Digital Geologic Map of Utah

by

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2000

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UTAH GEOLOGICAL SURVEY

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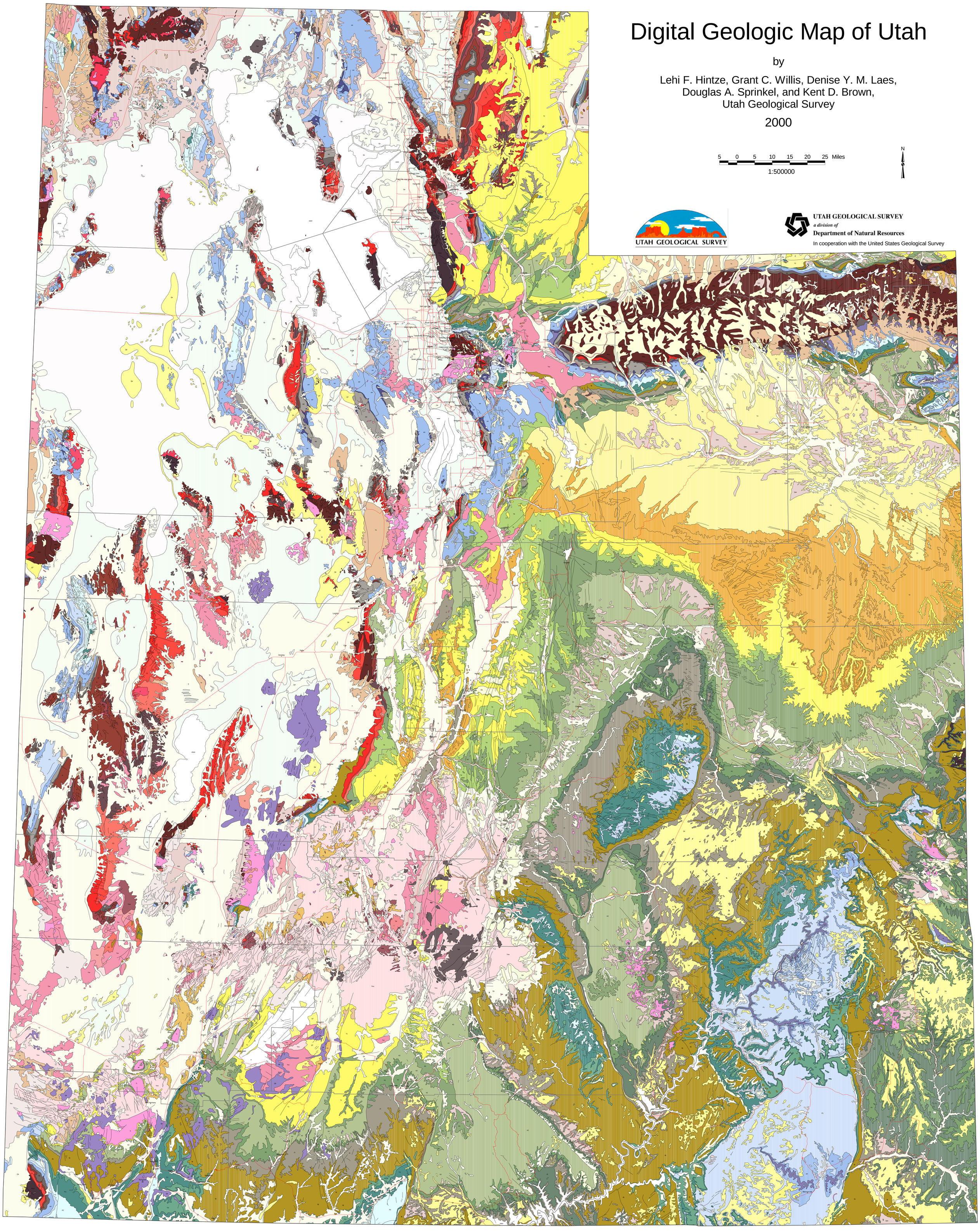


Surficial deposits and igneous rocks in all parts of Utah are shown by the symbols to the right. Other map units are identified by symbols shown in the columns below. Refer to small index map to locate the area represented by each column.

SURFICAL DEPOSITS

- Qa Alluvium and colluvium
- Qao Older alluvial deposits
- Qe Eolian deposits
- Qg Glacial deposits
- Ql Lake Bonneville deposits
- Qm Marshes
- Qs Mud and salt flats
- Qls Landslides

Radiometric ages (millions of years)
0 QUATERNARY
2 my PLIOCENE
5 my MIOCENE
24 my OLIGOCENE
38 my

IGNEOUS ROCKS

- Qb Basalts
- Tpb Basalts
- Tmb Basalts
- Qr Rhyolites
- Tpr Rhyolites
- Tmr Rhyolites
- Tma Andesites
- Tmv Miocene volcanic rocks, undivided
- Tov Oligocene volcanic rocks, undivided
- Tvu Tertiary volcanic rocks, undivided
- Ti Tertiary intrusive rocks
- Ji Jurassic intrusive rocks
- PCi Precambrian intrusive rocks

NORTHWESTERN UTAH

- see note above
- basaltic rocks 3.1 my
- tuffaceous sediments, mudstone, sandstone, conglomerate Salt Lake Fm?
- dacitic tuff 8.5 my
- granitic rock 26 my
- Oquirrh Group
- Chainman Fm
- little metamorphosed allochthonous remnants
- MAJOR STRUCTURAL BREAK
- Fish Haven Dol.
- Eureka Qtzt.
- Pogonip Gp
- metamorphosed
- STRATA CUT OUT BY FAULTING
- Schist of Mahogany Peaks
- Quartzite of Clarks Basin
- Schist of Stevens Spring
- Quartzite of Yost
- Schist of Upper Narrows
- Elba Quartzite
- adamellite intrusions 2.5 by Rb-Sr
- Green Creek Complex

Original stratigraphic thickness of pre-Tertiary strata uncertain because of thrusting and attenuation

LOGAN-HUNTSVILLE ALLOCHTHON

- see note above
- basaltic rocks
- tuffaceous sediments, mudstone, sandstone, Salt Lake Formation?, valley fill
- rhyolite
- Norwood Tuff
- Wasatch and Evanston? Formations undivided
- Thaynes Formation
- Park City and Phosphoria Formations
- Wells Formation
- Round Valley Limestone
- Manning Canyon Shale
- Great Blue, Humbug and Deseret Formations
- Lodgepole Limestone
- Leatham Formation Beirdneau Sandstone
- Hyrum Dolomite
- Water Canyon Formation
- Laketown Dolomite
- Fish Haven Dolomite
- Swan Peak Quartzite
- Garden City Limestone
- St. Charles Formation
- Worm Creek Quartzite
- Nounan Dolomite
- Bloomington Formation
- Blacksmith Formation
- Ute Formation
- Langston Formation
- Geertsen Canyon Quartzite
- Browns Hole Fm 570 my
- Mutual Formation
- Inkom Formation
- Caddy Canyon Quartzite
- Brigham Group
- Papoose Creek Formation
- Kelley Canyon Formation
- Maple Canyon Formation
- Formation of Perry Canyon
- diamictite member
- Metaquartzite and schist of Facer Creek

Paleozoic - Mesozoic stratigraphic thickness 26,000 feet

SALT LAKE CITY-COALVILLE-RANDOLPH

- see note above
- basaltic rocks
- Salt Lake Formation and valley-filling alluvial, lacustrine and volcanic materials
- Little Cottonwood and Alta Stocks
- Keetley Volcanics
- Clayton Peak and Pine Creek stocks
- Fowkes Formation
- Wasatch Formation
- (coal) Evanston Formation (coal)
- Echo Canyon Conglomerate
- Henefer Formation
- Upton Ss Mbr
- Judd Sh Mbr
- Grass Creek Mbr
- Dry Hollow Mbr
- Oyster Ridge Ss
- Allen Hollow
- Shale Member
- Coalville Member
- Chalk Creek Member
- Frontier Formation (members designated near Coalville)
- Spring Canyon Member
- Longwall Ss Member
- Aspen Shale
- Kelvin Formation
- Morrison Formation
- Stump Sandstone
- Preuss Sandstone
- Twin Creek Limestone
- Nugget Sandstone
- Ankareh Shale
- Thaynes Formation
- Woodside Shale
- Dinwoody Formation
- Park City and Phosphoria Formations
- Weber Quartzite
- Morgan Formation
- Round Valley Limestone
- Doughnut Formation
- Humbug Formation
- Deseret Limestone
- Gardison/Lodgepole Limestone
- Beirdneau Sandstone
- Hyrum Dolomite
- Water Canyon Fm
- Laketown Dolomite
- Fish Haven Dolomite
- Garden City Ls
- St Charles Fm
- Nounan Dolomite
- Bloomington Fm
- Maxfield Limestone
- Ophir Formation
- Tintic Quartzite
- Mutual Formation
- Mineral Fork Tillite
- Big Cottonwood Formation (16,000 feet thick)
- Farmington Canyon and Little Willow schist and gneiss 2.6 billion years old

Paleozoic - Mesozoic stratigraphic thickness 34,000 feet

WESTERN UTAH

- see note above
- basalt and rhyolite (Qr)
- alluvial materials
- Sevier River Formation
- basalt and rhyolite (Tpr)
- Salt Lake Formation and other Basin and Range valley-filling alluvial, lacustrine, and volcanic materials. Valley fill is more than 8,000 feet thick in places and includes salt masses under the Sevier Desert
- Quichapa Group and other volcanic rocks (Tmb, Tmr, Tma noted above)
- intrusions, chiefly granitic, of various dates
- Isom Fm (tuff)
- Needles Range Fm. (ash-flow tuff) 29 my
- Escalante Desert Fm (ash-flow tuff)
- Sawtooth Peak Fm (ash-flow tuff)
- Tunnel Spring Tuff
- White Sage Fm red conglomerate
- granitic rocks (140 my) in House Range and near Wendover
- San Rafael Group
- Navajo Sandstone (Star Range and Blue Mountain)
- Chinle Formation
- Moenkopi Formation (in Blue Mountain)
- Thaynes Formation (north of Confusion Range)
- Gerster Limestone
- Plympton Formation
- Kaibab Limestone
- Arcturus Formation
- Oquirrh Group (10,000+ feet thick) of Cedar Mountains and vicinity, is equivalent, in part to Arcturus Formation and Ely Limestone elsewhere.
- Ely Limestone (chert)
- Chainman Shale
- Ochre Mountain Limestone (Great Blue equivalent)
- Woodman Formation (Deseret-Humbug equivalent)
- Joana Limestone
- Pilot Shale
- Guilmette Formation
- Simonson Dolomite
- Sevy Dolomite
- Laketown Dolomite
- Ely Springs Dolomite
- Eureka Quartzite
- Crystal Peak Dolomite
- Watson Ranch Quartzite
- Lehman Formation
- Kanosh Shale
- Juab Limestone
- Wah Wah Limestone
- Pogonip Group
- Fillmore Limestone
- House Limestone
- Notch Peak Formation
- Orr Formation
- Lamb/Weeks/Wah Wah Summit Formations
- Trippe Limestone
- Marjum/Pierson Cove Formations
- Wheeler Shale
- Swasey Limestone
- Whirlwind Formation
- Dome Limestone
- Chisholm Formation
- Howell Limestone
- Pioche Formation
- Prospect Mountain Quartzite (3,500 feet thick)
- McCoy Creek and Sheeprock Groups, (10,000+ feet thick)
- granitic intrusions at Granite Peak and metamorphic rocks

Paleozoic - Mesozoic stratigraphic thickness 33,000 feet

CENTRAL UTAH

- see note above
- Axtell and Harkers Fms
- Salt Lake(?) Formation and other Basin and Range valley-filling alluvial, lacustrine, and volcanic materials. Valley fill is more than 13,000 feet thick in the central part of Utah Valley.

IGNEOUS ROCKS OF THE TINTIC AREA

- Silver Shield Latite 17 my
- Pinyon Creek Conglomerate
- Silver City Monzonite 31 my
- Laguna Springs Latite
- Sunrise Peak Monz. Por.
- Tintic Mountain Group (latite, porphyry & tuff)
- Swanson Quartz Monzonite
- Packard Quartz Latite
- Apex Conglomerate
- Flagstaff Limestone
- North Horn Formation
- Price River Formation
- Indianola Formation
- Morrison Formation
- Summerville Fm
- Arapien Shale
- Entrada Sandstone
- Carmel Formation
- Navajo/Nugget Sandstone
- Ankareh Shale
- Thaynes Formation
- Woodside Shale
- Park City and Phosphoria Formations
- Diamond Creek Sandstone
- Kirkman Limestone
- Oquirrh Group (maximum thickness 25,000 feet)
- Bridal Veil Limestone of Oquirrh Group
- Manning Canyon Shale
- Great Blue Limestone
- Humbug Formation
- Deseret Limestone
- Gardison Limestone
- Fitchville Formation
- Pinyon Peak Limestone Victoria Formation
- Bluebell Dolomite
- Fish Haven Dolomite
- Opohonga Limestone
- Ajax Dolomite
- Opex Formation
- Maxfield Ls.
- Cole Canyon Dolomite
- Bluebird Dolomite Herkimer Limestone
- Dagmar Dolomite Teutonic Limestone
- Ophir Formation
- Tintic Quartzite
- PRECAMBRIAN ROCKS OF THE CANYON RANGE
- Mutual Formation
- Inkom Formation
- Caddy Canyon Quartzite
- Papoose Creek Fm
- Blackrock Canyon Limestone
- Upper part of Pocatello Formation
- metamorphic complex of Mt. Nebo

Paleozoic - Mesozoic stratigraphic thickness 50,000 feet

UINTA MOUNTAINS-UINTA BASIN

- see note above
- high-level gravels
- Browns Park Fm
- Bishop Conglomerate
- Duchesne River Formation
- Uinta Formation- south of Uinta Mtns
- Bridger Formation - north of Uinta Mtns

EASTERN UINTA BASIN MEMBERS

- Green River Fm.
- Evacuation Creek Mbr
- Parachute Creek Mbr (oil shale)
- Garden Gulch Mbr
- Douglas Creek Mbr
- Wasatch/Colton Formation
- Flagstaff Limestone
- North Horn and Currant Creek Fms
- Mesaverde Group
- (coal)
- Mancos Shale (Hilliard Shale and Blair Formation north of Uinta Mountains)
- Frontier Sandstone
- Mowry Shale
- Dakota and Cedar Mountain Formations
- Morrison Formation
- DINOSAUR NATIONAL MON.
- Curtis Formation
- Entrada Sandstone
- Carmel Formation
- Nugget (Navajo) Sandstone
- Chinle Shale
- Gartra Sandstone Mbr
- Moenkopi Formation
- Dinwoody Formation
- Park City Formation
- Weber Sandstone
- Morgan Formation
- Round Valley Limestone
- Doughnut Shale
- Humbug Formation
- Deseret Limestone
- Madison Limestone
- Maxfield Limestone
- Lodore Sandstone
- Red Pine Shale of Uinta Mountain Group 950 my
- Uinta Mountain Group (24,000 feet thick along the Green River)
- Red Creek Quartzite (20,000 feet thick) 2.3 billion years old

SOUTHEASTERN UTAH

- see note above
- Castle Valley Conglomerate
- laccolithic intrusions, mostly diorite porphyry 24-28 my
- Bald Knoll and Gray Gulch Formations
- Crazy Hollow Formation
- Green River Formation
- Flagstaff Formation
- North Horn and Canaan Peak Formations
- Price River Fm
- Castlegate Ss
- Blackhawk Fm (coal)
- Mesaverde Group
- Star Point Ss
- Masuk Shale Mbr
- Emery Sandstone Mbr
- Blue Gate Shale Mbr
- Ferron Ss Mbr
- Tununk Sh Mbr
- Mancos Shale
- Dakota Sandstone and Cedar Mtn or Burro Canyon Fms
- Brushy Basin Mbr
- Salt Wash Mbr
- Morrison Formation
- Bluff Sandstone
- Summerville Formation
- Curtis Formation
- Entrada Sandstone
- ARCHES NATIONAL PARK
- Carmel Formation
- Navajo Sandstone
- RAINBOW BRIDGE
- Kayenta Formation
- Wingate Sandstone
- Glen Canyon Group
- Chinle Shale
- Shinarump Cg Mbr
- Moenkopi Formation
- Kaibab Limestone
- White Rim Ss
- De Chelly Ss
- Organ Rock Shale
- Cedar Mesa Sandstone
- NATURAL BRIDGES NATIONAL MON.
- Halgaito Fm
- Elephant Canyon Formation
- Cutler Group
- Rico Formation
- Honaker Trail Formation
- Paradox Formation (oil, salt, potash)
- Hermosa Group
- Pinkerton Trail Fm
- Molas Formation
- Redwall Limestone
- Ouray Limestone
- Elbert Fm and McCracken Ss
- Aneth Formation
- Muav Limestone
- Bright Angel Shale
- Tapeats/Ignacio Quartzite
- subsurface only
- schist, gneiss, granite, 1.5 billion years old

Paleozoic - Mesozoic stratigraphic thickness 22,000 feet

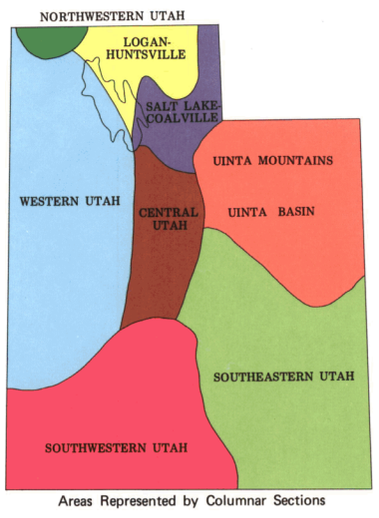
SOUTHWESTERN UTAH

- see note above
- basalt and rhyolite (Qr)
- alluvial deposits
- basalt and rhyolite (Tpr)
- Sevier River Formation

CEDAR CITY AREA / MARYSVALE AREA

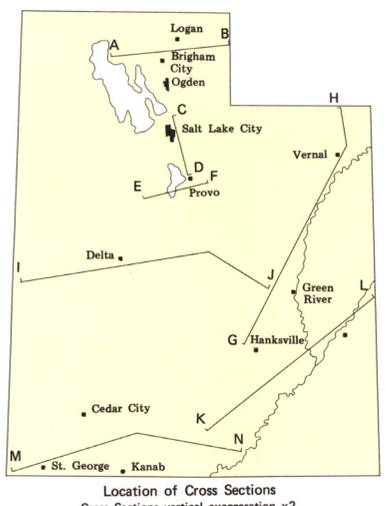
- Page Ranch Fm
- Rencher Fm
- Joe Lott Tuff
- Mt. Belknap Volcanics
- Quichapa Group 24 my
- Muddy Creek Fm
- Osiris Tuff
- Mt Dutton Fm
- quartz monzonite
- monzonite and granite
- Isom Fm
- Bullion Canyon Volcanics
- Needles Range Fm 29 my
- Claron Formation
- BRYCE CANYON/CEDAR BREAKS
- Canaan Peak Fm
- Kaiparowits Fm
- Iron Springs Fm of Cedar City Area
- Wahweap Sandstone
- Straight Cliffs Formation (Coal)
- Tropic Shale
- Dakota Ss
- Entrada Fm
- Carmel Formation (Arapien Shale at Marysvale)
- Navajo Sandstone
- ZION NATIONAL PARK
- Kayenta Formation
- Moenave Formation
- Chinle Formation
- Shinarump Cg Mbr
- Moenkopi Formation
- Kaibab Limestone
- Toroweap Formation
- Coconino Sandstone
- Supai Group
- Pakoon Formation
- Callville Limestone
- Redwall Limestone (chert)
- Temple Butte-Muddy Peak Ls.
- Nopah Formation
- Bonanza King Fm
- Muav Limestone
- Pioche Shale
- Prospect Mountain Quartzite
- Vishnu Schist and granitic intrusions 1650 my

Paleozoic - Mesozoic stratigraphic thickness 19,000 feet



Areas Represented by Columnar Sections

Scale of sections: 5 cm = 1000 m or 0.6 inch = 1000 feet approximately.

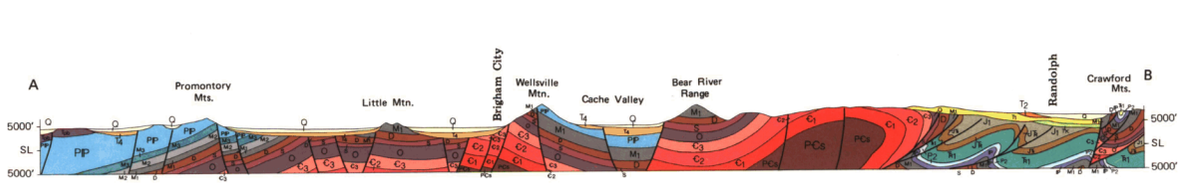


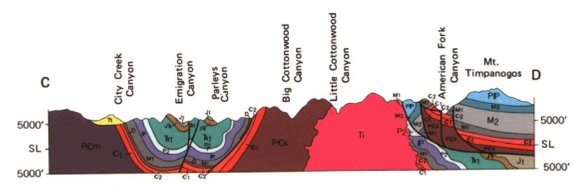
Location of Cross Sections

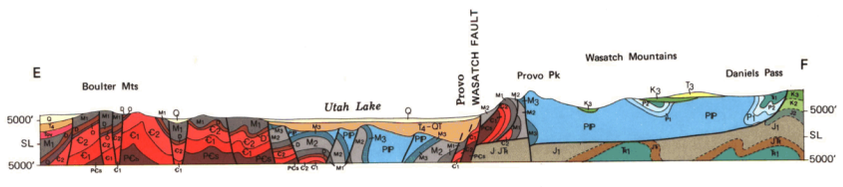
Cross Sections vertical exaggeration x2

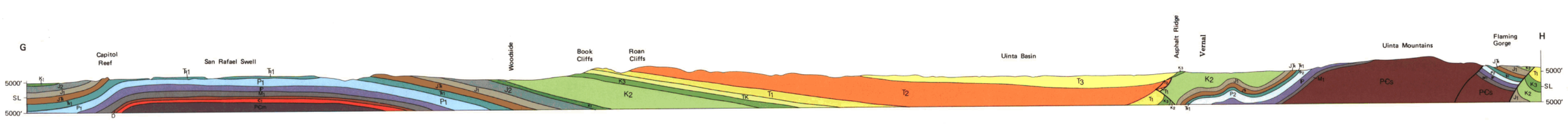
SYMBOLS

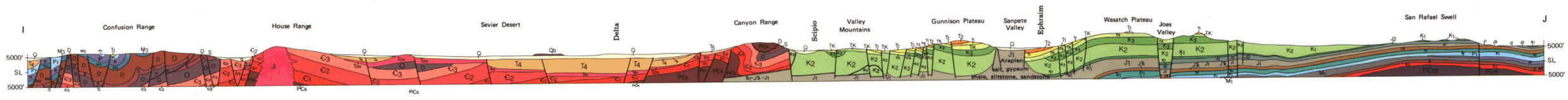
- Volcanic cone
- Igneous dike
- Gilsonite vein
- Fault exposed
- Fault inferred
- Fault concealed
- Thrust fault, barbs on upper plate

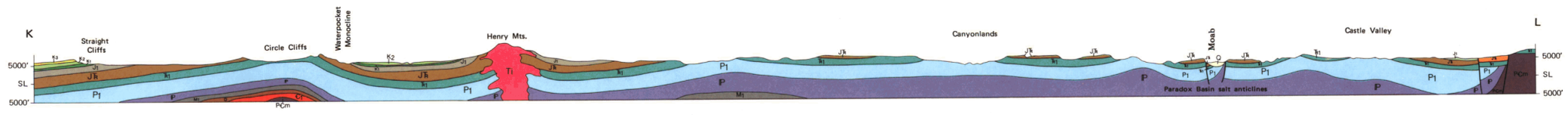


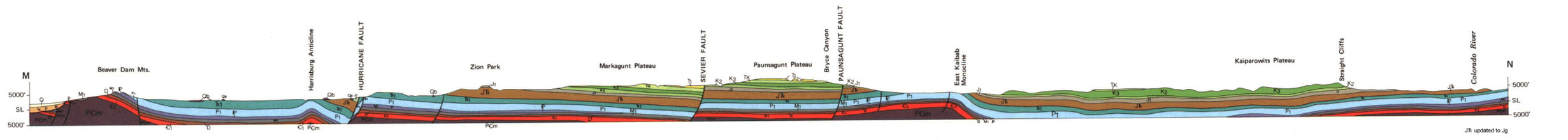












JTr updated to Jg

Appropriation 016103
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