



# Extended Range Forecast for Northwest Pacific Typhoon Activity in 2005

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## Forecast Summary

**TSR anticipates the 2005 Northwest Pacific typhoon season will see activity slightly above average.**

The TSR (Tropical Storm Risk) consortium presents their extended range forecast for Northwest Pacific typhoon activity in 2005. The forecast spans the full Northwest Pacific season from 1st January to 31st December 2005 (95% of typhoons historically occur after 1st May) and is based on data available through the end of February 2005. The forecast includes deterministic and probabilistic projections for overall basin activity, and deterministic projections for the numbers of tropical storms, typhoons and intense typhoons. TSR anticipates that activity in 2005 will be slightly above-average overall but that typhoon and tropical storm numbers will be slightly below average. TSR's main predictor at this lead for overall activity is the February surface pressure in the central northern tropical Pacific (region 10-20°N, 145-165°W). Monthly updated forecasts will be issued from early May through to early August.

## NW Pacific ACE Index and System Numbers in 2005

		ACE Index	Intense Typhoons	Typhoons	Tropical Storms
TSR Forecast ( $\pm$ FE)	2005	340 ( $\pm$ 92)	9.8 ( $\pm$ 2.7)	16.1 ( $\pm$ 3.3)	25.9 ( $\pm$ 4.0)
40yr Climate Norm ( $\pm$ SD)	1965-2004	305 ( $\pm$ 99)	8.6 ( $\pm$ 3.0)	16.9 ( $\pm$ 3.7)	26.8 ( $\pm$ 4.5)
Forecast Skill at this Lead	1965-2004	13%	19%	19%	21%

Key: ACE Index	=	Accumulated Cyclone Energy Index	=	Sum of the Squares of 6-hourly Maximum Sustained Wind Speeds (in units of knots) for all Systems while they are at least Tropical Storm Strength. ACE Unit = $\times 10^4$ knots <sup>2</sup> .
Intense Typhoon	=	1 Minute Sustained Wind > 95Kts	=	Hurricane Category 3 to 5
Typhoon	=	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 from Cross-Validated Hindcasts 1965-2004		
Forecast Skill	=	Percentage Reduction in Mean Square Error Afforded by Cross-Validated Hindcasts 1965-2004 over Hindcasts Made with the 1965-2004 Climate Norm		
Northwest Pacific	=	Northern Hemisphere Region West of 180°W Including the South China Sea. Any Tropical Cyclone (Irrespective of Where it Forms) Which Reaches Tropical Storm Strength Within this Region Counts as an Event.		

There is a 42% probability that the 2005 Northwest Pacific typhoon season ACE index will lie in the upper tercile historically (defined as an ACE index value >331), a 43% likelihood it will lie in the average tercile historically (defined as an ACE index value between 237 and 331), and only a 15% chance it will lie in the lower tercile historically (defined as an ACE index <237). The 40-year period 1965-2004 is used for climatology.

Key: Terciles = Data groupings of equal (33.3%) probability corresponding to the upper, middle and lower one third of values historically (1965-2004).

## Predictors for 2005

The TSR predictors have changed from previous years. This follows a review of seasonal predictability over the extended 1965-2004 period of reliable data. Tropical storm and typhoon numbers are now forecast before May using the Niño 3 sea surface temperature (SST) from the prior September; from May they are forecast using April surface pressure from the region 17.5°N-35°N, 160E-175°W. Intense typhoon numbers and the ACE Index are now forecast in March and April using the February surface pressure in the central northern tropical Pacific (region 10°N-20°N, 145°W-165°W); from May they are forecast from the forecast value for the August-September Niño 3.75 index (5°S-5°N, 140°W-180°W). Above average (below average) Niño 3.75 SSTs are associated with weaker (stronger) trade winds over the region 2.5°N-12.5°N, 120°E-180°E. These in turn lead to enhanced (reduced) cyclonic vorticity over the Northwest Pacific region where intense typhoons form.

## Forecasts and New Developments for 2005

For the 2005 Northwest Pacific typhoon season, TSR will be: (1) Issuing updated deterministic forecasts through to early August for basin tropical storm, typhoon and intense typhoon numbers and for the basin ACE index; (2) Issuing updated tercile probabilistic forecasts through to early August for the Northwest Pacific ACE index; (3) Using improved models for forecasting seasonal tropical storm and typhoon numbers (all leads), and for intense typhoon numbers and the ACE index (March forecast only); (4) Providing real-time forecasts through the TSR Storm Tracker for active Northwest Pacific storm systems; (5) Introducing storm forecast strike probabilities out to 5 days lead and automatic storm alert e-mails to the features of the TSR Tropical Storm Tracker.

## Further Information

TSR's real-time forecasts for NW Pacific typhoon activity in 2000-2004 may be obtained from the TSR web-site (<http://tropicalstormrisk.com>). The next TSR forecast for the 2005 Northwest Pacific typhoon season will be issued on the 5th May 2005.

