

Tropical Weather

The weather in the tropics is basically hot and humid. This is primarily due to the earth receiving more solar radiation than it re-radiates back to space. This excessive heating generates weather that can impact any other location on the globe. This energy imbalance drives the circulation of the atmosphere.

The tropics receive considerable amount of sunshine. There is abundant rainfall due to the rising air created by the sun's heating, and during certain periods, thunderstorms can occur every day. Nevertheless, the tropics still receive a considerable amount of sunshine, and when combined with the excessive rainfall, provide ideal growing conditions.

Because a substantial part of the Sun's heat energy is used up in evaporation and rain formation, temperatures in the tropics rarely exceed 95°F. At night the abundant cloud cover restricts heat loss, and minimum temperatures fall no lower than about 72°F. This high level of temperature is maintained with little variation throughout the year. Therefore, the seasons are not distinguished by warm and cold periods but by variation of rainfall and cloudiness.

Inter-Tropical Convergence Zone (ITCZ)

Satellite image showing the band of clouds indicating the ITCZ. The Inter-Tropical Convergence Zone (ITCZ), appears as a band of clouds, usually thunderstorms, that circle the globe near the equator. The solid band of clouds may extend for many hundreds of miles and is sometimes broken into smaller line segments. The ITCZ follows the sun in that the position varies seasonally. It moves north in the northern summer and south in the northern winter. The ITCZ (pronounced "itch") is what is responsible for the wet and dry seasons in the tropics.

It exists because of the convergence of the trade winds. In the northern hemisphere the trade winds move in a southwesterly direction, while in the southern hemisphere they move northwesterly. The point at which the trade winds converge forces the air up into the atmosphere, forming the ITCZ.

The tendency for thunderstorms in the tropics is to be short in their duration, usually on a small scale but can produce intense rainfall. It is estimated that 40 percent of all tropical rainfall rates exceed one inch per hour. Greatest rainfall typically occurs when the midday Sun is overhead. On the equator this occurs twice a year in March and September, and consequently there are two wet and two dry seasons.

Further away from the equator, the two rainy seasons merge into one, and the climate becomes more monsoonal, with one wet season and one dry season. In the Northern Hemisphere, the wet season occurs from May to July, in the Southern Hemisphere from November to February.