Steens Mountain

In this area of Oregon's Basin and Range province, tensional faults criss-cross the land, trending both northwest and northeast. Bounded by faults, Steens Mountain represents a "horst" or block of the earth's surface raised in relation to the surrounding land, while the Alvord Desert is a "graben," a depression or down-thrown block. Crustal stretching of this province has thinned as well as broken (by faults) the crust enough to create many hot springs where shallow ground water comes in contact with warm lower crustal rocks. Steens Mountain is a remnant of a broad volcanic plateau of black, dense granular basalt rock that cooled about 16 million years ago.

Nearly every tilted fault block mountain in Oregon has its steep face toward the west —these mountains did not have glaciers. But Steens Mountain has its steep face to the east and a long gentle slope that rises up from Frenchglen (elevation 4,184 feet) more than a vertical mile to the crest at 9,670 feet. During the ice ages the prevailing moisture-bearing winds from the west blew up this long slope and deposited quantities of snow that became the huge Pleistocene glaciers that eroded the U-shaped canyons of Kiger Gorge, Little Blitzen Gorge and Big Indian Gorge. Most of the basins oriented north–to–south, such as Catlow Valley and the Alvord Desert, were the sites of immense pluvial lakes that resulted from heavy rain during the cool, moist interval of the ice ages as recently as 12,000 years ago. These now-dry lakebeds are littered with the fossilized bones of prehistoric mammals, fish, water birds and mollusks.