November Forecast Update for Australian-Region Tropical Storm Activity in 2002/3

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by Paul Rockett, Mark Saunders and Frank Roberts
Benfield Greig Hazard Research Centre, UCL (University College London), UK

Forecast Summary

Australian region (100°E to 170°E) tropical storm and severe tropical cyclone numbers in 2002/3 are expected to be 0.7 standard deviation below the 10-year climate norm

The Tropical Storm Risk (TSR) consortium presents its early November monthly update for Australian-region tropical storm and severe tropical cyclone numbers, and for Australian tropical storm strike numbers in 2002/3. The forecast spans the Australian season from December 2002 to April 2003 and is built on data available through to the end of October 2002. Our predictor for regional numbers is the observed October sea surface temperature (SST) for the region 5°N-5°S, 170°W-160°E; for landfalling numbers it is the December 2002-March 2003 forecast SST for the region 5°N-5°S, 177.5°W-120°E. Both predictors are warmer than normal leading to a suppressing effect on numbers through enhanced vertical wind shear. We expect Australian basin cyclone activity to be about 0.7 standard deviation below average in 2002/3 (up slightly on last month) and landfalling numbers to be about 0.4 of a standard deviation below normal (same as forecast last month). A final monthly forecast update will be issued in early December 2002.

Australian Region Total Numbers Forecast for 2002/3

		Severe Tropical Cyclones	Tropical Storms
TSR Forecast (±FE)	2002/3	4.3 (±1.6)	9.0 (±1.7)
10yr Climate Norm (±SD)	1992/3-2001/2	5.7 (±2.1)	10.8 (±2.8)
30yr Climate Norm (±SD)	1972/3-2001/2	6.0 (±2.4)	11.3 (±3.8)
Forecast Skill at this Lead	1987/8-2001/2	36	46

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 1992/3-2001/2
Forecast Skill = Percentage Improvement over Running 10-year Prior Climate Norm from Replicated Real Time Forecasts 1987/8-2001/2
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 to170°E), while slightly non-standard, is selected to provide the best overview for tropical cyclone activity around the whole of Australia.

Australian Landfalling Numbers in 2002/3

		Tropical Storms
TSR Forecast (±FE)	2002/3	3.6 (±2.1)
10yr Climate Norm (±SD)	1992/3-2001/2	4.4 (±2.1)
30yr Climate Norm (±SD)	1972/3-2001/2	4.9 (±2.3)
Forecast Skill at this Lead	1987/8-2001/2	5

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

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

Key Predictor for 2002/3

The key factor behind our forecast for below average Australian-region tropical storm activity in 2002/3 is the anticipated suppressing effect of warmer than average current SSTs in the near Niño 4 region 5°N-5°S, 170°W-160°E. Warmer than normal waters in this region lead to increased atmospheric vertical wind shear over the Australian region during austral summer; a condition favouring below average tropical storm activity. The current (October) SST anomaly (1972/3-2001/2 climatology) in this region is 0.45 °C. Our predictor for landfalling numbers is the December 2002 - March 2003 forecast SST value for the extended ENSO region 5°N-5°S, 177.5°W-120°E. This is anticipated to be 1.15±0.31°C (down slightly from 1.21±0.35°C last month). The *Forecast Skill* for this predictor at this lead is 70% (assessed using replicated real-time forecasts over the last 15 years).

Further Information

Further information on the TSR forecast methodology, the TSR simulated real-time forecast skill 1987/8-2001/2 as a function of lead time, and on TSR in general, may be obtained from the 'Long-Range Forecast for Australian-Region Tropical Storm Activity in 2002/3' document issued on the 9th August 2002. Our final monthly forecast update for the 2002/3 Australian-Region Tropical Storm season will be issued in early December 2002.

Appendix - Predictions from Previous Months

1. Australian Region Total Numbers

Australian Region Total Numbers 2002/3			
		Tropical Storms	Severe Tropical Cyclones
Average Number (±SD) (1992/3-2001/2)		10.8 (±2.8)	5.7 (±2.1)
Average Number (±SD) (1972/3-2001/2)		11.3 (±3.8)	6.0 (±2.4)
TSR Forecast (±FE)	6 Nov 2002	9.0 (±1.7)	4.3 (±1.6)
	8 Oct 2002	7.7 (±2.4)	3.8 (±1.9)
	5 Sep 2002	7.3 (±2.4)	3.6 (±1.9)
	9 Aug 2002	7.5 (±2.7)	3.7 (±1.9)

2. Australian Landfalling Numbers

Australian Landfalling Numbers 2002/3		
		Tropical Storms
Average Number (±SD) (1992/3-2001/2)		4.4 (±2.1)
Average Number (±SD) (1972/3-2001/2)		4.9 (±2.3)
TSR Forecast (±FE)	6 Nov 2002	3.6 (±2.1)
	8 Oct 2002	3.6 (±2.2)
	5 Sep 2002	3.5 (±2.3)
	9 Aug 2002	3.5 (±2.2)