



June Forecast Update for Australian-Region Tropical Storm Activity in 2004/5

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Forecast Summary

TSR continues to anticipate the 2004/5 Australian season will see activity close to average.

The TSR (Tropical Storm Risk) early June forecast update for Australian-region tropical cyclone activity continues to anticipate a near-average season for 2004/5. The forecast spans the Australian season from the 1st November 2004 to the 30th April 2005 and is based on data available through the end of May 2004. The TSR predictor for Australian-region total numbers is the forecast anomaly in October-November Niño 4 sea surface temperatures (SST) which is anticipated to be near neutral at 0.09 ± 0.40 °C. The TSR predictor for Australian landfalling numbers is the forecast anomaly in December-March SST for the extended ENSO region 5°N-5°S, 120°W-177.5°W which is anticipated to be warmer than normal at 0.30 ± 0.56 °C. Monthly updated forecasts will follow through to early December 2004. Appendices give the TSR predictions from previous months.

Australian Region Total Numbers Forecast for 2004/5

		Severe Tropical Cyclones	Tropical Storms
TSR Forecast (\pm FE)	2004/5	5.2 (\pm 1.6)	10.6 (\pm 3.0)
29yr Climate Norm (\pm SD)	1975/6-2003/4	5.8 (\pm 2.4)	10.7 (\pm 3.7)
Forecast Skill at this Lead	1989/90-2003/4	19%	21%

Key: Severe Tropical Cyclone = 1 Minute Sustained Wind > 63Kts = Hurricane Category 1 to 5.
 Tropical Storm = 1 Minute Sustained Wind > 33Kts.
 SD = Standard Deviation.
 FE (Forecast Error) = Standard Deviation of Errors in Replicated Real Time Forecasts 1994/5-2003/4.
 Forecast Skill = Percentage Improvement in Mean Square Error over Running 10-year Prior Climate Norm from Replicated Real Time Forecasts 1988/9-2002/3.
 Australian Region = Southern hemisphere 100°E to 170°E (Storm Must Form as a Tropical Cyclone Within to Count).

- Very severe tropical cyclones (hurricane category 3-5) are not forecast due to data reliability problems in the historical record.
- Our Australian region (100°E to 170°E), while slightly non-standard, is selected to provide the best overview for tropical cyclone activity around the whole of Australia.

There is a 26% probability that Australian tropical storm numbers in 2004/5 will be above-average (defined as more than 12 tropical storms), a 37% likelihood they will be near-average (defined as between 9 and 12 tropical storms) and a 37% chance they will be below-average (defined as less than 9 tropical storms). The 1975/6-2003/4 climatology probabilities for each category are 31% (above-normal), 34.5% (near-normal) and 34.5% (below-normal).

Australian Landfalling Numbers in 2004/5

		Tropical Storms
TSR Forecast (\pm FE)	2004 /5	4.4 (\pm 1.8)
Average (\pm SD)	1975/6-2003/4	4.7 (\pm 2.2)
Forecast Skill at this Lead	1989/90-2003/4	35%

Key: Landfalling Region = Northern Australian coast from Perth around to Brisbane.

- Severe tropical cyclone strikes are not forecast due to their low occurrence rate and to their lack of correlation with tropical storm strike numbers.

There is a 13% probability that Australian tropical storm strike numbers in 2004/5 will be above average (defined as more than 5 landfalling tropical storms), a 58% likelihood they will be near normal (defined as 4 or 5 landfalling tropical storms) and a 29% chance they will be below normal (defined as less than 4 landfalling tropical storms). The 1975/6-2003/4 climatology probabilities for each category are 28% (above-normal), 41% (near-normal) and 31% (below-normal).

Key Predictors for 2004/5

The key factor behind our forecast for Australian-region tropical storm activity in 2004/5 being close to average is the anticipated neutral effect of early austral summer SSTs in the Niño 4 region. Average SSTs in this region lead to average atmospheric vertical wind shear over the Australian region during Austral summer; a condition favouring average tropical storm activity. Our current forecast SST anomaly (1974/5-2003/4 climatology) for October-November 2004 Niño 4 SST is $0.09\pm 0.40^{\circ}\text{C}$ (up from $-0.01\pm 0.45^{\circ}\text{C}$ last month). The forecast skill for this predictor is 64% (assessed using replicated real-time forecasts over the last 15 years). Our landfalling predictor (December 2004 - March 2005 forecast SST value for the extended ENSO region 5°N - 5°S , 120°W - 177.5°W) is anticipated to be $0.30\pm 0.56^{\circ}\text{C}$ (up from $0.27\pm 0.69^{\circ}\text{C}$ last month). The forecast skill for this predictor at this lead is 61%.

Further Information

Further information on the TSR forecast methodology and on TSR in general, may be obtained from the TSR website (<http://tropicalstormrisk.com>). The TSR next monthly forecast update for Australian-region tropical storm activity in 2004/5 will be issued on the 5th July 2004.

Appendix - Predictions from Previous Months

1. Australian Region Total Numbers

Australian Region Total Numbers 2004/5			
		Tropical Storms	Severe Tropical Cyclones
Average Number (\pm SD) (1975/6-2003/4)		10.7 (\pm 3.7)	5.8 (\pm 2.4)
TSR Forecasts (\pm FE)	7 Jun 2004	10.6 (\pm 3.0)	5.2 (\pm 1.6)
	11 May 2004	11.0 (\pm 3.4)	5.3 (\pm 1.6)
	6 Apr 2004	11.4 (\pm 2.4)	5.5 (\pm 1.5)

1. Australian Landfalling Numbers

Australian Landfalling Numbers 2004/5		
		Tropical Storms
Average Number (\pm SD) (1975/6-2003/4)		4.7 (\pm 2.2)
TSR Forecasts (\pm FE)	7 Jun 2004	4.4 (\pm 1.8)
	11 May 2004	4.5 (\pm 1.8)
	6 Apr 2004	5.0 (\pm 1.9)

