

Paper No. 236-6

Presentation Time: 3:10 PM-3:25 PM

GEOLOGIC MAP OF THE ARCO 30' X 60' QUADRANGLE, SOUTH-CENTRAL IDAHO

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The geology of the Arco 30' x 60' quadrangle was compiled under the USGS STATEMAP program in cooperation with the Idaho Geological Survey(IGS). Sources include published information by the USGS and the IGS, unpublished data from theses, and unpublished mapping by the authors and others.

The quadrangle extends west to east from the eastern edge of the Pioneer metamorphic core complex to the western margin of the Lemhi Range, and south to north from the northern margin of the Snake River Plain to near the hypocenter of the 1983 Borah Peak earthquake and south of the 1983 scarp on the active Lost River fault. The NNW-striking Lost River normal fault extends southward into the Arco quadrangle from the Borah Peak area, and marks the western margin of the Lost River Range. The quadrangle is criss-crossed by Tertiary normal faults striking ENE, NNW, N, and EW. Two Sevier thrust faults, the Pioneer and Copper Basin, are largely buried beneath Tertiary volcanic rocks, but limited outcrops indicate that the Pioneer thrust plate on the west carries Devonian deep-water shales (Milligen Formation) overlain unconformably by thick late Paleozoic sandy basinal carbonates (Wood River Formation of the Sun Valley Group). The Copper Basin plate carries thick coarse-grained Mississippian flysch (Copper Basin Group). The footwall of the Copper Basin thrust is made up of faulted fold trains of craton-margin sedimentary rocks of Proterozoic through Permian age. Mesozoic rocks are absent.

Tertiary rocks include localized Smiley Creek conglomerates, extensive intermediate volcanic and intrusive rocks of the Eocene Challis Volcanic Group, Eocene to Oligocene conglomerate and sandstone in the Arco Pass and Pass Creek basins, a few bimodal volcanic rocks of the Miocene Idavada Group, and ignimbrites of the Heise volcanic field. Volcanic centers of the Challis field lie north and south of the White Knob horst. Two east-tilted Eocene to Oligocene half grabens in the central and southern Lost River Range are uplifted in the footwall of the Lost River fault.

Holocene basalts, some about 2,100 years old, crop out along the southeastern edge of the quadrangle. The Great Rift Zone of the Craters of the Moon National Monument extends NNW into the area.

[2004 Denver Annual Meeting \(November 7-10, 2004\)](#)
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Session No. 236

[Regional Geology of the Northern Rockies: A Session Honoring Betty Skipp](#)

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