Earth Sciences New Zealand Te Whatu Ao

Southwest Pacific Tropical Cyclone Outlook 2026/2027

Earth Sciences New Zealand (ESNZ) coordinated this tropical cyclone outlook, which was contributed to by the Meteorological Service of New Zealand (MetService), the University of Newcastle and meteorological services across the Pacific Islands

Pacific Islands | New Zealand | El Niño-Southern Oscillation | Consensus outlook | Background

Tropical cyclone outlook summary for the Southwest Pacific Islands

- Our assessment of tropical cyclone[1] (TC) activity for the coming season indicates normal to above normal activity for the Southwest Pacific.
- A range of seven to eleven named TCs could occur in the Southwest Pacific from November 2026-April 2027. The long-term average number of named TCs per season between 1991-2020 is around nine, however there has been a long-term decline in the number of named storms in recent decades.
- TCs have a significant impact across the Southwest Pacific, with the season starting in November and lasting through April. For the coming season, significant differences are expected between the western and eastern halves of the basin.
- The risk of impact from a TC is expected to be higher near and to the east of the International Date Line, as illustrated in Figure 1. Normal to reduced risk is anticipated for the western part of the basin.

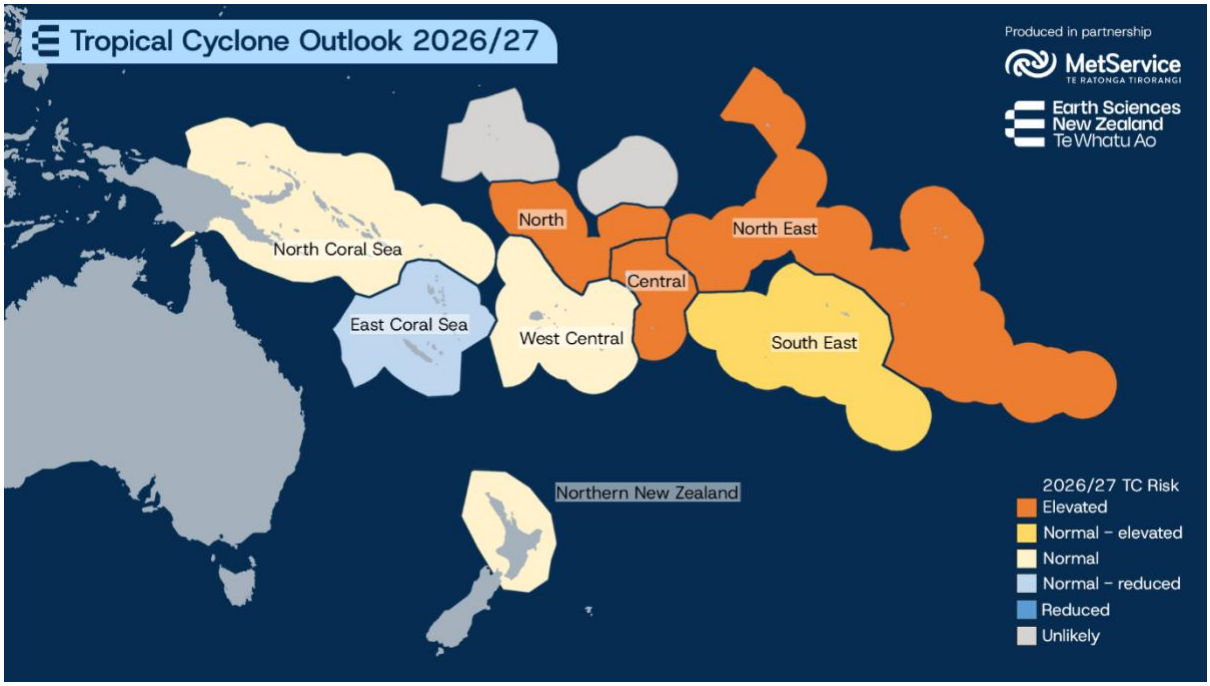

Figure 1: Tropical cyclone risk for the 2026-27 season

[1] Tropical cyclones are categorised in strength from 1 to 5, with 5 being most intense. Tropical cyclones that reach category 3 or higher are classified as severe, with mean (10 minute) wind speeds of at least 119 km/h.

- The area east of the Coral Sea typically experiences the greatest TC activity with an average of two or three TCs passing nearby each year.
- **Elevated activity**: North SW Pacific, Northeast SW Pacific, Central SW Pacific.
- **Normal-Elevated activity**: Southeast SW Pacific.
- **Near normal activity**: North of the Coral Sea, West Central SW Pacific, Northern New Zealand.
- **Normal or reduced activity**: East of the Coral Sea.
- At least four severe TCs reaching category 3 or higher may occur anywhere across the region, so all communities should remain prepared.
- Past seasons with similar conditions to the present, called "analogue years", suggest multiple TCs could intensify to at least category 3 strength.
- Category 5 strength TCs[2], in which sustained winds are 200 km/h or greater, are associated with many of the analogue years.
- Despite the official season running from November through April, TCs sometimes occur out-of-season.
- It does not take a direct hit or severe TC to cause considerable damage or life-threatening weather. When dangerous weather is forecast, please heed the advice of your local meteorological service, civil defence, or disaster management office.

Tropical cyclone outlook summary for New Zealand

- On average, at least one ex-TC passes within 550 km of New Zealand each year. This season, the risk is considered **normal,** with expectations that risk of an interaction is greater in late summer and autumn than before the new year.
- If an ex-TC tracks close to the country, there is a greater chance of it tracking to the north or west of the North Island based on historical observations, with a reduced likelihood of impacts on eastern regions.
- Multiple analogue years considered in this outlook had at least one ex-TC passing within 550 km of the country.
- Analogue years suggest that a decaying ex-TC entering the New Zealand region could affect maritime and coastal areas around the North Island, and an interaction with the South Island cannot be ruled out.
- Significant rainfall, extreme winds, hazardous marine conditions, and coastal damage are all possible leading up to and during ex-TC events.
- The effects of ex-TCs can also be spread over a large area, particularly if the decaying ex-TC interacts with mid-to-high latitude weather systems.

El Niño-Southern Oscillation outlook

- The El Niño Southern Oscillation (ENSO), comprised of La Niña, neutral, and El Niño phases, plays an important role in year-to-year regional TC development and spatial coverage and is a key factor in this outlook.

[2] Since quality observations began in the early 1970s, there has been a trend toward fewer but stronger TCs.

- As of early October 2026, sea surface temperatures across the eastern and central equatorial Pacific Ocean well above El Niño thresholds.
- Atmospheric circulation patterns related to ENSO over French Polynesia and northern Australia indicate El Niño conditions are present as of early October 2026.
- Oceanic and atmospheric forecasts for ENSO suggest very strong El Niño conditions are likely to persist at least through early summer.
- The progress of ENSO and TC activity will continue to be tracked with an update to this guidance in January 2027 if required.

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In the Pacific Islands, please contact your local national meteorological service for information about how this guidance should be interpreted. In Australia and the associated offshore islands, please contact the Australian Bureau of Meteorology. In French Polynesia, Wallis & Futuna, and New Caledonia please contact Météo-France.

For the latest issue of the tropical cyclone outlook and a video presentation discussing expected regional tropical cyclone activity, head to https://niwa.co.nz/climate/southwest-pacific-tropical-cyclone-outlook.

**As of 1 July 2025, Crown Research Institutes NIWA and GNS Science were combined to form the Public Research Organisation Earth Sciences New Zealand.*

Island Climate Update consensus outlook

Table 1: Island Climate Update (ICU) consensus outlook for November 2026-April 2027 tropical cyclone activity based on combining analogue model, international dynamical climate model, and TCO-SP deterministic statistical model outlook results. Indications for seasonal TC activity based on these joint methods are stated in the "ICU consensus" column and are also shown in Figure 1. Expected TC numbers are based on the NIWA analogue method (see Table 2) and supported by the TCO-SP deterministic method.

TC activity 2026/27	ESNZ Analogue	International Dynamical	TCO-SP Deterministic	ICU Consensus	Outlook Confidence
SP Basin	Normal-Elevated	Normal-Elevated	Normal	Normal-Elevated	Moderate-High
North Coral Sea	Normal	Normal	Normal	Normal	High
East Coral Sea	Normal	Normal - Reduced	Reduced	Normal - Reduced	Moderate
Northern SW Pacific	Elevated	Elevated	Normal-Reduced	Elevated	Moderate-High
Western central SW Pacific	Normal-Elevated	Normal-Reduced	Normal-Reduced	Normal	Moderate
Central SW Pacific	Normal-Elevated	Elevated	Elevated	Elevated	Moderate-High
Southeast SW Pacific	Elevated	Normal-Elevated	Normal-Elevated	Normal-Elevated	Moderate-High
Northeast SW Pacific	Elevated	Elevated	Elevated	Elevated	High
N. New Zealand	Normal	Normal	Normal	Normal	High

Background information – summary of analogue, dynamical, and deterministic guidance for the ICU TC outlook

Analogue, dynamical and deterministic model guidance for the SW Pacific show moderate to high agreement for the coming season (Table 1). The ICU consensus column is based on the combined outcomes for the three types of seasonal outlook information. The consensus forms the basis for the full season (November-April) outlook for Southwest Pacific TC activity (and risk) for the 2026/27 season. It should be noted that there are some differences in terms of the TC risk that are ascribed using a consensus relative to previous years that used the analogue guidance supported by the dynamical guidance. Future work will evaluate (and validate) the outcome of each individual method vs the consensus-based approach. Notably, the seasonal tropical cyclone forecasts for November-April that have been issued through the ICU for the past 17 seasons since 2009 have a provisional strike rate of 65% for named storms and a strike rate of 70% for minimum number of severe tropical cyclones (Category 3 and higher).

Modern analogue guidance

TCs in the Southwest Pacific usually develop between November and April, occasionally develop in October and May, and very rarely develop between June-August. An analysis of past TC tracks in the SW Pacific indicate they are exceptionally unlikely in September, although systems in the past have formed during this time. Peak TC activity in the SW Pacific

Basin is usually between January to March; however, severe TCs can occur at any time during the season.

Based on past seasons with similar background climate conditions to the present, TC activity in the coming season is expected to near normal to slightly elevated in terms of overall storm numbers (nine named storms expected, range of 7-11), with increased risk of activity both around and especially to the east of the International Date Line. On average, nearly half of the TCs that developed since the 1969/70 season have reached at least Category 3 cyclones with mean wind speeds of at least 64 knots (119 km/h).

To find past analogues that describe the climate state leading into the upcoming TC season, the conditions for May 2026 through to the beginning of October 2026 were examined for the tropical Pacific. Similar situations from 1969 to the present were then identified from the historical record. For late autumn through early austral winter (May-June) well-coupled El Niño conditions were established for the central-western equatorial Pacific Ocean. By mid-to-late winter (July-August) it became clear from multiple international climate models that the developing El Niño was expected to grow into one of the strongest on record, placing it in a class of “super El Niño” events. There is no evidence of the building ENSO event turning into La Niña at the start of the coming TC season.

ESNZ's monitoring of sea surface temperatures (SSTs) indicated anomalies in the Niño 3.4 region (central-western equatorial Pacific Ocean) continued to strengthen during September 2026. The 30-day average Relative Oceanic Niño Index (RONI) crossed the +2°C threshold associated with a very strong (or “super”) El Niño on 19 September. The latest 30-day RONI value, to 06 October, is +2.27°C, is exceeding the value observed at the same time of year during the 1997/98 El Niño event. The rate of warming since January 2026 is the fastest on record. The pattern of equatorial Pacific warming is characteristic of a canonical, eastern-Pacific El Niño, similar to the 1997/98 and 1982/83 events, with the strongest SST anomalies concentrated in the eastern Pacific.

Subsurface ocean temperatures in the eastern equatorial Pacific, east of the International Date Line, intensified with anomalies locally exceeding +10°C, extending from depths of around 150 m near 150°W to around 50 m near the South American coast. This unusually warm subsurface water continues to be expressed at the surface, contributing to the ongoing increase in the RONI. In contrast, subsurface waters in the western equatorial Pacific remain cooler than average. This pronounced east-west contrast in subsurface ocean temperature anomalies is characteristic of very strong El Niño conditions and, like the RONI, has developed exceptionally rapidly during 2026.

The available information from international forecasting centres that issue global climate outlooks and ENSO diagnostics are integrated by ESNZ. The collective guidance suggests very strong (super) El Niño has emerged and will exist at the onset of and into the middle part of the TC season. The Relative Oceanic Niño Index forecasts indicate a 100% chance of

very strong El Niño conditions persisting during October–December 2026, with international forecast centres supporting this outlook. Forecasts from the Multi-Model Ensemble system primarily used by ESNZ suggest two possible trajectories for the evolution of El Niño. One indicates a peak in November 2026 followed by a relatively rapid decline, while the other indicates continued strengthening into December 2026 or January 2027, followed by a slower decline. Both scenarios project peak RONI values above those observed in the historical record.

To help identify past ENSO conditions for the selection of analogue seasons, we used an ENSO index that combines the Southern Oscillation Index (SOI) with the most widely used oceanic index of sea surface temperature anomalies in the equatorial central-western Pacific (NINO3.4). This joint ENSO index is described in Gergis and Fowler (2005) as the "Coupled ENSO Index" (CEI) but employing a five-month average for NINO3.4 and a three-month average for the SOI when computing this ENSO index. We tested a calculation of the CEI using both the traditional Niño3.4 index (TONI) and the relative Niño3.4 index (RONI) to give two slightly different views of the past climate system (CEI-TONI, CEI-RONI). We also evaluated analogues solely based on the RONI and a threshold of 2.0°C to match the expectations of the ENSO forecast for the season. Inevitably, all three views produced similar results for areas of increased and decreased TC activity as well as the overall TC counts.

We selected six analogue TC seasons for the 2026/27 outlook, drawing on the approach above, highlighting seasons when the equatorial SSTs and the SOI were indicative of strong El Niño conditions by mid-winter and early spring, continuing through at least the middle of the TC season. The six selected analogue TC seasons (1972/73 1977/78; 1982/83; 1991/92; 1997/98; 2015/16) in this step of the outlook relates to the high-quality TC data period in the satellite era beginning in 1969/70 (56 seasons, for which TC track data are current only to the end of the 2024/25 season), and the limited number of similar analogues to this season (including rejected analogues, which may include some past seasons with similar antecedent conditions but not similar to what is forecast for ENSO). These selected analogues also encapsulate, for the most part, a lead into the season with very strong El Niño conditions during the full, early and late season. The analogues closely align with the expected ENSO outlook.

Earth Sciences New Zealand's SW Pacific TC outlook spans four areas of responsibility overseen by international monitoring and forecast agencies (RSMC Nadi, TCWC Melbourne, TCWC Port Moresby, and TCWC Wellington). We used a high-quality set of past TC tracks from the International Best Tracks Archive for Climate Stewardship (IBTrACS) which covers 135°E to 120°W longitude to draw on past TC track patterns for the seasonal outlook. The domain for the seasonal outlook encompasses a basin that is defined by climatological properties of TC occurrences rather than geopolitical or meteorological service administrative boundaries (Diamond et al., 2012). Based on the selection of analogues, there is an expectation of normal-elevated TC activity across the Southwest Pacific Basin for the 2026/27 season. Elevated or normal-elevated TC risk is largely expected for islands

located to the east of the International Date Line. Normal risk is expected around the north Coral Sea and in the West Central SW Pacific area that straddles the International Dateline. Normal-reduced activity is expected along the eastern Coral Sea (See Table 1; Figure 1, 3 & 4). This outlook indicates that risk may increase during the late season as TC activity picks up. Island groups that usually experience quiescent TC activity including those within the wider French Polynesia area are expected to experience increased TC activity this season. The outlook for the region indicates increased overall risk for TC tracks transiting closer to the Equator and to the east of the International Date Line relative to normal (See Table 1 and Table 4; Figure 1, 3 & 4).

The main TC genesis region for the coming season is expected to lie within the latitudinal band between 10 – 16°S where a majority of the historic tracks associated with the analogue seasons showed storm formation. A northeast-shifted South Pacific Convergence Zone is also expected, with a more zonal (west-east) orientation, and this configuration should translate to a genesis region that is both farther north and east of normal. There is a clear signal for an elevated risk of tropical cyclones developing and tracking over waters located to the east of the International Date Line during both the early and late season. All analogue seasons had multiple Category 3 or greater strength, storms and all the analogue seasons (5 of 6) experienced at least one Category 4 or greater strength cyclone. Based on historic analogues, we suggest ~40% of named storms that form during this season (a minimum of 4 named storms) will transform into at least a Category 3 TC system. A total of nine named cyclones are expected during this coming season (spread of 7-11 based on past analogues, adjusted for the long-term trend). This outlook is within a range that could be expected for a normal activity season relative to the average of nine named storms that have occurred each season in the southwest Pacific basin between 1991-2020. However, past El Niño years have typically produced higher than average TC activity. As such, we have modified the named TC number and spread qualitative outlook to an overall risk level of normal-elevated activity. All communities should remain vigilant even beyond the traditional end of the TC season.

A split of the analogue TC seasons into early (November – January) and late (February – April) periods suggests TC activity may be elevated in the Coral Sea and north Tasman Sea during the late TC season (Figure 2). In general, TC activity is expected to increase greatly during the late season, particularly near French Polynesia and the northern SW Pacific close to the International Date Line.

Previous TC research has indicated cyclone track sinuosity increases during El Niño (Malsale, 2011). Some of the TC track trajectories in the analogues identified for the coming season suggest 'wandering' and long-lived storms are highly likely. TC intensity is partly related to how long developing cyclonic systems reside in the tropics and gain support for their growth from underlying warm waters. Nevertheless, lower strength TCs that have wandering tracks can still produce significant impacts on island communities and TCs of all strength should be

monitored closely. In addition, the subtropical jet and South Pacific Convergence Zone (SPCZ[3]) interact and contribute to shear (which can disorganise cyclone systems) during extra-tropical transition (ETT). Hemispheric winds that help to steer storms exiting the tropical Pacific as well as the SPCZ are expected to be displaced north of normal. The outcomes from the regional ocean-atmosphere patterns may mean marine and coastal impacts from a decaying system in the Pacific Islands could still be prominent.

The interplay of hemispheric-scale atmospheric circulation with the timing of short-term Madden-Julian Oscillation (MJO) activity on a 30 to 50-day cycle has significant bearing on regional TC activity. Increased frequency and more intense TC activity can be expected during the MJO 6-7 paired phase (Diamond and Renwick, 2015). Weekly statistical forecasts of TC genesis and TC activity for the SW Pacific basin are produced by MétéoFrance based on phasing of the MJO (Leroy and Wheeler, 2008). This guidance is useful for sub-seasonal regional TC guidance (see https://www.meteo.nc/nouvelle-caledonie/cyclone/coin-des-experts). Real-time MJO monitoring is also available from the Australian Bureau of Meteorology at http://www.bom.gov.au/climate/mjo/ and NOAA at https://www.cpc.ncep.noaa.gov/products/precip/CWlink/MJO/CLIVAR/clivar_wh.shtml.

TC tracks that have previously undergone ETT at 25°S latitude (Diamond et al., 2013) cover a wide area spanning east and west of the International Date Line (~165°E – 165°W). For the historical TC tracks that occurred in the six selected analogue seasons, a majority underwent ETT to the east of the International Date Line. This presents a view of significantly elevated risk related to the presence of TCs and ex-TCs in the Southwest Pacific Ocean for the maritime region between 25°S - 35°S and east of the International Date Line. Extra caution for vessels navigating maritime waters in that remote area is warranted.

Previous work indicates New Zealand interacts with at least one ex-tropical cyclone passing within 550 km of the country every year on average (Lorrey et al., 2014). Some years there are none, while in other years there are more than one. For the coming TC season, the risk for New Zealand is near normal. We identified multipe ex-tropical cyclones in more than one of the analogue seasons selected for this outlook that passed close to New Zealand, demonstrating interactions with an ex-TC during El Niño years have a near-normal probability. Half of the analogue seasons had no ex-TC interactions. The historic TC seasons for this outlook with storms that passed close to New Zealand indicate if an ex-TC enters the NZ Exclusive Economic Zone there is an elevated chance of it tracking offshore to the north and west of the North Island (see Figure 3), and a diminished chance of impacts on eastern regions. Deteriorating storms that entered the Tasman Sea in years similar to present have occasionally made landfall on the South Island.

[3] The South Pacific convergence zone (SPCZ) is an extensive Southern Hemisphere atmospheric circulation feature that contains one of Earth's most expansive and persistent convective cloud bands.

Dynamical climate model guidance summary

A synthesis of atmospheric and sea surface temperature (SST) guidance favours near or above average tropical cyclone (TC) activity for the 2026/27 SW Pacific TC season. Multi-model ensemble (MME) guidance is in good agreement with the expectations of a historically very strong El Niño event in the east-central Pacific. El Niño conditions are expected to persist through the entire tropical cyclone season.

Dynamical forecast guidance from the Copernicus Climate Change Service (C3S), a MME of seasonal predictions from various international centres, is considered in this section. A broad-scale circulation pattern is associated with below-normal summer rainfall extending from the Gulf of Carpentaria east to southeast across much of the basin, mainly near and south of 10°S. Farther north, near and north of 10°S, above normal rainfall is forecast from around Papua New Guinea eastwards to French Polynesia.

Through the austral summer (December 2026 – February 2027), mean sea level pressure (MSLP) is forecast to be above normal from the Maritime Continent east and southeast across the Coral Sea and much of the Southwest Pacific basin, near and west of the International Date Line (IDL) (Figure 6). Below normal MSLP is forecast near and especially east of the IDL. This is likely indicative of the SPCZ being displaced northeast of normal, a typical impact of El Niño, and one that can cause above normal rainfall for many near-equator island groups. For island nations and territories that are located farther from the equator, particularly near and south of 10˚ S, drier than normal conditions are expected to elevate the risk of drought as a result of the SPCZ moving northeast of normal (Figure 5). However, the nearby passage of a single tropical depression or tropical cyclone could counter that situation. Farther north, near and north of 10°S, above-normal rainfall is forecast from around Papua New Guinea eastwards to French Polynesia.

Velocity potential anomaly, or areas of enhanced divergence in the upper atmosphere relative to normal - a proxy for large scale lift - is forecast to favour the central and eastern tropical Pacific Ocean through at least February 2027. Meanwhile, anomalous atmospheric sink is forecast over the eastern Indian Ocean, eastward through to far western regions of the Southwest Pacific. This large-scale atmospheric set up, combined with expected oceanic conditions, i.e., warmer than average SSTs in the central and eastern tropical Pacific, supports an environment where enhanced tropical cyclone activity is favoured generally near and east of the IDL, and decreased activity near and west of the IDL.

Deterministic statistical model summary

The Long-Range Tropical Cyclone Outlook for the Southwest Pacific (TCO-SP) product produced by the University of Newcastle (AUS) has been incorporated into the ICU outlook since the 2020/21 season to provide support for a consensus-based ensemble of TC risk. TCO-SP is based on a different method than the analogue and dynamical approaches. The TCO-SP method is calibrated using the IBTrACS data set and several key climate indices for the Southern Hemisphere (see Magee et al., 2020 and the supplementary material for more

details). For the coming Southwest Pacific TC season, the deterministic TCO-SP outlook suggests 9 named TCs may form (probable range of 7-11), indicating near normal activity for the basin when compared with the 1991-2020 average of 8.7 TCs (Table 1, Table 4, and Figure 7). This TC count range agrees with the analogue guidance.

References

Gergis, J., and A. M. Fowler, 2005. Classification of synchronous oceanic and atmospheric El Niño–Southern Oscillation (ENSO) events for palaeoclimate reconstruction. *International Journal of Climatology*, **25**: 1541–1565.

Diamond, H.J., and J.A. Renwick, 2015. The climatological relationship between tropical cyclones in the southwest Pacific and the Madden-Julian Oscillation. *International Journal of Climatology*, **35**: 676-686. doi: 10.1002/joc.4012.

Diamond, H.J., A.M. Lorrey, K.R. Knapp, and D.H. Levinson, 2012. Development of an enhanced tropical cyclone tracks database for the southwest Pacific from 1840-2011. *International Journal of Climatology*, **32**: 2240–2250. doi:10.1002/joc.2412.

Diamond, H.J., A.M. Lorrey, and J.A. Renwick, 2013. A Southwest Pacific tropical cyclone climatology and linkages to the El Niño–Southern Oscillation. *Journal of Climate*, **26**(1): 3-25. doi:10.1175/JCLI-D-12-00077.1.

Leroy, A., and M.C. Wheeler, 2008. Statistical prediction of weekly tropical cyclone activity in the Southern Hemisphere. *Monthly Weather Review*, **136**: 3637-3654.

Lorrey, A.M., G. Griffiths, N. Fauchereau, H.J. Diamond, P.R. Chappell, and J. Renwick, 2014. An ex-tropical cyclone climatology for Auckland, New Zealand. *International Journal of Climatology*, 34*:* 1157–1168*.* doi: 10.1002/joc.3753.

Magee, A.D., Lorrey, A.M., Kiem, A.S., Colyvas, K. 2020. A new island-scale tropical cyclone outlook for southwest Pacific nations and territories. *Scientific Reports*, 10, 11286, https://doi.org/10.1038/s41598-020-67646-7

Malsale, P. 2011. Analysis of tropical cyclone track sinuosity in the South Pacific region using ARCGIS. Unpublished MSc Thesis, University of the South Pacific, 155 Pages

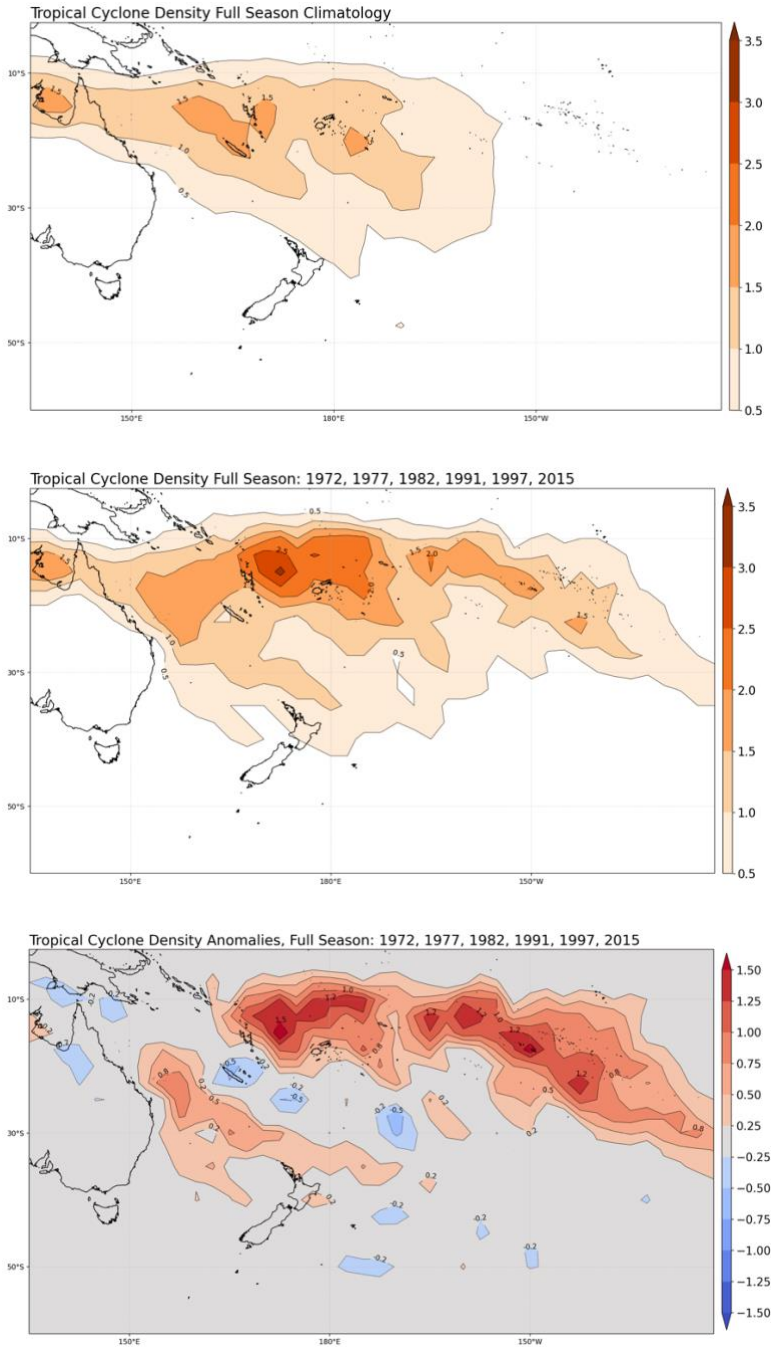


Figure 2: Number of TCs occurring for the main development season (November – April) in the Southwest Pacific (135°E to 120°W): (top panel) average number during 1991 to 2020 (normal); (centre panel) average number over selected six analogue seasons (Table 3); (bottom panel) departure from normal for the analogue seasons (difference between count in centre and top panels). For each year noted, that represents the start of the main development season (i.e. 1983 = November 1983-April 1984). Note, TC density is calculated on a 1° × 1° grid as the number of unique tropical cyclones passing within 300 km of the centre of each grid point, and this is different from prior seasonal outlooks which used a 5° x 5° grid and 500km radius.

Table 2: The average number of TCs passing through 1° x 1° spatial area within subregions of the SW Pacific Basin during November and April based on analogue guidance. The risk level ascribed contains subjective assessments in some cases to be consistent with the wishes of the national meteorological services involved in generating the SW Pacific tropical cyclone outlook. In addition, subjective qualification of activity (and associated risk) also recognises the small differences between the actual TC counts for the analogue composites, the highly granular resolution of the climatology analysis and anomaly values for the coming season. The table is therefore only generally indicative of where cyclones might be expected to pass through discrete areas for the coming season, but nevertheless allows a spatial view of where risks of storm activity are likely to be elevated or reduced. This information feeds into the final outlook for the season as in Table 1.

Area	**Climatology** (named storm densities per 1° x 1°)	**Analogue seasons**	**Anomaly**	**% normal**	**Risk**
N. Coral Sea	0.5	0.4	-0.1	80	Normal
E. Coral Sea	1.7	1.7	0.0	100	Normal
N SWP	1.3	2.4	1.1	185	Elevated
West C SWP	1.0	1.5	0.5	150	Normal-Elevated
C SWP	1.4	1.9	0.5	136	Normal-Elevated
NE SWP	0.2	1.0	0.8	500	Elevated
SE SWP	0.4	1.2	0.8	300	Elevated

Table 3: Previous analogue seasons and intensity of TCs that occurred in the Southwest Pacific during the November-April TC season. Categorisation of TCs aligns to the Australian Bureau of Meteorology (BoM) scale. Italicised figures for category totals are the mean of the count for that category instead of the expected total. Expected totals account for the long-term decline in named tropical cyclone counts using the analogue selection method.

Season	Number of storms Cat 1 or higher	Right: TC category (BoM scale)	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5
1972/73	**11**		5	3	2	0	0
1977/78	**10**		1	5	3	1	0
1982/83	**16**		3	3	3	5	2
1991/92	**13**		1	5	2	4	1
1997/98	**19**		5	7	4	1	2
2015/16	**8**		2	1	3	1	1
Rounded avg	12		3	4	3	1	1
Expected storms (trend adjusted)	**9**		**2**	**3**	**2**	**1**	**1**

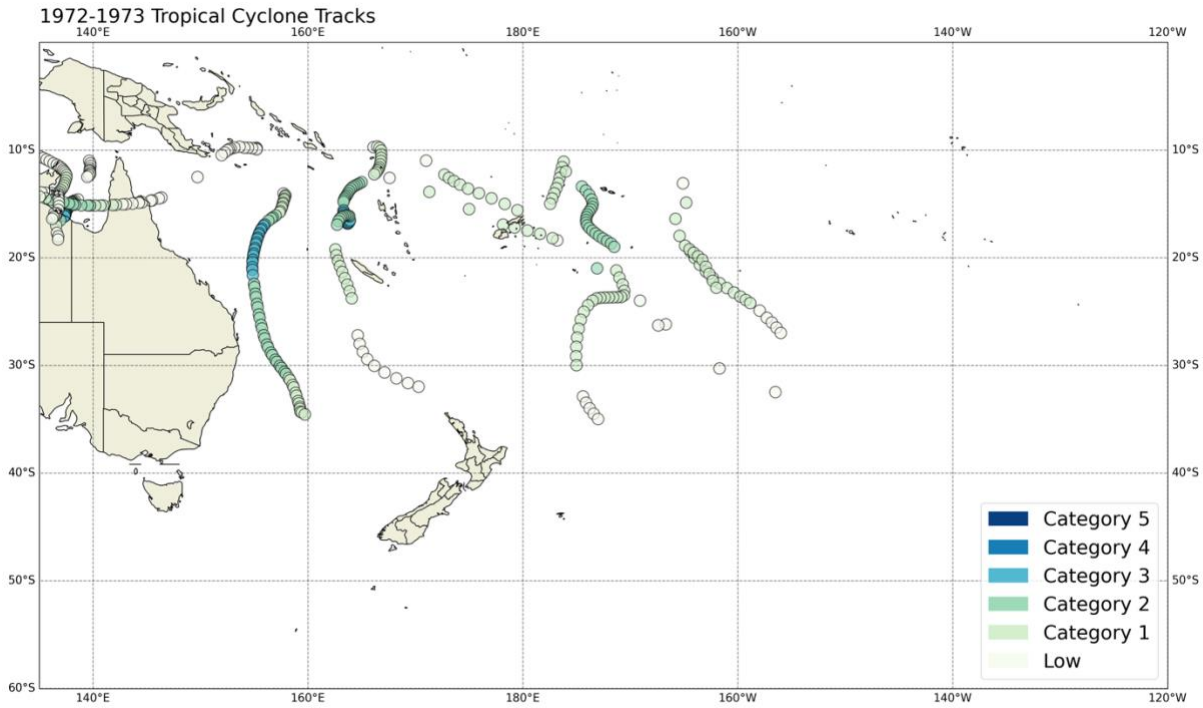
Analogue guidance summary

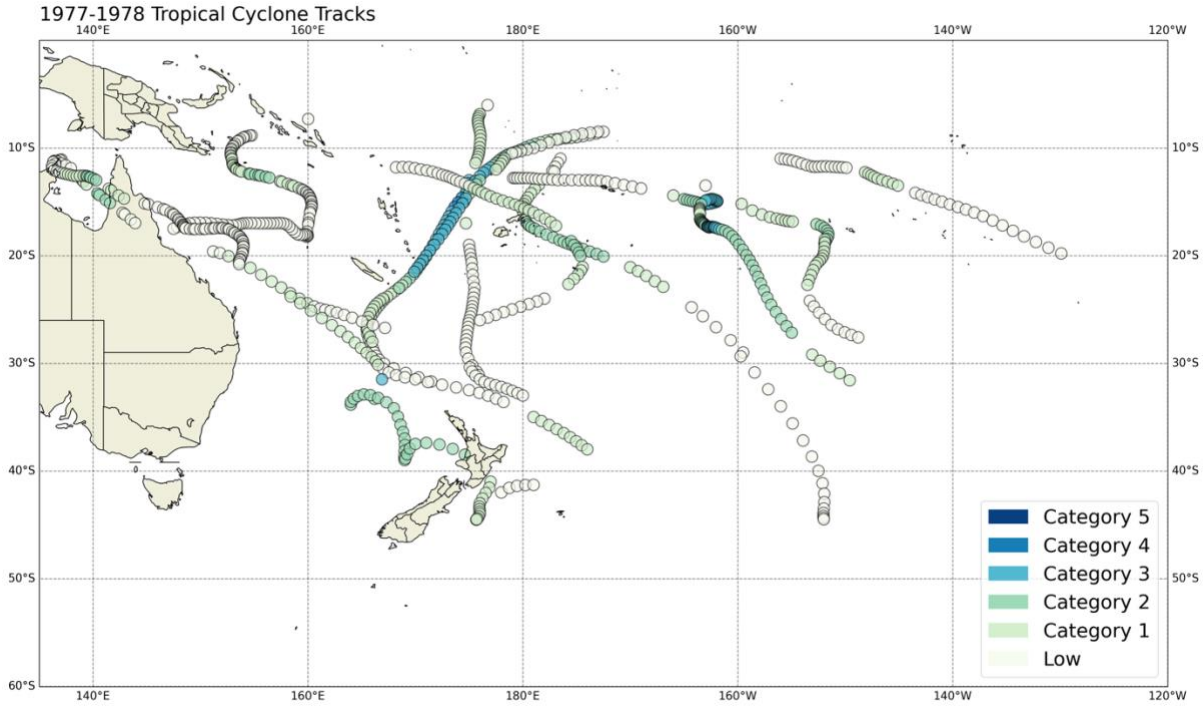
Based on the guidance from the ESNZ analogue method, a range of 7 – 11 named TCs could be expected during the 2026/27 season for the Southwest Pacific basin (135° E – 120° W). The spread for the estimated cyclone activity comes from the variation between six selected analogue seasons. The historic long-term seasonal average is just under nine named TCs for the SW Pacific basin. Most of the analogue seasons indicate a total number of cyclones that are above the long-term average. The long-term regional trend for TC occurrence in the SW Pacific has seen a decreasing number of named storms. The spread of the historical analogues and rounded total that is expected for the coming season encapsulates that trend. As such, the expected total and range of expected named storms has been adjusted to account for the long-term reduction in TC activity for the region.

Approximately half of the named storms that are expected to form this coming season (e.g. at least four named tropical cyclones) may reach severe Category 3 or higher status. All the historic analogues selected for the 2026/27 outlook have multiple severe TCs, indicating a strong likelihood of seeing storm systems reach Category 3 or higher in the SW Pacific this season. All of the historic analogue seasons except one indicate at least one cyclone that reached at least Category 4 strength. This provides confidence in the statistical outlook for expected cyclone strengths and supports a conservative estimate of at least four severe tropical cyclones for the coming season. Several seasons selected for the analogue outlook also contain multiple Category 5 cyclones (see Table 3). Despite a notable trend toward fewer named storms and stronger TCs in the SW Pacific over the past five decades, the

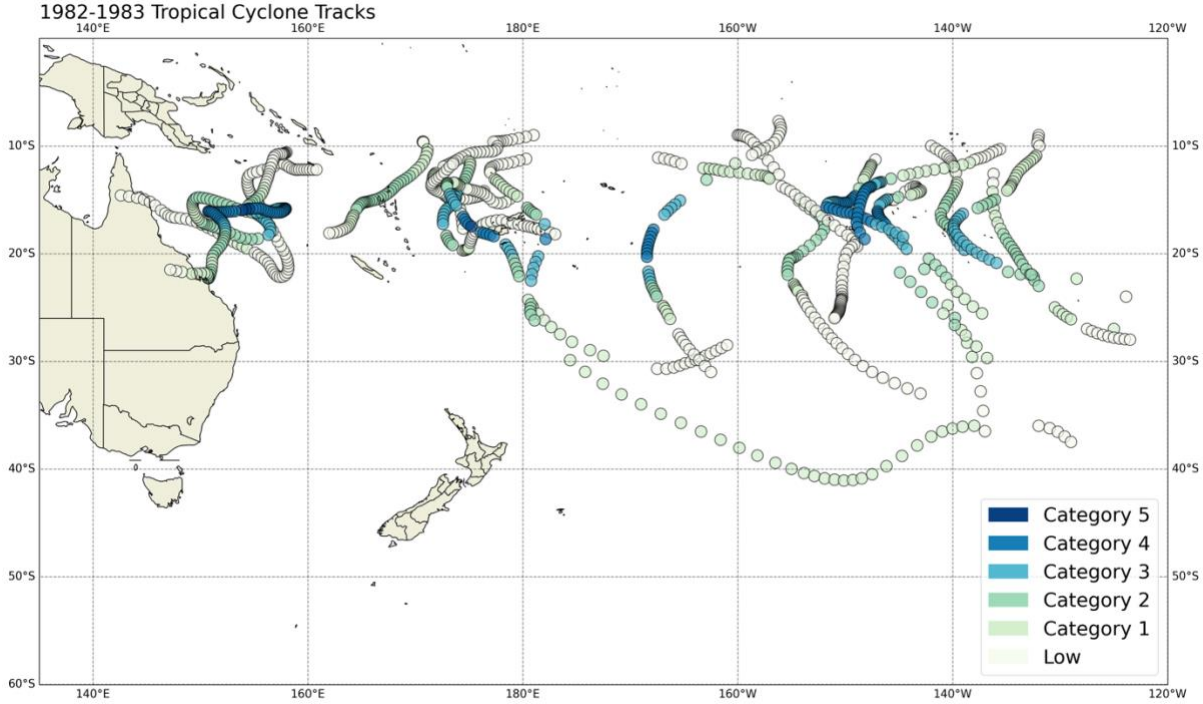
agreement of the analogues raises the possibility that at least one severe storm during the upcoming season could transform into a Category 5 system, which cannot be ruled out.

For the selected analogues, three seasons show at least one ex-tropical cyclone came within 550 km of New Zealand. Three of the seasons had no ex-tropical cyclone interactions, while others had multiple interactions (1991/92; 1997/98). Some past decaying ex-tropical cyclone systems have been associated with high rainfall, damaging winds and amplified coastal wave conditions. Because the analogues have identified some years with an ex-tropical cyclone system interacting with the New Zealand Exclusive Economic Zone (EEZ), the risk of an interaction for the country (where at least one cyclone approaches within 550 km of land) for the 2026/27 season is normal. More of the ex-tropical cyclones that interacted with New Zealand during the selected historical analogue seasons either deteriorated as they transited Pacific Ocean waters or did not have strong rainfall impacts. There is a slightly higher probability of a decaying ex-tropical cyclone tracking to the north of the North Island or west of the North Island in the Tasman Sea based on historic track data (Figure 3).

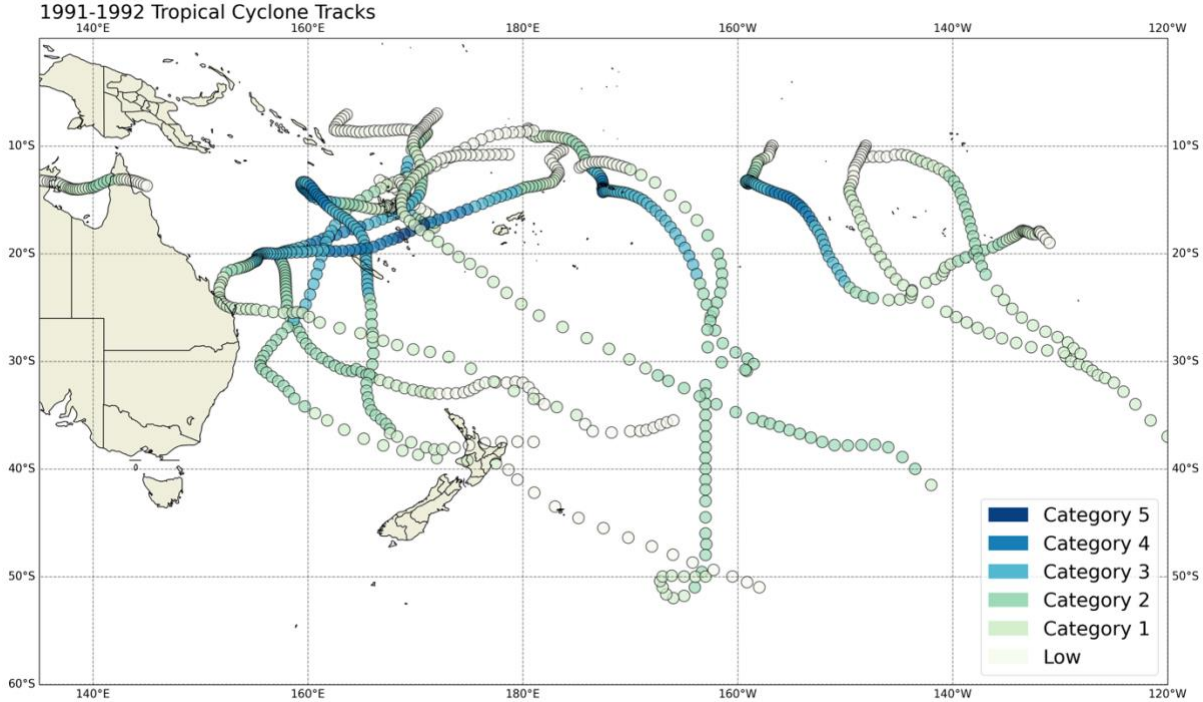

1972-1973 Tropical Cyclone Tracks
140°E
160°E
180°E
160°W
140°W
120°W
10°S
20°S
30°S
40°S
50°S
60°S
Category 5
Category 4
Category 3
Category 2
Category 1
Low


1977-1978 Tropical Cyclone Tracks
140°E
160°E
180°E
160°W
140°W
120°W
10°S
20°S
30°S
40°S
50°S
60°S
Category 5
Category 4
Category 3
Category 2
Category 1
Low

1982-1983 Tropical Cyclone Tracks



1991-1992 Tropical Cyclone Tracks



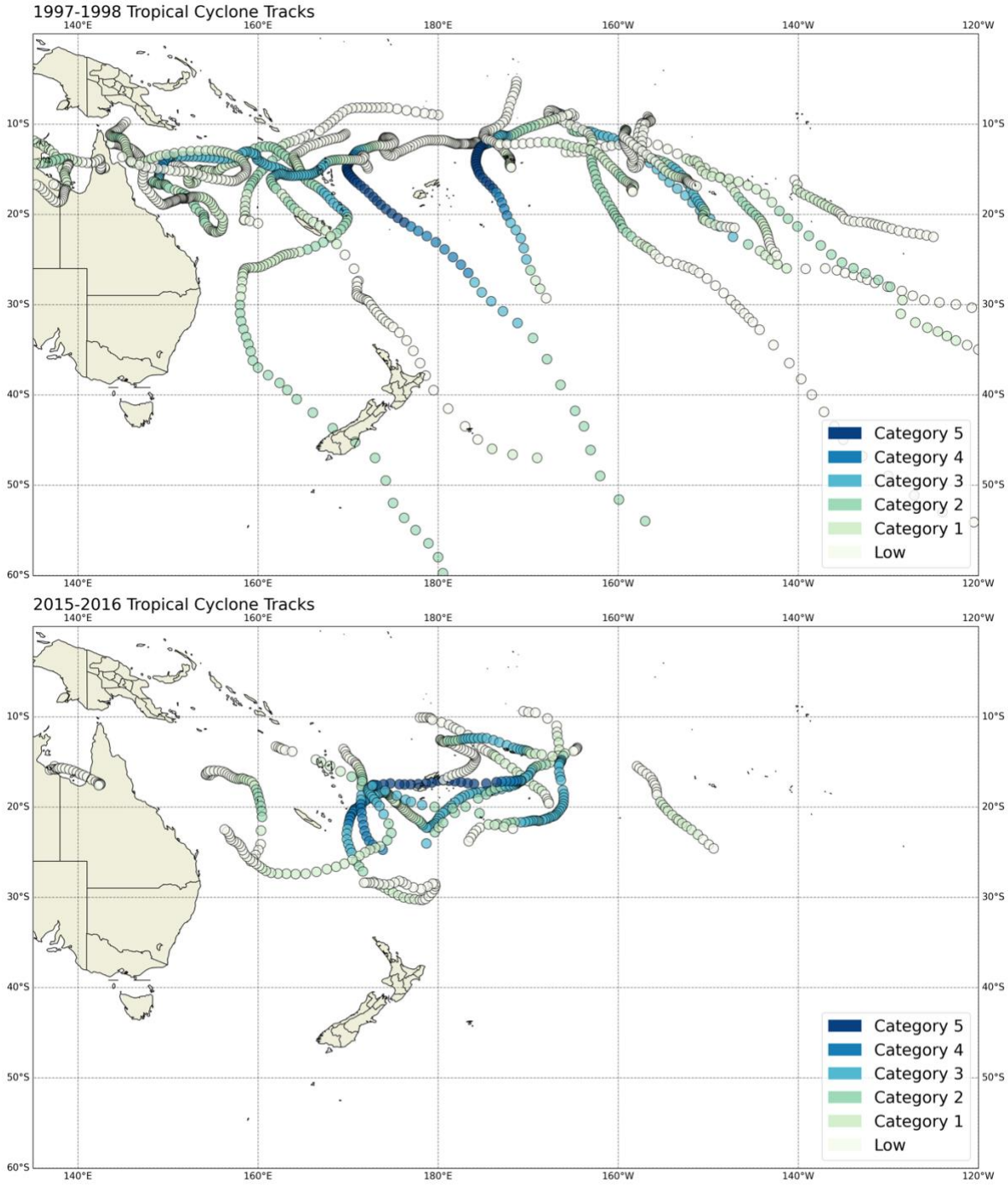


Figure 3: Plots of TC tracks and major tropical lows that were monitored for analogue seasons used in the 2026/27 seasonal forecast for the full season (November - April). Track data are courtesy of International Best Tracks Archive for Climate Stewardship (IBTRaCS)

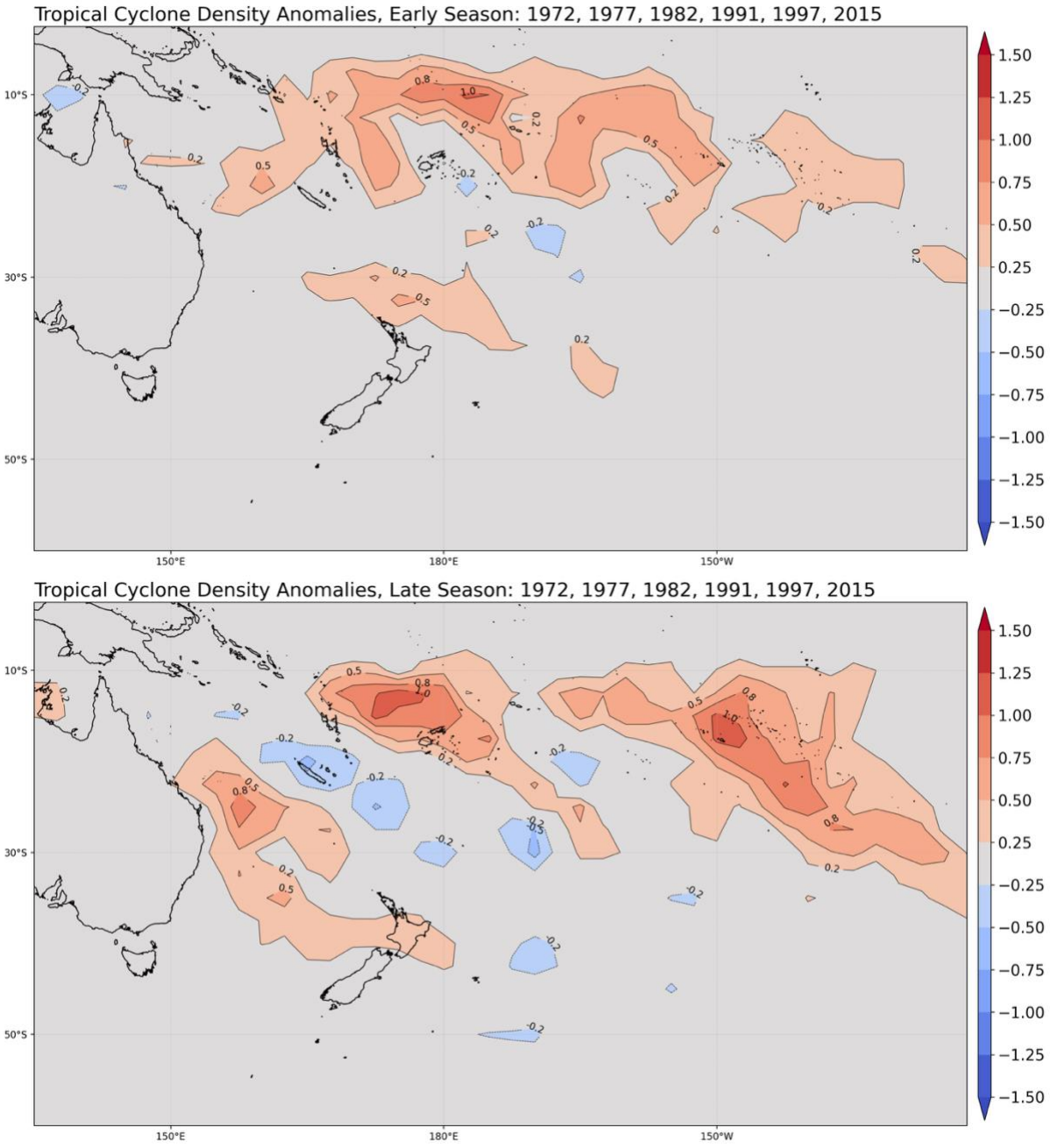


Figure 4: Early season (November to January; top panel) and late season (February to April; bottom panel) anomaly plots for selected TC analogue seasons (data courtesy of International Best Tracks Archive for Climate Stewardship (IBTrACS)). The year label notes the first month in the analogue year selection (i.e. for the early TC season "1984" = November 1984, December 1984, January 1985; and for the late TC season "1984" = February – April 1985).

ECMWF seasonal guidance, November 2026-April 2027

The Accumulated Cyclone Energy, or ACE, forecast: October 2026 ECMWF seasonal guidance indicates that above normal seasonal ACE (around 140% of normal) is most likely for the Southwest Pacific region (160°E-120°W) and that below normal ACE (60% of normal) is most likely for the Australian region (90°E-160°W). ACE is a metric derived from tropical cyclone intensity and duration, averaged across the basin.

Tropical storm (cyclone) density anomaly is forecast to be near normal or above normal for much of the central and eastern part of the basin (near and north of 20°S). Normal or below normal activity is predicted in the Coral Sea.

Tropical storm (cyclone) and hurricane frequency (Category 3 or higher):
For the Southwest Pacific region, ECMWF seasonal guidance indicates that the number of tropical cyclones is most likely to be in the near normal range (about 105% of normal), with the frequency of severe tropical cyclones forecast to also be in the near normal range (about 100% of normal).

For the Australian region, ECMWF seasonal guidance indicates a below normal number of tropical cyclones (about 60% of normal), with below normal severe TCs (about 55-60% of normal). For the region as a whole, when considering the predicted disparity between western and eastern areas of the basin, this guidance supports a near or above normal number of TCs and severe TCs for the 2026/27 tropical cyclone season. The east-west distribution of TCs, or regional variability, could be particularly notable this season with central and eastern areas of the basin likely to be prominently to more active than western parts of the basin.

In summary, when seasonal MSLP and rainfall anomalies for December 2026 to February 2027 are used as proxies for tropical cyclone activity, the C3S MME provides notably consistent support for the spatial patterns of elevated and suppressed activity indicated by the ECMWF seasonal guidance.

The ECMWF Southwest Pacific forecast domain for ACE is from 160˚ E to 120˚ W. ESNZ's outlook covers 135˚ E to 120˚ W, therefore the forecast generated by ESNZ extends 25˚ westward relative to the ECMWF forecast domain.

Information about the dynamical models used: information on ECMWF model skill can be found here for: tropical cyclones, severe tropical cyclones, and ACE. An overview of the multi-model ensemble used to create the rainfall and air pressure plots can be found here.

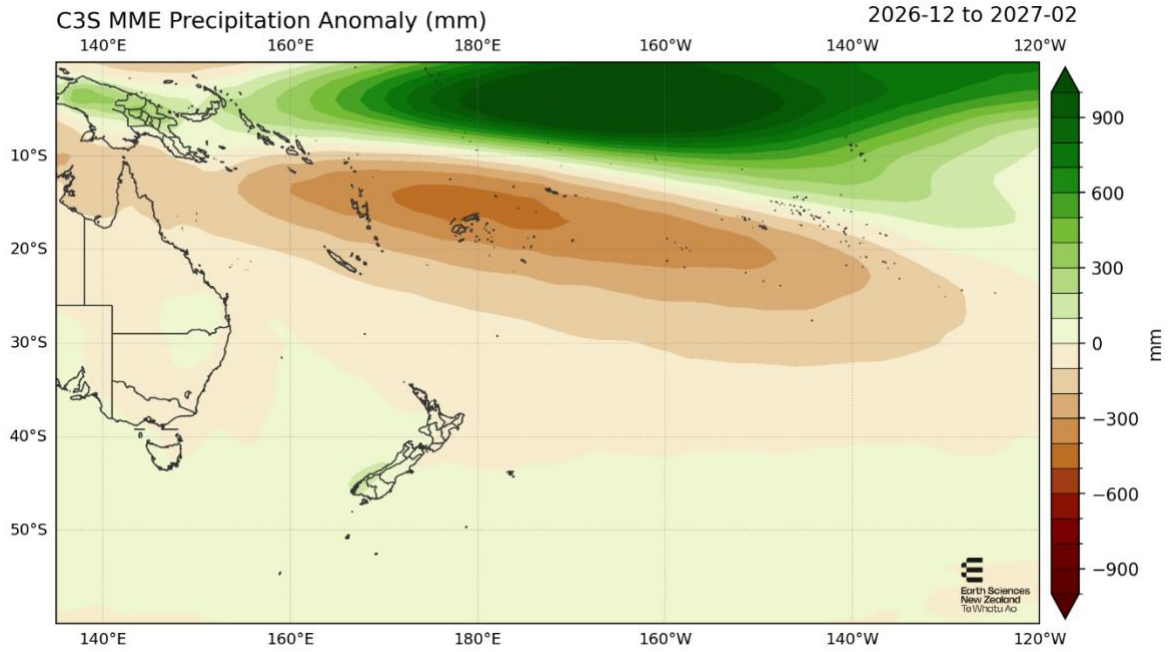


Figure 5: Multi-model ensemble forecast rainfall anomaly (mm/day), December 2026-February 2027; green (brown) shades indicate above (below) normal forecast rainfall

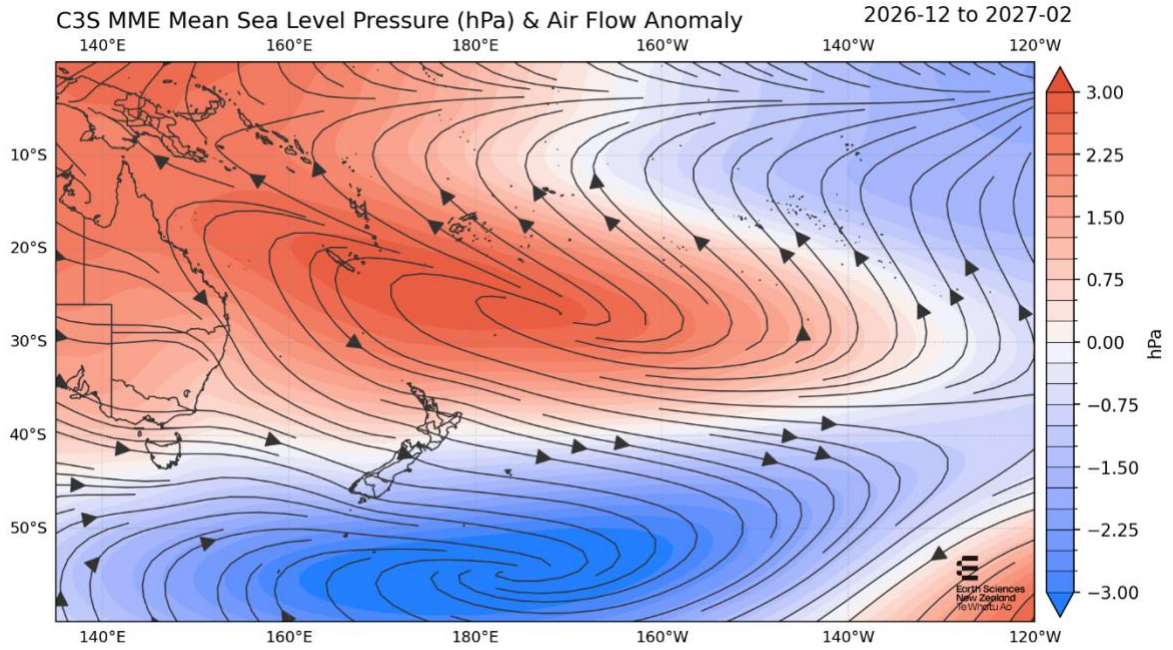


Figure 6: Multi-model ensemble forecast air pressure anomaly (hPa), December 2026-February 2027; red (blue) shades indicate above (below) normal air pressure; areas of below normal pressure in the tropics can indicate an increased potential for tropical cyclone genesis

TCO-SP (University of Newcastle) deterministic model summary

TCO-SP is a long-range tropical cyclone outlook based on a multivariate statistical method generated using Poisson Regression (Magee et al., 2020) published in *Scientific Reports.* This is the sixth year the product is available, and we have continued to incorporate it into the ICU outlook because it provides a different view from analogue and dynamical approaches. For the coming 2026/27 season, the deterministic TCO-SP outlook for Southwest Pacific TC season indicates 9 TCs are expected (probable range of 7-11 TCs), suggesting near-normal activity when compared with the 1991-2020 average of 8.7 TCs (Table 4 and Figure 7). See https://tcoutlook.com/swpacific/ for more details related to this part of the outlook.

For the SW Pacific basin, the multi-model average based on the 10 models used in TCO-SP indicates about nine TCs are expected (see Figure 7). The majority of the models indicate near normal activity for the basin. The multimodel ensemble mean for the basin-wide outlook (which has been produced using objective conventions) uses all of the group of 10 models employed in the TCO-SP guidance. The expected TC count (9 TCs) for the SWP domain is close to the average TC count (8.7 TCs). The near normal risk profile for this region considers the percentage difference between the normal and forecast TC numbers (9.0 vs 8.7 = 3% increase). Overall, the spatial pattern for the TCO-SP outlook displays similarities to both the analogue and dynamical guidance, with more similarities in the far eastern and central parts of the basin. Notably, TCO-SP indicates normal risk for Northern New Zealand.

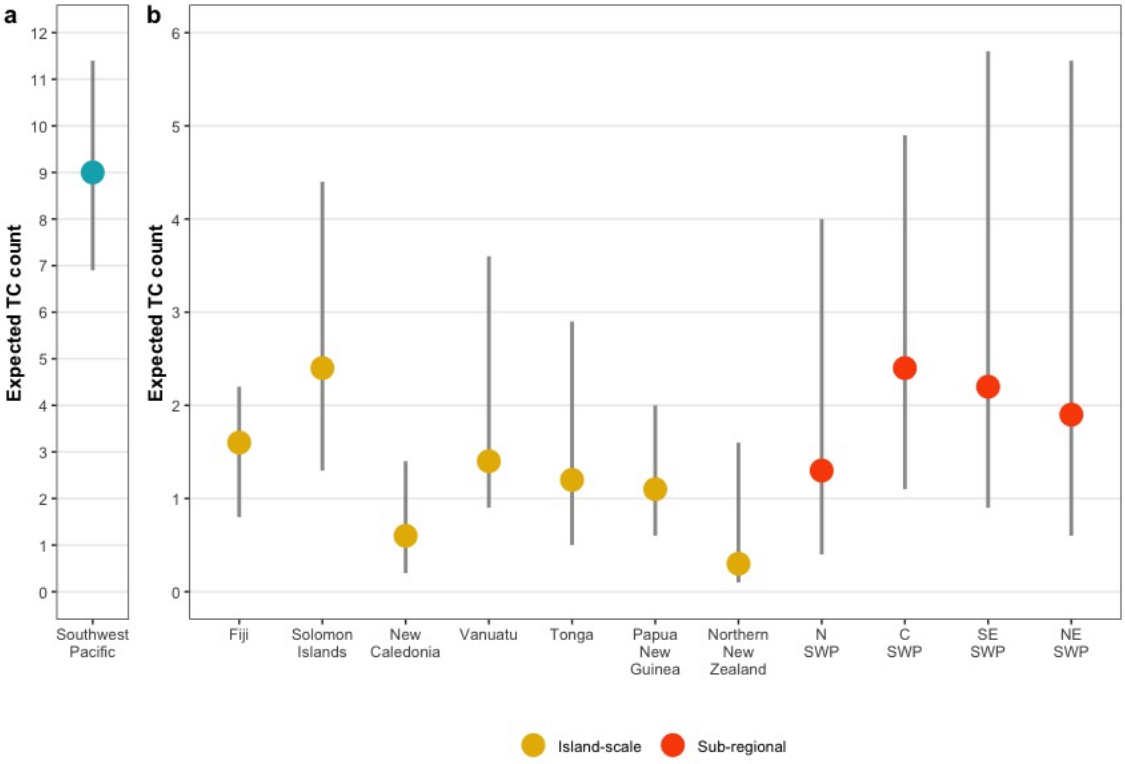


Figure 7: Expected TC count including probable range (95% confidence intervals) for the 2026/27 Southwest Pacific Tropical Cyclone Season based on TCO-SP (Magee et al., 2020). Expected TC counts are summarised for the Southwest Pacific (panel a) and island-scale and sub-regional areas (panel b).

[a] Sub-regional models – where individual island TC climatology shows less than 1.5 TCs per season, geographically neighbouring EEZs have been merged to increase sample size (Click here for more information).
[b] Average TC counts calculated for November-April TC season.

Table 4: Expected TC counts including expected range (95% confidence intervals (CI)) for the 2026/27 Southwest Pacific tropical cyclone season (September 2026 update), difference from long term average TC count (1991-2020). NB – the island

scale models for Fiji and Tonga (west Central SWP), New Caledonia and Vanuatu (East Coral Sea), Solomon Islands and Papua New Guinea (North Coral Sea) are aggregated using arithmetic means for the differences between expected and long-term averages to provide a subregional risk that feeds into the consensus view for the SW Pacific basin outlook (in Table 1).

		Long-term average TC count (1991-2020[b])	**Expected TC Count** (Probable TC count range: 95% CI)	**Difference between expected and long-term average (TC)**
	Southwest Pacific	8.7	9.0 (6.9 – 11.4)	▲+0.3
Island Scale Models	Fiji	2.5	1.6 (0.8 – 2.2)	▼-0.9
	Solomon Islands	2.5	2.4 (1.3 – 4.4)	▼-0.1
	New Caledonia	2.3	0.6 (0.2 – 1.4)	▼-1.8
	Vanuatu	2.0	1.4 (0.9 – 3.6)	▼-0.6
	Tonga	2.0	1.2 (0.5 – 2.9)	▼-0.8
	Papua New Guinea	1.6	1.1 (0.6 – 2.0)	▼ -0.5
	Northern New Zealand	0.7	0.3 (0.1 – 1.6)	▼-0.4
Subregional models[a]	**N SWP** (Tuvalu, Wallis & Futuna, Tokelau)	1.8	1.3 (0.4 – 4.0)	▼-0.5
	C SWP (Samoa, American Samoa, Niue)	1.5	2.4 (1.1 – 4.9)	▲+0.9
	SE SWP (Southern Cook Islands, Society Islands, Austral Islands)	1.6	2.2 (0.9 – 5.8)	▲+0.6
	NE SWP (Northern Cook Islands, E Kiribati: Line Islands, Marquesas, Tuamotu Archipelago, Gambier Islands, Pitcairn Islands)	1.1	1.9 (0.6 – 5.7)	▲+0.8