

ENCYCLOPEDIA ENTRY

rain shadow



California's Saline Valley, in Death Valley National Park, is in the rain shadow of the Sierra Nevada mountains. The mountains block most precipitation from falling in the valley, creating a dry climate where few plants grow.

Photograph by Gordon Wiltsie



Encyclopedic Entry

Vocabulary

A [rain shadow](#) is a patch of land that has been forced to become a [desert](#) because mountain ranges blocked all plant-growing, rainy [weather](#). On one side of the mountain, wet weather systems drop rain and [snow](#). On the other side of the mountain—the rain shadow side—all that [precipitation](#) is blocked.

In a rain shadow, it's warm and dry. On the other side of the mountain, it's wet and cool. Why is there a difference? When an [air mass](#) moves from a low [elevation](#) to a high elevation, it expands and cools. This cool air cannot hold moisture as well as warm air. Cool air forms clouds, which drop rain and snow, as it rises up a mountain. After the air mass crosses over the peak of the mountain and starts down the other side, the air warms up and the clouds dissipate. That means there is less rainfall.

You'll often find rain shadows next to some of the world's most famous mountain ranges. Death Valley, a desert in the U.S. states of California and Nevada, is so hot and dry because it is in the rain shadow of the Sierra Nevada [mountain range](#). The Tibetan Plateau, a rain shadow in Tibet, China, and India has the enormous Himalaya mountain range to thank for its dry [climate](#).