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The Island Climate Update Supplement

A summary of climate conditions for the Southwest Pacific region

Southwest Pacific regional climate last month

- South Pacific Convergence Zone (SPCZ) defined in TRMM rainfall is north of normal around the International Dateline.
- Tropical Pacific oceanic conditions near the Equator reflect
 weak El Niño conditions

Atmospheric circulation patterns

- More frequent highs over Papua New Guinea and eastern Kiribati and lows over Fiji, Vanuatu, Samoa, and New Zealand, with more frequent westerly and north-westerly flow over many islands.
- Category 5 Tropical Cyclone Pam affected Vanuatu, Tuvalu, the Solomon Islands, and New Zealand

Sea surface temperatures

 Above normal sea surface temperature (SST) anomalies along the equator consistent with El Niño intensified from last month. Cool SSTs weakened to the east of New Zealand.

Outgoing Longwave Radiation (OLR) and rainfall

- More cloud cover than normal over western Kiribati, Samoa, Cook Islands, and French Polynesia.
- Below normal rainfall for Fiji, New Caledonia, Australia, and the Marquesas

Collaborators

Pacific Islands National Meteorological Services

National Institute of Water & Atmospheric Research (NIWA)

> Australian Bureau of Meteorology

> > Meteo France

NOAA National Weather Service

NOAA Climate Prediction Centre (CPC)

International Research Institute for Climate and Society

Met Office

ECMWF

World Meteorological Organisation

MetService of New Zealand



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retariat of the Pacific Regional Environment Programme

Circulation and sea surface temperature (SST) anomalies



Atmospheric circulation anomalies (z1000, above) and sea surface temperature (SST) anomalies (below) for the month of March 2015. For z1000 (geopotential height at 1000 hPa), red shades indicate higher than normal geopotential height (i.e. "highs", while blue shades indicate below normal pressure ("lows"). For SSTa, red shades are above normal; blue shades are below normal. Arrows indicate surface vector (speed and direction), with the shading and length of the arrow proportional to speed (see legend in bottom right corner for relative scaling).



Circulation and SST synopsis:

The regional atmospheric circulation pattern for March 2015 was characterised by slightly high pressure anomalies oriented over Papua New Guinea and the Coral Sea, as well as over eastern Kiribati. Significantly low pressure anomalies were present to the south of French Polynesia and Tasmania, and low pressure anomalies were also present over and around Vanuatu, Fiji, and Samoa, as well as New Zealand. This atmospheric circulation pattern produced anomalous westerly and north-westerly flow across many islands. During the month, the Category 5 Tropical Cyclone Pam affected Vanuatu, Tuvalu, the Solomon Islands, and New Zealand. Above normal sea surface temperatures intensified along the Equator near the International Dateline, around Samoa, south of New Caledonia, in the Tasman Sea, and south of Tasmania. Negative SST anomalies weakened to the east of New Zealand compared with last month.

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Cloud cover and rainfall patterns



OLR (top) and TRMM rainfall (bottom) as remotely sensed by satellite for the month of March 2015. For OLR, brown shades indicate increased outgoing longwave radiation as measured in watts per square metre (clear skies, reduced cloud cover), while purple shades indicate decreased outgoing longwave radiation (cloudy conditions). TRMM rainfall indicates the daily anomaly relative to average in millimetres per day for last month. Green shades indicate above normal daily rainfall while brown shades indicate below normal daily rainfall.



Radiation and Rainfall Synopsis:

The OLR pattern indicates cloudier-than-normal skies (increased convection) existed along the equator east of 160°E, and to the southeast over Samoa, the Cook Islands, and French Polynesia. Reduced cloud cover occurred over Papua New Guinea, New Caledonia, Vanuatu, Fiji, and eastern Kiribati. The SPCZ was well-defined in the TRMM rainfall estimates and was north of normal for the time of year around the International Dateline, but the western portion around Papua New Guinea was not well-defined. Rainfall was well above normal for parts of Tonga, Tuvalu, and the Southern Cook Islands last month (>150% of normal). Conditions were below normal (<60% of normal rainfall) for Fiji, Australia, New Caledonia, and the Marquesas. TRMM rainfall estimated above normal rainfall for Vanuatu for the month (143% of normal), likely resulting from downpours associated with Tropical Cyclone Pam.

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