

IGNEOUS GEOLOGY OF THE CENTRAL DAVIS MOUNTAINS  
Jeff Davis County

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The central Davis Mountains consists of a series of sodarich, silicic pyroclastic units and lava flows of late Eocene to Oligocene age. The volcanic rocks were intruded by stocks, sills, and dikes, mostly in the same compositional range, during the latter part of the period of eruptive activity. Thirteen volcanic units with an aggregate thickness of approximately 2,500 feet, and six intrusive units were mapped.

The volcanic sequence includes air-fall tuff units, ignimbrites, and ordinary lava flows. But most of the stratigraphic units exhibit field and petrographic features indicating a mechanism of origin that is intermediate between ignimbrites and lava flows; these units may have been spread by a nuee ardente type of eruption, followed by a stage of flow as viscous liquids.

The volcanic rocks are cut by high-angle normal faults of Tertiary age which generally strike NW to NNW, parallel to many of the major structural features of trans-Pecos Texas. Displacement of most faults is down to the southwest, but there are many exceptions.

Most of the intrusions are in a zone trending about N30°W, approximately on strike with a similar trend of major intrusive bodies in the Big Bend depression southeast of the Davis Mountains. This major subsidence structure probably extends to the Davis Mountains, and is associated with the eruption of the tremendous volume of extrusive material.

Hydrothermally silicified and kaolinized volcanic rocks are most abundant in the southwestern part of the area. Silicified rocks are not common in the northeast where kaolinite and nontronite are the most abundant hydrothermal products. The alteration pre-dates some of the youngest volcanic units, and is probably associated with emplacement of the intrusions.