

Base from US Geological Survey 1:250,000 topographic maps, overlain by 30-m shaded-relief DEM
Coordinate System: NAD 1983 UTM Zone 11N
Projection: Transverse Mercator
Datum: North American 1983

SCALE = 1:350,000
1 0 1 2 3 4 5 6 7 8 Miles
1 0 1 2 3 4 5 6 7 8 9 10 Kilometers

Geologic map base from Felger and Beard (2010)

NEVADA UTAH
CALIFORNIA ARIZONA
Location Map

LIST OF MAP UNITS

Cenozoic Surficial Deposits and Sedimentary Rocks

- Disturbed land (latest Holocene)
- Playa and fine-grained alluvial plain deposits (Holocene to upper Pliocene)
- Alluvial deposits (Quaternary to upper Pliocene)
- Gravel (Pliocene)
- Younger sedimentary rocks (Pliocene and upper Miocene)
- Younger intermediate-age sedimentary rocks (upper and middle Miocene)
- Older intermediate-age sedimentary rocks (middle and lower Miocene)
- Older sedimentary rocks (lower Miocene and Oligocene)

Cenozoic Volcanic and Intrusive Rocks

- Younger basalts (Pliocene and upper Miocene)
- Older basalts (upper to middle Miocene)
- Younger rhyolitic to andesitic volcanic rocks (upper to middle Miocene)
- Younger dacite intrusions (upper to middle Miocene)
- Intrusive rocks (middle Miocene)
- Younger rhyolitic ash-flow tufts (middle to lower Miocene)
- Older rhyolitic to andesitic volcanic rocks (middle to lower Miocene)

Mesozoic Rocks

- Intrusive rocks (Upper Cretaceous)
- Foreland basin deposits, undivided (Upper and Lower Cretaceous)
- Aztec Sandstone (Lower Jurassic), Kayenta Formation (Lower Jurassic), and Moenave Formation (Lower Jurassic), undivided
- Chinle and Moenkopi Formations, undivided (Triassic)

Paleozoic Rocks

- Kaibab and Torowcap Formations, undivided (Lower Permian)
- Redbeds, undivided (Lower Permian)
- Sedimentary rocks, undivided (Lower Permian to Upper Mississippian)
- Monte Cristo Group (Upper and Lower Mississippian)
- Redwall Limestone (Upper and Lower Mississippian)
- Sedimentary rocks, undivided (Lower Mississippian to Middle Devonian)
- Temple Butte Formation (Upper and Middle Devonian)
- Sedimentary rocks, undivided (Middle Devonian to Silurian), cross section only
- Sedimentary rocks, undivided (Silurian to Upper Cambrian)
- Carbonate rocks, undivided (Upper and Middle Cambrian)
- Tapeats Sandstone and Bright Angel Shale, undivided (Middle and Lower Cambrian)
- Metamorphic and plutonic rocks, undifferentiated (Paleoproterozoic)

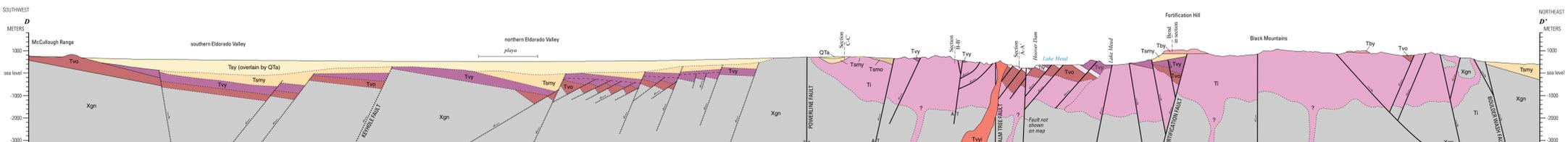
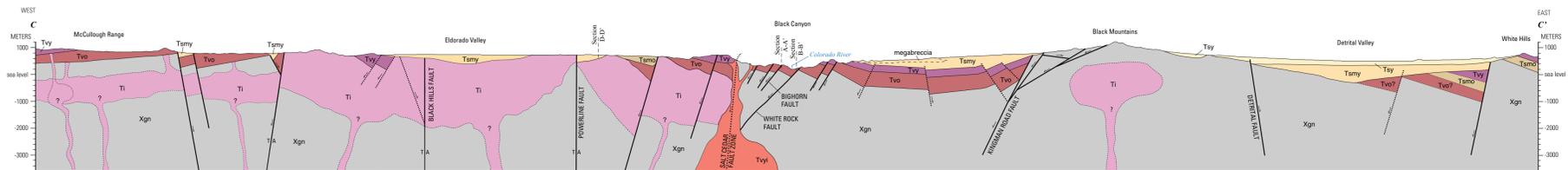
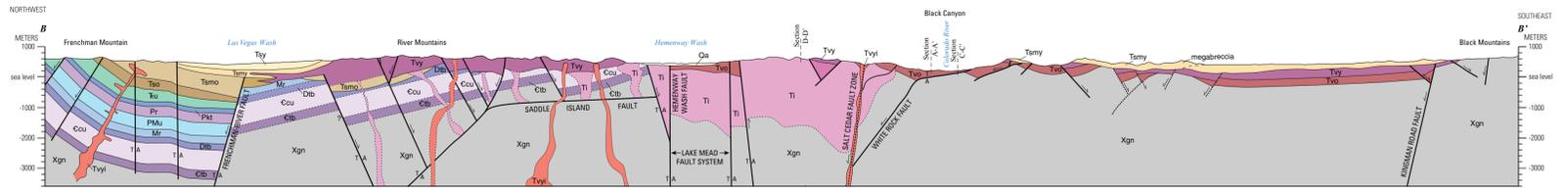
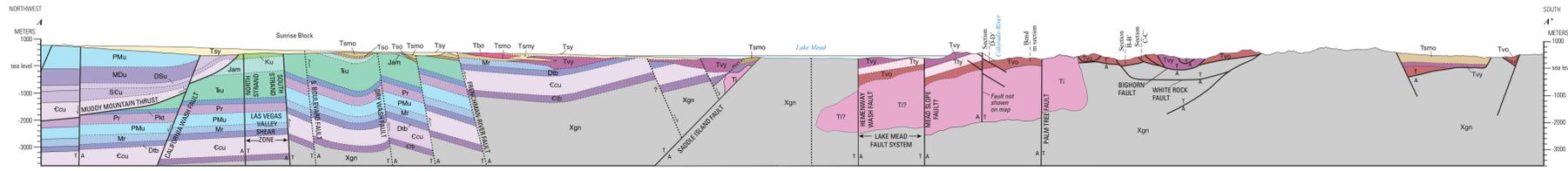
MAP EXPLANATION

- Contact
- Fault—Dotted where concealed
- Normal fault—Bar and ball on downthrown side; dotted where concealed
- Low-angle normal fault—Hachures on upper plate; dotted where concealed
- Reverse fault—Half-circles on upper plate; dotted where concealed
- Thrust fault—Sawteeth on upper plate; dotted where concealed
- Strike-slip fault—Arrows show direction of relative motion; dotted where concealed
- Oblique-slip fault—Bar and ball on downthrown side; arrows show direction of relative motion; dotted where concealed

- Folds—Dotted where concealed
- Anticline
- Overturned anticline
- Syncline
- Overturned syncline
- Monocline
- Dome
- Cross section line
- Strike and dip of bedding
- Inclined
- Overturned
- Horizontal
- Vertical
- Strike and dip of foliation
- Inclined
- Vertical

CROSS SECTION EXPLANATION

- Contact—Dotted where speculative.
- Fault—Dotted where no surface expression. Arrow indicates down-thrown side, T indicates side moved toward viewer, A indicates side moved away



See sections "Regional Geology" and "Regional geologic cross sections" in text for description and discussion of geologic units and geologic structures portrayed on cross sections. Cross section locations shown on map figure in upper left of plate. Geologic units shown in map explanation in lower left. Cross sections are constructed from:

Felger, T.J., and Beard, L.S., 2010, Geologic map of Lake Mead and surrounding regions, southern Nevada, southwestern Utah, and northwestern Arizona in Umhoefer, P.J., Beard, L.S., and Lamb, M.A., eds., Miocene tectonics of the Lake Mead Region, central Basin and Range: Geological Society of America Special Paper 463, p. 29-38, one sheet.

Geologic Cross Sections of Black Canyon and Surrounding Region

Geologic Framework of Thermal Springs, Black Canyon, Nevada and Arizona

By

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