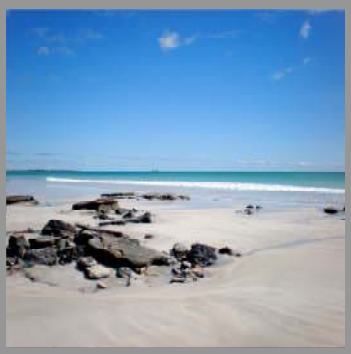
Climate change in the Pacific



The terms defined

"Climate is the average atmospheric condition in a certain location near the surface of the Earth measured after a period of months to decades". [1]

Climate is usually defined as "average weather".[2]

Weather is what is happening in the atmosphere at any given time.[2]

The atmosphere is the envelope of gas surrounding the Earth.[2]

[1] World Meteorological Organization (WMO) Weather, climate and water science for youth

www.wmo.int/youth/climate_en.html

[2] World Meteorological Organization (WMO) Understanding Climate

www.wmo.int/pages/themes/climate/understanding_climate.php

What is Climate?

Climate is the average weather conditions we expect over monthly, seasonal, annual or even longer time periods. For example, the climate in the Pacific is characterised by two seasons, wet and dry. During the dry season you would expect warm conditions with low rainfall. However during the wet season, you could expect daily afternoon rainfall and hot, humid conditions with a chance of a tropical cyclone.

What is Climate Change?

Most people relate climate change to global warming. Global warming is the gradual increase in the temperature of the air surrounding the Earth. Climate change is linked to global warming but is more complicated. Variations to long term patterns in rainfall, temperature, extreme weather events and sea level are predicted to occur under a changing climate.

What causes the changes to the climate?

Climate change is driven by two main factors: natural variability and human forcing. Natural climate change can occur due to changes to the Sun's cycle or volcanic eruptions. Human induced climate change occurs due to the release (emission) of greenhouse gases into the atmosphere.

What are greenhouse gases?

The atmosphere is made up of tiny particles. A very small amount of these particles, named greenhouse gases, act to control the Earth's temperature by trapping the heat from the Sun. In other words, the greenhouse gases in the atmosphere are like a blanket wrapped around the Earth keeping it warm.

Having greenhouse gases in the atmosphere makes the Earth warm enough for humans to exist. However, when the amount of greenhouse gases in the atmosphere are increased, the Earth's temperature rises; this is known as global warming. Increasing greenhouse gases in the atmosphere is like wrapping the Earth in an extra blanket and has the effect of enhancing the warming of the Earth.

Project Survival Pacific is an initiative of the Australian Youth Climate Coalition
For more information see our website at http://youthprojectsurvival.org

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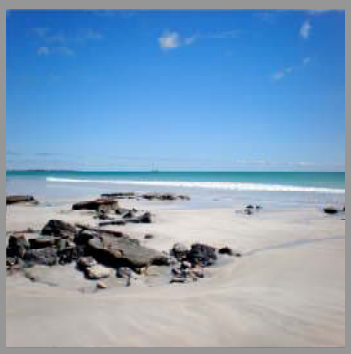

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What does a warmer Earth mean?

The warming of the Earth will lead to widespread changes to the climate. The Inter-governmental Panel on Climate Change (IPCC) lists the changes which are likely to occur as:

- Fewer cold days and nights
- Warmer and more frequent hot days and nights
- Warm spells/heat waves occurring more often
- Increased frequency of heavy precipitation events
- Larger areas experiencing drought
- Increase in intense tropical cyclone activity
- Increased incidence of extreme high sea level

Due to greenhouse gas concentrations in the atmosphere, warming over the next 20 years globally is projected to be 0.2°C per decade.

Sea level is also projected to rise up to 80cm by 2100 (compared to 1990 levels). However, recent scientific studies suggest that sea level rise could be much higher.

Rising sea level will have a major impact on the islands of the Pacific, with storm surges causing coastal inundation and flooding.

Under a warmer climate, areas in the tropics, such as the Pacific Islands, can expect more rainfall.

Extreme events may also change in frequency and intensity, which may impact the weather experienced in tropical regions.

Further Reading

Additional resources that provide further scientific explanations about climate change, including the different scenarios, can be found on the following websites:

IPCC Summary for Policy Makers: www.ipcc.ch/pdf/assessment-report/ar4/wg1/ar4-wg1-spm.pdf

IPCC: www.ipcc.ch/

World Meteorological Organisation: www.wmo.int/pages/themes/climate/understanding_climate.php

www.wmo.int/youth/index_en.html

World Climate Research Programme: www.wcrp-climate.org/

Australian Government Department of Climate Change and Energy Efficiency: www.climatechange.gov.au/

CSIRO Understanding climate change: www.csiro.au/resources/pfkd.html

Monitoring and studies are currently being undertaken to better understand how the Pacific Islands will be affected by climate change. For example:

South Pacific Sea level and Climate Monitoring Project: www.bom.gov.au/pacificsealevel/index.shtml

Pacific Islands Climate Prediction Project: www.bom.gov.au/climate/pi-cpp/index.shtml

Island Climate Update: www.niwa.co.nz/our-science/pacific-rim/publications/all/icu

Pacific Update:

www.niwa.co.nz/our-science/pacific-rim/publications/all/pacific-update

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