

## OVERVIEW OF THE PROTEROZOIC GEOLOGY OF THE WET MOUNTAINS, COLORADO

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The metamorphosed core of the Wet Mountains (about 1700 Ma) comprises 50% biotite paragneisses (both cratonic and island arc sources), 20% amphibolites (tholeiitic basalts with island arc and back-arc basin affinities), 30% granitic gneisses (syntectonic two-mica intrusives with within-plate to marginal arc affinities), and minor charnockite (1694 Ma). Refolding of isoclinal folds indicates multiple though nearly coaxial, continuous deformations. Abundant sedimentary protoliths and lack of bimodal volcanism distinguish this terrane from others in Colorado.

Late to post-tectonic plutons of the Boulder Creek episode include the granites of Crampton Mountain-Twin Mountain (1705 Ma), Garell Peak (1665 Ma) and smaller bodies (1621 Ma, 1610 Ma). They are flow-foliated, felsic-cored, xenolith-rich augen gneissose granites. The oldest pluton is subalkalic and barely calc-alkaline; younger plutons are more potassic and Fe-rich.

The Silver Plume intrusive episode is characterized by high potassium, high Fe/Mg, marginally metaluminous to peraluminous granites, several of which show an unexpected foliation. Leucogranites (granites of William Creek [1486 Ma], Bear Creek, Cliff Creek) formed by in situ melting of metasedimentary country rocks. The granites of West McCoy Gulch (1460, 1474 Ma), Oak Creek (1434 Ma), and South Hardscrabble Creek sills (1441 Ma). The San Isabel intrusion is a slightly younger (1360 Ma) metaluminous, low-initial-Sr-ratio batholith. Dikes of the latter are commingled with mafic lamprophyric dikes. Textures of mutual inclusions, intermediate chemistries and field relations establish a mixed-magma origin for these dikes. All these plutons belong to the mid-Proterozoic anorogenic belt of intrusions in North America.

The Wet Mountains are a fault-bounded, south-plunging anticline uplifted in late Tertiary, Laramide and Pennsylvanian times along lines of weakness possibly inherited from the Precambrian.