Why Geology is Important

Exploration

Mining plays a major role in Nevada's economy.

Blast at the Bald Mountain Mine, White Pine County. *Photographer: Steve Castor*

Nevada leads the U.S. in gold production.

Gold specimen, 3.3 cm, Round Mountain Mine, Nye County. *Photographer: Jeff Scovil*

Geologic Mapping

Geologic mapping is important to Nevada's economy as a tool for mineral, geothermal, and oil-gas resource exploration. See the extensive list of available geologic maps at the Nevada Bureau of Mines and Geology's website: www.nbmg.unr.edu.

Las Vegas, Clark County, Nevada. Geologic maps in urban settings help planners consider geologic hazards, such as earthquakes and floods, as they plan and design infrastructure and development. *Photographer: Nick Hinz*

Geologic mapping in southern Nevada. NBMG's detailed mapping of the different rock and soil types, documenting locations of young flood deposits, and studying active faults is essential to planning for hazards and infrastructure engineering and design. *Photographer: Seth Dee*

Public Safety

Geologic hazards like earthquakes and flash floods can cause great damage and loss of life. Understanding geologic hazards can mitigate losses. See the information available on geohazards at the Nevada Bureau of Mines and Geology's website: www.nbmg.unr.edu.

Surface rupture from the Monte Cristo Range Earthquake (6.5 magnitude), Esmeralda County, May 15, 2020. *Photographer: Seth Dee*

Erosion and debris-flow deposits from the August 2014 flash flood, Hot Spring Mountain, Douglas County. *Photographer: Seth Dee*

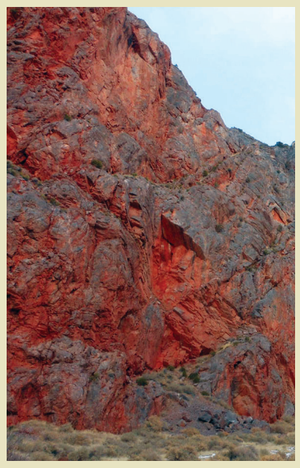
Rock Types

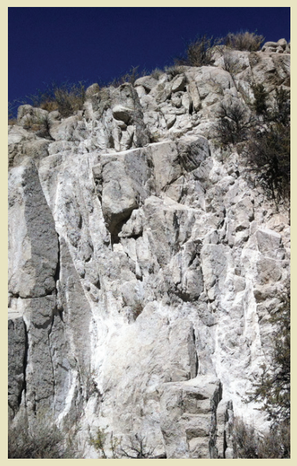
Igneous Rocks

Plutonic rocks are igneous rocks such as granite and granodiorite formed from molten rock (magma) that crystallized while deep below the Earth's surface.

Volcanic rocks are igneous rocks such as tuff and basalt lava flows. Tuffs are volcanic rocks formed by explosive eruptions. Basalt lava flows are typically formed by less violent volcanic eruptions released from cracks in the Earth's surface.

First (left): Layers of non-welded pyroclastic fall deposits (ash-fall tuff), Calico Mountains, Humboldt County. *Photographer: Jack Hursh*
Second: Miocene-age welded tuff, Mineral County. *Photographer: Brian Swick*
Third: Ignimbrite (also known as ash-flow tuff), Condor Canyon, Lincoln County. *Photographer: Jennifer Vlcan*
Fourth (right): Granodiorite, Clear Creek Canyon, Carson City. *Photographer: Jennifer Vlcan*





Sedimentary Rocks

Clastic sedimentary rocks such as shale and sandstone are formed by accumulations of particles of pre-existing rocks broken down and transported by the action of water, wind, ice, or gravity and deposited in new locations.

Nonclastic sedimentary rock, such as tufa and limestone, is chemically or biologically formed material precipitated out of bodies of water and springs.

Left: Bands of tuffaceous sandstone, Monte Cristo Range, Esmeralda County. *Photographer: Jack Hursh*
Center: Aztec Sandstone, Red Rock Canyon, Clark County. *Photographer: Rachel Micander*
Right: Lahar, volcaniclastic sedimentary rock, Mineral County. *Photographer: Brian Swick*

Metamorphic Rocks

Metamorphic rocks are pre-existing igneous, sedimentary, or older metamorphic rocks that have been changed by heat, pressure, or chemically active fluids.

Left: Folding in metamorphosed Cambrian-Ordovician sedimentary rocks at Secret Valley Gorge between the northern Ruby Mountains and East Humboldt Range, Elko County. *Photographer: Chris Henry*
Right: Approximately 1.7-billion-year-old mylonitic gneiss from the southern Eldorado Mountains, Clark County. *Photographer: Nick Hinz*

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