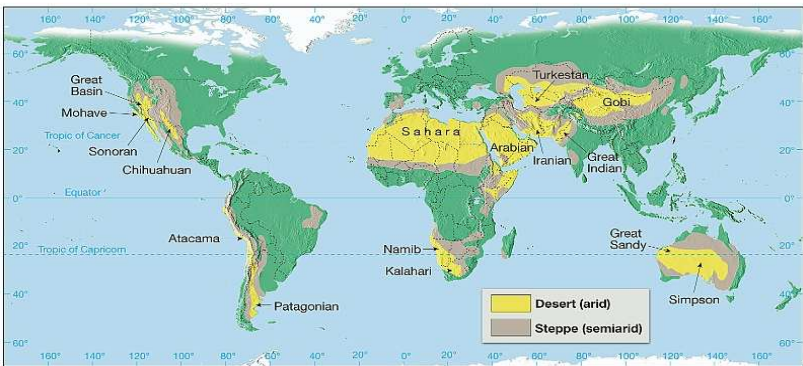


HOT ARID / SEMI-ARID ENVIRONMENTS

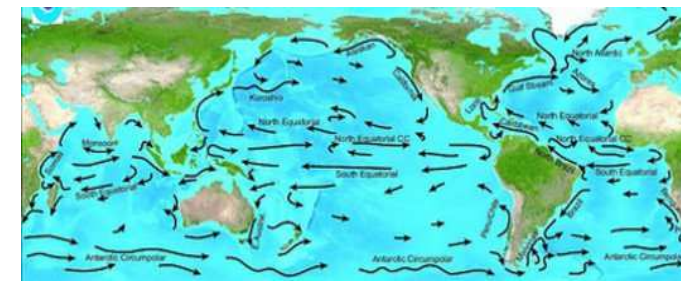
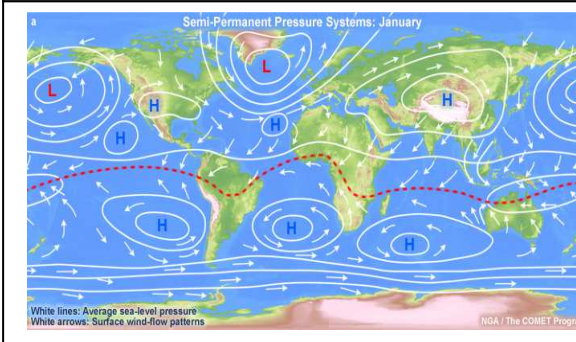


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Most hot deserts are in the sub tropics about 20-30 degrees north or south of the equator. They are also located in continental interiors or on the west coasts.

20 to 30 degrees north and south of the equator is the location of **the subtropical high pressure cells**. High pressure here, caused by the descending air, produces a temperature inversion. This prevents air from rising and therefore stops cloud from forming.

Off the west coast of continents in the subtropics are **cold Ocean Currents**. Any air that passes over the cold currents is cooled and this reduces the air's ability to pick up moisture. These dry winds bring less rainfall to the adjacent desert areas.



Factors affecting the climate

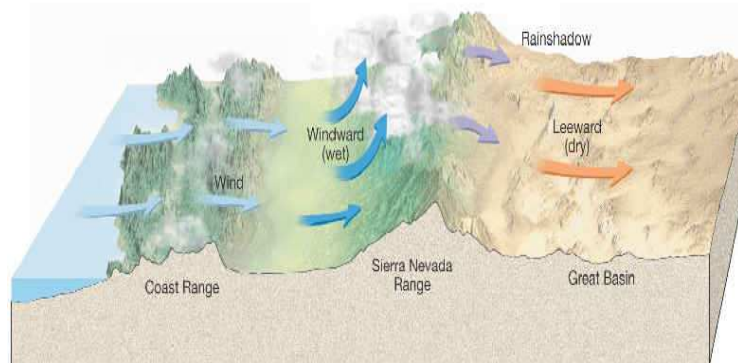
The aridity of some deserts is helped by the rain shadow effect. The Sierra Nevada mountains of southern California cause relief rainfall and a **rain shadow effect** in the Mojave and Great Basin deserts. Rain falls over the mountains as the air rises and cools, as the air descends on the leeward side it warms and becomes less humid (drier)

The rainfall in arid and semi arid areas is very **variable**. Los Angeles averages 15" or 380mm, semi arid, but it varies from 3" (2006) to 38" (2004)

Many deserts are affected by **continentality**, the fact that they stretch for thousands of miles away from the moist air of the oceans. By the time any air reaches the deserts from the sea it has lost most of its moisture. This is true for the Gobi desert and the deserts of Nevada and Arizona.



The main arid and semi arid lands of the USA are in the south west in the states of Arizona, Nevada and southern California. Most of southern California south of San Francisco is either arid or semi arid.



Climate change may also be affecting arid and semi arid areas. They may be experiencing drier periods. In southern California the weather and climate is affected by the El Nino effect which brings rain and the La Nina effect which brings drought. There have been no El Nino episodes in recent years and southern California is experiencing a drought