

## CHAPTER 03

# Rain Where Does it Come From

### Monsoons:

When people think of a monsoon, they often think of heavy rains that pour down for weeks. While a rainy season is part of a monsoon, a monsoon is more than just rain. In fact, monsoons can also cause dry weather. Monsoons are caused by a change in the direction of the wind that happens when the seasons change. In fact, even the word monsoon comes from the Arabic word mausim, which means “season.”

### What causes a monsoon?

A monsoon is caused by a seasonal shift in the winds. The winds shift because the temperature of the land and the temperature of the water are different as seasons change. For example, at the beginning of summer, the land warms up faster than bodies of water. Monsoon winds always blow from cold to warm. In the summer, warm air rising off the land creates conditions that reverse the direction of the wind.



### Why does a monsoon cause rain?

The monsoons that cause heaviest rainfall are summer monsoons near the Indian Ocean. Warm water in the ocean evaporates, rising into the air. This causes the wind to change direction and moisture blows toward the land in countries such as India and Sri Lanka. The warm, moist air then condenses and becomes rain. The result is a period of humidity and heavy rainfall that can last for months.

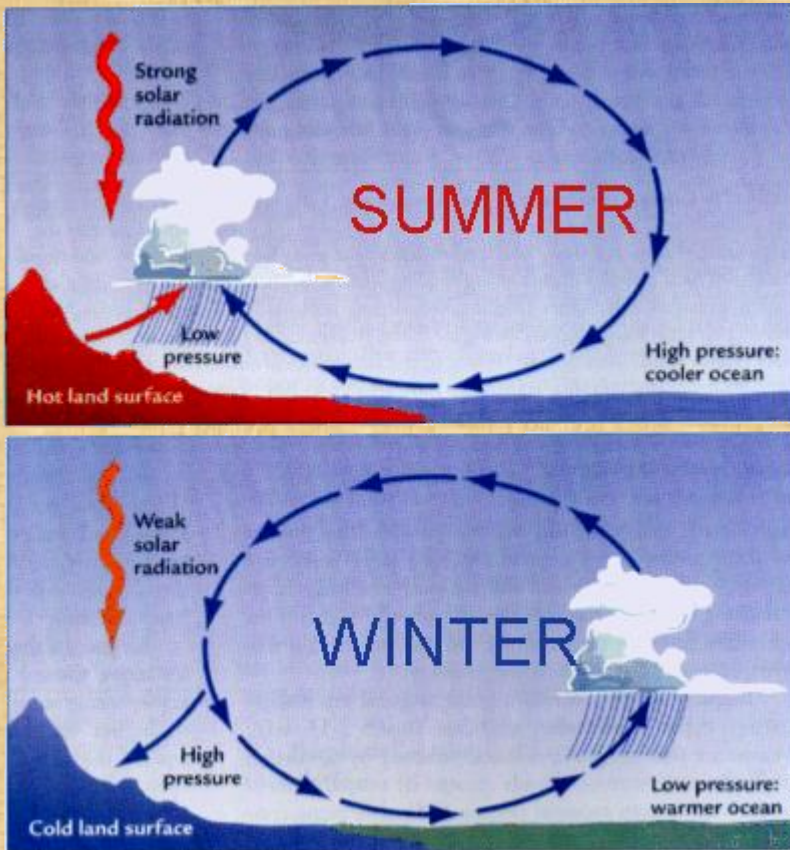
When the wind changes direction in the winter, it is called a winter monsoon. Winter monsoons in these regions near the Indian Ocean are usually dry.

A monsoon is a seasonal change in the direction of the prevailing, or strongest, winds of a region. Monsoons cause wet

and dry seasons throughout much of the tropics. Monsoons are most often associated with the Indian Ocean.

Monsoons always blow from cold to warm regions. The summer monsoon and the winter monsoon determine the climate for most of India and Southeast Asia.

Monsoons are caused by temperature differences in the air over land and sea. They blow from colder to warmer areas. In a monsoon region in summer the land and the air above it become very hot. The nearby sea and the air above it are cooler. Hot air is lighter than cold air, so the hot air over the land rises. The cooler sea air then rushes in to replace the air that has risen. This is the summer monsoon. The monsoon winds are heavy with moisture from water that evaporated from the sea. The moisture is dropped over the land in the form of heavy rains.



In winter the situation is just the opposite. The air above the land cools to a temperature lower than that of the air above the sea. The warmer sea air rises, and the cooler air blows from the land to the sea to take its place. This is the winter monsoon. Because the winds coming from dry land carry little water, the monsoon region has a dry winter.

From June until September, summer monsoon rains occur in South Asian countries such as Bangladesh, Laos, India, and Pakistan. From December until February, the monsoon rains

move south of the equator toward Australia while South Asia experiences dry monsoon conditions.

The summer monsoon is associated with heavy rainfall. It usually happens between April and September. The summer monsoon brings a humid climate and torrential rainfall to these areas.

India and Southeast Asia depend on the summer monsoon. Agriculture, for example, relies on the yearly rain. Rice and tea are some crops that rely on the summer monsoon. Dairy farms, which help make India the largest milk producer in the world, also depend on the monsoon rains to keep cows healthy and well-fed.

Monsoons are very important to farming in India and other places. Farmers depend on monsoon rains to grow their crops. But the amount and the timing of the rains can change greatly from year to year. The right amount of rainfall produces good crops, but years of poor rain may result in crop failure over large areas. Flooding from heavy monsoon rains can also damage crops.



Industry in India and Southeast Asia also relies on the summer monsoon. A great deal of electricity in the region is produced by hydroelectric power plants, which are driven by water collected during the monsoons. Electricity powers hospitals, schools, and businesses that help the economies of these areas develop.