

Encyclopedic Entry

monsoon

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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.

Summer Monsoon

The summer monsoon is associated with heavy [rainfall](#). It usually happens between April and September. As winter ends, warm, moist air from the southwest Indian Ocean blows toward countries like India, Sri Lanka, Bangladesh, and Myanmar. 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. Many areas in these countries do not have large [irrigation](#) systems surrounding lakes, rivers, or snowmelt areas. [Aquifers](#), or supplies of underground water, are shallow. The summer monsoon fills [wells](#) and aquifers for the rest of the year. [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.

[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.

When the summer monsoon is late or weak, the regions [economy](#) suffers. Fewer people can grow their own food, and large agribusinesses do not have produce to sell. Governments must [import](#) food. Electricity becomes more expensive, sometimes limiting development to large businesses and [wealthy](#) individuals. The summer monsoon has been called India's true [finance minister](#).

Heavy summer monsoons can cause great damage. Residents of such [urban areas](#) as Mumbai, India, are used to the streets flooding with almost half a meter (1.5 feet) of water every summer. However, when the summer monsoon is stronger than expected, floods can [devastate](#) the region. In cities like Mumbai, entire [neighborhoods](#) can be [drowned](#). In rural areas, [mudslides](#) can bury villages and destroy crops.

In 2005, a strong monsoon devastated western India. As the summer monsoon blew in from the southwest, it first hit the state of Gujarat. More than 100 people died. Then, the monsoon rains hit the state of Maharashtra. Flooding in Maharashtra killed more than 1,000 people. On July 26, 2005, the city of Mumbai, Maharashtra, received almost a meter (39.1 inches) of rain.

Winter Monsoon

The Indian Oceans winter monsoon, which lasts from October to April, is less well-known than its rainy summer equivalent. The dry winter monsoon blows from the northeast. These winds start in the air above Mongolia and northwestern China.

Winter monsoons are less powerful than summer monsoons in Southeast Asia, in part because the Himalaya Mountains prevent much of the wind and [moisture](#) of the monsoons from reaching the coast. The Himalayas also prevent much of the cool air from reaching places like southern India and Sri Lanka, keeping them warm all year. Winter monsoons are sometimes associated with [droughts](#).

Not all winter monsoons are dry, however. Unlike the western part of Southeast Asia, the eastern, Pacific coast of Southeast Asia experiences its rainy season in the winter. The winter monsoon brings moist air from the South China Sea to areas like Indonesia and Malaysia.

Other Monsoons

The [Asian-Australian monsoon](#), which includes the Indian Ocean, stretches from northern Australia to Russias Pacific coast. This huge monsoon wind system then stretches into the Indian Ocean. Finally, it reaches its end on the Indian coast of Africa.

Monsoon winds exist in other parts of the world, too. The [North American monsoon](#) happens once a year, usually in the middle of summer. Warm, moist air from the Gulf of California blows northeast, while warm, moist air from the Gulf of Mexico blows northwest. These two winds meet over the Sierra Madre Occidental mountains in central Mexico. The monsoon brings moisture to the mountain [ecosystem](#) before continuing north to the U.S. states of Arizona, New Mexico, and Texas.

The North American monsoon can be a natural aid to [firefighters](#). Summer temperatures in Arizona regularly reach more than 100 degrees Fahrenheit, making [wildfires](#) difficult to contain. The North American monsoon is also the [primary](#) water source for most [desert](#) ecosystems in the region. However, it can also confuse and interrupt daily life for people and businesses not used to dealing with heavy rain.

VOCABULARY

Term	Part of Speech	Definition
agribusiness	<i>noun</i>	the strategy of applying profit-making practices to the operation of farms and ranches.
agriculture	<i>noun</i>	the art and science of cultivating the land for growing crops (farming) or raising livestock (ranching).
aid	<i>noun</i>	help or assistance.
aquifer	<i>noun</i>	an underground layer of rock or earth which holds groundwater.
Asian-Australian monsoon	<i>noun</i>	weather system stretching from Australia to Africa, bringing rainy seasons and dry seasons to most of Southeast Asia.
climate	<i>noun</i>	all weather conditions for a given location over a period of time.
contain	<i>verb</i>	to keep under control, hold, or prevent escape.
cow	<i>noun</i>	large, domesticated mammal used for milk and meat.

crop	<i>noun</i>	agricultural produce.
current	<i>noun</i>	steady, predictable flow of fluid within a larger body of that fluid.
dairy	<i>adjective</i>	having to do with the production of milk, cream, butter, or cheese.
damage	<i>noun</i>	harm that reduces usefulness or value.
desert	<i>noun</i>	area of land that receives no more than 25 centimeters (10 inches) of precipitation a year.
devastate	<i>verb</i>	to destroy.
doldrums	<i>noun</i>	areas of calm winds north of the Equator in the Pacific, Atlantic, and Indian Oceans.
drought	<i>noun</i>	period of greatly reduced precipitation.
drown	<i>verb</i>	to die or suffocate in a liquid.
dry	<i>adjective</i>	arid or lacking in moisture.
economy	<i>noun</i>	system of production, distribution, and consumption of goods and services.
ecosystem	<i>noun</i>	community and interactions of living and nonliving things in an area.
electricity	<i>noun</i>	set of physical phenomena associated with the presence and flow of electric charge.
Equator	<i>noun</i>	imaginary line around the Earth, another planet, or star running east-west, 0 degrees latitude.
finance minister	<i>noun</i>	person responsible for a nation's economy.
firefighter	<i>noun</i>	person who works to control and put out fires.
flood	<i>noun</i>	overflow of a body of water onto land.
humid	<i>adjective</i>	air containing a large amount of water vapor.
hydroelectric power	<i>noun</i>	usable energy generated by moving water converted to electricity.
import	<i>verb</i>	to bring in a good or service from another area for trade.
industry	<i>noun</i>	activity that produces goods and services.
Intertropical Convergence Zone (ITCZ)	<i>noun</i>	belt of low-pressure air currents that circle the Earth at the Equator. Also known as the Monsoon Zone.
irrigation	<i>noun</i>	watering land, usually for agriculture, by artificial means.
moisture	<i>noun</i>	wetness.
monsoon	<i>noun</i>	seasonal change in the direction of the prevailing winds of a region. Monsoon usually refers to the winds of the Indian Ocean and South Asia, which often bring heavy rains.
Monsoon Cup	<i>noun</i>	yachting competition held in Malaysia during the winter.
Monsoon Zone	<i>noun</i>	belt of low-pressure air currents that circle the Earth at the Equator. Also known as the Intertropical Convergence Zone (ITCZ).
mountain	<i>noun</i>	landmass that forms as tectonic plates interact with each other.

mudslide	<i>noun</i>	rapid, downhill flow of soil and water. Also called a mudflow.
neighborhood	<i>noun</i>	an area within a larger city or town where people live and interact with one another.
North American monsoon	<i>noun</i>	summer weather system bringing the rainy season to central Mexico and the Southwest United States.
prevailing wind	<i>noun</i>	wind that blows from one direction.
primary	<i>adjective</i>	first or most important.
rainfall	<i>noun</i>	amount of precipitation that falls in a specific area during a specific time.
rainy season	<i>noun</i>	time of year when most of the rain in a region falls.
rice	<i>noun</i>	grass cultivated for its seeds.
season	<i>noun</i>	period of the year distinguished by special climatic conditions.
summer monsoon	<i>noun</i>	change in the direction of a prevailing wind, resulting in a region's rainy season or dry season.
tea	<i>noun</i>	plant native to Asia cultivated for its leaves.
torrential	<i>adjective</i>	heavy, fast-flowing.
tropics	<i>plural noun</i>	region generally located between the Tropic of Cancer (23 1/2 degrees north of the Equator) and the Tropic of Capricorn (23 1/2 degrees south of the Equator).
urban area	<i>noun</i>	developed, densely populated area where most inhabitants have nonagricultural jobs.
wealthy	<i>adjective</i>	very rich.
well	<i>noun</i>	a hole drilled in the Earth to obtain a liquid or gaseous substance.
wildfire	<i>noun</i>	uncontrolled fire that happens in a rural or sparsely populated area.
wind	<i>noun</i>	movement of air (from a high pressure zone to a low pressure zone) caused by the uneven heating of the Earth by the sun.
winter monsoon	<i>noun</i>	change in the direction of a prevailing wind, resulting in a region's rainy season or dry season.
yachting	<i>noun</i>	sport of racing large sailing vessels.

For Further Exploration

Articles & Profiles

- National Geographic Magazine: Australia's Monsoon
- National Geographic News: India's Monsoons Intensifying
- Arizona State University: Basics of the Arizona Monsoon
- NASA: Goddard Space Flight Center—Ocean Temperatures Affect Intensity of the South Asian Monsoon and Rainfall



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