

ADEN LAVA FLOWS, DOÑA ANA COUNTY, NEW MEXICO

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Aden Crater is a small, volcanic shield in the Potrillo volcanic field approximately 40 km southwest of Las Cruces. The Aden lavas cover 63 km² superposed on the La Mesa surface composed of Camp Rice sediments and the older Gardner-Afton lavas. The shield and surrounding flow field consist of volcanic physiographic facies determined by the rheology of the lava. Flow thicknesses vary from as little as one meter to as much as five meters. Thick flows were emplaced as thin, fluid flows which developed a strong outer crust that eventually retarded forward advance. Once stopped, the flows inflated to form steep, blocky-margined, flat-topped plateaus. Early attempts to thicken failed as fluid lava broke through weakened margins of early-formed inflation plateaus. Lava escaping from failed inflation plateaus allowed the plateau surface to subside and form blocky-rimmed pits. The flow field is a rugged accumulation of inflation plateaus in which opposing flow margins form deep intervening ravines. The Aden shield was formed as viscosity increased to the point that the lavas began to accumulate over the vent. The shield has a basal diameter of 2.5 km and a height of 50 m. The shield facies consist of basal thin, scabby flows; very low sloping, lobate flows; and an upper slope of steeper, channeled flows that spilled out of a lava lake in the 350-m-wide crater atop the shield. The crater is bound by a three-meter-high spatter lava rampart. The interior contains the remnants of the lava lake; an inner collapse pit formed by lava withdrawal; and a late stage spatter cone.

Keywords:

Aden crater, Crater, Inflation plateau, Lava flow, Potrillo Volcanic Field, Shield, Volcano

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