



# Extended Range Forecast for Northwest Pacific Typhoon Activity in 2008

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## Forecast Summary

**TSR anticipates the 2008 Northwest Pacific typhoon season will see activity ~20% below average.**

The TSR (Tropical Storm Risk) consortium presents their extended range forecast for Northwest Pacific typhoon activity in 2008. The forecast spans the full Northwest Pacific season from 1st January to 31st December 2008 (95% of typhoons occur historically after 1st May) and is based on data available through the end of February 2008. The forecast includes deterministic and probabilistic projections for overall basin activity, and deterministic projections for the numbers of intense typhoons and the ACE index. Due to conflicting climate signals it is currently not possible to issue forecasts for tropical storm and typhoon numbers with any confidence. TSR anticipates that activity will be about 20% below the long term climate norm. 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 2008

		ACE Index	Intense Typhoons
TSR Forecast ( $\pm$ FE)	2008	237 ( $\pm$ 90)	6.4 ( $\pm$ 2.7)
43yr Climate Norm ( $\pm$ SD)	1965-2007	303 ( $\pm$ 97)	8.7 ( $\pm$ 3.0)
Forecast Skill at this Lead	1965-2007	15%	20%

- 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 in Simulated Real Time Forecasts 1965-2007
- Forecast Skill = Percentage Reduction in Mean Square Error Afforded by Cross-Validated Hindcasts 1965-2007 over Hindcasts Made with the 1965-2007 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 only an 11% probability that the 2008 Northwest Pacific typhoon season ACE index will be above average (defined as an ACE index value in the upper tercile historically (>348)), a 36% likelihood it will be near-normal (defined as an ACE index value in the middle tercile historically (243 to 348) and a 53% chance it will be below-normal (defined as an ACE index value in the lower tercile historically (<243)). The 43-year period 1965-2007 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 (1965-2007).

## Key Predictors for 2008

Following a review of seasonal predictability for the extended 1965-2007 period of reliable data, the TSR predictors are as follows. 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 over the region 17.5°N-35°N, 160°E-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. TSR will be issuing a forecast for tropical storm and typhoon numbers in 2008 in early May 2008.

## Further Information

Further information about the TSR forecasts, verifications and hindcast skill as a function of lead time may be obtained from the TSR website (<http://tropicalstormrisk.com>). The next TSR monthly forecast update for the 2008 Northwest Pacific typhoon season will be issued on the 6th May 2008. Further monthly updates will follow through to early August 2008.

