric maps; bottom  
features; continental margin; continental rise;  
continental slope; hydrothermal vents;  
mid-ocean ridges; paleo-oceanography; relief;  
seamounts.

C 1199; OF 98-0798; OP-1328

Atlantic Coastal Plain OP-1128

Atlantic Ocean OF 99-0372

Bering Sea OP-1455

California B 1995-Y,Z; WRI 99-4018-B;

MF-2345; FS 0013-00; OP-436

Florida FS 0108-99; FS 0109-99

Gulf of Mexico OF 00-0019; OF 99-0586;

OP-1128

Hawaii OF 00-0124

Marshall Islands OF 99-0412

Massachusetts OF 99-0363; OP-1037

Mexico OP-436

Micronesia OF 99-0412

Nevada OP-1305

New Jersey OP-784

New York OF 00-0242; OF 00-0340;

OF 99-0037; OP-784; OP-1058

Oregon OF 00-0167

Puerto Rico OF 00-0006

Washington OF 00-0167; OF 99-0591;

OF 99-0592

**Ocean of Storms** OP-1516

ocean ridges *see* mid-ocean ridges

**ocean waves** *see also* tsunamis.

Atlantic Ocean OP-804

California FS 0026-00

Florida OP-521

North Carolina P 1177-B

ocean-bottom seismometers *see* ocean bottom  
seismographs

ocean-floor spreading *see* sea-floor spreading

Oceania *see* Melanesia; Micronesia; Polynesia

**oceanic crust**

OP-1260

Atlantic Ocean OP-1015

California OP-111; OP-382

Pacific Ocean OP-13

oceanography *see* continental margin; continental  
shelf; continental slope; estuaries; marine geol-  
ogy; nodules; ocean circulation; ocean floors;  
ocean waves; reefs; sea ice; sea water; sedimen-  
tation; sediments

Oceanus Procellarum *see* Ocean of Storms

**Ochoan** OP-456

**Oconomowoc Quadrangle** OF 99-0526-B;

OF 99-0526-C; OF 99-0526-J

octahedral iron ore *see* magnetite

**octahedrite**

Saudi Arabia OP-963

**Odobenus rosmarus divergens** P 1615

ODP *see* Ocean Drilling Program

**ODP Site 625** OF 99-0413

**ODP Site 798** OP-708

**ODP Site 842** OP-592

**ODP Site 982** OF 99-0312

**ODP Site 994** OP-1302

**ODP Site 996** OP-864; OP-1302

**ODP Site 997** OP-1302

**ODP Site 1002** OF 00-0035; OF 99-0312

**ODP Site 1016** OP-61

**ODP Site 1018** P 1632; OF 99-0397

**ODP Site 1020** P 1632; OF 99-0397

**ODP Site 1021** OP-61; OP-208

**ODP Site 1022** OP-61

**ODP Site 1034** OP-263

**ODP Site 1037** OP-979

**ODP Site 1038** OP-979

**ODP Site 1041** OP-1302

**ODP Site 1095** OP-48

**ODP Site 1096** OP-49

**ODP Site 1097** OP-50

**ODP Site 1098** OP-51

**ODP Site 1099** OP-51

**ODP Site 1100** OP-53

**ODP Site 1101** OP-52

**ODP Site 1102** OP-53

**ODP Site 1103** OP-53

**Oelwein Quadrangle** OF 99-0526-H

**Ogallala Aquifer** WRI 98-4146; OF 00-0204;  
FS 0081-00; OP-595

**Ogallala Formation** FS 0009-00

**Ogden Utah** P 1500-K-R

**Ohio**

P 1423-A; P 1423-C; WRI 98-4043;  
WRI 98-4057; WRI 98-4238; WRI 99-4018-B;  
WRI 99-4192; WRI 99-4198; OF 99-0349;  
OF 99-0562-F; HA-0725; FS 0035-96;  
FS 0050-00; OP-777; OP-1446

Cuyahoga County Ohio WRI 98-4089

Darke County Ohio WRI 99-4012

Hocking County Ohio WRI 99-4137

Jackson County Ohio I-2726

Pike County Ohio OP-921

Preble County Ohio WRI 99-4012

Summit County Ohio WRI 98-4089

Toledo Ohio OP-475

Trumbull County Ohio WRI 98-4180

**Ohio River basin** OP-157

oil and gas *see* petroleum

**oil and gas fields** *see also* natural gas; oil wells;  
petroleum; stratigraphic traps.

OP-1255

Mississippi OP-1257

New Mexico OP-45

Texas OP-45

**oil seeps**

OF 99-0590

Alaska OP-73

California OP-1310

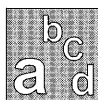
Oklahoma OP-1145

**oil shale**

OP-156



- Armenia B 2177; OF 99-0582  
China OF 00-0047
- oil spills** *see also* Exxon Valdez oil spill.  
OF 99-0590  
California WRI 99-4018-B  
Florida FS 0058-95  
Minnesota WRI 99-4018-C; OF 99-0321  
New Jersey OP-171
- oil wells** *see also* abandoned oil wells.  
Alaska OP-1266; OP-1452  
Arizona OF 00-0139  
Montana OP-408; OP-410  
Northwest Territories OP-1114; OP-1301  
Wyoming OP-408; OP-410
- Okanagan Valley** OP-467
- Okhotsk Sea** OP-1375
- Oki Ridge *see* ODP Site 798
- Oklahoma** *see also* Arkoma Basin; High Plains Aquifer; Ogallala Aquifer; Ozark Mountains.  
WRI 98-4081; WRI 98-4082; OF 00-0204;  
OF 99-0562-G; FS 0036-96; OP-555; OP-1166  
Caddo County Oklahoma OP-1145  
Cleveland County Oklahoma WRI 99-4018-C;  
OP-1311
- Okmok** OP-546
- Oktyabr'skoye Mine** OP-182
- Oligocene**  
Arizona OF 00-0138; OF 00-0139  
California OF 00-0154  
Colorado OF 99-0347; OP-1269  
Fish Canyon Tuff OP-31; OP-498; OP-1223;  
OP-1379  
Florissant Lake Beds OP-348  
Hungary OP-471  
Idaho OP-606  
Mexico OP-573  
Nevada OP-384; OP-1525  
New Mexico OP-1421  
Northwest Territories OP-1301  
Pennsylvania OP-668  
Virginia P 1622
- olistoliths**  
Pennsylvania OP-273
- olistostromes**  
Pennsylvania OP-273
- olivine**  
OP-9; OP-722; OP-996  
California OP-453  
Far East OP-476  
Montana OP-339  
Russian Federation OP-182
- Oljato Aquifer** WRI 99-4074
- Olympic Mountains** OP-1419
- Olympic Peninsula** OP-1539
- Omi (Lake) *see* Lake Biwa
- Oncorhynchus gorbusha** WRI 98-4191
- Oncorhynchus tshawytscha** WRI 99-4018-B
- Onslow Bay** OP-365
- Ontario** *see also* Superior Province.  
Borden Ontario OP-829
- opal**  
Nevada OP-646; OP-647
- open-pit mining**  
FS 0065-00  
Colorado OP-312  
Far East OP-411; OP-716  
Middle East OP-716  
Nevada OP-616
- Scandinavia OP-411  
South Carolina OP-718  
Virginia OP-718
- ophiolite**  
Alaska OP-1346  
California OP-239  
Pakistan OP-1264
- ophiolite complexes**  
OP-272  
Alaska OP-1397  
Argentina OP-186  
Russian Federation OP-1397
- optical mineralogy** OP-1177
- optimal filters** OP-816
- Oquirrh Mountains** OF 00-0012; OF 98-0234;  
OF 98-0581; OF 99-0571
- orbit *see* orbits
- orbital forcing**  
OF 99-0312; OP-82; OP-376  
Antarctica OF 99-0312  
Atlantic Ocean OF 99-0312; OP-175; OP-192  
Hungary OP-416  
Italy OF 99-0312
- orbits** OP-907
- Orca Basin** OF 99-0566
- Ordovician**  
OP-650  
Alaska P 1614; OP-1026; OP-1136  
Arenigian  
Basin and Range Province OP-234  
Great Basin OP-234  
Ashgillian  
Maine OP-1162  
New Brunswick OP-1162  
Caradocian  
Maine OP-1162  
New Brunswick OP-1162  
China OP-241  
El Paso Group OP-234  
Eureka Quartzite OP-379  
Fillmore Formation OP-234  
Llanvirnian  
Maine OP-1162  
New Brunswick OP-1162  
Maine OP-1485  
Martinsburg Formation OP-273  
Mexico OP-849  
Pennsylvania OP-740  
Russian Federation OP-1026  
Saint George Group OP-1427  
Simpson Group OP-1452  
Tennessee OP-1556  
Tettagouche Group OP-1162
- ore exploration *see* mineral assessment
- ore guides**  
British Columbia OP-799; OP-807  
Finland OP-807  
India OP-807  
Italy OP-799  
Kenya OP-800  
United States OP-799; OP-800; OP-807  
Uzbekistan OP-807
- Ore Knob Deposit** OP-1486
- ore of sedimentation *see* placers
- ore-forming fluids**  
OP-65; OP-1255  
Alaska OP-1338  
China OP-1239  
Colorado OP-1269
- Nevada OP-159
- Pacific Ocean OP-1184
- orebodies, hidden *see* blind deposits
- Oregon** *see also* Blue Mountains; Cascade Range; Coast Ranges; Columbia Plateau; Columbia River; Columbia River Basalt Group; Columbia River basin; Crater Lake; Deschutes River; Klamath Mountains; Mount Jefferson; Saddle Mountains Basalt; Snake River; Snake River basin.  
W 2465-B; W 2465-C; WRI 98-4105;  
WRI 98-4125; OF 00-0167; OF 99-0541;  
OF 99-0562-K; FS 0037-96; OP-582; OP-773;  
OP-843; OP-954; OP-999; OP-1111; OP-1350;  
OP-1444; OP-1518; OP-1577  
Clackamas County Oregon OP-86; OP-519;  
OP-1088; OP-1229  
Hood River County Oregon OP-1088; OP-1229  
Josephine County Oregon OP-957  
Klamath County Oregon WRI 98-4198;  
OF 99-0339; OP-497; OP-637; OP-1000;  
OP-1229  
Klamath Falls OP-168  
Lane County Oregon OP-919  
Malheur County Oregon OP-178; OP-237;  
OP-568  
Marion County Oregon OP-519; OP-1231  
Mount Hood OF 99-0339; FS 0060-00;  
OP-1088; OP-1229; OP-1376  
Mount Mazama OP-33; OP-1365  
Newberry Volcano OP-222; OP-1500  
Portland Oregon OP-86; OP-520; OP-758;  
OP-1163; OP-1412; OP-1561  
Willamette River OP-94  
Willamette Valley P 1424-C; C 1161;  
OF 96-0227; OP-86; OP-94; OP-519; OP-520  
Yamhill County Oregon OP-86
- ores, polymetallic *see* polymetallic ores
- Organ Rock Formation** OP-214
- organic acids *see* fatty acids; humic acids
- organic carbon** *see also* total organic carbon.  
WRI 98-4164; OP-101; OP-191; OP-446;  
OP-744  
Atlantic Coastal Plain OP-1493  
Atlantic Ocean OP-192  
California WRI 98-4147; WRI 99-4018-B  
Colorado WRI 98-4193; OP-105  
Connecticut WRI 99-4018-C  
Florida C 1207; OF 99-0181; OP-362  
Idaho OP-684  
Louisiana OP-304  
Maryland OP-1480  
Massachusetts WRI 99-4018-C  
Mexico OP-106  
Michigan WRI 98-4006  
New Hampshire WRI 99-4018-C  
New Jersey WRI 98-4016  
Oregon OP-94  
South Dakota OP-193  
Venezuela OP-173  
Virginia OP-1480



**organic compounds** *see also* acetate;

chlorophenols; dioxins; halogenated hydrocarbons; hydrocarbons; ketones; organic acids; phenols; pigments; proteins; steroids; total organic carbon; volatile organic compounds.

WRI 99-4018-B; OF 00-0204; I-2666; OP-7; OP-39; OP-141; OP-246; OP-349; OP-462; OP-507; OP-630; OP-751; OP-934; OP-1038; OP-1253; OP-1558

Alaska DDS-0059

Antarctic Ocean OP-47

Atlantic Coastal Plain OP-1493

California WRI 98-4040-A; WRI 99-4018-B; OF 99-0531; OP-543

Colorado OF 00-0115

Florida OP-1261

Idaho C 1160; OF 99-0272; OF 99-0473

Indiana OP-1317

Iowa WRI 99-4018-B; OF 00-0067; OF 00-0204

Louisiana WRI 99-4018-B; OP-1513

Manitoba OP-955

Maryland OP-1219; OP-1480

Massachusetts WRI 99-4018-C

Midwest WRI 99-4018-B

Minnesota WRI 98-4175; WRI 99-4018-B; OF 00-0204

Mississippi OP-1513

Missouri WRI 98-4190

Nevada OF 99-0531; OP-1280

New Jersey WRI 99-4018-B

New York WRI 99-4018-B; OP-941

North Dakota WRI 98-4175

Pennsylvania OF 99-0271-A; OP-762

Russian Federation OF 99-0379

South Dakota OP-193

Virginia OP-1480

Wisconsin OF 99-0270

Wyoming C 1160; OP-899; OP-1464

organic mound *see* bioherms

**organic nitrogen**

New Jersey WRI 99-4001

**organic residues**

Belgium OP-211

Colorado OP-767

United Kingdom OP-836

**organo-metallics**

WRI 99-4018-B

California WRI 99-4018-B

China OP-200

**organochlorine pesticides**

WRI 99-4018-B

California OP-226; OP-227

Mississippi WRI 99-4018-B

Wisconsin FS 0121-00

Ornithischia *see* Ceratopsia

orogenesis *see* orogeny

**orogenic belts**

China OP-918

Poland OF 99-0530-A; OF 99-0530-B

**orogeny** *see also* Acadian Phase; Alleghany

Orogeny; Alpine Orogeny; Cordilleran Orogeny;

Hercynian Orogeny; Ouachita Orogeny;

Pan-African Orogeny; Taconic Orogeny.

Alaska OP-1338; OP-1346

Appalachians OP-1361

Montana OP-1054

Nevada OP-877

**orpiment**

Michigan OP-447

**orthoamphibole**

Wyoming OP-1396

**orthoclase**

Far East OP-716

Middle East OP-716

**orthopyroxene** OP-1243

**orthosilicates** *see also* nesosilicates.

Alaska OP-387

Os (osmium) *see* osmium

**Os-187/Os-186** OP-1550

**Os-188/Os-187**

OP-1013

California OP-96

Montana OP-1288

**osmium** *see also* Re/Os.

Os-187/Os-186 OP-1550

Os-188/Os-187

OP-1013

California OP-96

Montana OP-1288

Osteichthyes *see* Sarcopterygii

**Ostracoda**

OF 99-0535; OP-114

Alaska OF 99-0312; OP-1049

Atlantic Ocean OP-175

California OF 99-0153

Costa Rica OP-97

Florida OF 00-0191; OF 99-0181; FS 0144-96

Nevada OF 98-0635

Panama OP-97

Utah OP-666

**Otaria byronia** OP-274

**Otaridae** OP-274

**Ouachita Orogeny**

Arkansas OP-383

**Outer Banks** P 1177-B

Outer Mongolia *see* Mongolia

outgassing *see* degassing

**outwash**

OF 98-0275; OP-952; OP-1292

Alaska OP-1010

Massachusetts OP-478; OP-508

Washington OP-334

**Ovda Regio** OP-1453

**overbank sediments**

Colorado OP-881

overburden pressure *see* lithostatic pressure

**overturned folds**

Pennsylvania OP-228

Utah OP-1198

**Owens Lake** OF 98-0752; OF 99-0321; OP-77;

OP-518; OP-529; OP-755; OP-828

**Owens Valley** W 2370-H

**Owl Rock Member** OP-337

**Owyhee Mountains** OP-568

oxalates *see* whewellite

**oxbow lakes**

Louisiana WRI 99-4193; WRI 99-4292

**Oxfordian**

Louisiana OP-1366

**oxides** *see also* brucite; chromite; ferrihydrite; gibbsite; hematite; hydroxides; ilmenite; iron oxides; maghemite; magnetite; manganese oxides; rutile; spinel; vernadite.

OP-761

California OP-457

**oxygen**

WRI 98-4042; OF 00-0204; OP-434

Alaska WRI 98-4191

Arkansas WRI 98-4194

Colorado WRI 98-4046; OF 00-0053; FS 0186-99

Connecticut WRI 99-4018-C

Florida OF 00-0204

Iowa OF 00-0204

Louisiana WRI 99-4133; WRI 99-4292; WRI 99-4293

Massachusetts WRI 99-4018-C

Michigan OF 00-0204

Missouri WRI 98-4190

New Hampshire WRI 99-4018-C

New Jersey WRI 99-4001; WRI 99-4045

New York OP-116

North Carolina WRI 98-4149

O-18, Idaho OP-1543

O-18/O-16

OF 00-0160; OF 99-0312; OF 99-0535; OP-806; OP-1031

Alaska P 1615; OF 99-0312; OP-8; OP-81

Antarctic Ocean OF 99-0312

Antarctica OF 00-0133; OF 99-0312

Arizona OP-294

Atlantic Ocean OF 99-0312; OP-264

Basin and Range Province OF 99-0569

California P 1632; OF 99-0153; OP-77;

OP-204; OP-394; OP-441; OP-518;

OP-529; OP-543; OP-553; OP-567;

OP-896; OP-1506

Caribbean Sea OF 00-0035; OF 99-0312

Chile OP-1524

China OP-1239

Colorado FS 0164-99; OP-363; OP-822; OP-856; OP-961; OP-1269

Ecuador OP-1524

England OF 99-0312

Florida WRI 98-4133; OF 00-0204; OP-1261

Great Basin OF 99-0569

Greenland OP-1109

Gulf of Mexico WRI 99-4018-B;

OF 99-0566; OP-1012

Hawaii OF 99-0312; OP-358; OP-592

Hungary OP-367

Idaho OP-713; OP-1122

Italy OF 99-0312; OP-1120; OP-1394

Massachusetts WRI 99-4018-C

Nevada WRI 99-4018-C; WRI 99-4042;

OF 99-0153; OP-159; OP-174; OP-652; OP-872

New Mexico OP-1306

New Zealand OP-1270

Ohio OP-1446

Oklahoma WRI 99-4018-C

Pacific Ocean OF 99-0397; OP-690

Puerto Rico WRI 97-4122

Rocky Mountains OP-230

Russian Federation OP-789

South Dakota OP-193

United States OP-1270

Utah OP-666; OP-1122

Vermont FS 0166-99



Washington OP-975  
 Wisconsin WRI 98-4179  
 Oklahoma WRI 99-4018-C  
 Oregon W 2465-C  
 South Carolina WRI 98-4150; OF 00-0204  
 Utah WRI 98-4161  
 Vermont OP-1284  
 Virginia OP-1284  
 oxymagnite *see* maghemite  
**Ozark Aquifer** WRI 98-4000  
**Ozark Mountains** C 1158; WRI 98-4155;  
 WRI 98-4164; OF 00-0204; OP-383; OP-664;  
 OP-1331

## P

P *see* phosphorus

### P-T-t paths

New Mexico OP-117  
 Vermont OP-25

### P-waves *see also* PKP-waves.

OP-240; OP-483; OP-531; OP-597; OP-815;  
 OP-1126; OP-1210; OP-1358  
 Alaska OP-719; OP-1094  
 Arizona OP-1211  
 Atlantic Coastal Plain OP-1128  
 California OF 99-0446; OP-346; OP-377;  
 OP-378; OP-427; OP-552; OP-846; OP-866;  
 OP-1150; OP-1211  
 Gulf of Mexico OP-1128  
 Hawaii OP-1537  
 Italy OP-908  
 Japan OP-427  
 Kazakhstan OF 99-0532  
 Missouri OP-139  
 Northwest Territories OP-1094  
 Ontario OP-426  
 Tennessee OP-139  
 Tonga OP-931  
 Turkmenia OP-302  
 Utah P 1500-K-R  
 Washington OP-1417; OP-1497; OP-1530;  
 OP-1546

### Pacaya OP-332

### Pacific Coast *see also* California.

OP-222; OP-355

**Pacific Northwest** OF 99-0339; OF 99-0400;  
 FS 0037-98; FS 0047-96; OP-582; OP-1000;  
 OP-1088; OP-1163; OP-1175; OP-1229;  
 OP-1343; OP-1350; OP-1424; OP-1454;  
 OP-1500

### Pacific Ocean *see also* Antarctic Ocean; California Current; East Pacific; North Pacific; West Pacific.

P 1615; B 1995-Y,Z; OF 00-0047; OF 00-0124;  
 OF 00-0167; OF 99-0339; OF 99-0412;  
 OF 99-0422; OF 99-0560; OF 99-0591;  
 OF 99-0592; MF-2345; FS 0013-00; OP-61;  
 OP-170; OP-190; OP-208; OP-263; OP-344;  
 OP-345; OP-400; OP-570; OP-582; OP-1062;  
 OP-1316; OP-1321; OP-1518  
 Aleutian Trench OP-1405  
 Astoria Canyon OP-1365  
 Bristol Bay OF 00-0119  
 Cascadia Basin OP-1365  
 China Sea OP-1139  
 East Pacific Rise OP-316  
 Endeavour Ridge OP-13  
 Galapagos Rift OP-690

Gorda Rise OF 99-0397; OP-979  
 Gulf of Alaska WRI 99-4018-B  
 Juan de Fuca Ridge OF 99-0369; OP-142;  
 OP-1184; OP-1307  
 Loihi Seamount OP-895  
 Mendocino fracture zone OP-764; OP-865;  
 OP-1072  
 Middle America Trench OP-1302  
 Nankai Trough OP-765  
 San Diego Trough OP-436  
 Santa Monica Basin OP-1478

### Pacific Plate

Alaska OP-325  
 California OP-368; OP-395; OP-865  
 Nevada OP-196  
 Pacific Ocean OP-142

### Pacific region *see also* Far East; Pacific Ocean.

SM ; OP-1163  
 Circum-Pacific region OF 99-0422; OP-297;  
 OP-391; OP-982; OP-1139; OP-1375

### Pacific Quarry OP-820

### packrat middens

Colorado Plateau OP-16

### Pagosa Peak Dacite OP-31

### pahoehoe

OP-701  
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### Pahrump Valley OF 99-0153

**Pahute Mesa** P 1608; WRI 96-4042;  
 OF 99-0049; OF 99-0533-A; OF 99-0555

**Painthrush Tuff** WRI 98-4058; WRI 98-4132;  
 OF 98-0530

Paiute Mesa *see* Pahute Mesa

### Pakistan

OF 97-0470-C; OP-220  
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### palagonite

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### paleo-oceanography

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 California P 1632; OP-61; OP-208; OP-553;  
 OP-581; OP-896; OP-1386  
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### paleoatmosphere

OP-138; OP-630  
 Nevada OP-1425

### paleobiogeography *see* biogeography

paleobotany *see* algae; bacteria; fungi;  
 Gymnospermae; lichens; palynomorphs;  
 Plantae; Protista; Pteridophyta

### Paleocene *see also* Denver Formation; Fort Union Formation; Wasatch Formation.

OP-272  
 Alaska P 1615; OP-81

Danian, Alaska OP-1049; OP-1315

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K-T boundary

OP-1032  
 Canada OP-1370  
 Colorado OP-706; OP-1414; OP-1476  
 Cuba OP-1033  
 Haiti OP-91; OP-1414  
 New Mexico OP-706; OP-1476  
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 Wyoming OP-91; OP-1223

Ludlow Member OP-634; OP-1223; OP-1371

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Montana P 1625-A; OP-430; OP-862

New Mexico OP-1379

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Tongue River Member P 1625-A

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Wyoming P 1625-A; OP-430; OP-862

**paleoclimatology** *see also* C-13/C-12; general circulation models; glaciation; last glacial maximum; Milankovitch theory; O-18/O-16.

C 1195; OF 94-0645; OF 99-0321; OP-114;  
 OP-630

Alaska OF 99-0312; OP-985; OP-1070;  
 OP-1352; OP-1565

Antarctic Ocean OP-46; OP-47; OP-48; OP-49;  
 OP-50; OP-51; OP-52; OP-53; OP-54

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British Columbia OP-263

California WRI 98-4041; OF 99-0153; OP-61;  
 OP-165; OP-208; OP-768; OP-824; OP-1386

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Maryland OP-176; OP-286

Nevada WRI 98-4041; OF 98-0635;  
 OF 99-0153; OP-736

Oregon OP-168

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Panama OP-97

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Utah OP-44; OP-214; OP-215

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Wyoming OP-44

Yukon Territory OP-1565

paleoearthquakes *see* paleoseismicity

### paleoecology

OP-530

Alaska OP-984; OP-1355

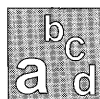
British Columbia OP-263

California OP-61; OP-165

Colorado Plateau OP-16; OP-337

Oregon OP-582

Utah OP-666



- Washington OP-582  
Wyoming OP-635
- paleofloods**  
OP-163  
British Columbia OP-467  
Colorado OP-399  
Oklahoma OP-1311  
Washington OP-467
- Paleogene** *see also* Eocene; Oligocene; Paleocene.  
Claron Formation OP-1198  
Colorado OP-363  
Kenai Group P 1614; P 1615  
Sespe Formation OP-581  
Tyonek Formation P 1614  
Wasatch Formation P 1625-A
- paleogeography** *see also* basins; biogeography; buried valleys; continental drift; transgression.  
OP-790; OP-1098  
Alaska P 1615  
Argentina OP-186  
Arizona I-2643  
Atlantic Coastal Plain OP-154  
Australia OP-44  
Belgium OP-211  
California OF 00-0154; OF 99-0153  
Colombia OP-760  
Colorado OP-214  
Indonesia OP-645  
Maine P 1624  
Mexico OP-760  
New Mexico OP-310; OP-693  
Pennsylvania OP-762  
Utah OP-44; OP-214; OP-215  
Wyoming OP-44
- paleolatitide**  
OP-114  
Australia OP-44  
Idaho OP-1206  
Oregon OP-1206  
Utah OP-44  
Wyoming OP-44
- paleolimnology**  
OP-64; OP-128; OP-630  
South America OP-569
- paleomagnetism** *see also* anhysteretic remanent magnetization; magnetic anomalies; magnetic field; magnetic inclination; magnetic susceptibility; magnetostratigraphy; natural remanent magnetization; paleolatitide; pole positions; remanent magnetization; sea-floor spreading.  
California OF 00-0154; OF 99-0153  
Hawaii OP-592  
Idaho OP-1122  
Montana OP-238  
Nevada OP-384  
Norway OP-1092  
Oregon OP-1000  
Utah OP-1122  
Washington OP-1000; OP-1035
- paleontology** *see* Amphibia; Arthropoda; Aves; Brachiopoda; Bryozoa; Conodonta; Foraminifera; Graptolithina; ichnofossils; Invertebrata; Mammalia; Mollusca; Ostracoda; Pisces; Porifera; Protista; Radiolaria; Reptilia; Trilobita; Vermes; Vertebrata
- paleorelief** *see* buried valleys
- paleosalinity**  
Alaska OP-1049
- Italy OP-1528  
Maryland OP-176  
Utah OP-666
- paleoseismicity**  
OF 99-0339; OF 99-0400; OP-29; OP-556; OP-625; OP-1204; OP-1564  
Alaska OF 99-0036; OP-325; OP-1213  
Arizona OF 99-0400  
California OF 99-0153; OF 99-0400; OP-576; OP-728; OP-828; OP-1213  
Japan OF 99-0400  
Mississippi Valley OP-893; OP-894  
Mongolia OP-1458  
Nevada OP-728  
New Mexico OF 99-0400; MF-2348; OP-693; OP-694; OP-1400  
Oregon OP-954; OP-999; OP-1412  
Philippine Islands OF 99-0400; OP-638  
Rocky Mountains OF 00-0260  
Turkey OF 99-0400; OP-682  
Utah P 1500-K-R; OF 99-0400  
Washington OF 99-0400; OP-999; OP-1023; OP-1039; OP-1051; OP-1364; OP-1412; OP-1419; OP-1424; OP-1471
- Paleosols**  
OF 99-0321  
Alaska OP-1070; OP-1352  
Argentina OP-281  
Arizona OP-548  
California OP-1427  
Colorado OP-84  
Guatemala OP-557  
Manitoba OP-955  
Mexico OP-557
- paleotopography** *see* paleorelief
- Paleozoic** *see also* Cambrian; Carboniferous; Devonian; Ordovician; Permian; Silurian.  
OP-1484  
Acadian Phase  
Alabama OP-1324  
Maine P 1624; OP-1162  
New Brunswick OP-1162  
New Hampshire OP-235  
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Australia OP-1155  
Bakken Formation OP-1418  
Caledonian Orogeny, Norway OP-1092  
California OF 99-0153; OF 99-0374  
Deadwood Formation OF 99-0260; HA-0744-E  
Endicott Group P 1615  
Fountain Formation OP-84  
Iraq OP-988  
Lisburne Group OP-1135; OP-1285; OP-1482; OP-1552  
Mexico OP-848  
Minnelusa Formation OF 99-0260; HA-0744-C  
Mississippi WRI 98-4171  
Montana OP-181  
Nevada OF 00-0134; OP-380; OP-872; OP-1305  
New Mexico OP-40  
Oregon OF 99-0374  
Ouachita Orogeny, Arkansas OP-383  
Pennsylvania OP-448  
Poland OF 99-0530-A; OF 99-0530-B  
Rangeley Formation WRI 98-4183; OP-235  
Taconic Orogeny, Pennsylvania OP-273  
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Virginia OF 99-0552
- Palmer Peninsula *see* Antarctic Peninsula  
**Palo Alto Quadrangle** MF-2332  
**Palos Verdes Peninsula** OP-226; OP-227; OP-570; OP-1316  
**Paluxy Aquifer** WRI 98-4023
- palynomorphs**  
OP-751  
acritarchs  
Far East OP-1139  
Pacific region OP-1139  
Alaska OP-984  
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Canada OP-1370  
Colorado OP-706  
Dinoflagellata  
OP-1143  
California OP-581  
Florida OF 99-0432  
Wyoming OP-1380  
Maine P 1624  
Montana OP-648  
New Mexico OP-706  
North Dakota OP-1371
- pollen**  
OF 99-0312; OF 99-0535; OP-26  
Alaska P 1615; OP-985; OP-986; OP-1352; OP-1565  
Atlantic Coastal Plain FS 0116-00; OP-817  
California P 1632; OP-165; OP-529  
Colorado Plateau OP-16  
Florida OF 99-0181; FS 0146-96  
Montana P 1625-A  
North Dakota P 1625-A  
Pacific Ocean OF 99-0397  
South Carolina OP-726  
Utah OP-841  
Virginia P 1622; I-2607  
Washington OP-936  
Wyoming P 1625-A  
Yukon Territory OP-1565  
United States OP-1370  
Wyoming OP-648
- Pamlico Sound** C 1157  
**Pamunkey Group** I-2607; OP-923  
**Pamunkey River** OP-923  
**Pan-African Orogeny**  
Saudi Arabia OP-997  
**Panama** OP-97; OP-126  
**Panamint Range** OF 99-0153  
**Pannonian Basin** OP-212; OP-416  
**Pantano Formation** OF 00-0139  
paper chromatography *see* chromatography  
**Papua New Guinea** SM  
**Paradox Basin** OP-214; OP-215; OP-1265
- paragenesis**  
China OP-1079  
Colorado OP-1269  
Europe OP-1129  
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Micronesia OP-76  
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- paragonite** OP-735  
**paranatrolite**  
Quebec OP-236  
**Paraside Fork Formation** P 1614  
**Paris France** OP-374  
**Parkfield California** OP-346; OP-496; OP-1549

**Parkfield earthquakes**

California OP-346

**partition coefficients** WRI 98-4006**Pascagoula River basin** OP-1256**Passaic River basin** WRI 98-4049**passive margins**

OP-1309; OP-1564

Alaska OP-1346; OP-1397

Russian Federation OP-1397

**Patagonia** OP-281Pathfinder Program, Mars *see* Mars Pathfinder Program**Patuxent River** WRI 98-4177; FS 0053-00; OP-176**Pavits Spring Formation** OP-1525Pb *see* leadPb-204/Pb-208 *see* Pb-208/Pb-204Pb-206 Pb-207 *see* Pb-207/Pb-206**Pb-206/Pb-204**

OP-1523

Alaska OP-8

Basin and Range Province OF 99-0569

California OF 99-0153; OP-96

Colorado OP-1269

Florida WRI 99-4020

Great Basin OF 99-0569

Italy OP-1120; OP-1121; OP-1394

Montana OP-1288

Pb-206/Pb-207 *see* Pb-207/Pb-206**Pb-207/Pb-204**

OP-686

Alaska OP-8

Basin and Range Province OF 99-0569

California OP-96

Colorado OP-1269

Great Basin OF 99-0569

Italy OP-1120; OP-1121

Montana OP-1288

**Pb-207/Pb-206** OP-686; OP-723**Pb-208/Pb-204**

OP-686

Alaska OP-8

Basin and Range Province OF 99-0569

California OP-96

Colorado OP-1269

Great Basin OF 99-0569

Italy OP-1120; OP-1491

Russian Federation OP-1185

**Pb-208/Pb-206**

Florida WRI 99-4020

**Pb-210**

Atlantic Coastal Plain OP-1233

Florida OF 99-0181

Gulf of Mexico OP-1233

Hawaii OP-592

Mexico OP-1119

**Pb/Pb**

OF 99-0321

Alaska OP-8

Colorado OF 99-0321

Montana OP-1054

Wyoming OF 99-0321

**Pb/Th**

Montana OP-1054

**PCBs**

C 1169; WRI 98-4075; WRI 98-4254; OP-147; OP-897

California OP-226; OP-227

Florida OF 99-0226; FS 0110-97

Great Lakes FS 0056-95

Great Lakes region FS 0056-95

Iowa OP-1258

Louisiana OP-977

Michigan WRI 99-4018-B

Minnesota WRI 98-4126

Mississippi Valley OP-612

North Carolina C 1157

North Dakota OF 99-0194

Oregon C 1161; WRI 99-4051

Texas C 1171; FS 0139-99; FS 0149-99

Utah WRI 98-4161

Virginia C 1157

Wisconsin WRI 98-4126; FS 0121-00

**Peace River Formation** OF 99-0432**Pearl River** OP-287Pearl River, China *see* Zhujiang River**peat**

OP-34; OP-146

California WRI 98-4147; OF 99-0400

Florida OF 99-0181; OP-974

Pennsylvania OP-762

**peatlands**

OP-252

Michigan OP-1283

**pebbles** OP-827; OP-1345**Pechora Basin** OF 99-0379**Pecos River** OP-629**pediments**

California OF 00-0175

**pedogenesis**

California OF 99-0153; OP-382

New Mexico OP-562

**Peedee Formation** OP-726**Peerless Deposit** OP-859**pegmatite**

Alabama OP-1324

Alaska OP-387

California OF 99-0153; OP-457; OP-930

Colorado OP-444

Far East OP-716

Middle East OP-716

Nevada OP-257

**pelagic sedimentation**

Hawaii OP-1090

Pelecypoda *see* Bivalviapelite *see* shalepelitic schist *see* slates**Penaues duorarum** OF 99-0181penetration tests *see* cone penetration tests**Peninsular Ranges** OP-1241**Penn Mine** OP-989**Pennsylvania** *see also* Appalachian Basin; Appalachian Plateau; Freeport Formation; Gettysburg Basin; Lockatong Formation; Newark Basin; Piedmont; Pottsville Group; Reading Prong; South Mountain; Stockton Formation; Susquehanna River basin; Valley and Ridge Province.

WRI 98-4192; OF 00-0064; FS 0012-00;

FS 0174-99; OP-35; OP-740; OP-898; OP-940

Adams County Pennsylvania OP-115; OP-268

Berks County Pennsylvania OP-210

Bucks County Pennsylvania WRI 98-4010;

WRI 98-4129; OP-668

Chester County Pennsylvania OF 99-0452

Crawford County Pennsylvania OP-22

Cumberland County Pennsylvania OP-268

Dauphin County Pennsylvania OP-273

Delaware County Pennsylvania OP-668

Lancaster County Pennsylvania WRI 98-4173;

FS 0168-99; OP-268; OP-305; OP-593

Lehigh County Pennsylvania OP-210

Montgomery County Pennsylvania

WRI 98-4076; OF 00-0097; OF 99-0271-A; OP-617

Northampton County Pennsylvania OP-210

Philadelphia County Pennsylvania OP-668

Philadelphia Pennsylvania FS 0117-00

Pike County Pennsylvania WRI 98-4186;

OF 98-0275

Somerset County Pennsylvania OP-107

Wayne County Pennsylvania WRI 98-4186

York County Pennsylvania WRI 99-4047;

OP-268

**Pennsylvanian**

Alaska OP-1285; OP-1482; OP-1552

Colorado OP-786

Freeport Formation OP-762

Mexico OP-849

Michigan OP-1281

New Mexico OP-1191

Pottsville Group OP-228

**Penobscot Bay** OP-1542**Penokean Orogeny**

Michigan OF 99-0547

Wisconsin OF 99-0547

**Pensacola Florida** OP-892**Pensacola Mountains** OF 00-0133**Pensauken Formation** OP-668**pentachlorophenol**

North Dakota OF 99-0194

pentlandite *see* nickel ores**Peoria Loess** OP-628; OP-630**perched aquifers**

Arizona WRI 99-4067; OP-839

Hawaii P 1618; WRI 98-4142; OP-290

Idaho WRI 98-4026

Nevada WRI 98-4063

New Jersey OP-171

perchloroethylene *see* tetrachloroethyleneperchloromethane *see* carbon tetrachloridePeri-Caspian Depression *see* Caspian Basin**peridotites** *see also* dunite; spinel peridotite.

OP-1523

Far East OP-411

Montana OP-136

Scandinavia OP-411

**permafrost** *see also* ground ice.

OP-1383

Alaska OP-1044

Europe OP-725

permeability coefficient *see* hydraulic conductivity**permeameters**

Colorado OP-11

**Permian** *see also* Lisburne Group.

OP-405

Appalachian Phase, Pennsylvania OP-209;

OP-210

Australia OF 99-0050-P

California OP-1009

Castile Formation OP-456

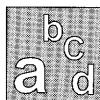
Cherry Canyon Formation OP-439

China OP-973

Cutler Formation OP-214; OP-461



- Idaho OP-1206  
 Italy OP-1489  
 Kazakhstan OP-1584  
 Leonardian  
   New Mexico OP-439  
   Texas OP-439  
 Meade Peak Member OF 00-0009; OF 00-0116;  
   OF 99-0147-B; OP-1187  
 New Mexico OP-1191  
 Norway OP-1092  
 Oklahoma WRI 98-4081  
 Oregon OP-1009; OP-1206  
 Rotliegendes OP-1255  
 Russian Federation OP-182; OP-1584  
 Utah OP-215  
 Zechstein, England OP-821
- Permian Basin** *see also* Central Basin Platform.  
 OP-439; OP-456
- Permosphincta** OP-749
- perovskite structure**  
 Nevada OP-256
- Perry Mountain Formation** WRI 98-4183
- Persia *see* Iran
- Persian Gulf** OP-1473
- Peru** OF 99-0377; OP-230; OP-711; OP-1148;  
 OP-1149
- pesticides** *see also* DDT; fungicides; herbicides;  
 insecticides.  
 OF 00-0187; OF 00-0204; OP-161; OP-327;  
 OP-655; OP-754; OP-1102; OP-1536  
 Alabama OP-28  
 Arizona OP-1297  
 British Columbia OF 99-0244  
 California WRI 99-4018-B; OP-203; OP-481;  
   OP-1016  
 Florida C 1207; FS 0110-97  
 Georgia OP-697  
 Great Plains FS 0009-00  
 Hawaii OP-79  
 Idaho C 1144; C 1160  
 Iowa OF 00-0067; OP-1258; OP-1466  
 Kansas FS 0096-00  
 Louisiana WRI 99-4018-B; OP-733  
 Maryland C 1168  
 Michigan C 1156  
 Minnesota OP-994  
 Mississippi OP-733  
 Mississippi Valley OP-612  
 Nebraska FS 0179-99  
 Nevada C 1170  
 New Jersey WRI 98-4016  
 Ohio OP-921  
 Oregon C 1161; WRI 99-4051  
 Pennsylvania C 1168  
 Tennessee OP-127  
 Texas WRI 98-4158; OF 99-0245; FS 0010-00  
 Washington C 1144; OF 99-0244  
 Wisconsin C 1156; WRI 98-4179; OP-994  
 Wyoming C 1160; FS 0052-99
- petrified moss *see* tufa
- petrified wood *see* fossil wood
- petrofabric** OP-1053
- petrogeometry *see* structural analysis
- petroleum** *see also* bitumens; crude oil; kerogen;  
 natural gas; oil seeps; oil spills; oil wells; petro-  
 leum accumulation; petroleum assessment; pe-  
 troleum engineering; stratigraphic traps;  
 structural traps.  
 OF 00-0194; OF 99-0590; FS 0007-97;  
 FS 0038-96; FS 0115-00; OP-1293; OP-1418  
 Africa OF 99-0050-H  
 Arabian Peninsula OF 97-0470-B  
 Arctic region OP-14  
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 California OP-1363  
 Colorado OF 99-0553-A; FS 0006-96  
 Far East OF 97-0470-C  
 Florida OP-1473  
 Gulf Coastal Plain OF 99-0558  
 Illinois FS 0013-96  
 Indiana FS 0014-96  
 Iowa FS 0015-96  
 Iran OF 99-0470-G  
 Iraq OP-1404  
 Kazakhstan OP-1584  
 Kentucky FS 0016-96  
 Michigan FS 0022-96  
 Mississippi FS 0024-96  
 Montana FS 0026-96  
 North Carolina FS 0033-96  
 Ohio FS 0035-96  
 Oregon FS 0037-96  
 Pacific region OF 99-0422  
 Russian Federation OP-1584  
 South America OF 97-0470-D  
 Utah OF 99-0553-B; OP-44; OP-215  
 Venezuela OP-173  
 Virginia FS 0046-96  
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- petroleum accumulation**  
 OF 00-0044; OF 97-0272; OF 99-0405;  
 I-2726; FS 0016-97; FS 0018-97; FS 0021-97;  
 FS 0024-97; FS 0119-00  
 Australia OF 99-0050-I; OP-742  
 California OF 98-0513-A; OP-1091  
 China OP-404; OP-742  
 Colorado OP-742  
 Germany OP-742  
 Kazakhstan OF 99-0050-B  
 Montana OP-408  
 New Mexico OP-742  
 Poland OP-742  
 Russian Federation OF 99-0050-B  
 Wyoming OP-408
- petroleum assessment** *see also* natural gas;  
 stratigraphic traps; structural traps.  
 FS 0016-97; FS 0018-97; FS 0022-97;  
 FS 0023-97; FS 0025-97; OP-252; OP-790;  
 OP-1036; OP-1348  
 Alaska DDS-0059; OF 00-0286; OP-1044;  
   OP-1132; OP-1266; OP-1354  
 Algeria B 2202-A  
 Atlantic Ocean OP-1015  
 Bering Sea OP-1455  
 California B 2174-B; OP-1386  
 Colorado OP-1166  
 Far East OP-1139  
 Gulf Coastal Plain OF 00-0113  
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 Libya B 2202-A  
 Montana OP-406; OP-409; OP-430; OP-648;  
   OP-656  
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 Oklahoma OP-1145; OP-1166  
 Pacific region OP-1139  
 Russian Federation OF 99-0379; FS 0017-97  
 Wyoming OP-406; OP-409; OP-430; OP-432;  
   OP-599; OP-600; OP-648; OP-656; OP-752
- petroleum engineering** *see also* enhanced recov-  
 ery; hydraulic fracturing; natural gas; naturally  
 fractured reservoirs; oil wells.  
 FS 0018-97  
 Alaska OP-1094  
 California OF 98-0513-A  
 Northwest Territories OP-1094  
 South America OP-1403
- petroleum products** *see also* gasoline.  
 WRI 99-4018-C; FS 0064-95; OP-36; OP-101;  
 OP-677  
 Georgia WRI 98-4233  
 Maryland OP-539  
 Michigan WRI 99-4018-C; OP-587; OP-818  
 Minnesota OF 99-0321; OP-854  
 New Jersey OP-171  
 Puerto Rico WRI 98-4045  
 Texas FS 0010-00
- petroleum seepage *see* oil seeps
- petrologen *see* kerogen
- petrology *see* crystalline rocks; fluid inclusions;  
 igneous rocks; inclusions; intrusions; lava;  
 magmas; metamorphic rocks; metamorphism;  
 metasomatism; meteor craters; phase equilibria;  
 volcanism; volcanology
- petromorphology *see* structural analysis
- petrostratigraphy *see* lithostratigraphy
- Pfiesteria** OF 00-0204
- Phanerozoic**  
 Appalachians OP-1360  
 Australia OP-44  
 Far East OP-1139  
 Pacific region OP-1139  
 Utah OP-44  
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- phase equilibria** *see also* carbon dioxide; mag-  
 mas.  
 OP-43; OP-1008  
 Arkansas OP-1492  
 Oklahoma OP-1492
- phenanthrene**  
 OP-147  
 Oklahoma WRI 99-4018-C
- phenols** OP-146; OP-534; OP-1298
- phenylethane *see* ethylbenzene
- Philadelphia Pennsylvania** FS 0117-00
- Philippine Islands**  
 OF 99-0400; SM ; OP-638  
 Mount Pinatubo OP-1073; OP-1369
- Phlegraean Fields** OP-1522
- phlogopite**  
 China OP-1079  
 Montana OP-339
- phosphate deposits**  
 Kazakhstan OP-513  
 Russian Federation OP-512  
 Washington FS 0093-00
- phosphate rocks**  
 China OP-342; OP-343  
 Marshall Islands OP-76  
 Micronesia OP-76
- phosphates** *see also* apatite; fluorapatite;  
 monazite; turquoise.  
 Idaho OP-1187
- phosphatization**  
 Marshall Islands OP-76; OP-400  
 Micronesia OP-76; OP-400
- Phosphoria Formation *see* Meade Peak Member





phosphorite *see* phosphate rocks

### phosphorus

WRI 98-4042; WRI 98-4164; WRI 98-4192;  
WRI 99-4007; OF 00-0187; OF 00-0204;  
FS 0155-99; OP-101; OP-751; OP-1558  
Alabama OP-330  
Alaska OP-983  
Arkansas WRI 98-4194; OF 00-0204  
Atlantic Coastal Plain OF 99-0451; OP-1237  
Colorado OF 00-0204  
Delaware OF 00-0204  
Florida C 1207; OF 00-0204; OF 99-0181;  
OP-397  
Illinois WRI 98-4087; OF 99-0069  
Iowa OF 00-0204  
Maryland WRI 98-4177; OF 00-0204;  
OP-1480; OP-1582  
Massachusetts WRI 99-4018-C  
New Jersey WRI 99-4001; WRI 99-4016;  
WRI 99-4045  
North Carolina WRI 98-4149; OP-591  
Oregon W 2465-C; WRI 98-4125; OP-758  
Pennsylvania WRI 98-4144; WRI 98-4173;  
WRI 98-4186  
Texas WRI 98-4012  
Virginia WRI 98-4025; OF 00-0204; OP-591;  
OP-1480  
Washington OP-500  
Wisconsin FS 0121-00; OP-753

### photolysis OP-732

### phreatomagmatism

El Salvador OP-1337

### PHREEQC WRI 98-4179

### PHREEQE

Arizona OP-293  
Europe OP-289  
South America OP-289

### phyllites

Pennsylvania OP-209

### phytane OP-156

phytogeography *see* biogeography

### phytoremediation

Florida WRI 98-4110  
Texas OP-509

### Picatinny Arsenal WRI 99-4018-C

### Picea

Rocky Mountains OP-230

### Piceance Creek basin OP-742; OP-786

Piedmont OF 99-0423; HA-0732-B; I-2607;  
FS 0117-00; OP-66; OP-74; OP-198; OP-449;  
OP-588; OP-593; OP-683; OP-717; OP-1443

piercing fold *see* diapirs

Pierre Shale OP-640; OP-1223; OP-1414

### pigeonite OP-1243

pigments *see* chlorophyll

### Pigmy Basin OF 99-0566

Pikes Peak Batholith OP-444; OP-822

Pikes Peak Granite OP-822

### piles

OP-679  
Texas OP-627

Pinaceae *see* Abies

Pinal Creek basin OP-216; OP-293; OP-294

Pinardville Quadrangle OP-24

Pinatubo *see* Mount Pinatubo

pinchouts *see* stratigraphic wedges

Pine Mountain Window OP-1324

Pine Valley Laccolith OP-1198

Pine Valley Latite OP-1198

Pinnacle Mine OP-119

Pinnipedia OP-274

Pinon Range OP-380

Pinturas Formation OP-281

pipes *see* breccia pipes

### Pisces

WRI 98-4004; WRI 98-4075; WRI 98-4155;  
WRI 98-4254; WRI 99-4018-B; OF 00-0204;  
OF 99-0104; OP-298; OP-655  
Alaska WRI 98-4191; FS 0072-94  
Arizona OF 99-0103  
Atlantic Coastal Plain OP-702  
California WRI 99-4018-B; OP-118  
Chondrichthyes OP-67  
Colorado WRI 98-4124; FS 0186-99  
Dipnoi, Colorado Plateau OP-337  
Florida C 1207; OF 99-0181; FS 0109-99;  
FS 0110-97  
Georgia FS 0091-95  
Gulf of Mexico OF 99-0181  
Idaho WRI 98-4103; WRI 98-4123; OP-566  
Indiana WRI 99-4198  
Iowa OF 00-0067  
Louisiana WRI 99-4018-B  
Michigan WRI 99-4018-B  
Minnesota WRI 98-4126; WRI 99-4034;  
OF 00-0069  
Mississippi OP-1256  
Montana WRI 99-4019  
Nevada WRI 99-4018-B  
New York FS 0141-99; OP-35; OP-898;  
OP-940; OP-1004  
Ohio WRI 99-4198  
Oregon WRI 98-4103; WRI 98-4125; OP-94  
Pennsylvania OP-35; OP-898; OP-940  
Texas OF 99-0243  
Utah OF 99-0101; OF 99-0107; OF 99-0110  
Washington WRI 99-4018-B  
Wisconsin WRI 98-4126

pitching folds *see* plunging folds

Pityiosporites OP-26

PKP-waves OP-1147

placers *see also* heavy mineral deposits; stream sediments.

OP-1011

Alaska P 1615; OF 00-0026; FS 0154-97;  
OP-120; OP-1118

California WRI 99-4018-B

Washington OF 99-0384-A; OF 99-0384-B

plagioclase *see also* albite; anorthite.

OP-722; OP-1085

Mexico OP-867

Montana OP-181

plagioclase *see* anorthosite

planar bedding structures *see* bedding;  
cross-bedding; cross-stratification; laminations;  
varves

planetary interiors OP-1083; OP-1260

planetary orbits *see* orbits

planetesimals OP-1475

planetology *see also* asteroids; icy satellites; Ju-  
piter; Mars; Neptune; Saturn; Uranus.  
OP-1173

planets OP-976

Plantae *see also* algae; palynomorphs;  
Spermatophyta.

FS 0155-99; OP-34; OP-1474; OP-1567

Alabama OP-1324

Alaska OP-986

Arizona OP-100

California OF 00-0073; OF 00-0074;  
OF 99-0153; FS 0172-96; OP-529

Chile OP-80

Colorado OF 00-0204

Florida OF 99-0181; OF 99-0230

Midwest WRI 99-4018-B

Minnesota OP-756

Nevada OF 99-0153

Pennsylvania OP-762

Pteridophyta OP-26

South Carolina WRI 99-4018-C

Texas OF 99-0243

plaster stone *see* gypsum

plate boundaries *see also* plate convergence.

OP-885; OP-1469

Alaska OP-1405

Belize OP-292

California B 1995-Y,Z; OP-395

Israel OF 98-0516

Japan OP-765

Jordan OF 98-0516

Pacific Ocean OP-142

Washington OP-1539

### plate collision

Alaska OP-325; OP-1397

Greece OP-202

Michigan OP-812

Russian Federation OP-1397

### plate convergence

Australia OP-1155

California OP-571; OP-764

New Zealand OP-78

Oregon OP-773; OP-843; OP-1000; OP-1561

Russian Federation OP-1186

Washington OP-843; OP-1000

plate margins *see* plate boundaries

plate tectonics *see also* active margins; Antarctic

Plate; back-arc basins; Caribbean Plate;

Cascadia subduction zone; continental crust;

continental drift; continental margin; crustal

shortening; earthquakes; exotic terranes; exten-

sion tectonics; fault zones; fore-arc basins; frac-

ture zones; Galapagos Rift; geosynclines; Gorda

Plate; hot spots; island arcs; Juan de Fuca Plate;

mantle plumes; melange; North American Plate;

ophiolite complexes; Pacific Plate; passive mar-

gins; plate boundaries; plate collision; rift zones;

sea-floor spreading; seismotectonics; spreading

centers; subduction; subduction zones; suture

zones; terranes; transform faults; transpression;

triple junctions.

OP-306; OP-827; OP-1205; OP-1259; OP-1358;  
OP-1456

Alaska GN

California OP-615

Canada OP-795

Colombia OP-760

Colorado OP-1269; OP-1398

Hawaii GN

Hungary OP-367

Mexico OP-760

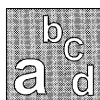
Nevada OP-615

Pacific region OF 99-0422

United States OP-795

plateau basalts *see* flood basalts

platinum group *see* iridium; osmium



**platinum ores**

Alaska OP-1367  
 Arizona OP-421  
 China OP-1103  
 Russian Federation OP-182; OP-512  
**Platte River** C 1126; OP-217; OP-630  
**Platte River basin** WRI 98-4033; FS 0179-99

**playas**

California OF 99-0153  
 New Mexico OP-598  
 Texas WRI 99-4018-B  
 Utah OP-598

**Pleistocene** *see also* Santa Fe Group.

OF 99-0153; OF 99-0312  
 Alaska P 1614; OF 00-0017; OF 99-0312;  
 OP-985; OP-1263  
 Antarctic Ocean OF 99-0312  
 Antarctica OF 99-0312  
 Arizona OF 00-0139; OP-548  
 Atlantic Ocean OF 99-0312  
 Belize OP-292  
 Bootlegger Cove Clay OP-1010; OP-1055  
 California P 1632; OF 00-0147; OF 98-0752;  
 OF 99-0153; OF 99-0321; OP-77; OP-158;  
 OP-204; OP-395; OP-567; OP-768; OP-824;  
 OP-896  
 Canada OF 00-0017  
 Caribbean Sea OF 00-0035  
 Chile OP-813  
 Colorado OP-1353; OP-1477  
 England OF 99-0312  
 Florida OP-521  
 Gulf of Mexico OP-622  
 Hawaii OF 99-0312; OP-592  
 Iceland OP-1548  
 Italy OF 99-0312; OP-1393  
 Japan OP-423  
 Key Largo Limestone OF 99-0181  
 Lake Agassiz OP-376  
 Lake Lahontan, Nevada OP-736  
 Lake Missoula  
 British Columbia OP-467  
 Pacific Ocean OP-979  
 Washington OP-467  
 Louisiana OP-1541  
 Loveland Loess OP-630  
 Miami Limestone OP-479  
 Mongolia OP-1458  
 Nebraska OP-1353  
 Nevada OF 99-0153  
 New Mexico OP-598; OP-694  
 Northwest Territories OP-1301  
 Norway OP-1263  
 Ohio OP-1446  
 Oregon OP-33; OP-1412  
 Peoria Loess OP-628; OP-630  
 Puerto Rico OP-785  
 Russian Federation OP-32  
 Utah OP-598  
 Washington B 2180; OP-1023; OP-1035;  
 OP-1412  
 Wisconsin  
 Alaska P 1615; OP-984; OP-1070; OP-1352  
 Colorado Plateau OP-16  
 Gulf of Mexico OP-1274  
 Pacific Ocean OP-979  
 Younger Dryas OP-376

pleniglacial, last *see* last glacial maximum

**plinian-type eruptions**

Alaska OP-356

**Pliocene** *see also* Santa Fe Group.

OF 99-0535; OP-114  
 Alaska OP-325; OP-986; OP-1355  
 Antarctic Ocean OP-49; OP-52  
 California OF 00-0147; OF 99-0153; OP-61;  
 OP-158; OP-208; OP-382; OP-395; OP-1363;  
 OP-1506  
 Florida OF 99-0181  
 Italy OP-1121  
 Mississippi OP-1515  
 New Mexico OP-1306  
 Oregon OP-1171  
 Utah OP-1198  
 Yorktown Formation OP-817

**plugs**

Philippine Islands OP-1369

**plumes** *see also* hot spots.

OP-219; OP-619  
 Texas OP-595

**plunging folds**

Wyoming OP-811

**plutonic rocks** *see also* diabase; diorites; gab-bros; granites; lamprophyres; syenites; ultramafics.

Alaska OP-641  
 California OP-1009  
 Mexico OP-573  
 Oregon OP-1009

**plutons**

OP-1415  
 Alaska P 1615; OF 99-0018; OP-8; OP-1118;  
 OP-1194; OP-1367  
 California OF 99-0153; OF 99-0374; I-2697;  
 OP-482  
 Colorado OP-444  
 Idaho OP-606  
 Maine P 1624  
 Nevada OP-213; OP-1305  
 New Hampshire OP-235  
 New Mexico OP-117; OP-310  
 Oregon OF 99-0374; OP-33; OP-957  
 Russian Federation OP-499  
 Wisconsin OP-1067

**Po Valley** OF 99-0050-M

**Poas** OP-900

**Pocomoke River** OP-1219; OP-1451; OP-1480

**Pocomoke River basin** OF 00-0204; OP-1582

**Pohnpei** OP-331**point bars**

Missouri OP-1331  
 Texas FS 0074-00

**Point Loma** OF 00-0061

**Point Lookout Sandstone** OP-958

**Poland**

OF 99-0530-A; OF 99-0530-B  
 Lower Silesia OP-1282  
 Silesian coal basin OP-742  
 Upper Silesia OF 99-0394; OP-1282  
 Upper Silesian coal basin OP-1282

**polar caps** OP-219; OP-874; OP-1271

**pole positions**

OP-82  
 Colorado OP-243; OP-859  
 New Mexico OP-243

**Polgardi Limestone** OP-471

polished surface *see* slickensides

**pollen**

OF 99-0312; OF 99-0535; OP-26

Alaska P 1615; OP-985; OP-986; OP-1352;  
 OP-1565

Atlantic Coastal Plain FS 0116-00; OP-817

California P 1632; OP-165; OP-529

Colorado Plateau OP-16

Florida OF 99-0181; FS 0146-96

Montana P 1625-A

North Dakota P 1625-A

Pacific Ocean OF 99-0397

South Carolina OP-726

Utah OP-841

Virginia P 1622; I-2607

Washington OP-936

Wyoming P 1625-A

Yukon Territory OP-1565

**pollucite** OP-735

**pollution** *see also* acid mine drainage; acid rain; agrochemicals; chemical waste; contaminant plumes; cyanides; gasoline; hazardous waste; heavy metals; impact statements; industrial waste; land use; oil spills; PCBs; petroleum products; radioactive waste; radioactivity; sulfur dioxide; trace metals; waste disposal; waste disposal sites.

C 1180; C 1195; WRI 98-4109; WRI 99-4004;  
 WRI 99-4018-B; WRI 99-4018-C; OF 00-0015;  
 OF 00-0187; OF 00-0204; OF 99-0093;  
 OF 99-0240; OF 99-0255; FS 0019-97;  
 FS 0021-97; FS 0055-95; FS 0059-95;  
 FS 0063-00; FS 0065-95; FS 0087-00;  
 FS 0088-00; FS 0140-96; OP-7; OP-42; OP-43;  
 OP-102; OP-103; OP-104; OP-128; OP-143;  
 OP-146; OP-149; OP-157; OP-260; OP-291;  
 OP-372; OP-373; OP-389; OP-390; OP-414;  
 OP-435; OP-446; OP-454; OP-489; OP-494;  
 OP-507; OP-528; OP-540; OP-541; OP-601;  
 OP-608; OP-654; OP-655; OP-721; OP-732;  
 OP-739; OP-744; OP-780; OP-781; OP-831;  
 OP-879; OP-891; OP-932; OP-934; OP-969;  
 OP-970; OP-1102; OP-1180; OP-1230;  
 OP-1234; OP-1253; OP-1332; OP-1442;  
 OP-1487; OP-1495; OP-1536; OP-1583  
 Alabama OP-28

Alaska P 1614; P 1615; WRI 99-4018-B;  
 OF 99-0459; FS 0092-95; FS 0154-97;  
 OP-746; OP-1118; OP-1268

Appalachians OF 95-0810; OP-1479

Arizona OP-294; OP-1297

Arkansas WRI 98-4194; OF 99-0268

Atlantic Coastal Plain FS 0085-00; FS 0150-99;  
 OP-702; OP-1329

British Columbia OF 99-0244

California C 1159; WRI 99-4018-B;  
 OF 00-0061; FS 0005-96; FS 0061-00;  
 OP-203; OP-481; OP-559; OP-1422

China OP-463

Colorado WRI 98-4046; WRI 99-4018-B;  
 OF 00-0034; OF 00-0053; OF 97-0361;  
 OF 99-0580; OP-105; OP-825; OP-850;  
 OP-961; OP-1066

Columbia Plateau OP-1373

Connecticut WRI 99-4018-C; FS 0007-96

Delaware WRI 98-4153; OF 99-0253

Florida C 1151; WRI 98-4110; OF 99-0181;  
 FS 0032-98; FS 0139-96; FS 0145-96;  
 FS 0166-96; FS 0169-96; OP-424; OP-837;  
 OP-1388; OP-1436

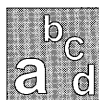
Georgia C 1151; WRI 99-4018-C; OF 00-0087;  
 OP-697

Germany OP-777

Gulf Coastal Plain WRI 99-4018-B  
 Gulf of Mexico WRI 99-4018-B; OP-1012  
 Hungary OP-660  
 Idaho C 1160; WRI 98-4073; WRI 98-4103;  
 WRI 98-4123; WRI 99-4037; OF 99-0272;  
 OF 99-0473; FS 0012-96; FS 0013-99;  
 OP-347; OP-566; OP-713; OP-1187  
 Illinois WRI 98-4087; FS 0014-99  
 Indiana WRI 98-4139; FS 0014-96; OP-172  
 Iowa WRI 99-4018-B; OP-466; OP-1466  
 Kansas FS 0170-99; FS 0182-99; OP-225;  
 OP-418; OP-419  
 Kentucky FS 0016-96  
 Louisiana WRI 99-4018-B; FS 0018-96;  
 FS 0025-00; OP-602  
 Maine WRI 99-4050; OF 99-0200; FS 0019-96;  
 OP-245  
 Marshall Islands WRI 94-4248  
 Maryland C 1168; WRI 98-4037; OP-1219  
 Massachusetts WRI 98-4011; WRI 99-4241;  
 OP-129; OP-184; OP-185; OP-437; OP-477;  
 OP-478; OP-1037  
 Michigan WRI 98-4006; FS 0022-96; OP-447;  
 OP-463; OP-1281; OP-1503  
 Micronesia WRI 94-4248  
 Midwest WRI 99-4018-B; OF 99-0321;  
 OP-621; OP-878; OP-1533  
 Minnesota WRI 98-4175; WRI 99-4018-B;  
 WRI 99-4018-C; OF 00-0078; OF 91-0151;  
 OP-549; OP-844; OP-994  
 Mississippi WRI 99-4018-B  
 Mississippi Valley WRI 99-4018-B  
 Montana WRI 99-4019; OF 00-0038;  
 OF 00-0079; OF 99-0251  
 Nebraska WRI 98-4033; FS 0179-99; OP-906  
 Nevada WRI 98-4184; WRI 99-4018-B;  
 WRI 99-4042; WRI 99-4079; OP-491;  
 OP-873  
 New Hampshire WRI 99-4018-C; OP-68;  
 OP-672  
 New Jersey WRI 98-4126-A; WRI 99-4016;  
 WRI 99-4018-B; WRI 99-4045; OP-420  
 New York W 2498; WRI 97-4136;  
 WRI 97-4210; WRI 98-4036;  
 WRI 99-4018-B; OP-35; OP-116; OP-610;  
 OP-898; OP-940; OP-941; OP-1004;  
 OP-1058  
 North Carolina WRI 98-4149  
 North Dakota P 1625-A; WRI 98-4152;  
 WRI 98-4175; OF 91-0151  
 Ohio WRI 98-4089; WRI 98-4180;  
 WRI 99-4012; OP-921  
 Oklahoma FS 0036-96  
 Ontario OP-829  
 Oregon WRI 98-4103; WRI 98-4125;  
 OF 96-0227; OP-94; OP-758  
 Pennsylvania C 1168; WRI 98-4076;  
 OF 00-0097; OF 99-0271-A; OF 99-0452;  
 OP-35; OP-66; OP-898; OP-940  
 Puerto Rico WRI 99-4040  
 Rhode Island OF 00-0276  
 South Carolina WRI 98-4165; WRI 99-4018-C  
 South Dakota WRI 98-4146  
 Tennessee OP-127  
 Texas WRI 99-4018-B; FS 0101-00;  
 FS 0184-99; OP-1312  
 United States OP-777  
 Utah FS 0046-99; OP-835; OP-1585  
 Washington WRI 99-4018-B; WRI 99-4048;  
 OF 99-0244; FS 0049-99; FS 0093-00;  
 OP-500

Wisconsin OF 99-0270; FS 0048-96;  
 FS 0167-99; OP-994; OP-1101  
 Wyoming C 1160; WRI 99-4164; FS 0050-96;  
 FS 0052-99; OP-734; OP-899; OP-1464  
 polychlorobiphenyls *see* PCBs  
 polycyclic aromatic hydrocarbons *see also*  
 naphthalene; phenanthrene; pyrene.  
 OF 00-0204; OF 99-0240; OF 99-0590;  
 FS 0094-00; OP-534; OP-1298  
 Alaska OP-73  
 Arkansas OF 99-0268  
 Florida OF 99-0226  
 Michigan OP-1503  
 Minnesota WRI 99-4018-C; WRI 99-4069  
 Mississippi Valley OP-612  
 North Dakota OF 99-0194  
 Oregon WRI 99-4051  
 Texas FS 0139-99; FS 0149-99  
 Wisconsin FS 0121-00  
 polymetallic ores  
 Alaska P 1619; OF 00-0026  
 Andes OP-1149  
 British Columbia OP-1392  
 Canada OP-297; OP-795  
 China OP-1239  
 Hungary OP-212  
 Nevada OP-1305  
 United States OP-297; OP-795  
 Polynesia *see also* Hawaii; Samoa; Tonga.  
 French Polynesia OP-205  
 Mururoa Atoll OP-931  
 Polyzoa *see* Bryozoa  
 Pony-Middle Mountain Metamorphic Suite  
 OP-1054  
 Popocatepetl OP-21; OP-332  
 popular geology  
 California FS 0096-96; OP-615  
 Nevada OP-196; OP-615  
 Pennsylvania OP-115  
 Saudi Arabia OP-963  
 Porcupine Mountains OP-135  
 Porifera  
 Alaska OP-1135  
 Demospongia  
 Alaska OP-749  
 Russian Federation OP-749  
 Kazakhstan OP-1290; OP-1584  
 Nevada OP-98  
 Russian Federation OP-1584  
 porosity traps *see* stratigraphic traps  
 porphyry  
 OF 99-0556; OP-814  
 Canada OP-297  
 Colorado OP-711  
 Nevada OP-711  
 Peru OP-711  
 United States OP-297  
 porphyry copper  
 OP-1011  
 Alaska P 1619; OF 99-0321; OP-653; OP-1389  
 Canada OP-795  
 Hungary OP-212  
 Nevada OP-1305  
 Pacific Ocean P 1615  
 Poland OF 99-0530-A; OF 99-0530-B  
 Russian Federation OP-653  
 United States OP-795  
 Utah OF 98-0234

porphyry molybdenum  
 Canada OP-795  
 United States OP-795  
 Port Jervis New York OF 98-0275  
 Port Royal Island WRI 99-4018-C  
 Port Royal Sound OP-492  
 portable arrays  
 Maine OP-1287  
 Washington OP-1572  
 Portland Oregon OP-86; OP-520; OP-758;  
 OP-1163; OP-1412; OP-1561  
 Porto Garibaldi Field OF 99-0050-M  
 positions, pole *see* pole positions  
 Post-glacial *see* Holocene  
 post-glacial rebound *see* glacial rebound  
 post-tectonic processes  
 Alaska OP-1378  
 New Hampshire OP-235  
 Postglacial *see* Holocene  
 Potamocorbula amurensis WRI 99-4018-B  
 potash  
 OP-948  
 England OP-821  
 Russian Federation OP-512  
 potash feldspar *see* K-feldspar  
 potash mica *see* muscovite  
 potassium  
 FS 0155-99; OP-9; OP-288; OP-1140  
 Far East OP-716  
 Middle East OP-716  
 Pennsylvania OP-449  
 potassium feldspar *see* K-feldspar  
 potassium-argon *see* K/Ar  
 potential field  
 FS 0238-95; OP-1563  
 Arizona OP-218  
 California OF 00-0219  
 Potomac Formation WRI 98-4187; OP-668  
 Potomac Group I-2607; OP-668  
 Potomac River WRI 98-4025; WRI 98-4177;  
 OF 99-0233; OF 99-0234; OP-176; OP-1237  
 Potomac River basin WRI 98-4187; OP-157  
 Potomac-Raritan-Magothy Aquifer  
 WRI 98-4136  
 pottery *see* artifacts  
 Pottsville Group OP-228  
 Powder Mill Ferry Quadrangle I-2722  
 Powder River basin P 1625-A; OP-252;  
 OP-613; OP-734; OP-742; OP-899; OP-1380;  
 OP-1464  
 Prairie Island OF 00-0078  
 Pramelreuthia OP-26  
 prasinite *see* greenschist  
 Precambrian *see also* Archean; upper Precam-  
 brian.  
 OP-1098; OP-1415  
 Antarctica OP-1199  
 California OF 99-0153  
 Colorado OP-444  
 Grenvillian Orogeny  
 Colombia OP-760  
 Mexico OP-760; OP-848  
 Pennsylvania OP-210; OP-593  
 Montana OP-624  
 Penokean Orogeny  
 Michigan OF 99-0547  
 Wisconsin OF 99-0547



- Purcell System OP-238; OP-1246  
Stillwater Complex OP-181  
Stirling Quartzite OP-379  
Wyoming I-2661; OP-809
- precession** OF 99-0312; OP-82
- precious metals**  
OF 00-0195; OP-1559  
Chile OP-1524  
Colorado OP-1006  
Ecuador OP-1524  
Nevada OP-174; OP-1305  
Utah OF 98-0234
- Precordillera** OP-186; OP-234
- precursors**  
OP-279  
Alaska OP-928  
California OF 00-0002  
Indonesia OP-910  
Philippine Islands OP-1369  
Washington OP-1461
- predation**  
Alberta OP-1084  
Oregon OP-582  
Washington OP-582
- predators**  
Florida OF 99-0181
- preferential flow**  
C 1195; WRI 98-4143; WRI 99-4018-C;  
OF 97-0588; OF 99-0184; OF 99-0217;  
OF 99-0238; FS 0062-00; FS 0077-00; OP-149;  
OP-291; OP-687; OP-951  
Alaska WRI 98-4088  
Appalachians OP-890  
Arizona OF 99-0378; OP-840  
Arkansas WRI 98-4084; OF 00-0204  
Atlantic Coastal Plain FS 0085-00  
Basin and Range Province OF 99-0321  
British Columbia OP-868  
California WRI 98-4041; WRI 98-4102;  
OF 99-0153  
Canada P 1424-C  
Colorado OP-312; OP-856  
Columbia Plateau P 1413-A  
Connecticut WRI 99-4081  
Delaware WRI 98-4153  
Europe OP-725  
Florida WRI 98-4007; WRI 98-4091;  
WRI 98-4110; WRI 98-4133; OF 00-0056;  
OF 99-0181; OF 99-0235; FS 0139-96;  
FS 0158-96; FS 0169-96; FS 0175-96;  
FS 0179-96  
Georgia WRI 99-4018-C; OP-588  
Great Basin OF 99-0321  
Gulf Coastal Plain P 1416-H  
Gulf of Mexico OF 99-0181; FS 0135-96  
Hawaii WRI 98-4142  
Idaho WRI 98-4008  
Illinois WRI 98-4035; I-2669  
Iowa OF 99-0461  
Kuwait OP-675  
Maryland WRI 98-4047  
Massachusetts WRI 99-4018-C; OP-185  
Midwest P 1423-A; P 1423-C  
Minnesota WRI 99-4018-C; WRI 99-4069  
Mississippi WRI 98-4171  
Missouri FS 0032-00; FS 0101-97  
Nebraska FS 0179-99  
Nevada P 1608; WRI 98-4041; WRI 98-4063;  
WRI 98-4132; WRI 99-4018-C; OF 99-0153;  
OF 99-0555; FS 0179-95; OP-17
- New Hampshire WRI 98-4021; WRI 98-4183;  
WRI 99-4018-C; OF 99-0063; OF 99-0064;  
OF 99-0065; OF 99-0089; OF 99-0090;  
OF 99-0091; OF 99-0462; OP-68; OP-188
- New Jersey WRI 98-4003; WRI 99-4018-C
- New Mexico WRI 98-4172; OF 96-0208;  
OF 96-0210
- New York WRI 97-4210; WRI 98-4036;  
WRI 98-4067; WRI 98-4069; WRI 98-4181
- Ohio WRI 99-4012
- Oklahoma WRI 98-4082; WRI 99-4018-C;  
FS 0081-00
- Pennsylvania WRI 98-4076; OF 00-0097;  
OF 99-0271-A; OF 99-0452
- Puerto Rico WRI 97-4122; WRI 98-4030
- Rhode Island WRI 99-4153
- Samoa WRI 99-4064
- South Dakota WRI 98-4156; WRI 99-4018-C
- Texas WRI 98-4023
- United States P 1424-C
- Utah WRI 99-4014
- Virginia P 1622; WRI 98-4085
- Washington WRI 92-4109; WRI 98-4014
- Wisconsin WRI 98-4179; FS 0161-99
- prehnite-pumpellyite facies**  
Maine OP-1162; OP-1485  
New Brunswick OP-1162
- primary wave** *see* P-waves
- Prince Creek Formation** OP-1315
- Prince of Wales Island** OP-387
- Prince William Sound** WRI 99-4018-B; OP-73;  
OP-1213
- Prince William Terrane** P 1615
- Prioniodontidae** OP-234
- Prioniodus oepiki** OP-234
- pristane** OP-156
- probe, electron** *see* electron probe
- problematic fossils**  
Tubiphytes  
Kazakhstan OP-1584  
Russian Federation OP-1584
- problematic microfossils** *see* Tubiphytes
- Procambarus alleni** OF 99-0181
- productive capacity** OP-1481
- progradation**  
Alaska OP-1236; OP-1512  
Gulf of Mexico OP-1274  
Hungary OP-416  
South America OP-1403
- prograde metamorphism**  
Alaska OP-1338  
Virginia OP-1286
- programming languages** *see* computer languages
- Project Voyager** *see* Voyager Program
- Prospect Mountain Quartzite** *see* Stirling Quartzite
- PROSPECTOR** OP-1322
- proteins**  
Midwest WRI 99-4018-B
- Proterozoic**  
OP-272; OP-686; OP-1484  
Apache Group OF 99-0399  
Appalachians I-2607; OP-1360  
Bonner Formation OP-238  
British Columbia OP-402; OP-403; OP-1246  
California OF 99-0153; OP-63  
China OP-967; OP-1079  
Colombia OP-760
- Colorado OF 99-0321; OP-794; OP-822
- Europe OP-1129
- Helena Formation OP-238
- Idaho P 1600
- Keweenawan, Michigan OP-135
- Mexico OP-760; OP-849
- Michigan OF 99-0547
- Montana OP-136; OP-1054
- Nevada OP-380
- New Jersey OP-911; OP-912
- New Mexico OP-117
- North Carolina OP-1486
- Pan-African Orogeny, Saudi Arabia OP-997
- Pennsylvania OP-209; OP-210; OP-448
- Russian Federation OP-499
- Virginia OF 99-0552
- Wisconsin OF 99-0547; OP-1067
- Wyoming OF 99-0321; OP-811
- Protista** *see also* Radiolaria.  
OP-969
- Foraminifera  
OF 99-0535; OP-206  
Alaska OP-1135; OP-1285; OP-1355  
Antarctic Ocean OP-46; OP-47; OP-48;  
OP-49; OP-50; OP-51; OP-52; OP-53  
Arctic Ocean OP-309  
Atlantic Coastal Plain FS 0116-00  
California P 1632; OP-583; OP-820; OP-896;  
OP-1498  
Far East OP-1139  
Florida OF 00-0191; OF 99-0181;  
FS 0144-96  
Gulf of Mexico OF 99-0566  
Louisiana OF 00-0211  
Maryland OP-176  
Mexico OP-106; OP-849  
Oregon OP-582  
Pacific Ocean OF 99-0397; OP-979  
Pacific region OP-1139  
Texas OF 00-0211  
Venezuela OP-173  
Washington OP-582  
Globigerina, North Carolina OP-365  
Globigerina bulloides, California OP-208  
Globigerinoides ruber, Caribbean Sea  
OF 00-0035  
Globorotalia inflata, California OP-208  
Massachusetts WRI 99-4018-C
- protoplanets** *see* planetesimals
- Protopterus** OP-337
- Provo Utah** P 1500-K-R
- psammite** *see* sandstone
- pseudogalenite** *see* sphalerite
- pseudomorphism**  
OP-259  
Marshall Islands OP-76  
Micronesia OP-76
- Pteridophyta** OP-26
- Pteruchus** OP-26
- Pterygota** *see* Neoptera
- PTt paths** *see* P-T-t paths
- Pu'u O'o** *see* Puu Oo
- public awareness**  
OF 99-0339; FS 0071-00; FS 0072-00;  
FS 0075-00; FS 0150-00; OP-642; OP-1462  
California OF 96-0263; OF 99-0153; OP-1226;  
OP-1228  
Hawaii FS 0074-97  
Nevada OF 99-0153



Pacific Ocean OF 99-0339  
Washington FS 0058-00; OP-643; OP-1134;  
OP-1424

#### public health

OF 00-0204; FS 0094-00  
California FS 0061-00  
Hawaii FS 0152-00  
Iowa OF 00-0204  
Minnesota OF 00-0204  
North Carolina OF 00-0204  
Oklahoma OF 00-0204

#### public lands *see also* national forests.

OF 99-0108; OF 99-0321  
Alabama FS 0002-96  
Alaska P 1616; P 1619; OF 99-0459  
Arizona OF 99-0406; FS 0004-99  
California OF 00-0074; OF 99-0153;  
OF 99-0409  
Colorado OF 99-0410; OF 99-0553-A;  
OP-1006  
Florida OF 99-0181  
Georgia OP-10  
Great Plains FS 0011-00  
Gulf Coastal Plain OF 99-0558  
Idaho OF 99-0543; FS 0013-99  
Montana P 1625-A; OP-303  
Nebraska FS 0025-96  
Nevada OF 99-0540  
New Mexico OF 99-0411  
Oregon OF 99-0541  
Rocky Mountains FS 0011-00; OP-59  
Tennessee FS 0044-99  
Utah OF 99-0407; OF 99-0553-B; OP-18  
Washington OF 99-0408; OP-500  
Wyoming P 1625-A; OF 99-0542;  
OF 99-0553-C; OP-303

#### public policy

OF 00-0204; OF 99-0590; FS 0020-97;  
FS 0099-00; OP-250; OP-278; OP-435;  
OP-495; OP-710; OP-933  
Arkansas OF 99-0188  
Great Lakes region OF 99-0349  
New York OF 00-0204  
Oklahoma OF 00-0204  
South Dakota OP-254  
Washington OP-1134; OP-1424

**Puerto Rico** WRI 97-4122; WRI 98-4030;  
WRI 98-4045; WRI 98-4188; WRI 98-4189;  
WRI 98-4200; WRI 99-4010; WRI 99-4040;  
WRI 99-4169; OF 00-0006; OF 99-0557;  
HA-0730-N; FS 0163-99; OP-785; OP-1068

**Puget Lowland** P 1424-C; W 2492; OP-1023;  
OP-1035; OP-1254; OP-1411; OP-1417;  
OP-1424

**Puget Sound** *see also* Juan de Fuca Strait.  
MF-2346; FS 0111-00; OP-1039; OP-1048;  
OP-1071; OP-1158; OP-1471; OP-1518;  
OP-1530; OP-1538; OP-1554

**Puget Sound Aquifer** P 1424-C

pull apart structures *see* boudinage

#### pull-apart basins

California OF 99-0153; OP-395  
Colorado I-2672  
Nevada OF 99-0153

**Pullen Formation** OP-1427

pulsating spring *see* geysers

#### pumice

California OP-768  
Italy OP-1120

#### pump-and-treat

New Jersey WRI 99-4018-C

**Purcell System** OP-238; OP-1246

push-pull wave *see* P-waves

**Puu Oo** P 1613; OP-140; OP-1172

**Pymatuning earthquake 1998** OP-22

**Pyramid Lake** OP-77

**pyrene** OP-147

#### pyrite

OP-38; OP-272; OP-1381  
Andes OP-1149  
British Columbia OP-402  
China OP-1103  
Michigan OP-1281  
Pennsylvania OP-762

#### pyroclastic flows *see also* ash flows.

OF 99-0339; OP-523; OP-1368  
Alaska OP-332; OP-929  
Chile OP-332  
Guatemala OP-332  
Hawaii OP-332  
Indonesia OP-910  
Italy OP-1522  
Mexico OP-332  
Nicaragua OP-332  
Russian Federation OP-332  
Washington FS 0036-00; FS 0058-00;  
FS 0059-00; OP-643

#### pyroclastic surges

Oregon OF 99-0024

#### pyroclastics *see also* ash-flow tuff; hyaloclastite; ignimbrite; lapilli; pumice; pyroclastic flows; scoria; tuff; volcanic ash; volcanoclastics; welded tuff.

OF 99-0339; OP-270; OP-271; OP-619;  
OP-701; OP-905; OP-1053; OP-1151; OP-1167;  
OP-1168; OP-1169; OP-1432  
Alaska OP-275; OP-748  
California OF 99-0153  
Indonesia OP-645  
Italy OP-1491  
Mexico OP-573  
Oregon OP-168  
United Kingdom OP-836  
Washington OP-355; OP-936

#### pyrolysis *see also* Rock-Eval.

OP-1008

#### pyrophyllite

North Carolina OP-759

#### pyroxene group *see also* clinopyroxene;

orthopyroxene.  
OP-722; OP-1085; OP-1195  
Montana OP-181  
Russian Federation OP-182

#### pyroxenite

Far East OP-411  
Scandinavia OP-411

#### pyrrhotite

Maine OP-1287  
Pennsylvania OP-593

## Q

Q OP-483

Q waves *see* Love waves

Qazaqstan *see* Kazakhstan

#### quality control

TWI 03-C2; WRI 99-4007; WRI 99-4184;

OF 00-0140; OF 00-0204; OF 92-0164;  
OF 99-0094; OF 99-0221; OF 99-0254;  
OF 99-0255; OF 99-0464; FS 0013-97;  
FS 0065-95; FS 0196-99; OP-299  
Alaska OF 99-0342  
Colorado OF 00-0150; OF 99-0370  
Far East OP-714  
Montana OF 00-0099; OF 99-0251  
Ohio WRI 98-4057  
Pennsylvania WRI 98-4173

**Quarryville Diabase** OP-268

#### quartz

OP-1553  
Alaska OP-1133  
Arizona OP-1517  
British Columbia OP-402  
California OP-832  
China OP-1079  
Far East OP-747  
Nevada OP-1305  
Oklahoma OP-1311  
Pacific Ocean OP-344  
Pennsylvania OP-209  
Saudi Arabia OP-1517  
Scandinavia OP-747  
Utah OP-1517

#### quartz veins

OP-814  
Canada OP-795  
Colorado OF 99-0347  
United States OP-795

#### quartzites

OP-268  
Mexico OP-849  
Wisconsin OP-1067

#### Quaternary *see also* Holocene; last glacial maxi- mum; Pleistocene.

OF 00-0108; OF 94-0645; OF 99-0312;  
OF 99-0321; OF 99-0400; OP-64; OP-82;  
OP-114; OP-1204; OP-1351  
Alaska P 1615; OP-325; OP-1355; OP-1565  
Andes OP-1148; OP-1149  
Antarctic Ocean OP-48; OP-49; OP-52; OP-53  
Arizona OF 99-0400; I-2662; I-2663; OP-1108;  
OP-1153  
Atlantic Coastal Plain OP-1329  
Atlantic Ocean OP-175  
Blackwater Draw Formation OP-629  
Brunhes Chron  
California OF 98-0752; OF 99-0321; OP-755  
Utah OP-666  
California WRI 98-4041; OF 00-0175;  
OF 99-0153; FS 0022-00; OP-93; OP-529;  
OP-545; OP-576; OP-1062; OP-1427;  
OP-1506  
Canada P 1424-C; I-1420(NM-14); OP-1350  
Caribbean Sea OF 99-0312  
Chile OP-80  
Colombia OP-1116  
Colorado OP-938  
Connecticut OF 98-0371  
Costa Rica OP-97  
Egypt OP-775  
Europe OP-725  
Florida OF 99-0413  
Idaho OP-1122  
Illinois I-2669; OP-639  
Japan Sea OP-708  
Maine OF 99-0380  
Mazama Ash OP-168



Missouri OP-639  
 Montana OP-303; OP-624  
 Nebraska OP-631  
 Nevada WRI 98-4041; OF 98-0635;  
 OF 99-0153; OP-646; OP-647; OP-1425  
 New Mexico OF 98-0521; OF 99-0400; OP-693  
 New Zealand OP-1362  
 Oklahoma OP-1311  
 Oregon OF 99-0339; OP-1000  
 Pacific Ocean OF 99-0397  
 Panama OP-97  
 Russian Federation OP-789  
 South America OP-569  
 Taiwan OF 99-0447  
 United States P 1424-C; I-1420(NM-14);  
 OP-1350  
 Utah OF 99-0400; OP-1122  
 Venezuela OF 00-0018  
 Washington OF 95-0642; FS 0058-00;  
 FS 0059-00; FS 0111-00; OP-265; OP-1000;  
 OP-1254  
 Wyoming OP-303  
 Yukon Territory OP-1565  
**Quebec** OP-236; OP-1542  
 Queen Elizabeth Islands *see* Devon Island  
**Queensland Australia**  
 Cape York Peninsula OP-945  
**Querecual Formation** OP-173  
 quicksilver *see* mercury  
**Quindio earthquake 1999** OP-1116

## R

R waves *see* Rayleigh waves

Ra *see* radium

### Ra-226

Florida OF 99-0181

**Racine Quadrangle** OF 99-0526-C

radar methods *see* ground-penetrating radar

radioactive isotopes *see* Ar-38; Ar-40/Ar-39;  
 Be-7; Be-10/Be-9; C-14; Cl-36; Cr-51; Cs-137;  
 Kr-85; Os-187/Os-186; Pb-206/Pb-204;  
 Pb-207/Pb-204; Pb-208/Pb-204; Pb-210;  
 Ra-226; Rb-87/Sr-86; S-35; Sm-147/Nd-144;  
 Sr-90; Th-230; Th-232/Th-230; tritium; U-234;  
 U-238; U-238/Pb-204; U-238/Th-230;  
 U-238/U-234

### radioactive waste

WRI 98-4145; OP-735

Arizona OP-1211

California OP-1152; OP-1211

Florida FS 0058-95

Idaho WRI 98-4026; WRI 98-4028;

OF 98-0009; OP-527

Nevada WRI 99-4018-C; OF 98-0530;

OF 99-0339; FS 0179-95; OP-351; OP-646;

OP-647; OP-1127; OP-1152

South Carolina OP-718

Virginia OP-718

### radioactivity

Pennsylvania FS 0012-00

**radioactivity methods** OP-449; OP-1140;

OP-1145; OP-1581

radiocarbon dating *see* C-14

### Radiolaria

Alaska OP-1135

Antarctic Ocean OF 99-0312; OP-47; OP-48;

OP-49; OP-50; OP-51; OP-52; OP-53

Far East OP-1139

Nevada OP-98

Pacific region OP-1139

### radium

Pennsylvania FS 0012-00

Ra-226, Florida OF 99-0181

### radon

Florida C 1151; C 1207

Georgia C 1151

Maryland C 1168

Pennsylvania C 1168; FS 0012-00

rafting, ice *see* ice rafting

rain *see also* acid rain.

OP-392

Colorado OP-1097; OP-1212

Iowa WRI 99-4018-B

Minnesota WRI 99-4018-B

Mississippi WRI 99-4018-B

Nevada OP-351; OP-352

New Zealand OP-1270

United States OP-1270

**Rainbow Valley Basin** WRI 99-4005

### raised beaches

Gulf of Mexico OP-622

**Raman spectroscopy** OP-1242; OP-1496

**Rangeley Formation** WRI 98-4183; OP-235

### rapakivi

Russian Federation OP-499

**Rapid City South Dakota** WRI 99-4018-C

### rapids

Arizona P 1591

**Rappahannock River** WRI 98-4025

### rare earth deposits

OP-889

Brazil OP-340

California OP-340

China OP-340; OP-1079

North Carolina OP-340

**rare earths** *see also* europium; lanthanum; neodymium; scandium; yttrium.

OP-1243

Alaska P 1614; OP-221

Bolivia OP-179

British Columbia OP-1246

California OF 99-0153

China OP-967

Europe OP-289

Italy OP-1522

Nevada OF 99-0153

Pacific Ocean OP-344; OP-690

South America OP-289

Utah OP-461

**Raritan River** WRI 99-4045

### RASA

Columbia Plateau P 1413-A

Virginia WRI 98-4085

**Rat Islands Quadrangle** OF 00-0029

rate of sedimentation *see* sedimentation rates

**Raton Basin** P 1625-A; OP-688; OP-706

**Raton Formation** OP-183

**Rattlesnake Creek Terrane** OP-482

### Rayleigh waves

OP-1210

California OP-532

Washington OP-265

Rb *see* rubidium

### Rb-87/Sr-86

Colorado OP-1414

Haiti OP-1414

Mexico OP-573

### Rb/Sr

Antarctica OF 00-0133

California OP-482

Russian Federation OP-499

Re *see* rhenium

### Re/Os

OP-1013

California OP-96

Montana OP-136; OP-1288

**Reading Prong** OP-209; OP-210

Recent *see* Holocene

**recharge** *see also* hydrologic cycle; infiltration.

OF 00-0160; OF 98-0275; FS 0124-99; OP-138;

OP-336; OP-464; OP-754; OP-951; OP-1031;

OP-1216; OP-1292; OP-1508

Appalachians OP-1443

Arizona WRI 99-4074; WRI 99-4197; OP-294;

OP-840; OP-962

Arkansas OF 00-0204

California WRI 98-4040-A; WRI 98-4041;

FS 0090-00; OP-567; OP-1016; OP-1221

Columbia Plateau P 1413-A; OP-1373

Europe OP-725

Florida OP-148; OP-1261

Great Plains W 2427; FS 0091-00

Gulf Coastal Plain P 1416-H

Hawaii WRI 98-4142; WRI 98-4159;

WRI 99-4090; FS 0126-00

Hungary OP-90

Idaho OP-713

Indiana WRI 98-4139

Iowa OP-56

Maine WRI 99-4050

Maryland WRI 98-4047; OP-89

Massachusetts WRI 99-4018-C; OP-56

Michigan WRI 98-4060; WRI 99-4018-C;

OP-587; OP-818

Midwest P 1423-A; P 1423-C

Minnesota WRI 99-4018-C; WRI 99-4069

Missouri FS 0101-97

Montana OP-833

Nebraska OP-1545

Nevada WRI 98-4041; WRI 98-4132; OP-652;

OP-872; OP-1176; OP-1319

New Hampshire WRI 99-4018-C

New Mexico OP-125

New York WRI 97-4136; WRI 98-4067;

WRI 98-4069; WRI 98-4181; OP-116

North Carolina OF 99-0375

Oklahoma WRI 98-4082; WRI 99-4018-C;

FS 0081-00

Pennsylvania OF 00-0097; OP-66

Puerto Rico WRI 98-4030

Rhode Island WRI 99-4153

South Dakota WRI 98-4146; WRI 98-4156;

WRI 99-4018-C; HA-0745-A; HA-0745-B;

HA-0745-C; HA-0745-D; HA-0745-E

Tennessee OF 99-0375; OP-1043

Texas OP-1308

Utah WRI 99-4074; OP-745; OP-835

Virginia WRI 98-4085; OP-125; OP-1161

Washington W 2492; WRI 92-4109;

WRI 98-4014; WRI 99-4048

Wisconsin OP-1001; OP-1445

Wyoming OP-833



**reclamation** *see also* abandoned mines; waste water.

OF 99-0590; OP-253  
 Arizona OP-1211  
 California OP-1211  
 Colorado C 1191  
 Florida OF 00-0056; FS 0061-99  
 Great Lakes region OP-438  
 Idaho FS 0012-96  
 New Jersey WRI 98-4016  
 North Carolina OP-855  
 Rocky Mountains P 1625-A

**recumbent folds**

Nevada OP-380  
 Pennsylvania OP-210

**recurrence interval**

P 1500-K-R; OF 93-0641; OF 99-0339;  
 OF 99-0400; OP-1146; OP-1318  
 Alabama WRI 99-4040-A  
 Alaska OF 99-0036  
 Arizona OF 99-0400  
 California OF 99-0153; FS 0062-95  
 Japan OF 99-0400  
 Maine WRI 99-4008  
 Missouri WRI 98-4068; WRI 98-4101  
 Montana WRI 98-4066  
 Nevada FS 0100-00  
 New Mexico OF 99-0400  
 Ohio WRI 98-4043; WRI 98-4238  
 Oregon OP-954  
 Puerto Rico WRI 98-4200  
 Texas WRI 98-4015; WRI 98-4099  
 Turkey OF 99-0400  
 Utah OF 99-0400  
 Vermont FS 0064-00  
 Washington WRI 98-4009; OF 99-0400;  
 FS 0058-00

**red beds**

Pennsylvania OP-273

**Red Bluff Quadrangle** I-2542

**Red Dog Mine** OP-1378

**Red Mountain** OF 00-0034; OP-239

**Red River** OP-844

**Red River of the North basin** C 1169;  
 WRI 98-4175; OF 91-0151; FS 0089-00;  
 OP-298

redbeds *see* red beds

**reefs** *see also* carbonate banks.

C 1199  
 atolls, Polynesia OP-205  
 barrier reefs  
   Belize OP-292  
   Florida OP-521  
 Caribbean region OP-802  
 Caribbean Sea OP-802  
 Florida FS 0108-99; FS 0109-99  
 Gulf of Mexico OF 00-0166  
 Kazakhstan OP-1584  
 Russian Federation OP-1584

refractory clay *see* fireclay

**refractory materials** *see also* carborundum;  
 magnesite deposits.

OP-62  
 Austria OP-717  
 Canada OP-717  
 Far East OP-411; OP-714  
 India OP-717  
 Kenya OP-717  
 Norway OP-717

Scandinavia OP-411

Surinam OP-717

Virginia OP-717

Regional Aquifer-System Analysis Program *see*  
 RASA

**regional metamorphism**

Alaska P 1615; OP-1338  
 British Columbia OP-1246  
 California OF 99-0153  
 New Mexico OP-117

**regolith**

OP-71; OP-1017; OP-1080; OP-1251;  
 OP-1345  
 England OP-709  
 Nebraska OP-906  
 Queensland Australia OP-945  
 Uganda OP-709  
 United States OP-709  
 Wales OP-709

**relief**

I-2720; OP-715; OP-1089  
 Massachusetts I-2701; I-2704; I-2709; I-2710;  
 I-2711; I-2712

**remanent magnetization** *see also* anhysteretic  
 remanent magnetization; isothermal remanent  
 magnetization; natural remanent magnetization.

Alaska OP-1132  
 California OF 99-0440; FS 0023-00  
 Japan OP-423

remediation *see* bioremediation

**remote sensing** *see also* albedo; AVHRR;  
 AVIRIS; ERS-1; Galileo Program; Global Posi-  
 tioning System; ground truth; infrared methods;  
 lineaments; SAR; Shuttle Imaging Radar.  
 C 1199; GN; OF 99-0233; I-2620; FS 0039-00;  
 FS 0041-00; FS 0083-00; FS 0108-00;  
 FS 0131-95; FS 0143-95; FS 0144-95;  
 FS 0189-99; OP-112; OP-271; OP-299; OP-450;  
 OP-480; OP-614; OP-630; OP-710; OP-861;  
 OP-1140; OP-1271; OP-1277; OP-1434;  
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 Illinois FS 0014-99  
 Louisiana WRI 99-4293; FS 0025-00; OP-1160  
 Manitoba OP-955  
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 New Mexico OP-1093  
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 Washington WRI 00-4006; OP-361  
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**Renalcis**

Kazakhstan OP-1584  
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**Reporoa** OP-1362

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**Reptilia**

Crocodylia, Florida OF 99-0181  
 dinosaurs OP-530  
 Florida OF 99-0181  
 Sauropoda, New Mexico OP-685  
 Triceratops  
   North Dakota OP-1223  
   Wyoming OP-1223  
 Tyrannosaurus, Alberta OP-1084

**reservoirs** *see also* dams; floods.

WRI 99-4018-B; OP-128; OP-1234  
 Arizona OP-840; OP-935  
 Colorado WRI 98-4193  
 Kansas FS 0102-00  
 Louisiana WRI 99-4109; WRI 99-4194  
 Midwest WRI 99-4018-B  
 New Jersey OF 99-0466  
 New Mexico WRI 98-4083  
 New York OF 99-0466  
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 Puerto Rico WRI 99-4010; WRI 99-4169  
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reservoirs, geothermal *see* geothermal reservoirs

**residence time**

OP-217; OP-336  
 Atlantic Coastal Plain FS 0150-99  
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 Italy OP-1120  
 Maryland OP-89  
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 New Hampshire WRI 99-4018-C  
 New Mexico OP-125  
 New York WRI 98-4181  
 Russian Federation OP-789  
 Virginia OP-125

**resins** OP-7

**resurfacing** *see also* cratering.

OP-1083; OP-1214; OP-1450

**resurgence**

California OP-1227

**retrograde metamorphism**

California OF 99-0153  
 Virginia OP-1286

**reverse faults**

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 California B 1995-Y,Z; OF 99-0153; OP-589  
 Colorado OP-232  
 Washington OP-1023

reverse slip faults *see* thrust faults

**revetments**

Hawaii OP-249

**Rhea Satellite** OP-1475

**rhenium** *see also* Re/Os.  
 OP-1550

**rheomorphism**

Colorado OP-31

**Rhizophora** OP-34

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OF 99-0467  
 Narragansett Bay WRI 99-4153  
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**rhyodacites**

Alaska OP-356

**rhyolites**

Alaska OP-356

California OF 99-0153; OP-545

Colorado OP-1566

Nevada OP-1052; OP-1444

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ribonucleic acid *see* RNA

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**Rietveld refinement**

Idaho OF 00-0116

**Rifle Quadrangle** OF 97-0852

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OP-1255; OP-1484; OP-1564

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China OP-404

Hawaii P 1613; WRI 98-4142; OP-140;

OP-425; OP-667

Israel OF 98-0516

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OP-1093

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OP-496; OP-589; OP-1020

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**Riku-u earthquake 1896** OF 99-0400

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**Rimaesporites** OP-26

ring silicates *see* cordierite; dravite; emerald;

schorl; tourmaline

rings, tree *see* tree rings

Rio Amazonas *see* Amazon River

**Rio Blanco Tephra** OP-433

**Rio Grande** C 1126; OF 00-0065; FS 0074-00;

OP-1188; OP-1234; OP-1374

**Rio Grande Rift** OF 00-0231; OF 99-0400;

OP-311; OP-693; OP-774; OP-1093; OP-1098;

OP-1265; OP-1306; OP-1339; OP-1398;

OP-1400

Rio Grande River *see* Rio Grande

**Rio Grande Valley** WRI 98-4172;

WRI 99-4018-B; OF 00-0065; OF 00-0204;

FS 0139-99; OP-125; OP-310; OP-1373;

OP-1508

**riparian environment**

WRI 98-4155; OF 99-0321; OP-942

Arizona OP-840

Atlantic Coastal Plain OP-1237; OP-1493

Florida WRI 98-4013

Georgia WRI 98-4013

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risk, seismic *see* seismic risk

**River Bend Formation** OP-365

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**rivers** *see also* channel geometry; channels;

drainage basins; meanders.

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**RNA**

Michigan WRI 99-4018-C

**Roberts Mountains Allocthon** OP-98

Rock Eval *see* Rock-Eval

**rock masses**

California OP-939

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**rock mechanics**

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Washington OP-926

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**Rock Springs Uplift** P 1625-A

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**Rockall Plateau** OF 99-0312

**rockfalls**

California OF 99-0385; OF 99-0578;

FS 0022-00; OP-564; OP-939

**Rockland Tephra** OP-768

**rockslides**

California OF 99-0153; OP-564

**Rocky Flats Plant** OP-1477

**Rocky Mountain National Park** OF 99-0111;

FS 0164-99; OP-58; OP-60; OP-130; OP-160;

OP-603; OP-856; OP-1568

**Rocky Mountains**

P 1625-A; OF 00-0260; I-2750-A; FS 0011-00;

OP-58; OP-59; OP-60; OP-430; OP-596;

OP-786; OP-794; OP-858; OP-859; OP-876;

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OP-230; OP-498; OP-847

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**Rostrhamus sociabilis** OF 99-0181

Rotaliina *see* Globigerinacea

rotational wave *see* S-waves

**Rotliegendes** OP-1255

**Roubidoux Formation** FS 0101-97

**Round Mountain** OP-711

**Roundstonia** OP-114

**Ruapehu** OP-900

rubblerock *see* breccia

**rubidium**

OP-288

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Colorado OP-1414

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**Ruby Mountains** OP-379; OP-380

**Rudabanya Formation** OP-471

**Rudabanya Mine** OP-367

**rudstone**

Kazakhstan OP-1584

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**rural environment**

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Mississippi WRI 99-4018-B

**Rush Springs Aquifer** WRI 98-4081;

WRI 98-4082

**Rush Springs Formation** WRI 98-4081

Russia *see* Russian Federation

**Russian Arctic** OF 99-0050-N

**Russian Far East** OP-653; OP-1185

**Russian Federation** *see also* Caspian Basin;

Caucasus; Urals.

FS 0017-97; OP-411; OP-512; OP-1375;

OP-1397

Aldan Shield OP-499

Bezmyanny OP-778

Central Urals OP-749

Chukchi Peninsula OP-1026; OP-1186

Kamchatka Russian Federation OP-332

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Lake Baikal OF 96-0274; OP-32; OP-789

Norilsk region OP-1041

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Russian Far East OP-653; OP-1185

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Siberian Platform OP-182; OP-474

Timan-Pechora region OF 99-0379

Ulkan Russian Federation OP-499

Vilyuy River basin OF 99-0381

Volga-Urals OP-1544

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**rutile** OP-259

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**S-34** OP-1255

**S-34/S-32**

Alaska P 1615; OP-641

China OP-1239

Florida OF 99-0181

Gulf of Mexico WRI 99-4018-B





Minnesota OF 00-0204  
 New Mexico OP-1306  
 New York OP-116  
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 Russian Federation OP-1185

**S-35**

Colorado OP-603  
 Wyoming OP-1335

s-triazines *see* triazines

S-type asteroids *see* Eros Asteroid; Gaspra Asteroid

**S-waves** *see also* SH-waves; SV-waves.

OF 00-0020; OP-585; OP-946; OP-1147;  
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 Arizona OP-1211  
 Atlantic Coastal Plain OP-1128  
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 OP-378; OP-532; OP-757; OP-1211;  
 OP-1494

Colorado DDS-0066  
 Gulf of Mexico OP-1128  
 Missouri OP-139  
 Ontario OP-426  
 Tennessee OP-139  
 Turkmenia OP-302  
 Utah P 1500-K-R  
 Washington OP-265; OP-956; OP-1546;  
 OP-1572; OP-1578

**Saanich Inlet** OP-263

**Sabine Lake** OP-1274

**Sacramento Basin** OP-1091

**Sacramento Deposit** OP-859

**Sacramento Mountains** OP-686

**Sacramento River** WRI 99-4018-B; OP-203;  
 OP-481

**Sacramento Valley** FS 0005-00; OP-203

**Saddle Mountains Basalt** P 1413-A

**Saddle Peak Hills Quadrangle** OF 99-0153

**Sadlerochit Mountains** OP-1285; OP-1552

**Safe Drinking Water Act**

Texas FS 0101-00

Saghalin *see* Sakhalin

**Saint Elias Mountains** P 1616; P 1619;  
 OF 99-0342; OP-357

**Saint Eugene Deposit** OP-1246

**Saint George Group** OP-1427

**Saint Johns River Water Management District**  
 OF 99-0608

**Saint Louis Missouri** OP-139; OP-1399

**Saipan** WRI 98-4077

**Sakhalin** OF 99-0050-O; OF 99-0400

**Salinas California** OP-875

**Salinas Valley** OP-875

saline water *see* salt water

**salinization**

Florida OF 99-0181  
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**Salisbury Embayment** OP-286

**Salmonella** OF 00-0204

**salt**

OP-1323  
 Alaska OP-1044  
 Andes OP-1148  
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 New Mexico OP-1191

**salt domes**

New Mexico OP-311

**Salt Lake City Utah** P 1500-K-R

**salt marshes**

OP-414  
 Florida OP-729

**salt tectonics** *see also* diapirs.

Louisiana OP-1541

**salt water** *see also* salt-water intrusion.

OP-1571  
 Atlantic Coastal Plain FS 0030-00  
 Bahamas OP-1222  
 Florida OP-657  
 Gulf of Mexico OF 99-0181; FS 0030-00  
 Hawaii WRI 99-4090  
 New Hampshire WRI 99-4018-C  
 New York WRI 98-4067  
 Oklahoma WRI 99-4018-C  
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 Virginia P 1622

**salt-water intrusion**

FS 0059-95; FS 0065-95  
 Atlantic Coastal Plain FS 0085-00  
 California FS 0005-00; FS 0005-96; OP-1422  
 Florida WRI 99-4061; WRI 99-4214;  
 OF 99-0181; OF 99-0426; FS 0058-95;  
 FS 0175-96  
 Hawaii WRI 98-4142; FS 0126-00  
 Louisiana FS 0018-96  
 New Jersey WRI 98-4136  
 New York W 2498  
 Rhode Island WRI 99-4153  
 Samoa WRI 98-4029; WRI 99-4064  
 Virginia WRI 98-4187  
 Washington WRI 92-4109; WRI 98-4014;  
 FS 0057-00

**Salta Argentina** OP-741

**Salton Trough** OF 99-0153

**Salvelinus fontinalis** OP-1004

**samarium**

Sm-147/Nd-144  
 Colorado OP-1414  
 Haiti OP-1414  
 Mexico OP-573

**Samoa** WRI 98-4029; WRI 99-4064

sample location maps *see* site location maps

**San Andreas Fault** DDS-0029; OF 00-0146;  
 OF 99-0400; MF-2337; OP-63; OP-122;  
 OP-196; OP-280; OP-395; OP-441; OP-496;  
 OP-552; OP-571; OP-589; OP-978; OP-1207;  
 OP-1262; OP-1478; OP-1549

San Andres Formation *see* Leonardian

**San Antonio Texas** FS 0149-99

**San Bernardino California** OF 00-0193

**San Bernardino Mountains** OP-1076

**San Diego California** OP-165; OP-436

**San Diego Trough** OP-436

**San Fernando Basin** OF 00-0219

**San Fernando earthquake 1971**

Alaska OP-1213  
 California OF 00-0002; OP-415; OP-1213

**San Fernando Valley** OF 00-0219; OF 96-0263;  
 OP-177; OP-371; OP-846; OP-1478

San Fernando Valley earthquake 1971 *see* San  
 Fernando earthquake 1971

**San Francisco Bay** *see also* San Pablo Bay.

WRI 99-4018-B; FS 0053-95; OP-37; OP-368;  
 OP-571; OP-649; OP-692; OP-980; OP-1562

**San Francisco Bay region** *see also* Loma Prieta  
 earthquake 1989.

WRI 99-4018-B; OF 99-0517; FS 0053-95;  
 FS 0096-96; FS 0175-99; OP-111; OP-280;  
 OP-359; OP-381; OP-395; OP-808; OP-978;  
 OP-1402

**San Francisco California** OP-95; OP-158;  
 OP-441

**San Francisco Mountain** OP-839

**San Francisco Peaks** OP-839

**San Francisco Peninsula** OP-395; OP-978

San Francisco Volcanic Field *see* San Francisco  
 Peaks

**San Gabriel Fault** OP-1478

**San Gabriel Mountains** OF 99-0388

**San Gorgonio Pass** OP-583; OP-1076

**San Gregorio Fault** OP-155; OP-395; OP-1435

**San Jacinto Fault** OF 00-0193

**San Joaquin Basin** B 2174-A; C 1159; OP-1091

**San Joaquin River** WRI 99-4018-B; OP-118;  
 OP-481

**San Joaquin Valley** B 2174-B; WRI 98-4017;  
 WRI 98-4040-A; FS 0005-00; OP-118;  
 OP-1211; OP-1363

**San Jose Quadrangle** OF 98-0795; OP-85

**San Juan Basin** OP-243; OP-252; OP-742;  
 OP-1100

**San Juan Islands** FS 0057-00

**San Juan Mountains** OF 00-0034; OF 99-0347;  
 OP-230; OP-498; OP-847

**San Juan volcanic field** *see also* Fish Canyon  
 Tuff.  
 OP-312; OP-847

**San Luis Valley** OP-231; OP-307; OP-881

**San Pablo Bay** OP-689

**San Pedro Basin** WRI 99-4197

**San Pedro Valley** OF 00-0138; OP-962

**San Pitch Formation** OP-841

**San Rafael Basin** OF 99-0399

**San Rafael Group** *see also* Entrada Sandstone.  
 I-2667; OP-658

**San Rafael Mountain Quadrangle** OP-1498;  
 OP-1499

**Sanak Island** P 1615

**sand**

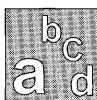
WRI 99-4184; OP-630; OP-1036  
 Alaska OP-929  
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 Kansas OP-20  
 Massachusetts OP-437; OP-793  
 Minnesota OP-216  
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 OP-1515  
 Nebraska OP-631  
 New Jersey OP-705  
 New Mexico OP-629  
 North Carolina OP-705  
 Oklahoma OP-1311  
 Oregon OP-237  
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 Pennsylvania OP-668  
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**sand boils**

Japan OF 99-0400

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**Sand Hills** OP-630; OP-631; OP-1353

### **sand ridges**

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**Sandia Mountains** OP-117

### **sands**

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Alaska P 1615; OP-1452

Argentina OP-741

Belgium OP-211

Colorado OP-1477

Italy OP-1372

Montana DDS-0057; OP-409

New Mexico OP-385; OP-685; OP-1191

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Pennsylvania OF 00-0097; OP-209; OP-228;  
OP-617

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### **sandstone dikes**

Washington OP-1039

**Sangre de Cristo Mountains** *see also* Spanish Peaks

OP-40

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OP-150

California OP-1363

Colorado OP-498

**Sanish Aquifer** WRI 98-4098

**Santa Ana Basin** OP-1016

**Santa Ana River** OF 00-0204; OP-1016

**Santa Barbara Basin** WRI 99-4018-B

**Santa Barbara Islands** *see* Channel Islands

**Santa Clara Basin** OP-1422

**Santa Clara Valley** OF 99-0434; OP-589;  
OP-1207

**Santa Cruz Argentina** OP-281

**Santa Cruz California** DDS-0061

**Santa Cruz Formation** OP-281

**Santa Cruz Island** OF 00-0073

**Santa Cruz Mountains** OP-564; OP-704

**Santa Fe Group** WRI 98-4172; OP-310;  
OP-385; OP-562; OP-685

**Santa Lucia Basin** B 1995-Y,Z

**Santa Maria** OP-332

**Santa Maria Basin** B 1995-Y,Z

**Santa Monica Basin** OP-1478

**Santa Monica Mountains** OF 99-0577; OP-1478

**Santa Paula Field** OP-1310

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**Santa Rosa Island** OF 00-0073

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**Saskatchewan** OF 99-0602; I-1420(NM-14)

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California B 2174-B

**Saturated-Unsaturated TRANsport** *see* SUTRA

**Saturn** *see* Dione Satellite; Enceladus Satellite; Rhea Satellite; Voyager Program

### **Saucesian**

California OP-1498

**Saudi Arabia** *see also* Arabian Shield.

OP-164; OP-963; OP-1517

**Saurischia** *see* Sauropodomorpha; Theropoda

### **Sauropoda**

New Mexico OP-685

**sausage structure** *see* boudinage

**Savannah River Plant** WRI 99-4018-C; OP-913

**Sbaa Field** B 2202-B

**Scabland** (Columbia Plateau) *see* Channeled Scabland

**scales, cartographic** *see* cartographic scales

**Scandinavia** *see* Denmark; Finland; Norway

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Brazil OP-340

California OP-340

China OP-340

North Carolina OP-340

**scanning electron microscopy** OP-459; OP-463

**Scarabeidae** OP-281

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Micronesia OP-331

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California OP-63

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**schizomycetes** *see* bacteria

**Schizophyta** *see* cyanobacteria

### **Schlumberger methods**

Arizona OP-1021

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### **schorl**

California OP-930

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**Scleractinia** *see* Acropora cervicornis

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Italy OP-1120; OP-1295

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### **sea ice**

Arctic Ocean OP-70

**sea mounts** *see* seamounts

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**sea surface temperature** *see* sea-surface temperature

**sea water** *see also* brines; salt water.

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California WRI 99-4018-B

Florida WRI 98-4007; OF 99-0181; FS 0179-96

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Louisiana WRI 99-4018-B; OP-304

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OF 99-0312; OP-250; OP-888

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Atlantic Ocean OP-375

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**Searles Lake** OP-529; OP-824

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**Seattle Basin** OP-1048; OP-1158; OP-1417;  
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OP-1051; OP-1364; OP-1502; OP-1554

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OP-946; OP-956; OP-998; OP-1071; OP-1163;  
OP-1164; OP-1208; OP-1555; OP-1572;  
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**Sedan Quadrangle** I-2634

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### **sediment supply**

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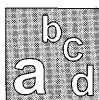
**sedimentary petrology** *see* clay mineralogy;  
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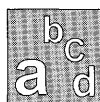
- Alaska P 1615  
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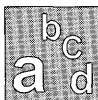
## seismic networks

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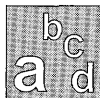
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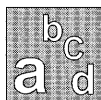




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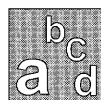
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North Dakota WRI 98-4175

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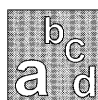
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- Trans-Pecos** WRI 98-4099
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- transfer faults**  
 New Mexico OP-1339
- transform faults**  
 OP-1328  
 Israel OF 98-0516  
 Jordan OF 98-0516  
 Pacific Ocean OP-1072
- transformations, Laplace *see* Laplace transformations
- transgression** *see also* highstands.  
 Alaska OF 99-0312; OP-1285; OP-1482  
 Atlantic Coastal Plain OF 99-0593; FS 0076-00  
 Atlantic Ocean OF 99-0312  
 California FS 0175-99; OP-158; OP-1427  
 Colorado OP-119  
 Florida OF 99-0181  
 Gulf of Mexico OF 99-0181; FS 0156-96;  
 OP-1274  
 Louisiana OP-851
- transmission electron microscopy** OP-459
- transport** *see also* sediment transport; solute transport; stream transport.  
 C 1180; WRI 98-4143; WRI 99-4018-C;  
 WRI 99-4097; OF 00-0034; OF 00-0204;  
 OF 99-0108; OF 99-0240; OF 99-0255;  
 OF 99-0590; OP-15; OP-42; OP-147; OP-217;  
 OP-291; OP-336; OP-486; OP-534; OP-551;  
 OP-732; OP-788; OP-1007; OP-1508  
 Alaska P 1619; OF 99-0236  
 Arizona OP-293; OP-1193  
 Arkansas OF 00-0204; OF 99-0268; OP-1117  
 Atlantic Coastal Plain WRI 97-4280;  
 FS 0030-00; FS 0150-99  
 British Columbia OP-868  
 California C 1159; WRI 98-4017;  
 WRI 99-4018-B; FS 0061-00  
 Canada WRI 99-4018-C  
 Colorado WRI 98-4151; OF 00-0034;  
 OF 00-0150; OF 00-0204; OF 97-0361;  
 OP-189; OP-231; OP-244; OP-312; OP-603;  
 OP-712; OP-776; OP-847; OP-850; OP-881  
 Connecticut WRI 99-4018-C; WRI 99-4081  
 Delaware WRI 98-4153; OF 00-0204  
 Florida WRI 99-4020; OF 00-0204;  
 OF 99-0181; FS 0139-96; FS 0145-96  
 Georgia WRI 99-4018-C  
 Germany OP-1349  
 Great Plains FS 0009-00  
 Greenland OP-1110  
 Gulf Coastal Plain WRI 99-4018-B  
 Gulf of Mexico WRI 99-4018-B; OF 99-0181;  
 FS 0030-00  
 Idaho C 1160; WRI 98-4026; WRI 98-4028;  
 WRI 98-4073; OF 98-0009; OF 99-0548;  
 OP-347; OP-527  
 Iowa OF 00-0204
- Kansas FS 0096-00; FS 0170-99  
 Louisiana OP-602; OP-1063  
 Maine WRI 98-4174; WRI 99-4050;  
 OF 99-0200  
 Marshall Islands WRI 94-4248; OP-949  
 Maryland WRI 98-4037; OF 00-0204;  
 FS 0053-00; OP-537  
 Massachusetts WRI 98-4257; WRI 99-4018-C;  
 OF 99-0231; OP-185; OP-437; OP-477;  
 OP-478  
 Micronesia WRI 94-4248; OP-949  
 Midwest OF 99-0321; FS 0046-98  
 Minnesota WRI 99-4018-C; OF 00-0204;  
 OF 99-0321  
 Mississippi Valley OP-612  
 Montana OF 00-0003; OF 00-0004;  
 OF 00-0031; OF 00-0034; OF 99-0251;  
 OF 99-0321  
 Nebraska WRI 98-4033; WRI 98-4138;  
 FS 0078-00  
 Nevada WRI 98-4184; WRI 99-4018-C;  
 OF 00-0204; OP-1349  
 New Hampshire WRI 99-4018-C; OF 99-0462;  
 OP-68  
 New Jersey WRI 98-4126-A; WRI 99-4018-C  
 New York WRI 98-4104; WRI 99-4018-B  
 North Carolina WRI 98-4149; OF 00-0204  
 North Dakota WRI 98-4152  
 Ohio WRI 98-4089; WRI 98-4180  
 Oklahoma WRI 99-4018-C; OF 00-0204  
 Oregon W 2465-C; WRI 98-4105;  
 WRI 98-4125  
 Pennsylvania WRI 98-4010; WRI 98-4076;  
 WRI 98-4129; OF 00-0097; OF 99-0271-A;  
 OF 99-0452; FS 0168-99  
 Rhode Island OF 00-0276  
 South Carolina WRI 98-4150; WRI 98-4165;  
 WRI 99-4018-C  
 Texas WRI 98-4023; OF 99-0245; OP-1312  
 United States WRI 99-4018-C  
 Vermont OF 99-0564  
 Virginia WRI 98-4025; OF 00-0204  
 Washington WRI 98-4014  
 Wyoming C 1160
- transpression**  
 Alaska OP-325  
 California B 1995-Y,Z; OF 99-0153; OP-571
- transtension**  
 California OP-589
- Transverse Ranges** B 1995-Y,Z; OF 00-0147;  
 OP-63; OP-1478
- transverse wave *see* S-waves
- Trapper Mine** OP-119
- traps *see* stratigraphic traps; structural traps
- travertine**  
 OP-4  
 Montana OP-833  
 Wyoming OP-833
- Treadwell Deposit** OP-641
- Treasury Hill Prospect** OP-641
- tree rings**  
 OF 99-0400; OP-83  
 Alaska OP-944  
 Colorado OP-307  
 Japan OF 99-0400  
 Oregon OP-699  
 Pacific Ocean OP-1072  
 Washington OF 99-0400; OP-998; OP-1419
- trenching**



OF 99-0400  
 California OP-576  
 Colorado OP-1066  
 Idaho OF 98-0009  
 Japan OF 99-0400  
 New Mexico MF-2348  
 Russian Federation OF 99-0400  
 Turkey OF 99-0400

**trend-surface analysis** WRI 98-4145;  
 WRI 99-4097

### Triassic

Alaska P 1614  
 Antarctica OF 00-0133  
 Armenia MF-2350  
 California OP-1009  
 Chinle Formation OP-26; OP-337; OP-461;  
 OP-1517  
 Hungary OP-367  
 Kayenta Formation OP-461  
 Lockatong Formation WRI 98-4076;  
 OF 00-0097; OP-617; OP-827  
 Moenkopi Formation OP-461  
 Oregon OP-1009  
 Pennsylvania WRI 98-4010; OP-115; OP-449  
 Russian Federation OF 99-0050-N  
 Utah OP-215  
 Virginia I-2607  
 Wingate Sandstone OP-461

**triazines** *see also* atrazine; cyanazine;  
 metribuzin; simazine.  
 WRI 99-4018-B; OP-501; OP-608; OP-788  
 Iowa WRI 99-4018-B  
 Midwest OP-1533  
 Minnesota WRI 98-4175; OF 00-0078  
 Nebraska WRI 98-4033  
 North Dakota WRI 98-4175

### tributyltin

California OP-689

### Triceratops

North Dakota OP-1223  
 Wyoming OP-1223

### trichloroethane

WRI 99-4018-C  
 Connecticut WRI 99-4081  
 Maryland WRI 99-4018-C; OP-538  
 New Jersey WRI 99-4018-C  
 New York OP-965  
 South Carolina WRI 99-4018-C; OP-913

### trichloroethylene

WRI 98-4143; OP-146; OP-1487  
 Delaware OP-369; OP-1278  
 Florida WRI 98-4110  
 Georgia WRI 99-4018-C  
 Maryland WRI 98-4037; OP-537; OP-539  
 Massachusetts WRI 98-4257; WRI 99-4018-C  
 Michigan OP-818  
 New Jersey WRI 99-4018-C; OP-420  
 Pennsylvania WRI 98-4010; OF 00-0097  
 South Carolina OP-913  
 Texas OP-509

trichloromethane *see* chloroform

### Trident

OP-356

### trihalomethane

California WRI 98-4147; WRI 99-4018-B  
 Nevada OP-491; OP-873

### Trilobita

Mexico OP-848

**Trinity River basin** C 1171

triple junctions *see* Mendocino fracture zone

**triterpanes** *see also* hopanoids.

OP-156

### tritium

OP-434; OP-1508  
 California OP-394  
 Germany OP-777  
 Great Plains FS 0009-00  
 Idaho WRI 98-4026; WRI 98-4028  
 Massachusetts OP-793  
 Minnesota WRI 99-4069  
 Nebraska WRI 96-4095  
 Nevada WRI 98-4132; WRI 99-4018-C  
 Oregon OP-568  
 United States OP-777  
 Wisconsin WRI 98-4179  
 Wyoming OP-1335

**Triton Satellite** OP-422

**troctolite** OP-1243

**Trona-Kingman Quadrangle** OF 99-0153

**Troodos Ophiolite** OP-272

**Truckee River** C 1170; WRI 98-4064

### tsunamis

OF 99-0400; FS 0103-97; FS 0150-00;  
 FS 0176-99; OP-279; OP-428; OP-574  
 Alaska OP-928; OP-929; OP-1526  
 Atlantic Coastal Plain OP-1406  
 California OP-828  
 Hawaii OP-592  
 Japan OF 99-0400  
 Oregon FS 0037-96; OP-954; OP-999  
 Turkey OP-669  
 Virginia OP-1407  
 Washington OF 99-0400; FS 0047-96; OP-998;  
 OP-999; OP-1039; OP-1175

### tsunamite

Virginia OP-1407

Tuamotu Islands *see* Mururoa Atoll

**tube waves** OP-1391

tubes, lava *see* lava tubes

### Tubiphytes

Kazakhstan OP-1584  
 Russian Federation OP-1584

**Tucson Basin** OF 00-0139

### tufa

California OF 99-0153

**tuff** *see also* ash flows; volcanic ash.

Alaska OP-983  
 California OF 99-0153; OP-768  
 Maine OP-1057; OP-1485  
 Nevada WRI 96-4042; WRI 98-4184;  
 OF 98-0530; OP-484; OP-515; OP-646;  
 OP-1176  
 Utah OP-1113; OP-1296

tuff lava *see* welded tuff

tuft *see* tufa

**Tulean** OP-234

### tungsten

Alaska OP-680  
 Colorado OP-1566

### tungsten ores

OF 99-0556  
 Alaska OF 00-0022; OF 99-0579; OF 99-0584  
 Idaho OF 00-0239  
 Russian Federation OP-512; OP-1185  
 Ukraine OP-514

**Tunguska Series** OP-182

### tunnels

OP-1580

Hungary OP-471

Kazakhstan OF 99-0532

Nevada OF 98-0530

### turbidite

OF 99-0400; OP-1348  
 Antarctica OP-233  
 Arctic Ocean OP-309  
 California OP-1365  
 Japan OF 99-0400  
 Louisiana OP-1541  
 New Zealand OP-558  
 Oregon OP-1365  
 Pacific Ocean OP-979; OP-1307  
 Pennsylvania OP-273  
 Russian Federation OP-32  
 South America OP-1403

### Turkey

C 1193; OP-333; OP-716  
 North Anatolian Fault OF 99-0400; OP-669;  
 OP-682

Turkmenia *see* Kopet-Dag Range

Turkmenistan *see* Turkmenia

### Turonian

Atlantic Coastal Plain OP-154  
 Louisiana OP-1366  
 Wyoming OP-1380

### turquoise

OP-258

**Tutuila Island** WRI 99-4064

**Twitchell Island** WRI 98-4147

**Two Medicine Formation** OP-743

### two-mica granite

New Hampshire OP-235

**Tyonek Formation** P 1614

### Tyrannosaurus

Alberta OP-1084

## U

U *see* uranium

### U-234

Florida OP-974  
 Nevada OP-646

U-234/U-238 *see* U-238/U-234

### U-238

Florida OP-974

**U-238/Pb-204** OP-723; OP-1416; OP-1523

### U-238/Th-230

Nevada OP-646

### U-238/U-234

Florida OP-974  
 Nevada OP-646; OP-647

**U. S. Bureau of Land Management**

Nevada OP-616

**U. S. Department of Agriculture** OF 00-0204

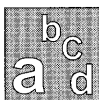
U. S. Geological Survey *see* U.S. Geological Survey

U. S. Rocky Mountains *see* Bitterroot Range;  
 Gore Range; Laramie Mountains; San Juan  
 Mountains; Sangre de Cristo Mountains; Span-  
 ish Peaks; Tobacco Root Mountains; Wind  
 River Range

**U. S. Virgin Islands** OF 99-0223; HA-0730-N

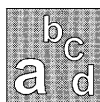
**U.S. Geological Survey** *see also* NAWQA.

DDS-0064; C 1179; C 1195; C 1199; GN;  
 WRI 99-4018-B; WRI 99-4018-C;  
 WRI 99-4184; OF 00-0160; OF 00-0215;  
 OF 92-0164; OF 95-0415; OF 99-0094;



- OF 99-0221; OF 99-0456; OF 99-0464;  
OF 99-0520; OF 99-0590; FS 0006-97;  
FS 0007-97; FS 0008-97; FS 0013-97;  
FS 0027-98; FS 0037-00; FS 0038-96;  
FS 0041-00; FS 0041-96; FS 0043-00;  
FS 0044-00; FS 0052-95; FS 0061-95;  
FS 0062-00; FS 0064-95; FS 0065-95;  
FS 0066-95; FS 0150-00; FS 0189-99; OP-133;  
OP-161; OP-317; OP-353; OP-505; OP-577;  
OP-710; OP-987; OP-1027; OP-1137; OP-1170;  
OP-1201; OP-1202; OP-1234; OP-1322;  
OP-1351; OP-1450; OP-1457; OP-1504;  
OP-1564; OP-1573  
Alabama FS 0002-96  
Alaska P 1614; P 1615; FS 0001-95;  
FS 0001-96; OP-1034  
Antarctica OP-632  
Arizona FS 0003-96  
Arkansas FS 0004-96  
California FS 0005-96; FS 0053-95; OP-576;  
OP-1228  
Colorado FS 0006-96  
Columbia Plateau OP-1343  
Connecticut FS 0007-96  
Florida OF 99-0181; FS 0009-96  
Georgia FS 0010-96  
Great Lakes FS 0056-95  
Great Lakes region FS 0056-95  
Hawaii FS 0011-96  
Idaho FS 0012-96  
Illinois FS 0013-96  
Indiana FS 0014-96  
Iowa FS 0015-96  
Kentucky FS 0016-96  
Louisiana FS 0018-96; OP-166  
Maine FS 0019-96; OP-1542  
Massachusetts OP-1037  
Michigan FS 0022-96  
Midwest FS 0046-98  
Mississippi FS 0024-96  
Missouri OP-664  
Montana FS 0026-96  
Nebraska FS 0025-96  
Nevada FS 0028-96; OP-1104  
New Mexico FS 0031-96  
North Carolina FS 0033-96  
North Dakota FS 0034-96  
Ohio WRI 98-4057; FS 0035-96  
Oklahoma FS 0036-96  
Oregon FS 0037-96  
Quebec OP-1542  
Russian Federation FS 0017-97  
Tennessee FS 0042-96  
Utah FS 0044-96  
Vermont FS 0045-96  
Virginia FS 0046-96  
Washington FS 0047-96; FS 0093-00;  
OP-1134; OP-1208  
West Virginia FS 0049-96  
Wisconsin FS 0048-96  
Wyoming FS 0050-96
- U/Pb** *see also* Pb-210; Pb/Pb.  
OP-686; OP-1415; OP-1416  
Alaska P 1615  
Antarctica OF 00-0133  
Argentina OP-186  
British Columbia OP-1246  
California OF 99-0153  
Colombia OP-760  
Greece OP-202
- Maine P 1624; OP-1162  
Mexico OP-760; OP-848  
Montana OP-238  
Nevada OP-646  
New Brunswick OP-1162  
New Hampshire OP-235  
New Mexico OP-117  
Oregon OP-33  
Russian Federation OP-499
- U/Th** *see* Th/U
- U/Th/Pb**  
OP-722; OP-1415  
Bolivia OP-179  
Nevada OP-646
- Uganda** OP-709
- Ugashik Quadrangle** OF 00-0122
- Uinta Basin** OF 99-0553-B
- Ukraine** OP-474; OP-514
- Ulkan Complex** OP-499
- Ulkan Russian Federation** OP-499
- Ultisols**  
Georgia OP-588
- ultramafics *see* kimberlite; komatiite; peridotites;  
pyroxenite
- ultraviolet radiation** OP-528
- Umnak Quadrangle** OF 00-0118
- Uncas Quadrangle** OF 99-0421
- uncertainty**  
OF 99-0339; OP-169; OP-323; OP-389;  
OP-831; OP-891  
Nicaragua OF 99-0339  
Utah P 1500-K-R
- Uncompahgre National Forest** OF 00-0298;  
OF 99-0427; OF 99-0580; OP-1006
- Uncompahgre Uplift** OF 99-0347
- unconformities *see* angular unconformities; ero-  
sional unconformities
- underground installations** *see also* tunnels.  
OP-1056  
Nevada OF 98-0635
- underground mining** OP-386
- underground streams**  
South Dakota WRI 99-4018-C
- underground water *see* ground water
- Unimak Island** OP-223
- Unimak Quadrangle** OF 00-0117
- United Kingdom** *see also* Great Britain.  
OP-909
- United Nations** OP-1112
- United States** *see also* Alabama; Alaska; Ari-  
zona; Arkansas; Atlantic Coastal Plain; Califor-  
nia; Colorado; Colorado Plateau; Columbia  
Plateau; Connecticut; Delaware; District of Co-  
lumbia; Florida; Georgia; Great Basin; Great  
Plains; Gulf Coastal Plain; Hawaii; Idaho; Illi-  
nois; Indiana; Iowa; Kansas; Kentucky; Lake  
Missoula; Louisiana; Maine; Maryland; Massa-  
chusetts; Michigan; Midwest; Minnesota; Mis-  
sissippi; Mississippi Valley; Missouri; Montana;  
Nebraska; Nevada; New England; New Hamp-  
shire; New Jersey; New Mexico; New York;  
North Carolina; North Dakota; Ohio; Oklahoma;  
Oregon; Pennsylvania; Rhode Island; Rocky  
Mountains; South Carolina; South Dakota; Ten-  
nessee; Texas; Utah; Vermont; Virginia; Wash-  
ington; West Virginia; Wisconsin; Wyoming.  
C 1173-C; C 1173-D; C 1180; C 1182; C 1193;  
C 1195; WRI 98-4267; WRI 99-4007;  
WRI 99-4018-B; WRI 99-4018-C; OF 00-0160;  
OF 00-0187; OF 00-0204; OF 00-0215;  
OF 97-0272; OF 97-0289; OF 98-0039;  
OF 99-0108; OF 99-0321; OF 99-0339;  
OF 99-0369; OF 99-0403; OF 99-0419;  
OF 99-0590; HA-0732-B; MF-2329; MF-2330;  
I-2720; FS 0006-97; FS 0013-97; FS 0016-97;  
FS 0018-97; FS 0024-97; FS 0025-97;  
FS 0041-00; FS 0052-95; FS 0061-95;  
FS 0062-00; FS 0063-00; FS 0064-95;  
FS 0065-00; FS 0075-00; FS 0080-99;  
FS 0082-00; FS 0086-00; FS 0099-00;  
FS 0107-99; FS 0119-00; FS 0123-00;  
FS 0150-00; FS 0157-96; FS 0158-99;  
FS 0181-99; FS 0238-95; OP-3; OP-26; OP-30;  
OP-62; OP-67; OP-128; OP-137; OP-161;  
OP-253; OP-289; OP-326; OP-327; OP-354;  
OP-372; OP-464; OP-501; OP-533; OP-534;  
OP-609; OP-625; OP-633; OP-654; OP-655;  
OP-686; OP-709; OP-714; OP-744; OP-788;  
OP-795; OP-799; OP-800; OP-807; OP-897;  
OP-1015; OP-1056; OP-1105; OP-1137;  
OP-1141; OP-1178; OP-1204; OP-1230;  
OP-1259; OP-1298; OP-1300; OP-1351;  
OP-1370; OP-1472; OP-1495; OP-1504;  
OP-1536; OP-1558; OP-1564; OP-1567;  
OP-1587  
Alamosa River OP-99; OP-231; OP-244;  
OP-307; OP-850; OP-881  
Albuquerque Basin WRI 98-4172; OF 00-0231;  
OF 96-0208; OF 96-0210; OF 99-0400;  
OP-133; OP-310; OP-311; OP-385; OP-562;  
OP-685; OP-693; OP-1093; OP-1188;  
OP-1190; OP-1191  
Amargosa Desert WRI 99-4018-C;  
OF 99-0153; OP-17; OP-1508; OP-1525  
Amite River OP-287  
Arkansas River WRI 98-4140; OP-825  
Arkansas River valley OP-20  
Arkoma Basin OP-1242; OP-1492  
Battle Mountain High OP-834  
Beaverhead Mountains OP-398  
Bighorn Basin P 1625-A; OP-406; OP-407;  
OP-408; OP-409; OP-410; OP-429; OP-430;  
OP-431; OP-432; OP-600; OP-648; OP-656;  
OP-752; OP-790; OP-862  
Black Warrior Basin OP-252; OP-742  
Blue Ridge Mountains OF 99-0552; OP-125;  
OP-209; OP-1361; OP-1443  
Canadian River OP-1311  
Carson River C 1170; OP-1319  
Cascade Range WRI 00-4006; WRI 98-4090;  
OF 99-0024; I-2542; FS 0058-00; OP-96;  
OP-204; OP-355; OP-453; OP-500; OP-545;  
OP-699; OP-1171; OP-1343; OP-1454  
Cedar Creek Anticline OP-1223  
Central Basin Platform OP-45  
Chattahoochee River C 1126; FS 0091-95  
Chesapeake Bay P 1622; WRI 98-4025;  
WRI 98-4059; WRI 98-4177; WRI 98-4192;  
OF 00-0204; OF 99-0451; FS 0053-00;  
FS 0055-95; FS 0116-00; FS 0140-96;  
FS 0150-99; OP-176; OP-715; OP-1219;  
OP-1237; OP-1406; OP-1451; OP-1480;  
OP-1582  
Chicot Aquifer WRI 99-4035; OF 99-0177;  
OF 99-0178  
Choptank River WRI 98-4177; OP-1451  
Clark's Fork Basin WRI 98-4137;

- WRI 98-4254; OF 99-0251; OP-408  
 Coeur d'Alene mining district OF 99-0548;  
 FS 0013-99; OP-38; OP-684; OP-1279  
 Connecticut River OP-1203  
 Culpeper Basin I-2607  
 Delaware Basin OP-45; OP-439; OP-456  
 Delaware River OF 99-0466; OP-668  
 Delaware River basin WRI 99-4016; OP-157  
 Delmarva Peninsula OF 00-0204; FS 0009-99;  
 OP-777; OP-817; OP-1219  
 Denver Basin P 1625-A; OP-1426  
 Evangeline Aquifer OF 99-0177; OF 99-0178  
 Floridan Aquifer WRI 98-4091; WRI 98-4133;  
 WRI 99-4061; OF 00-0071; OF 00-0151;  
 OF 00-0204; OF 99-0224; OF 99-0225;  
 OF 99-0235; OF 99-0608; OP-424; OP-687;  
 OP-837; OP-924; OP-925; OP-1261  
 Four Corners OP-243; OP-958  
 Gettysburg Basin OP-115; OP-268; OP-827  
 Gore Range OP-232; OP-1359  
 Great Smoky Mountains OF 99-0375;  
 FS 0044-99; OP-1360  
 High Plains Aquifer OF 99-0222; FS 0009-00;  
 FS 0049-00; FS 0058-95; FS 0081-00;  
 FS 0091-00; FS 0124-99  
 Hudson River OP-1203  
 Hudson Valley OF 98-0616; OP-784  
 Idaho Batholith OP-1427  
 Illinois Basin FS 0023-97; OP-139  
 Kirkwood-Cohansey Aquifer WRI 98-4003  
 Klamath Mountains OF 99-0374; I-2542;  
 OP-1009; OP-1241; OP-1343; OP-1500  
 Lake Powell WRI 99-4097; OF 99-0109;  
 OF 99-0110  
 Lake Tahoe FS 0138-00; OP-276; OP-969  
 Laramie Mountains OP-1396  
 Llano Estacado OP-629  
 Madison Aquifer WRI 98-4156;  
 WRI 99-4018-C; OF 99-0602; HA-0744-D;  
 HA-0745-D  
 Magothy Aquifer W 2498; WRI 98-4069;  
 WRI 98-4181; OF 00-0084; OP-116  
 Midcontinent OF 99-0321; OP-628; OP-1224  
 Mississippi Embayment OP-639  
 Mississippi River WRI 99-4035; OF 00-0078;  
 OP-602; OP-612; OP-1012; OP-1063;  
 OP-1107; OP-1234; OP-1574  
 Missouri River WRI 99-4018-B; OP-990;  
 OP-1353; OP-1371  
 Mohave Mountains I-2308  
 Mojave Desert OF 00-0147; OF 99-0153;  
 OF 99-0321; OP-63; OP-87; OP-394;  
 OP-552; OP-1018; OP-1221; OP-1374;  
 OP-1478  
 Mount Adams OP-355; OP-497  
 Mount Hood OF 99-0339; FS 0060-00;  
 OP-1088; OP-1229; OP-1376  
 Mount Rainier OF 00-0027; OF 92-0474;  
 OF 93-0111; OF 93-0124; OF 95-0421;  
 OF 95-0642; OF 99-0339; FS 0065-97;  
 OP-926; OP-975; OP-1000; OP-1134;  
 OP-1347; OP-1423; OP-1461; OP-1463;  
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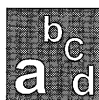
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OP-607  
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 California OF 00-0043; OP-1363  
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# volcanic glass

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OF 98-0638; OF 99-0339; OF 99-0520;  
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 OP-644; OP-703; OP-1368  
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 FS 0005-96; FS 0022-00; FS 0023-00;  
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volcanism *see also* ash flows; calderas; erup-  
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 ian-type eruptions; lahars; lava;  
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 Rainier; Mount Saint Helens; Mount Spurr;  
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**Walker Lane** OP-196; OP-213

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OP-1229; OP-1313; OP-1423

Okanogan County Washington WRI 98-4160

Olympic Mountains OP-1419

Olympic Peninsula OP-1539

Pend Oreille County Washington WRI 98-4160

Pierce County Washington WRI 98-4009

Puget Lowland P 1424-C; W 2492; OP-1023;

OP-1035; OP-1254; OP-1411; OP-1417;

OP-1424

Puget Sound MF-2346; FS 0111-00; OP-1039;

OP-1048; OP-1071; OP-1158; OP-1471;

OP-1518; OP-1530; OP-1538; OP-1554

San Juan County Washington FS 0057-00

Seattle Washington B 2180; OP-265; OP-334;

OP-946; OP-956; OP-998; OP-1071;

OP-1163; OP-1164; OP-1208; OP-1555;

OP-1572; OP-1578

Skagit County Washington WRI 98-4014;

WRI 98-4090

Snohomish County Washington MF-2346;

FS 0058-00; OP-1000; OP-1039

South Cascade Glacier WRI 00-4006;

WRI 99-4049

Spokane County Washington WRI 98-4160

Spokane Washington FS 0093-00

Stevens County Washington WRI 98-4160

Thurston County Washington WRI 92-4109

Toutle River OP-561

Vancouver Washington OP-1412

Whatcom County Washington WRI 98-4195;

OF 99-0244; FS 0059-00

Yakima County Washington OP-355; OP-497

**Washington Island Quadrangle** OF 99-0526-M

**waste disposal** *see also* agricultural waste; disposal barriers; geologic hazards; hazardous waste; industrial waste; landfills; liquid waste; pesticides; radioactive waste; reclamation; solid waste; underground installations; waste disposal sites; waste water.

WRI 99-4018-C; OF 00-0016; FS 0062-00;

OP-326; OP-480; OP-903

Alaska P 1619; OP-1044

Arizona OP-1193

Colorado OF 00-0034; OF 00-0165; OP-511;

OP-904; OP-937

Massachusetts WRI 99-4018-C

Mississippi OP-1257

Montana OF 00-0031; OF 00-0034;

OF 00-0114

Nevada WRI 99-4018-C; OP-515; OP-1525

**waste disposal sites** *see also* radioactive waste; solid waste; Yucca Mountain.

OP-1038; OP-1383

California WRI 99-4018-B

Connecticut WRI 99-4081

Delaware FS 0009-99

District of Columbia OF 99-0234

Hawaii OF 00-0124

Idaho OF 00-0239

Montana OF 99-0537

Nevada WRI 99-4018-C; FS 0028-96

New Mexico OF 99-0271

New York OF 98-0616

Texas OF 99-0271

**waste management** *see also* landfills.

OF 00-0016; OF 00-0034; OF 00-0204;

OF 99-0321; OF 99-0590; OP-42; OP-534

California OF 00-0204

Colorado OF 00-0033; OF 00-0034; OP-132;

OP-451

Delaware OF 00-0204

Idaho WRI 98-4026; WRI 98-4028;

OF 98-0009; OF 99-0548

Iowa OF 00-0204

Minnesota OF 00-0204

Montana OF 00-0034; OF 00-0114

Nevada OF 00-0204

New Mexico OF 00-0033

New York OP-1058

North Carolina OF 00-0204

**waste rock**

Colorado OF 00-0033; OF 00-0034;

OF 00-0165

Idaho OF 00-0239

New Mexico OF 00-0033

**waste water**

WRI 99-4018-B; OF 00-0204; OF 99-0590;

OP-217; OP-386; OP-754

California WRI 99-4018-B; FS 0053-95;

OP-1016

Colorado OP-105

Florida WRI 99-4002; OF 00-0204;

FS 0032-98; OP-974

Idaho C 1144; WRI 98-4123

Indiana WRI 99-4198; OP-172

Massachusetts OP-477; OP-478

Minnesota OF 00-0204; OP-994

Ohio WRI 99-4198

Oregon OP-758

Pennsylvania OP-107

Puerto Rico WRI 98-4045; WRI 98-4189

Washington C 1144

Wisconsin OP-994

waste, agricultural *see* agricultural waste

waste, industrial *see* industrial waste

waste, liquid *see* liquid waste

waste, radioactive *see* radioactive waste

waste, solid *see* solid waste

water cycle *see* hydrologic cycle

water falls *see* waterfalls

water repellants *see* hydrophobic materials

**water resources** *see also* reservoirs; springs; water use.

C 1158; C 1199; C 1199; OF 00-0204;

OF 93-0642; OF 98-0275; OF 99-0056;

FS 0006-97; FS 0021-97; FS 0041-96;

FS 0052-95; FS 0059-95; FS 0063-00;

FS 0065-95; FS 0086-00; OP-3; OP-15; OP-124;

OP-133; OP-253; OP-324; OP-326; OP-327;

OP-372; OP-390; OP-464; OP-494; OP-554;

OP-555; OP-739; OP-750; OP-888; OP-933;

OP-969; OP-1005; OP-1137; OP-1202;

OP-1442; OP-1536; OP-1579; OP-1583

Alabama FS 0002-96

Alaska FS 0001-96

Appalachians OF 00-0204; HA-0732-B

Arizona WRI 99-4005; FS 0004-99

Arkansas WRI 98-4002; WRI 98-4130;

FS 0004-96

British Columbia OP-868

California OF 00-0204; OF 99-0153;

FS 0005-00; FS 0005-96; FS 0053-95;

FS 0090-00; OP-203; OP-1422

Canada P 1424-C

Colorado OF 00-0204; I-2750-A; FS 0006-96

Columbia Plateau OP-1373

Connecticut FS 0007-96

Delaware OF 00-0204; FS 0009-99

Florida C 1151; WRI 99-4061; WRI 99-4214;

OF 99-0181; OF 99-0235; FS 0009-96;

OP-1388

Georgia C 1151; WRI 98-4233; OF 00-0075;

OF 00-0151; FS 0010-96; OP-695; OP-697

Great Lakes region OF 99-0349

Great Plains FS 0091-00

Hawaii FS 0011-96; FS 0126-00; OP-79;

OP-290

Idaho C 1144; FS 0013-99; FS 0130-97;

OP-566



Illinois I-2669; FS 0014-99  
 Indiana WRI 98-4139; OP-172  
 Iowa OF 99-0461; FS 0015-96; OP-338;  
 OP-466  
 Kansas FS 0001-99; OP-418  
 Kentucky FS 0016-96  
 Louisiana FS 0018-96; OP-166  
 Marshall Islands WRI 94-4248  
 Massachusetts OP-308  
 Michigan C 1156; FS 0022-96  
 Micronesia WRI 94-4248  
 Midwest OP-621; OP-878  
 Minnesota WRI 99-4069; OF 91-0151; OP-994  
 Mississippi WRI 96-4051; FS 0079-96  
 Missouri OF 00-0204  
 Nebraska FS 0078-00  
 Nevada OF 99-0153; FS 0028-96; OP-121;  
 OP-873  
 New England OF 99-0467  
 New Hampshire OF 99-0462; FS 0030-99  
 New Jersey WRI 98-4003  
 New Mexico WRI 98-4172; OF 00-0231;  
 FS 0031-96; OP-1093  
 New York W 2498; WRI 97-4210;  
 OF 99-0191; FS 0180-99  
 North Carolina FS 0033-96; OP-1409  
 North Dakota WRI 98-4098; OF 91-0151;  
 FS 0034-96; OP-485  
 Ohio FS 0035-96  
 Oregon C 1161; FS 0037-96; FS 0038-99;  
 OP-758  
 Pennsylvania WRI 99-4047; FS 0012-00  
 Puerto Rico WRI 98-4188; WRI 98-4200  
 Rocky Mountains OP-876  
 Samoa WRI 99-4064  
 South Carolina OF 00-0204  
 South Dakota WRI 98-4146; WRI 98-4156;  
 HA-0743; HA-0744-A; HA-0744-B;  
 HA-0744-C; HA-0744-D; FS 0043-99  
 Tennessee FS 0042-96; OP-127  
 Texas OF 00-0204; FS 0010-00; FS 0101-00;  
 FS 0184-99  
 United States P 1424-C  
 Vermont FS 0047-99  
 Virginia WRI 98-4157; I-2607; FS 0046-96;  
 OP-1327  
 Washington C 1144; WRI 98-4014;  
 FS 0047-96; FS 0049-99; OP-500  
 West Virginia FS 0049-96  
 Wisconsin C 1156; FS 0051-99; OP-994  
 Wyoming FS 0050-96

#### water use

C 1182; FS 0027-98; FS 0049-00; FS 0066-95;  
 FS 0124-99; OP-157; OP-435; OP-501  
 Alaska HA-0730-N  
 Arizona WRI 99-4074; FS 0003-96  
 Arkansas WRI 98-4084; OF 99-0188  
 Atlantic Coastal Plain FS 0085-00  
 California W 2370-H; OP-875  
 Costa Rica OP-724  
 Florida C 1207; WRI 98-4091; WRI 99-4002;  
 OF 00-0071; OF 99-0224; FS 0032-98;  
 FS 0058-95  
 Georgia OP-242; OP-925  
 Gulf Coastal Plain P 1416-H; OP-1232  
 Gulf of Mexico OF 99-0181  
 Hawaii WRI 99-4090; HA-0730-N  
 Idaho OF 99-0473  
 Illinois OF 99-0097  
 Kansas WRI 98-4095; WRI 98-4141;  
 FS 0187-99

Louisiana OP-826  
 Maine FS 0019-96  
 Michigan WRI 98-4060  
 Mississippi WRI 98-4171  
 Nebraska OF 99-0222; FS 0179-99; OP-724  
 New Jersey WRI 99-4001; WRI 99-4016  
 New York WRI 98-4036; WRI 98-4069;  
 WRI 98-4070  
 Oklahoma WRI 98-4081; FS 0081-00  
 Oregon WRI 98-4198  
 Pennsylvania FS 0174-99  
 Puerto Rico WRI 98-4189; HA-0730-N  
 Samoa WRI 98-4029  
 South Dakota OF 99-0222; OP-254; OP-651  
 Tennessee WRI 99-4052; FS 0044-99  
 Utah WRI 99-4074; OP-350  
 Vermont FS 0045-96  
 Virginia WRI 98-4187; FS 0173-99  
 Washington W 2492; WRI 92-4109;  
 FS 0037-98

water, waste *see* waste water

water-mineral interface *see* mineral-water inter-  
 face

#### water-rock interaction

OP-43; OP-1195  
 Bahamas OP-1222  
 British Columbia OP-1392  
 California OP-567  
 Colorado OP-160  
 Europe OP-289  
 Italy OP-1522  
 Nevada OP-652  
 South America OP-289

#### waterfalls OP-990

waterways *see also* canals; channelization.

OP-590  
 Colorado OP-604  
 Louisiana OP-287

#### Wattenberg Field OP-1426

#### Waulsortian facies

Kazakhstan OP-1584  
 Russian Federation OP-1584

#### wave amplification

OP-1029  
 California OF 00-0148; OP-95; OP-1207  
 Utah P 1500-K-R  
 Washington OP-1071; OP-1502

#### wave-cut platforms

California OF 99-0153  
 England OF 99-0312  
 Oregon OP-954

#### wavelets

OP-1244  
 Colorado OP-720

weathering *see also* biodegradation.  
 OP-922

Alaska WRI 99-4018-B; OP-73; OP-296  
 chemical weathering  
 OP-153; OP-1086  
 England OP-709  
 Uganda OP-709  
 United States OP-709  
 Wales OP-709  
 Colorado OF 00-0034; OP-160  
 Idaho OF 99-0147-B; OP-1187  
 Montana OP-648  
 Nevada OP-366  
 Wyoming OP-648

WEBB Program FS 0161-99; FS 0162-99;

FS 0163-99; FS 0164-99; FS 0165-99;  
 FS 0166-99

Wegener hypothesis *see* continental drift

Weichselian *see* upper Weichselian

#### welded tuff

Arizona OP-1211  
 California OP-1211  
 Colorado OP-363  
 Nevada OP-1127

well-logging *see also* gamma-ray methods.

FS 0022-97; OP-1202  
 acoustical logging OP-1391  
 Alaska OP-1094; OP-1266  
 caliper logging, Maine OP-673  
 electrical logging OP-2  
 Florida OP-674  
 gravity logging, Arizona OP-1540  
 Kuwait OP-675  
 Mississippi WRI 96-4051  
 New Hampshire OP-672  
 Northwest Territories OP-1094  
 Pennsylvania OP-617  
 seismic logging OP-1391

wellbore breakouts *see* borehole breakouts

#### wellhead protection

Appalachians OP-890  
 Hawaii OP-79  
 South Dakota OP-254  
 Wyoming WRI 99-4164

Wenonah-Mount Laurel Aquifer WRI 98-4136

West Africa *see* Cameroon; Guinea; Nigeria

#### West Atlantic OP-12

West Indies *see* Antilles; Bahamas

West Pacific *see* Northwest Pacific

#### West Pacific Ocean Islands SM

West Pakistan *see* Pakistan

West Shasta mining district OP-989

West Siberian Platform *see* Siberian Platform

West Virginia *see also* Appalachian Basin.  
 WRI 98-4192; OF 99-0562-F; FS 0049-96;  
 OP-92; OP-575

West-Central Alaska *see also* Seward Peninsula.  
 P 1614; P 1615; OF 00-0005; OF 00-0022;  
 OF 00-0025; OF 99-0528; OF 99-0573;  
 OF 99-0579; I-2677

Westdahl OP-223; OP-547

#### Western Australia

OP-696  
 Canning Basin OP-234

Western Canada *see* Alberta; British Columbia;  
 Canadian Cordillera; Mackenzie District North-  
 west Territories; Manitoba; Saskatchewan; Yu-  
 kon Territory

Western Europe *see* Belgium; France; Iceland;  
 Netherlands; Scandinavia; United Kingdom

Western Hemisphere OP-569; OP-797;  
 OP-1116; OP-1309

#### Western Interior

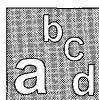
Western Interior Seaway OP-119

#### Western Interior Seaway OP-119

Western Samoa *see* Samoa

#### Westphalian

Belgium OP-211



**wetlands** *see also* constructed wetlands; mires; swamps.

WRI 99-4018-B; FS 0108-00; OP-157; OP-414; OP-516; OP-951; OP-1567  
 Arkansas OP-1117; OP-1238  
 Atlantic Coastal Plain OP-1237  
 California OF 99-0153  
 Colorado OF 00-0115; OP-307; OP-1568  
 Florida OF 00-0056; OF 99-0181; OF 99-0230; FS 0009-96; FS 0061-98; FS 0139-96; FS 0171-95; OP-148; OP-729  
 Great Lakes FS 0056-95; OP-943  
 Great Lakes region FS 0056-95; OP-438  
 Gulf of Mexico OF 99-0181  
 Idaho OF 99-0548  
 Illinois FS 0013-96  
 Louisiana FS 0018-96; FS 0025-00; OP-947; OP-1160  
 Maryland WRI 99-4018-C; OP-537; OP-538; OP-539; OP-1219; OP-1451  
 Massachusetts WRI 98-4011  
 Minnesota OP-844  
 Missouri WRI 98-4190; OP-341  
 Montana WRI 99-4019  
 North Carolina C 1157  
 North Dakota OP-485  
 Pennsylvania WRI 98-4186  
 South Carolina OP-1238  
 South Dakota FS 0043-99  
 Utah FS 0046-99  
 Virginia C 1157; OP-1161; OP-1451  
 Wisconsin OP-1001; OP-1042

**whewellite** OP-34

**Whidbey Island** OP-1530

**While Shield Aquifer** WRI 98-4098

**White Chief Basin** OP-884

**White Knob Limestone** OP-522

white mica *see* muscovite

**White Mountains** OP-230; OP-235

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**White Rim Sandstone** OP-214

**White River** WRI 98-4146; OP-172

**White River Aquifer** WRI 98-4146

**White River Plateau** OP-786

White-Inyo Range *see* Inyo Mountains

**Whittier Fault** OP-581

**Whittier Narrows earthquake 1987**

California OF 00-0002; OP-1501

Japan OP-1501

**Whoopee Creek Deposit** P 1615

wiborgite *see* rapakivi

**Wichita Kansas** WRI 98-4141

**Wilcox Aquifer** WRI 98-4084

**Wilcox Group** OF 00-0113; OF 00-0143

**Wilkes Basin** OP-1199; OP-1200

**Wilkes Land** OP-233

**Willamette Basin** OP-94

**Willamette River** OP-94

**Willamette Valley** P 1424-C; C 1161;

OF 96-0227; OP-86; OP-94; OP-519; OP-520

**Williams Fork Formation** OP-119

**Williams Kimberlite** OP-136

**Williston Basin** P 1625-A

**Willow Creek** OP-743

**Willwood Formation** OP-790

**Wimer Formation** OP-1427

**Winchester Basin** WRI 98-4102

wind erosion *see* deflation

**Wind River basin** P 1625-A; OP-44; OP-408; OP-410

**Wind River Formation** P 1625-A

**Wind River Range** OP-635; OP-1335

wind, solar *see* solar wind

**Windham Quadrangle** OF 99-0008

**Wingate Sandstone** OP-461

**Winnipeg Quadrangle** I-1420(NM-14)

**Winona Quadrangle** OF 99-0526-D

**Winterville Formation** OP-1162; OP-1485

wireline logging *see* well-logging

**Wisconsin** *see also* Green Lake; Lake Superior region; Mississippi River; Upper Mississippi Valley.

C 1156; WRI 98-4109; WRI 98-4126; WRI 98-4143; OF 99-0526-A; OF 99-0526-B; OF 99-0526-C; OF 99-0526-D; OF 99-0526-E; OF 99-0526-F; OF 99-0526-G; OF 99-0526-H; OF 99-0526-I; OF 99-0526-J; OF 99-0526-K; OF 99-0526-L; OF 99-0526-M; OF 99-0526-N; OF 99-0526-O; OF 99-0527; OF 99-0546; OF 99-0547; OF 99-0562-D; FS 0051-99; FS 0067-00; FS 0161-99; FS 0167-99; OP-92; OP-753; OP-1067; OP-1270; OP-1441; OP-1445  
 Dane County Wisconsin FS 0109-00  
 Madison Wisconsin OP-1001; OP-1042  
 Milwaukee Wisconsin OF 99-0270; OP-1101  
 Sheboygan County Wisconsin WRI 98-4179  
 Walworth County Wisconsin FS 0121-00

**Wisconsin Dells Quadrangle** OF 99-0526-I

**Wisconsin Rapids Quadrangle** OF 99-0526-I

**Wisconsinan**

Alaska P 1615; OP-984; OP-1070; OP-1352

Colorado Plateau OP-16

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**Witwatersrand** OP-584

**Wodehouseia spinata** OP-1223

**Woewodski Island Deposit** P 1614

**Wolcott Quadrangle** I-2656

**wollastonite**

British Columbia OP-807

Far East OP-747

Finland OP-807

India OP-807

Scandinavia OP-747

United States OP-807

Uzbekistan OP-807

**Wood River** OP-637

**World Wide Web**

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Alaska OP-332

Antarctica OF 99-0420

Arizona OF 00-0155

California WRI 99-4018-B; OP-916

Chile OP-332

Colorado OF 00-0042

Guatemala OP-332

Hawaii OP-332

Massachusetts FS 0104-00

Mexico OP-332

New York OF 99-0191

Nicaragua OP-332

Pennsylvania OP-22

Russian Federation OP-332

Washington OP-1424

Wyoming OF 00-0163

**Wrangel Brook basin** WRI 99-4001

**Wrangell Mountains** P 1616; P 1619;

OF 99-0321; OF 99-0342

**wrinkle ridges** I-2637; OP-313; OP-1214

writing, technical *see* technical writing

**Wyodak-Anderson coal zone** P 1625-A

**Wyoming** *see also* Absaroka Supergroup; Bighorn Basin; Clark's Fork Basin; Cody Shale; Colorado River basin; Fort Union Formation; Frontier Formation; Green River basin; Lance Formation; Laramie Mountains; Mesaverde Group; Pierre Shale; Powder River basin; Snake River basin; Teapot Sandstone Member; Wasatch Formation; Willwood Formation; Wind River Formation; Yellowstone National Park; Yellowstone River.

OF 00-0198; OF 99-0321; OF 99-0501;

OF 99-0542; OF 99-0553-C; OF 99-0562-I;

I-2661; FS 0050-96; OP-44; OP-91; OP-458;

OP-809; OP-810; OP-811; OP-909

Big Horn County Wyoming OP-862

Campbell County Wyoming OP-899

Fremont County Wyoming OP-635

Goshen County Wyoming WRI 99-4164

Grand Teton National Park OP-303

Hanna Basin P 1625-A

Hot Springs County Wyoming OP-600; OP-862

Johnson County Wyoming B 1917-U; OP-599; OP-1380

Natrona County Wyoming OP-599

Park County Wyoming I-2690; OP-303;

OP-429; OP-862; OP-964

Rock Springs Uplift P 1625-A

Teton County Wyoming OP-964

Washakie County Wyoming OP-600; OP-862

Weston County Wyoming OP-1380

Wind River Range OP-635; OP-1335

## X

X-ray analysis *see* X-ray spectroscopy

**X-ray diffraction analysis** OP-1242

**X-ray spectroscopy** OP-65; OP-1496

**xenoliths**

OP-1; OP-1523

Alaska OP-1367

California OP-545

Italy OP-1121

Montana OP-136; OP-339

X-ray diffraction analysis *see* X-ray diffraction analysis

**xylene**

OP-36

Massachusetts WRI 98-4257

North Dakota OF 99-0194

**Xyrauchen texanus** OF 99-0107; OF 99-0110

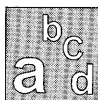
## Y

Y *see* yttrium

**Yampa coal field** OP-119

**Yangtze Platform** OP-343

Yarlung Zangbo suture zone *see* Indus-Yarlung Zangbo suture zone





yellow arsenic *see* orpiment

**Yellowstone Hot Spot**

Alaska OP-223  
Montana OP-303  
Wyoming OP-303

**Yellowstone National Park** OF 00-0163;  
OF 00-0194; OF 99-0321; OF 99-0339;  
FS 0052-99; OP-262; OP-303; OP-440;  
OP-460; OP-833; OP-964

**Yellowstone River** WRI 99-4185

**Yolla Bolly Terrane** OP-85

**York Haven Diabase** OP-115; OP-268

**York River** WRI 98-4025

**Yorktown Formation** OP-817

**Yosemite National Park** WRI 99-4018-B;  
OF 99-0385; OF 99-0578; I-2697; OP-939

**Younger Dryas** OP-376

**yttrium**

Brazil OP-340  
California OP-340  
China OP-340  
North Carolina OP-340

**Yucatan Peninsula** OP-292

**Yucca Flat** OF 00-0134; OF 99-0383

**Yucca Mountain** WRI 98-4058; WRI 98-4063;  
WRI 98-4132; OF 98-0266; OF 98-0530;  
OF 98-0635; OF 99-0153; OF 99-0339;  
OP-351; OP-352; OP-484; OP-515; OP-646;  
OP-647; OP-1127; OP-1152; OP-1176

**Yugoslavia** OP-845

**Yukon** *see* Yukon Territory

**Yukon River** OP-986

**Yukon Territory** OP-297; OP-1267; OP-1565

**Yukon-Koyukuk Basin** OP-1357

**Yukon-Tanana Terrane** P 1615; OP-8

**Yukon-Tanana Upland** OP-221; OP-985;  
OP-1118

**Yunnan China** OP-973

**Z**

**Zapot Pegmatite** OP-256; OP-257

**Zechstein** *see also* Kupferschiefer.  
England OP-821

**zeolite deposits**

British Columbia OP-799  
Italy OP-799  
Kenya OP-800  
United States OP-799; OP-800

**zeolite group** *see also* analcime; clinoptilolite;  
natrolite.

Nevada OP-1382  
South Carolina OP-718  
Virginia OP-718

**Zhujiang River** OP-404

**Zia Formation** OP-685

**zinc**

C 1158; OP-65; OP-459  
Alaska OP-680  
California WRI 99-4018-B; OP-989  
China OP-1103  
Colorado WRI 98-4124; OP-19; OP-189;  
OP-510; OP-511; OP-618; OP-711; OP-825;  
OP-961  
Idaho OP-684  
Massachusetts WRI 99-4018-C; OP-184;  
OP-185  
Montana WRI 98-4137  
Nevada OP-711  
Peru OP-711

zinc blende *see* sphalerite

**zinc ores** *see also* lead-zinc deposits; mississippi  
valley-type deposits.

OP-533; OP-889  
Alaska OF 00-0005; OF 00-0023; OF 00-0025;

OF 00-0026; OF 00-0029; OF 99-0392;  
OF 99-0393; OF 99-0579; OP-1378  
British Columbia OP-402; OP-1245; OP-1246  
Colorado OP-859  
Kazakhstan OP-513  
Maine OP-1162; OP-1485  
New Brunswick OP-1162  
Ukraine OP-514

**zircon**

OP-686  
Alaska P 1615  
Antarctica OF 00-0133  
Appalachians OP-1360; OP-1361  
British Columbia OP-1246  
California OP-545  
Colorado OF 99-0321  
Maine OP-1162  
Montana OP-238; OP-1054  
New Brunswick OP-1162  
New Hampshire OP-235  
New Mexico OP-117  
Oregon OP-33  
Russian Federation OP-499  
Wyoming OF 99-0321

**zirconium**

Italy OP-1522

**Zn** *see* zinc

**Zoantharia** *see* Scleractinia

zone of mobility *see* asthenosphere

zones, fault *see* fault zones

zones, fracture *see* fracture zones

zones, high-velocity *see* high-velocity zones

zones, rift *see* rift zones

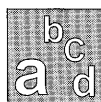
zones, shear *see* shear zones

zones, subduction *see* subduction zones

zones, suture *see* suture zones

zoogeography *see* biogeography

**Zunyi Mine** OP-1103



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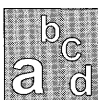
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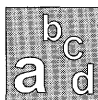


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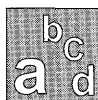
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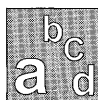
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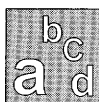
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