

Sierra Nevada, Death Valley and the rain shadow effect

By Judy Lehmborg, CBS News

The beautiful Sierra Nevada's name translates very literally from Spanish as "mountain snowfall," meaning snow-covered mountains. The reason why the peaks are snow-covered and why hot, dry Death Valley is east of the Sierra Nevada range is the same: They are both the result of the rain shadow effect.

To understand how this terrain-induced meteorological effect causes precipitation to occur in one place and dry, hot deserts in another, a little knowledge of relative humidity is needed.

The Earth's atmosphere contains water molecules in the gaseous state, and these create pressure; the more water molecules, the greater the pressure. The higher the temperature, the greater maximum amount of water the air can hold, and therefore higher vapor pressure.

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