

Malaria and climate



- Malaria is a microscopic parasite that can be passed to humans through a mosquito bite.
- The number of mosquitos and spread of malaria are seasonal, and depend on local climate conditions.
- Rainfall plays an important role in creating the conditions that support the spread of malaria.

How do people catch malaria?

Malaria is caused by a parasite which is spread by mosquitos. Part of the malaria life cycle happens in mosquitos, and part of its life cycle happens in humans – both are needed for malaria to spread.

In the Solomon Islands, the *Anopheles farauti* species of mosquito is thought to account for over 9 out of 10 malaria cases.

This species lives around coastal areas, breeding in coastal swamps and where rivers meet the sea.

Link between rainfall and malaria

The temperature and humidity in the Solomon Islands provide ideal living and breeding conditions for the malaria parasite and its mosquito host.

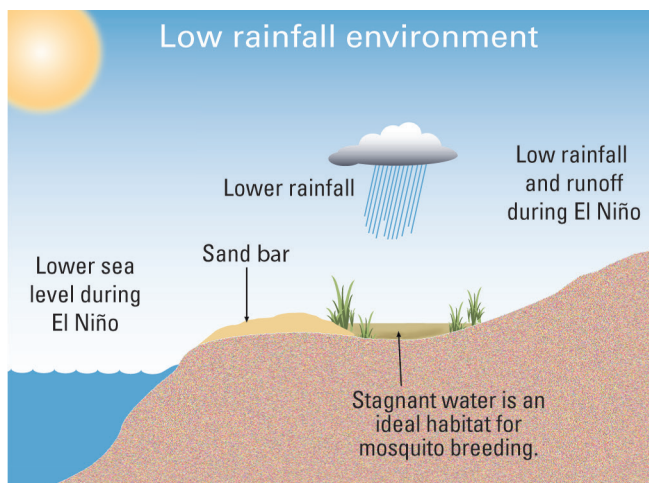
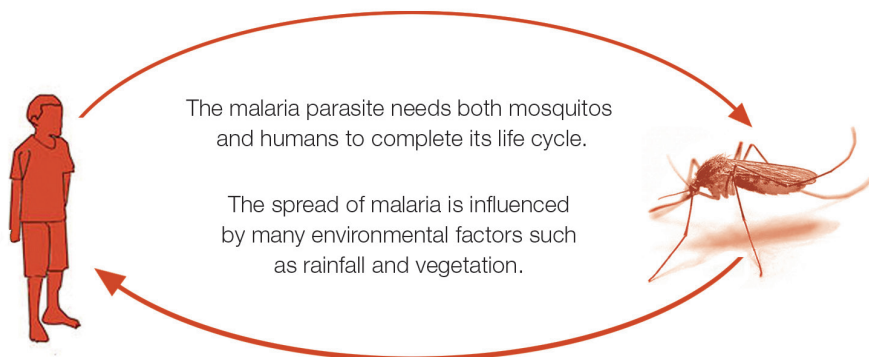
The relationship between climate and malaria is very complex. Seasonal rainfall plays a very important role in the spread of malaria, because certain amounts of water create ideal breeding habitats for mosquitos.

Each year, a peak in the number of cases of malaria occurs 1–2 months

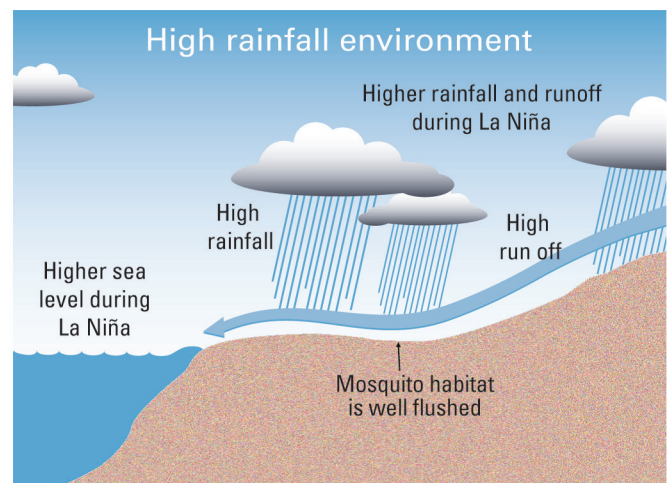
after the wet season. This tells us that rainfall and malaria are linked. You might imagine that more rainfall means more mosquitoes, but this is not always the case.

- During an El Niño year, which is typically drier than normal, the average number of detected malaria cases is higher.
- During a La Niña year, which is typically wetter than normal, the average number of detected malaria cases is lower.

Anopheles mosquitos usually live and breed in coastal swamps, where water does not flow. Lower levels of rainfall allow sandbars to form across the mouths of some rivers, creating coastal marshes with stagnant water that provide ideal conditions for mosquito breeding. Higher levels of rainfall create flowing water, which flushes out mosquito's immature larvae.



During lower rainfall periods, water forms stagnant pools providing optimal mosquito breeding environments. This varies season to season.



During higher rainfall, stagnant pools are flushed, diminishing the quality of mosquito breeding environments. This varies seasonally.

The malaria early warning system

- Early warning about what to expect in the coming malaria season can help people to prepare.
- The Solomon Islands Meteorological Service and the Vector-Borne Disease Control Programme are working together to produce a malaria risk outlook.

Producing a malaria risk outlook model

This project has developed a pilot early warning system for malaria that is ready to be tested. We expect that this system will be able to provide malaria control agencies and Solomon Island communities with information about upcoming periods of high malaria risk, so that they can take early action.

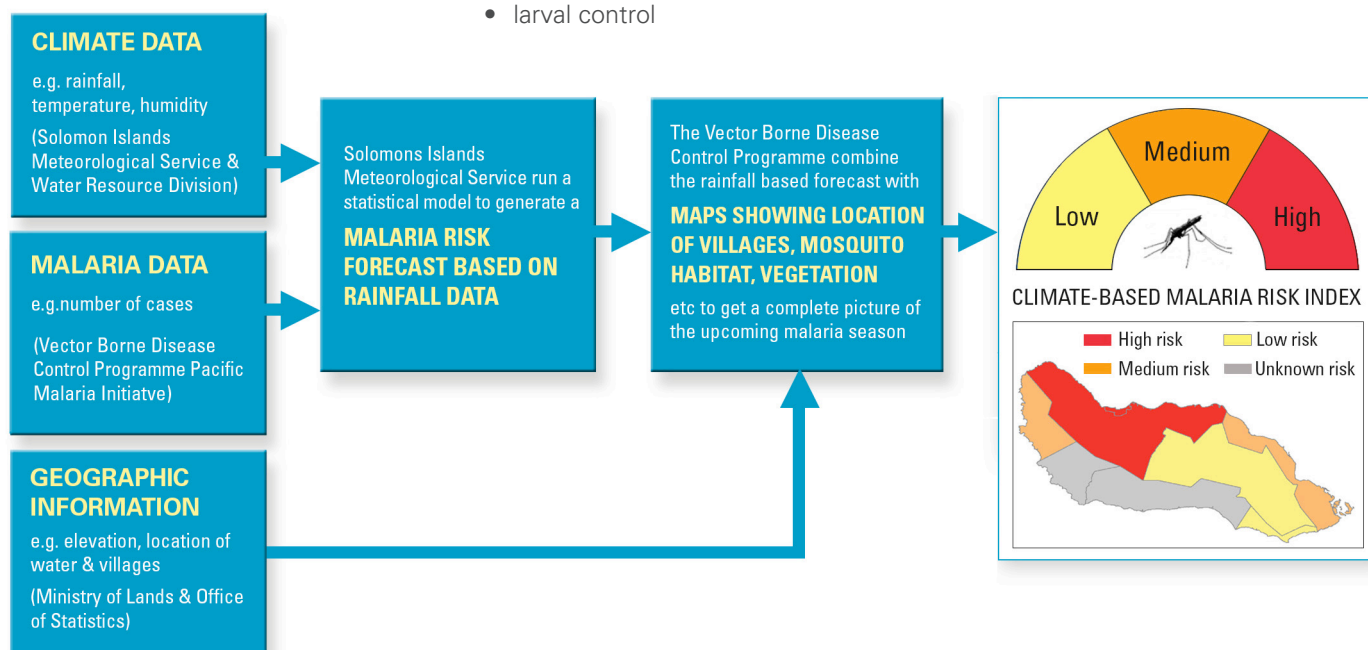
Using the model

Providing early warning of a potentially severe malaria season could give communities more time to prepare, by:

- running community awareness programs
- directing health care to most at risk locations
- distributing mosquito nets
- spraying homes
- eliminating mosquito habit
- larval control



Distributing mosquito nets after the severe flooding in April 2014.
Photo courtesy of Albino Bobogare.



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