

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 January 2016, but has past its peak strength.
- South Pacific Convergence Zone (SPCZ) defined in TRMM rainfall was north and east of normal.

Atmospheric circulation patterns

- More frequent highs to the east of New Zealand and in the Coral Sea and over Melanesia. More frequent lows in the north Tasman Sea, over Samoa, Tonga, northern Cook Islands and French Polynesia. More frequent southerly-quarter flows over many islands south of 10°S. Westerly winds continued to dominate the equatorial Pacific.

Sea surface temperatures

- Above normal sea surface temperature (SST) anomalies along the equator consistent with El Niño weakened from December but remained strongly positive. Cool SSTs strengthened to the east of New Zealand.

Outgoing Longwave Radiation (OLR) and rainfall

- More cloud cover than normal along the Equator to the east of 175°E, as well as over the northern Cook Islands, French Polynesia, southern Australia and New Zealand. Less cloud cover than normal over Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia, Fiji, Samoa, Tonga, Niue, southern Cook Islands, and northern Australia.
- Well below normal rainfall over northern Australia, Fiji, New Caledonia, Solomon Islands, Tonga, Tuvalu, Vanuatu, Wallis & Futuna and the Society and Austral Islands. Above normal rainfall for southern Australia, New Zealand, and Marquesas Islands.

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

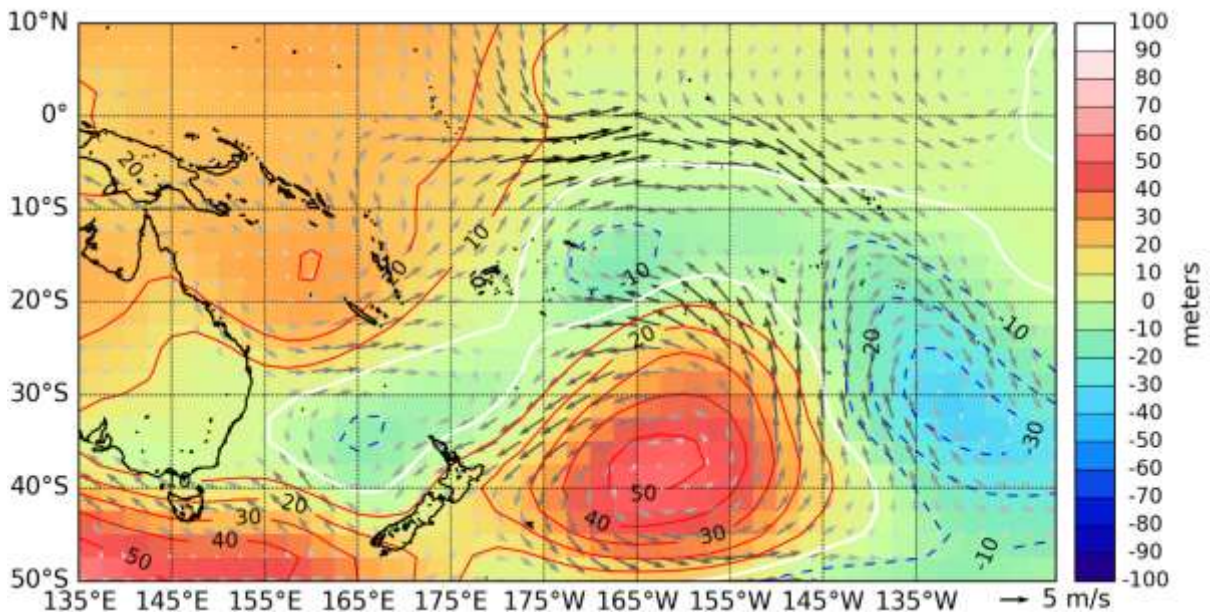
UK Met Office

ECMWF

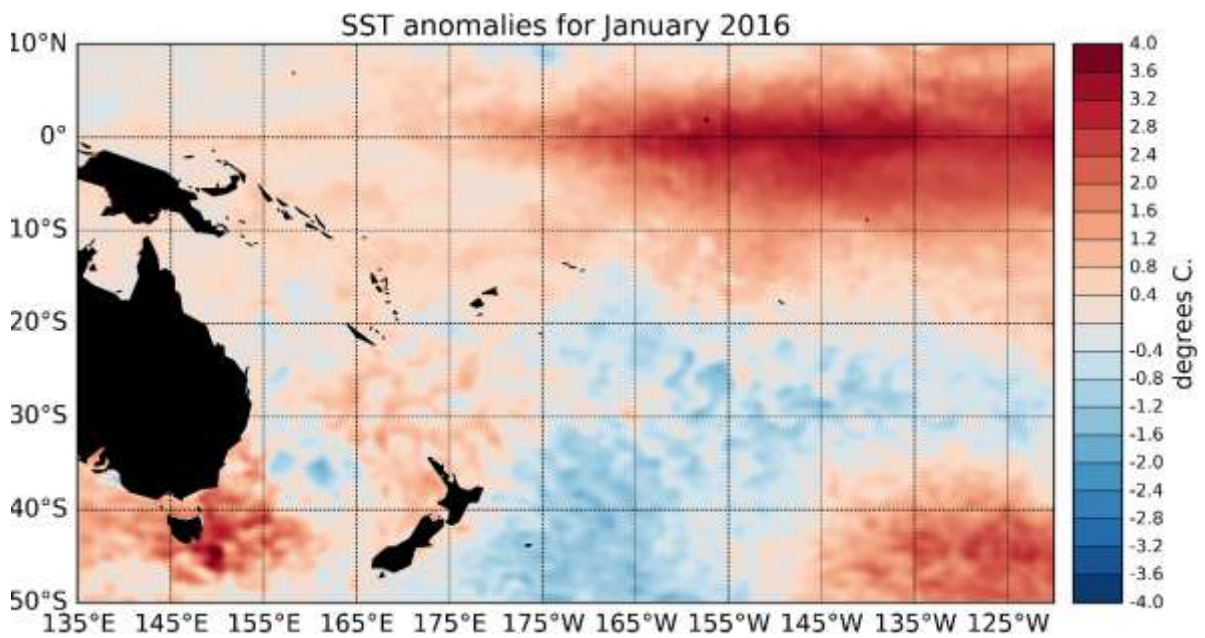
World Meteorological
Organisation

MetService of New Zealand

Circulation and sea surface temperature (SST) anomalies



Atmospheric circulation anomalies (z_{1000} , above) and sea surface temperature (SST) anomalies (below) for the month of January 2016. For z_{1000} (geopotential height at 1000 hPa), red shades indicate higher than normal geopotential height (i.e. "high"), 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).

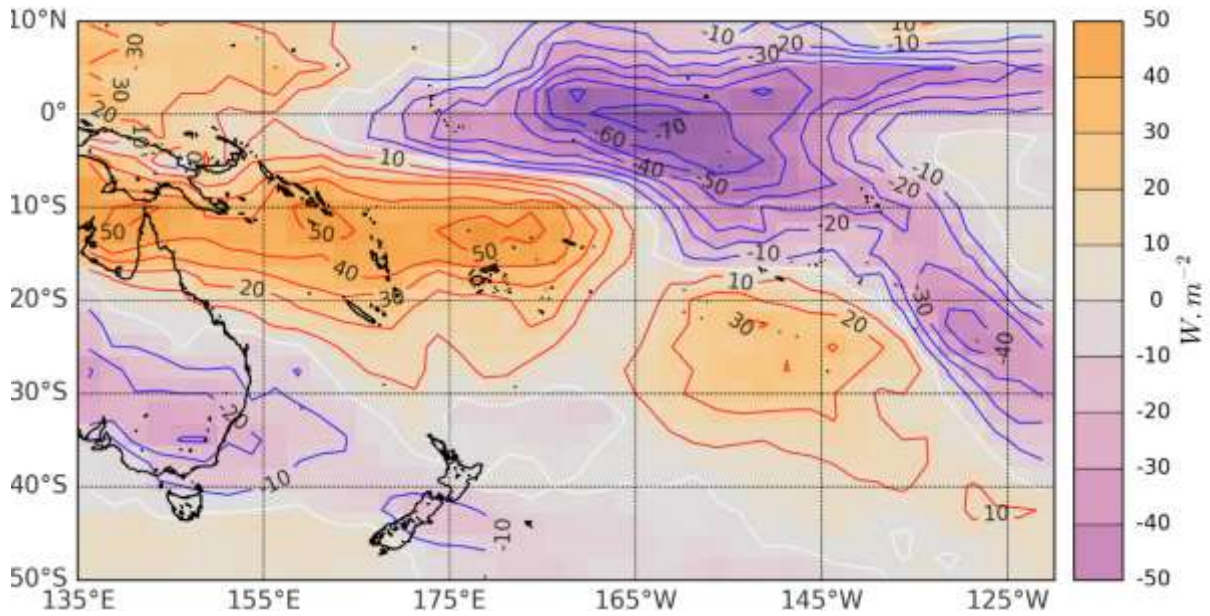


Circulation and SST synopsis:

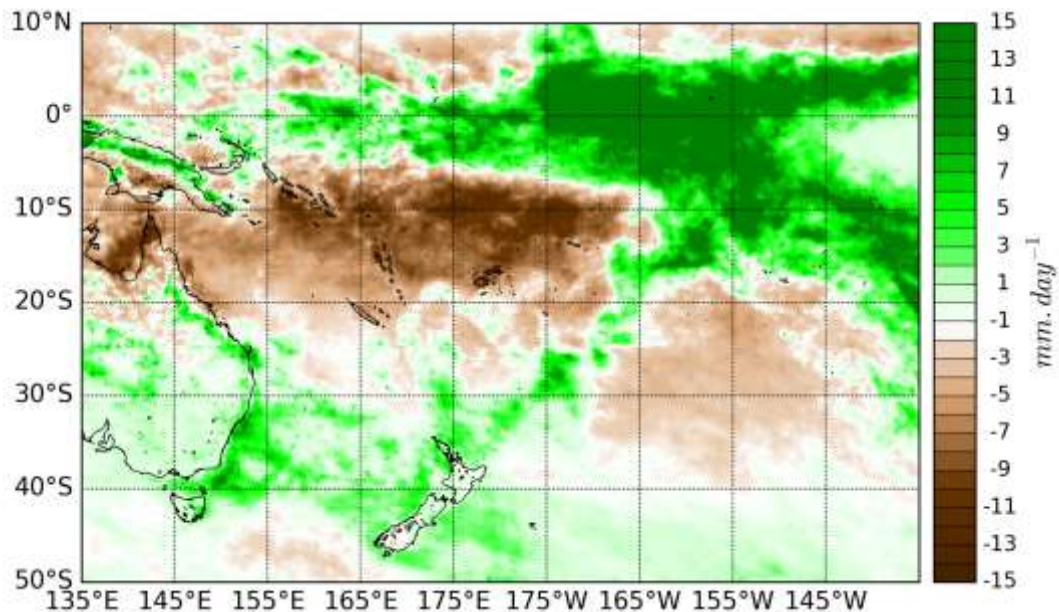
The regional atmospheric circulation pattern for January 2016 was characterised by high pressure anomalies to the east of New Zealand south of 20°S, in the Coral Sea and over Melanesia, and in the south Tasman Sea. Low pressure anomalies existed in the north Tasman Sea, over Samoa, Tonga, the northern Cook Islands, and French Polynesia. This atmospheric circulation produced anomalous southerly-quarter flow across most islands south of 10°S. Westerly anomalies dominated the western Equatorial Pacific, consistent with strong El Niño conditions. Above normal sea surface temperatures remained strong along the Equator (but have weakened since their peak in late 2015), around south-eastern Australia and the Tasman Sea, and also around Vanuatu and south of French Polynesia. Negative sea surface temperature anomalies strengthened to the east of New Zealand and southeast of Fiji.



Cloud cover and rainfall patterns



OLR (top) and TRMM/GPM rainfall (bottom) as remotely sensed by satellite for the month of January 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 175°E as well as the northern Cook Islands, French Polynesia, the southern half of Australia, and New Zealand last month. Reduced cloud cover occurred over Papua New Guinea, the Solomon Islands, Vanuatu, New Caledonia, Fiji, Samoa, Tonga, Niue, the Southern Cook Islands, and northern Australia. The SPCZ was positioned east and north of normal. Rainfall was well below normal for northern Australia, Fiji, New Caledonia, Solomon Islands, Tonga, Niue, Tuvalu, Vanuatu, Wallis & Futuna, and the Society and Austral Islands (<60% of normal rainfall). Rainfall in January was above normal (>150% of normal rainfall) for southern Australia, New Zealand and the Marquesas Islands. These rainfall anomalies reflect strong El Niño conditions.

