

Wet and Dry

Cloudbridge Nature Reserve - Nature Notes No. 20

The Year of Sun and Rain

Cloudbridge is located at about 9 degrees north of the equator, in the tropics, so does not suffer the drastic seasonal temperature changes that characterize the temperate and cold zones. Instead of the cold winter and warm summer familiar to Europeans and North Americans, Costa Rica has a rainy season (from mid-May to end-November, roughly) and dry season (from December to April).

Temperatures

Tropical temperatures are fairly constant all year round: instead of varying by season, they vary with altitude. Cloudbridge, at about 1700 meters (5577 feet), enjoys a cooler temperature than the coast. The average temperature is fairly constant all year round. During the day it varies by about 10 degrees centigrade, from about 15°C (59°F) at night to about 25°C (77°F) in the day after several hours of sunshine. By comparison, in the lowlands the daily range is approximately 20°C to 30°C (68°F to 86°F).

Winds

Because Costa Rica is located in the northern hemisphere, its climate is influenced by the dominant north easterly trade winds. The country is too far south to be affected by hurricanes, except rarely. Cloudbridge, sheltered north and south by mountain ridges, is sheltered from the strong winds that swirl around the peaks. Cerro Ventisqueros, visible from The Casa, takes its name from the high winds that twist about it.

Rainfall: Pacific versus Caribbean

The mountain ranges that run down the center of the country create two distinct rainfall systems. The Pacific (often called tropical) side is characterized by a well-defined dry season, while the Caribbean (characterized as equatorial), with the permanent influence of the north easterly trade winds, has no dry season.

On the Caribbean side, the coast lowlands and northern plains experience a notable decrease of rainfall during March and April and sometimes September, while on the mountains and slopes exposed to the trade winds it can rain all year long without appreciable interruption.

Little Summers

Cloudbridge is on the Pacific side of the Talamanca mountain range. The climate of the Pacific is marked by the presence of a "dry" season that lasts for four months (and more in some zones). At Cloudbridge, there is no pure dry season -- it rains, at least for an hour or two, almost every day. The reason lies in the height of the Talamanca mountains. Further north, the warm moist air driven westward by the trade winds loses its moisture as it crosses the cordilleras and the resulting dry air gusts down the Pacific slopes drying out everything in its path. With such low moisture content, few clouds form to block the sunshine and the prevailing winds keep Pacific breezes from bringing moisture onshore, thus, further promoting the dryness.



The southern half of the Pacific slope is not normally as strongly influenced by these effects because the lofty Talamanca mountain range blocks the drying winds to some degree, allowing moisture to be brought in from the Pacific Ocean and causing occasional showers even in the dry season.

As the trade wind belt moves northward in response to global climatic conditions (principally, the angle of the sun and area of greatest surface heating), Costa Rica enters its rainy season as moist air flows in from both oceans and convection currents cause showers to occur. At Cloudbridge, rain falls almost every day, starting in the early afternoon -- but occasionally one experiences heavy rain lasting two days or more when air from the Pacific, being drawn in continuously towards a hurricane-related extreme low pressure center out in the Caribbean, is backed up against the Pacific-facing slopes of the cordilleras and drops its moisture. We keep rainfall records at Cloudbridge -- see the Research section of this web site.

Blessedly, the rainy period is interrupted by "veranillos," or little summers. The veranillos last for one to two weeks, almost always in July, when precipitation decreases considerably in all the Pacific Zone. When one occurs early (end of June), its known popularly as "Veranillo de San Juan." If it occurs in July or the beginning of August, sometimes with alternating dry and rainy days, people refer to it as the canicula.

Rain is Life

The annual differences in rainfall from one part of the country to another, together with the change in average temperature from warm to cool as one moves from sea level up into the mountains, are the basis for the variety of life zones (tropical dry forest, tropical wet forest, premontane rain forest, etc.) that exist in Costa Rica, and also are intimately linked with such biological events as flowering and fruiting of plants and breeding and migration of animals.