Overview of TCs over November to April
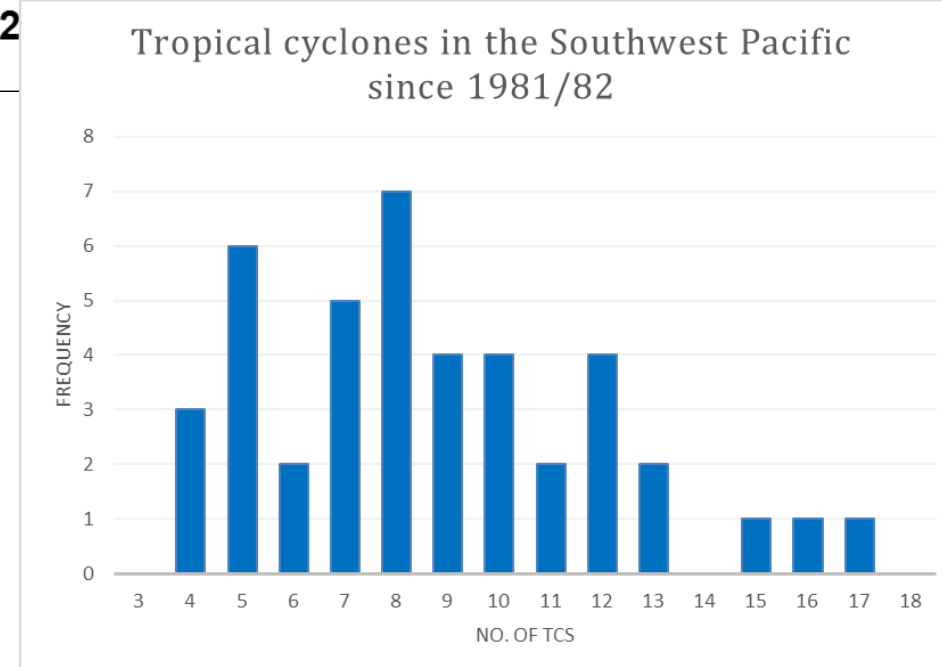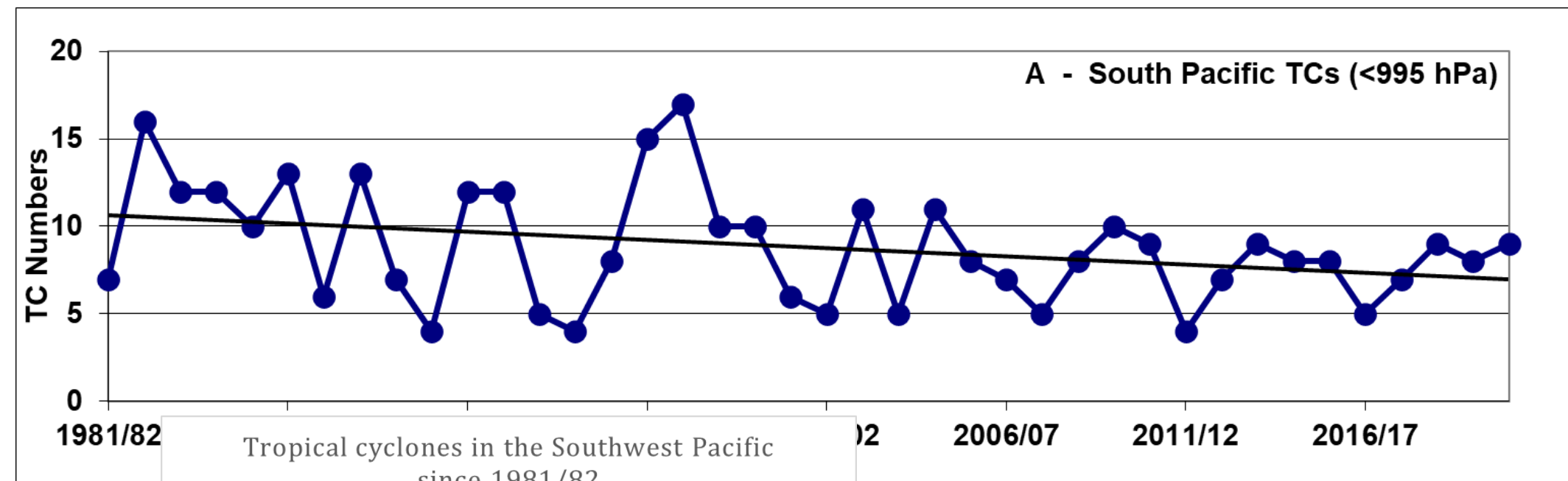
Simon McGree

BOM

Review Southwest Pacific TC outlook for 2023/24

- BOM, NIWA, Fiji agreed on <u>normal-to-enhanced</u> TC activity in the eastern part of the basin and normal to-reduced TC activity in the western part linked an established El Niño event;
- Outlook confidence is low to very low according to BOM;
- NIWA favoured 4-8 severe TCs reaching category 3+ anywhere across the region;

- Historical records show TC activity shifting eastward during El Niño

Actual TC events over 2023/24

- Severe TC Lola (Oct)
- Severe TC Mai (Nov)
- TC Nat (Feb)
- TC Osai (Feb)

- Severe TC Jasper (Dec)
- Severe TC Kirrily (Jan-Feb)
- TC Paul (Apr)
- (TC Lincoln, Feb)
- (Severe TC Megan, Mar)

Severe refers to a tropical cyclone that attained Cat. 3 status

- 7 in the BOM area (4 severe)
- 9 in the NIWA area (5 severe)
- Below the long-term average of 9 (BOM area)

A - South Pacific TCs (<995 hPa)

Tropical cyclones in the Southwest Pacific since 1981/82

Review Southwest Pacific TC outlook for 2023/24

- BOM, NIWA, Fiji agree on a normal-to-enhanced risk for TC activity in the eastern part of the basin and normal to-reduced TC activity in the western part linked an established El Niño event;

- **Fewer than expected TCs in the east**
- **As forecast in the west (3 BOM, 5 NIWA)**

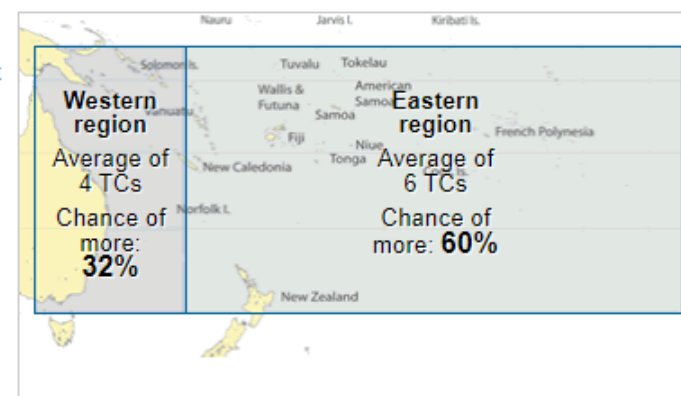**Below average number of tropical cyclones likely in the western South Pacific in 2023 to 2024**

- The established El Niño in the tropical Pacific Ocean has influenced this year's tropical cyclone season forecast.
- A below average number of tropical cyclones is likely (68% likelihood of being below average) in the western South Pacific region this season. Historical forecast accuracy for the region is low.
- A close-to-average to above-average number of tropical cyclones is expected for the eastern South Pacific (60% likelihood of being above average), model accuracy historically for this region is very low.

The South Pacific tropical cyclone season typically runs from 1 November to 30 April, although tropical cyclones can, and do, form outside of those bounds. The average number of tropical cyclones during the season in the western region is 4, and in the eastern region is 6. Tropical cyclones can affect Pacific Islands and coastal regions even when they remain well offshore.

This forecast is based on the analysis of El Niño–Southern Oscillation (ENSO) oceanic and atmospheric indicators over July to September 2023. El Niño conditions were established in the tropical Pacific in September 2023, prior to which the last El Niño was declared by the Bureau in 2015–16. During July and August, oceanic patterns were El Niño-like but the atmospheric response to the warm sea surface temperatures in the central and eastern Pacific was weak. Climate models suggest this El Niño will persist until at least the end of the coming southern hemisphere summer.
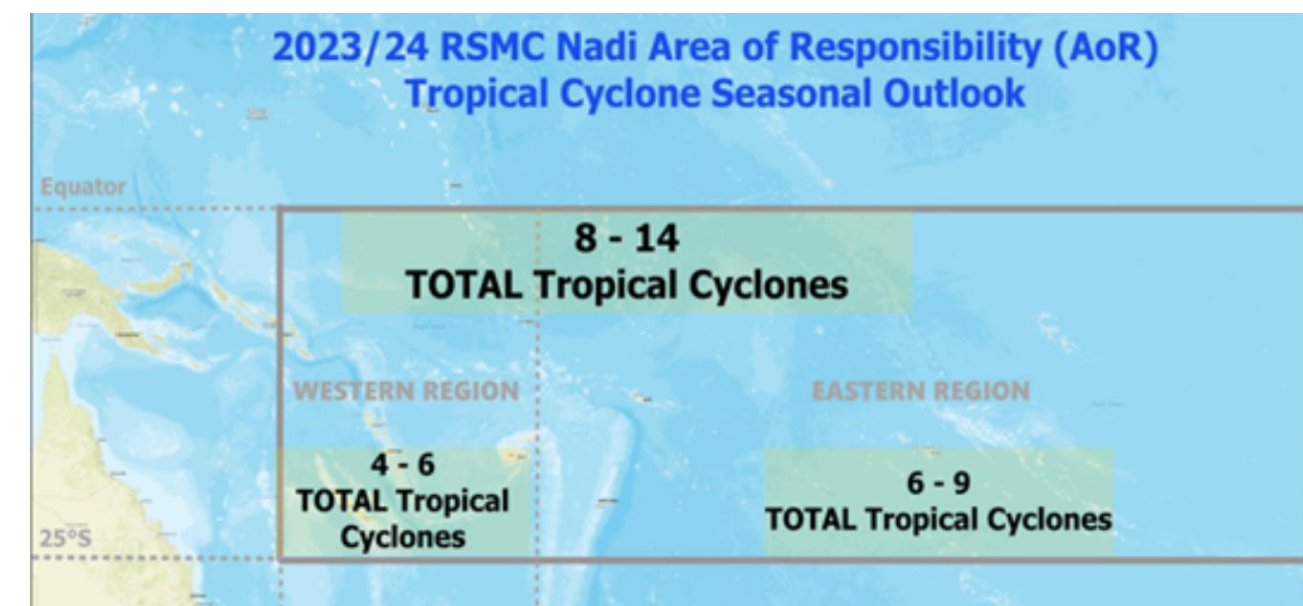
Ocean temperatures are currently above average across most of the Pacific Ocean, especially in the central and eastern equatorial Pacific where temperatures are at least 1.2 to 2 °C warmer than the long-term (1961–1990) average.

Chance more than average number of tropical cyclones

Western region: Average of 4 TCs, Chance of more: **32%**
Eastern region: Average of 6 TCs, Chance of more: **60%**

| Region	Long-term average (median) number of tropical cyclones	Chance more than average number of tropical cyclones
Western	4	32%
Eastern	6	60%

The long-term average number of tropical cyclones is calculated using data from the 1969–70 season up to this season.

2023/24 RSMC Nadi Area of Responsibility (AoR) Tropical Cyclone Seasonal Outlook

Equator

8 - 14 TOTAL Tropical Cyclones

WESTERN REGION

EASTERN REGION

4 - 6 TOTAL Tropical Cyclones

6 - 9 TOTAL Tropical Cyclones

25°S

Review Southwest Pacific TC outlook for 2023/24

ECMWF Seasonal Forecast
Standardized Tropical Storm Density
Forecast start reference is 01/10/2023
Ensemble size = 51,climate size =575

SEAS5
NDJFMA 2023/24
Climate (initial dates) = 1993-2015

Reduced expected value   Usual expected value   Enhanced expected value
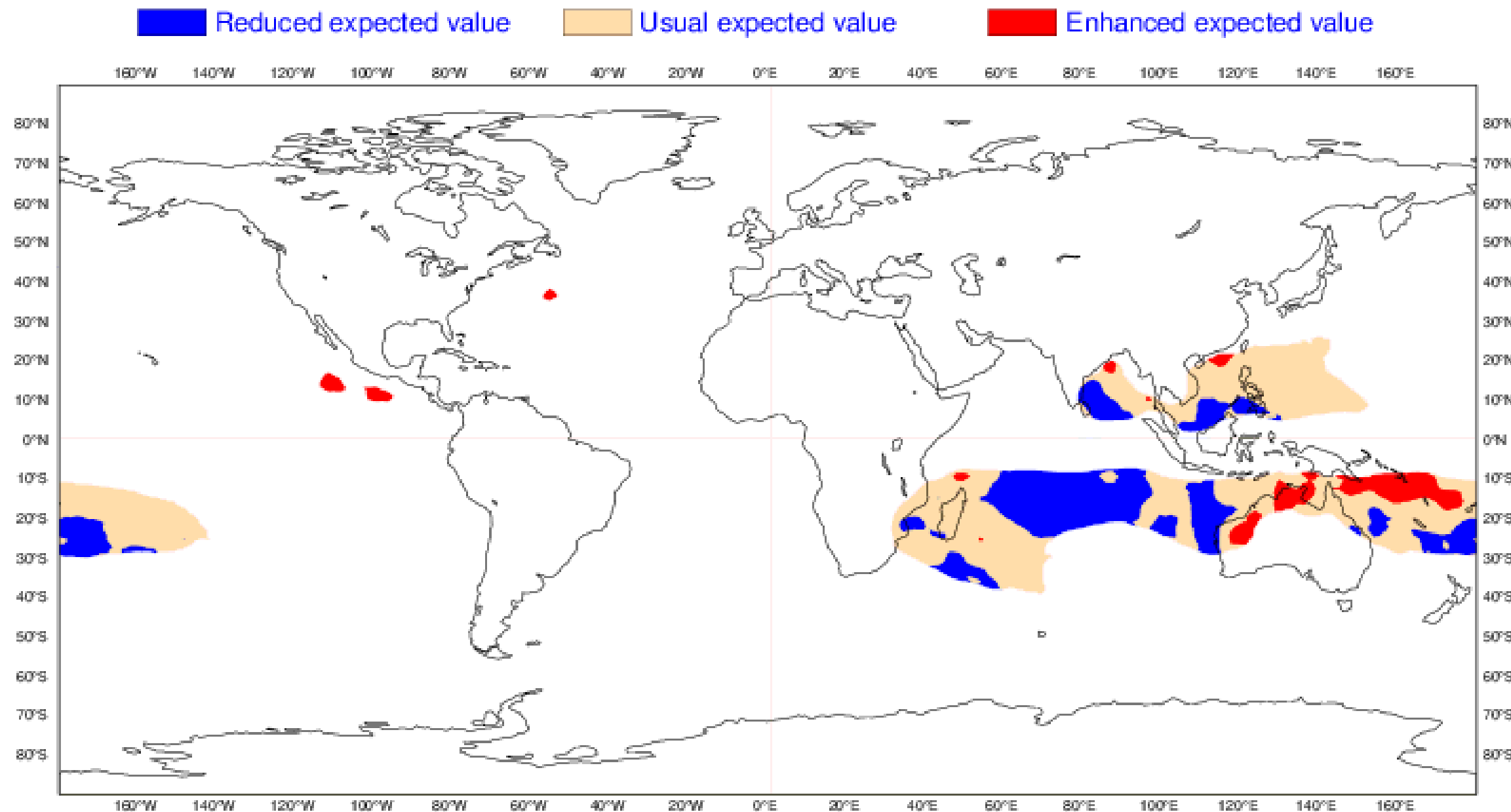
- 8 TCs (NIWA) between Nov-Apr
- 6 of 8 TCs pass through the Enhanced expected value region
- Note: this not a good way of measuring model skill

Review Southwest Pacific TC outlook for 2023/24

- NIWA favoured 4-8 severe TCs reaching category 3+ anywhere across the region

- Severe TC Lola (Oct)
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- TC Paul (Apr)
- (TC Lincoln, Feb)
- (Severe TC Megan, Mar)

B - South Pacific Category 3-5 TCs (<970 hPa)
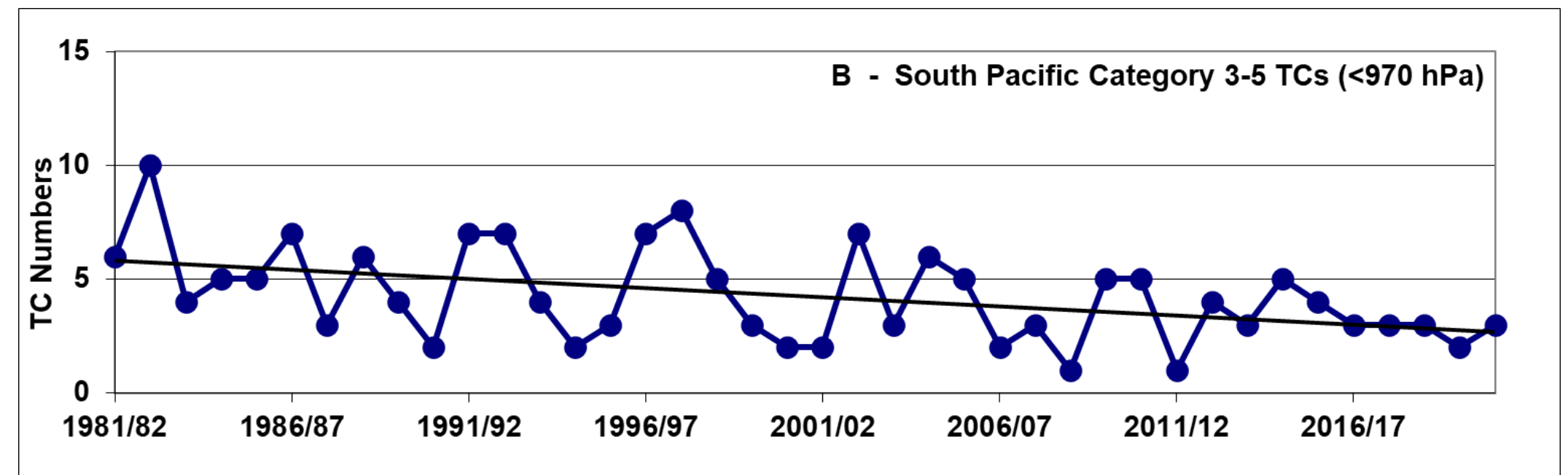
- BOM average is 4, what we got in 2023/24 is 4

Contact

✉

My Email
simon.mcgree@bom.gov.au