

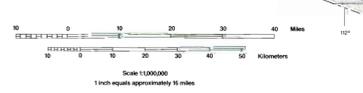
GEOLOGIC MAP OF ARIZONA

by
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Produced in cooperation with the U.S. Geological Survey.

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Map 26



EXPLANATION

MAP UNITS

- Qy** Young alluvium (Holocene to latest Pleistocene)—Deposits in present-day river and stream channels, flood plains, and playas.
- Q** Surficial deposits (Holocene to middle Pleistocene)—Alluvium in present-day valleys and piedmonts, eolian deposits, and local glacial deposits.
- Qo** Older surficial deposits (middle Pleistocene to latest Pliocene)—Alluvium with less abundant talus and eolian deposits.
- QTb** Basaltic rocks (Holocene to late Pliocene; 0 to 4 Ma)
- Qtv** Volcanic rocks (Quaternary to late Pliocene)—Rhyolitic to andesitic rocks associated with unit QTb.
- Tsy** Sedimentary rocks (Pliocene to middle Miocene)—Units deposited during and after late Tertiary normal faulting, sedimentary parts of the Bidahochi Formation, and the Bouse Formation; commonly capped by patches of Quaternary surficial deposits.
- Tby** Basaltic rocks (Pliocene to late Miocene, 4 to 8 Ma).
- Tvy** Volcanic rocks (Pliocene to middle Miocene, 4 to 15 Ma)—Rhyolitic to andesitic rocks associated with units Tby and Tb.
- Tb** Basaltic rocks (late to middle Miocene, 8 to 16 Ma)—Units, such as the Hickey Formation, erupted after most mid-Tertiary volcanism and tectonism.
- Tsm** Sedimentary rocks (middle Miocene to Oligocene, 15 to 38 Ma)—Deposited during mid-Tertiary orogenic activity in the Basin and Range Province and southwestern Transition Zone.
- Tv** Volcanic rocks (middle Miocene to Oligocene, 15 to 38 Ma)—Silicic to mafic flows and pyroclastic rocks; includes some subvolcanic intrusions.
- Tsv** Volcanic and sedimentary rocks (middle Miocene to Oligocene).
- Ti** Subvolcanic intrusive rocks (middle Miocene to Oligocene).
- Tg** Granitoid rocks (early Miocene to Oligocene, 18 to 38 Ma).
- Tso** Sedimentary rocks (Oligocene to Eocene or locally Paleocene)—Units deposited on the Colorado Plateau and Transition Zone prior to or during the initial phases of mid-Tertiary volcanism; many units were deposited by drainages flowing north and east onto the Colorado Plateau; includes "rim gravels" and associated finer grained rocks along the Mogollon Rim; also includes Chuska Sandstone; some units, especially those in the Transition Zone, may overlap in age with unit Tsm.
- Tkqm** Granitic rocks (early Tertiary to Late Cretaceous, 45 to 75 Ma)—Commonly muscovite-garnet-bearing peraluminous granite and associated pegmatite.
- Tkg** Granitoid rocks (early Tertiary to Late Cretaceous, 55 to 85 Ma)—Generally metaluminous granite to diorite and subvolcanic porphyry.
- Kv** Volcanic rocks (Late Cretaceous, early Tertiary near Salton)—Rhyolitic to andesitic volcanic rocks and locally associated sedimentary and subvolcanic intrusive rocks.
- Kmv** Mesaverde Group (Late Cretaceous)—Yale Point Sandstone, Wepo Formation, and Toveva Formation.
- Ks** Sedimentary rocks (Cretaceous)—Dakota Sandstone, Mancos Shale, and related rocks near Show Low, Morenci (Pinkard Formation), and Deer Creek.
- Kjs** Sedimentary rocks with local volcanic units (Cretaceous to Late Jurassic)—Bisbee Group (largely Early Cretaceous) and related rocks, Temporal, Bathub, and Sand Wells Formations, rocks of Gu Achi, McCoy Mountains Formation, and Upper Cretaceous Fort Crittenden Formation and equivalent rocks.
- Jm** Morrison Formation (Late Jurassic)—Locally mapped with San Rafael Group.
- Js** San Rafael Group (Late to Middle Jurassic)—Bluff and Cow Springs Sandstones, Summerville Formation, Todillo Limestone, Entrada Sandstone, and Carnuel Formation.
- Jgc** Glen Canyon Group (Early Jurassic)—Navajo Sandstone, Kayenta and Moenave Formations, and Wingate Sandstone.
- Jg** Granitoid rocks (Jurassic)—Granite to diorite, with local alkaline rocks; includes Triassic(?) granitoids in Trigo Mountains.
- Jsv** Sedimentary and volcanic rocks (Jurassic)—Silt Nakiya, Ali Molina, and Ptoikam Formations, Cobre Ridge tuff, Rudolfo Red Beds, Recreation Red Beds, Gardner Canyon Formation, and part of the Canelo Hills Volcanics in southern Arizona, Harqur Formation and rocks of Sturgillion in western Arizona.
- Jv** Volcanic rocks (Jurassic, locally latest Triassic)—Mount Wrightson Formation, part of Canelo Hills Volcanics, Mulberry Wash Volcanics, Black Rock Volcanics, and equivalent rocks.
- Jfb** Sedimentary and volcanic rocks (Jurassic and Early Triassic)—Buckskin Formation, Vampire Formation, and Planet Volcanics in west-central Arizona.
- Fc** Chinle Formation (Late Triassic)—Shinarump Conglomerate Member (\approx) mapped separately in most areas.
- Fm** Moenkopi Formation (Middle?) and Early Triassic.
- Mz** Orocoopia Schist (Jurassic prothrust, Cretaceous metamorphism).
- MzPz** Mesozoic and Paleozoic rocks—Structurally complex Jurassic, Triassic, and Paleozoic rocks in west-central Arizona.
- Pz** Paleozoic rocks, undifferentiated.
- P** Sedimentary rocks (Permian)—Kaibab Limestone, Toroweap Formation, Coconino Sandstone, San Andres Formation, and Goniae Sandstone on the Colorado Plateau; age-equivalent rocks in the Basin and Range Province and Transition Zone are included with unit PP.
- PP** Sedimentary rocks (Permian and Pennsylvanian)—Hermit Shale, Supai Group, Naco Group, De Chelly Sandstone, Cutler Group, Pakeon Limestone, Calville Limestone, and Quantowep Sandstone.
- MC** Sedimentary rocks (Mississippian to Cambrian)—Redwall Limestone, Temple Butte Limestone, and Tonto Group in northern Arizona, Escabrosa Limestone, Percha Shale, Martin Formation, El Paso Limestone, Abrigo Formation, and Bolso Quartzite in southern Arizona.
- Ys** Sedimentary rocks (Middle Proterozoic)—Grand Canyon Supergroup (locally Late Proterozoic), Apache Group, Troy Quartzite, and local basalt flows and diabase.
- Yd** Diabase (Middle Proterozoic, 1100 Ma).
- Yc** Granitoid rocks (Middle Proterozoic, 1400 Ma).
- Yxg** Granitoid rocks (Middle to Early Proterozoic, 1400 Ma or 1650 to 1750 Ma).
- Xg** Granitoid rocks (Early Proterozoic, 1650 to 1750 Ma)—Granite, granodiorite, tonalite, quartz diorite, diorite, and gabbro; commonly foliated.
- Xq** Quartzite (Early Proterozoic, 1700 Ma)—Mazatzal Group and similar rocks.
- Xm** Metamorphic rocks (Early Proterozoic, 1650 to 1800 Ma)—Undifferentiated metasedimentary, metavolcanic, and gneissic rocks.
- Xms** Metasedimentary rocks (Early Proterozoic, 1650 to 1800 Ma).
- Xmv** Metavolcanic rocks (Early Proterozoic, 1650 to 1800 Ma).

MAP SYMBOLS

- Contact
- Fault
- Low-angle normal fault
- Detachment fault
- Thrust or reverse fault
- Middle Tertiary mylonitic fabric; lined pattern is approximately parallel to lineation.
- Mesozoic to early Tertiary metamorphic fabric in Proterozoic to Mesozoic sedimentary rocks

SOURCES OF DATA

- The main sources of data used in compiling this map are listed below. Additional sources not listed below but used in intermediate scale compilations by the U.S. Geological Survey (USGS) and Arizona Geological Survey (AGS) are cited in indexes of published and unpublished mapping (Scarborough, R.B., and Conroy, M.J., 1985, ABGMT Map 17, Scarborough, R.B., and McGavin, T.G., 1984, ABGMT OFR 84.5, McGavin, T.G., 1986, ABGMT OFR 86.1, and 87.1; Conroy, M.J., and Reynolds, S.J., 1987, ABGMT OFR 87.5). Some areas are modified from E.D. Wilson and others (1984, C.D., 1984 Univ. New Mexico Ph.D. dissertation; Crumpler, L.S., and Auble, J.C., unpub. mapping).
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