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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

- Strong El Niño conditions continued in February 2016, but have past its peak strength and are rapidly weakening.
- South Pacific Convergence Zone (SPCZ) defined in TRMM rainfall was north and east of normal, with an anomalous tongue in the south-east Pacific.

Atmospheric circulation patterns

- More frequent lows in the Tasman Sea north to Vanuatu, over Fiji, Tonga, and the Cook Islands, and in the eastern equatorial region. More frequent lows over Papua New Guinea, the Solomon Islands, and east of New Zealand.

Sea surface temperatures

- Above normal SSTs along the Equator (but have weakened since their peak). SSTs strengthened around New Zealand, south-east Australia and the Tasman Sea, Vanuatu, New Caledonia and Fiji.

Outgoing Longwave Radiation (OLR) and rainfall

- More cloud cover than normal over the Equator east of the Solomon Islands, Cook Islands, French Polynesia, and Fiji. Less cloud cover than normal over northern Australia, New Caledonia and eastern Kiribati.
- Tropical Cyclone Winston was the strongest cyclone on record for Fiji, causing much devastation there and in Tonga.
- Well below normal rainfall over Australia, Southern Cook Islands, Marquesas, Tuamotu, Gambier, Futuna Island, parts of New Caledonia, Samoa, Tonga, and Solomon Islands. Above normal rainfall for the Society and Austral Islands, Kiribati, New Zealand, parts of New Caledonia, Solomon Islands, and Tonga.

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

UK Met Office

ECMWF

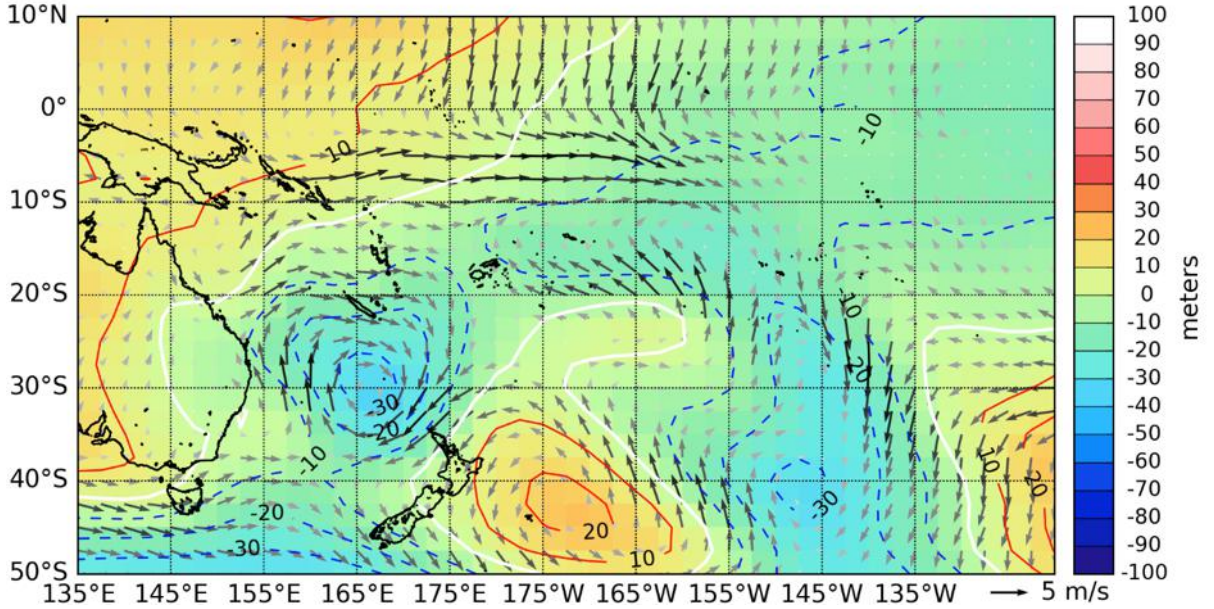
World Meteorological Organisation

MetService of New Zealand

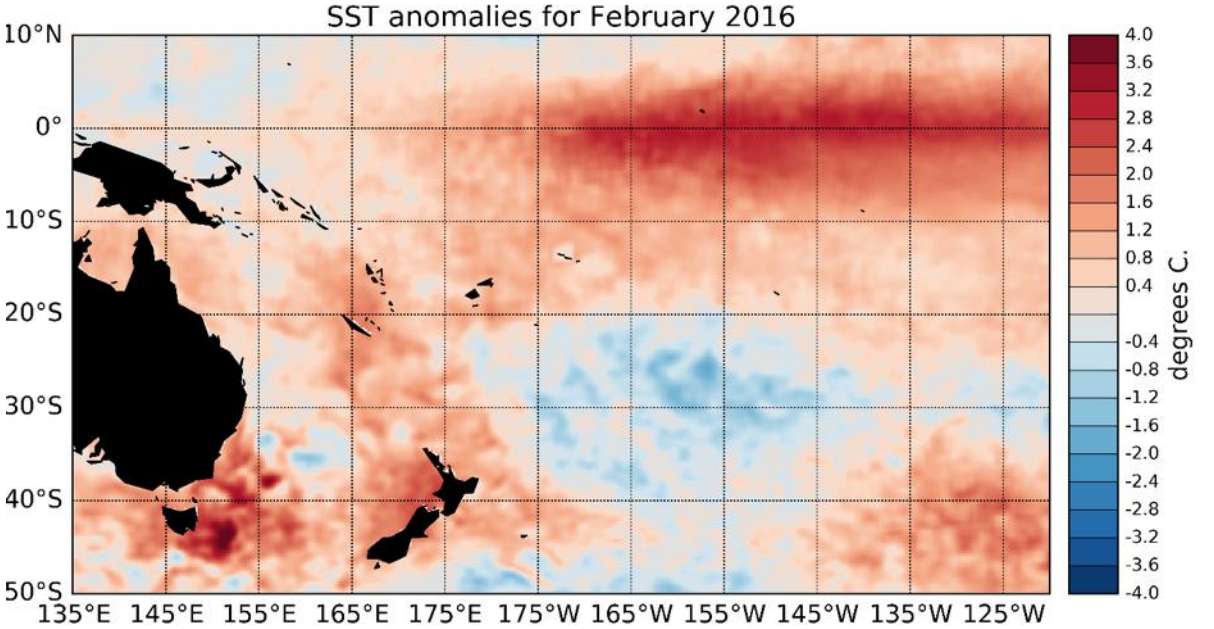
NEW ZEALAND MINISTRY OF FOREIGN AFFAIRS & TRADE
MANATŪ AORERE

SPREP
Secretariat of the Pacific Regional Environment Programme

Circulation and sea surface temperature (SST) anomalies

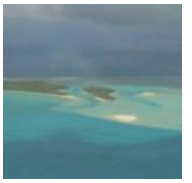


Atmospheric circulation anomalies (z1000, above) and sea surface temperature (SST) anomalies (below) for the month of February 2016. For z1000 (geopotential height at 1000 hPa), red shades indicate higher than normal geopotential height (i.e. "highs"), while blue shades indicate below normal pressure ("lows"). For SSTa, red shades are above normal; blue shades are below normal. Arrows indicate surface wind vector (speed and direction), with the shading and length of the arrow proportional to speed (see legend in bottom right corner for relative scaling).

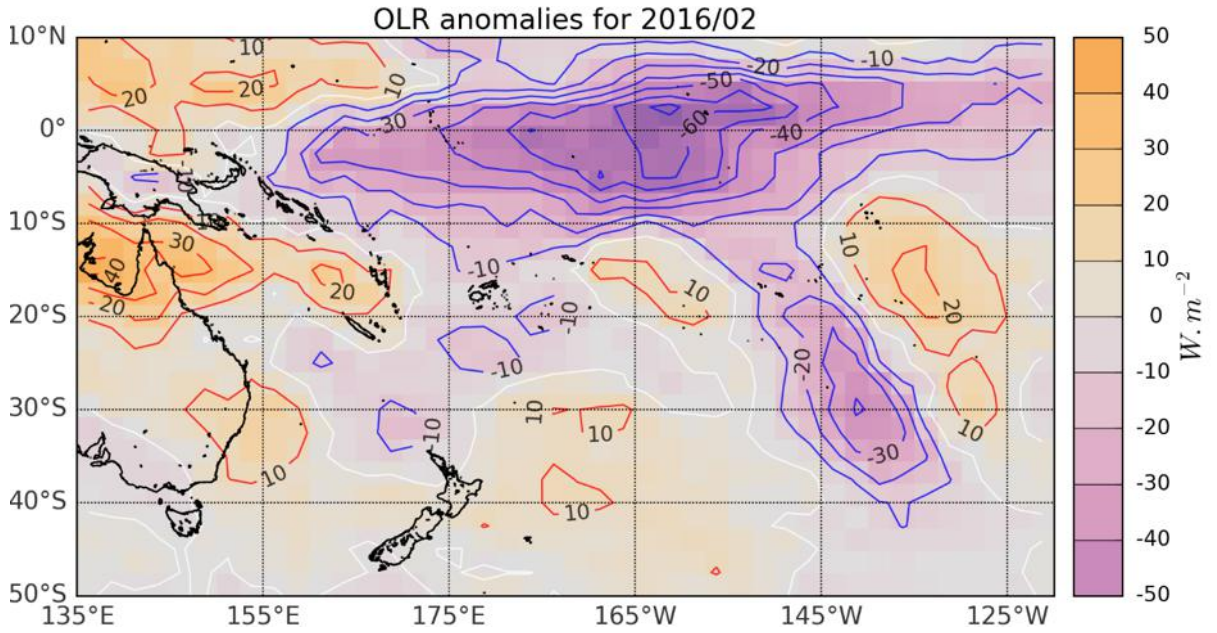


Circulation and SST synopsis:

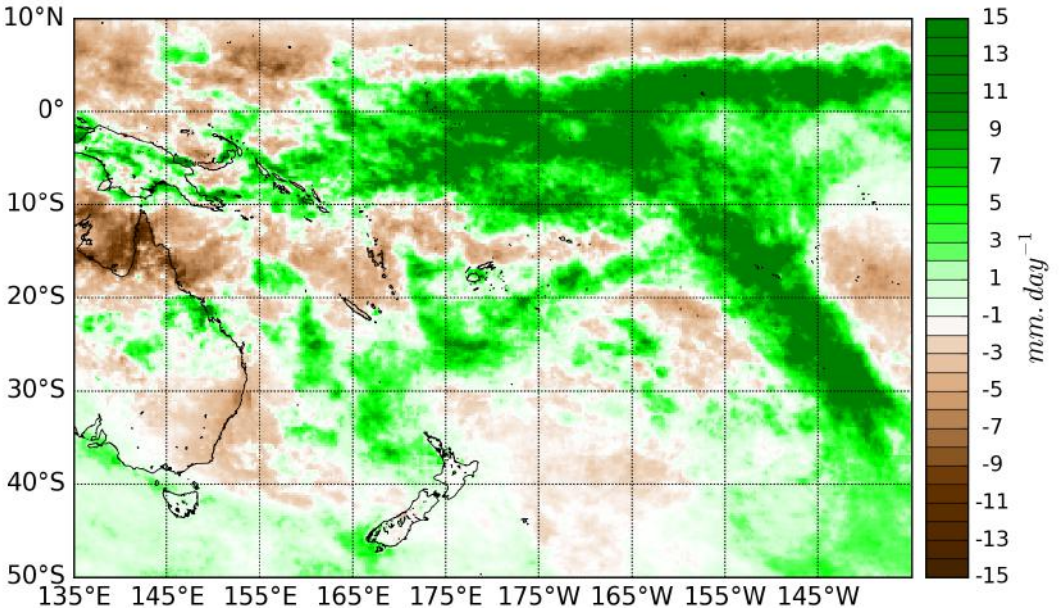
The regional atmospheric circulation pattern for February 2016 was characterised by low pressure anomalies in the Tasman Sea north to Vanuatu, over Fiji, Tonga, and the Cook Islands, as well as in the eastern equatorial region. High pressure anomalies existed over Papua New Guinea, the Solomon Islands, and east of New Zealand. This atmospheric circulation produced anomalous westerly flow over Melanesia and northerly-quarter flow over New Zealand, French Polynesia and the Cook Islands. Above normal sea surface temperatures remained strong along the Equator (but have weakened since their peak in late 2015). SSTs strengthened around New Zealand, around south-eastern Australia and the Tasman Sea, and also around Vanuatu, New Caledonia and Fiji. Negative sea surface temperature anomalies weakened to the east of New Zealand.



Cloud cover and rainfall patterns



OLR (top) and TRMM/GPM rainfall (bottom) as remotely sensed by satellite for the month of February 2016. 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/GPM 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 over the Equator east of the Solomon Islands as well as the Cook Islands, French Polynesia, and Fiji last month. Reduced cloud cover occurred over northern Australia, New Caledonia and eastern Kiribati. The SPCZ was positioned east and north of normal, with an anomalous tongue stretching south-eastward over the eastern Pacific. Tropical Cyclone Winston affected Fiji and Tonga, causing significant damage. It was the strongest cyclone on record for Fiji. Rainfall was well below normal for northern Australia, Southern Cook Islands, Marquesas, Tuamotu, Gambier, Lord Howe and Raoul Islands, Futuna Island, and parts of New Caledonia, Samoa, Tonga, Solomon Islands (<60% of normal rainfall). Rainfall in February was above normal (>150% of normal rainfall) for the Society and Austral Islands, Kiribati, New Zealand, and parts of New Caledonia, Solomon Islands, and Tonga.