



Extended Range Forecast for Northwest Pacific Typhoon Activity in 2013

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Forecast Summary

TSR anticipates the 2013 Northwest Pacific typhoon season will see activity close to the 1965-2012 climate norm.

The TSR (Tropical Storm Risk) extended range forecast for Northwest Pacific typhoon activity in 2013 anticipates a season with near-average activity. The forecast spans the period from 1st January to 31st December 2013 (95% of typhoons occur historically after 1st May) and employs data through to the end of April 2013. The forecast includes deterministic and probabilistic projections for overall basin activity, and deterministic projections for the ACE index and numbers of intense typhoons, typhoons and tropical storms. TSR's main predictor for overall activity is the forecast anomaly in August-September Niño 3.75 sea surface temperature (SST). Although uncertainties exist at this lead, TSR anticipates this predictor will have a near-neutral effect on activity. Updated forecasts will be issued in early July and early August.

NW Pacific ACE Index and System Numbers in 2013

		ACE Index	Intense Typhoons	Typhoons	Tropical Storms
TSR Forecast (\pm FE)	2013	311 (\pm 87)	8.9 (\pm 2.6)	16.0 (\pm 3.4)	25.6 (\pm 4.2)
48yr Climate Norm (\pm SD)	1965-2012	295 (\pm 105)	8.5 (\pm 3.0)	16.3 (\pm 3.7)	26.1 (\pm 4.6)
Forecast Skill at this Lead	1965-2012	31%	24%	17%	14%

- 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 = $\times 10^4$ knots².
- 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 Winds > 33Kts.
 SD = Standard Deviation.
 FE (Forecast Error) = Standard Deviation of Errors in Cross-Validated Hindcasts 1965-2012.
 Forecast Skill = Percentage Improvement in Mean Square Error Afforded by Cross-Validated Hindcasts 1965-2012 over Hindcasts Made with the 1965-2012 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 38% probability that the 2013 NW Pacific typhoon season ACE index will be above-average (defined as an ACE index value in the upper tercile historically (>336)), a 42% likelihood it will be near-normal (defined as an ACE index value in the middle tercile historically (238 to 336) and a 20% chance it will be below-normal (defined as an ACE index value in the lower tercile historically (<238)). The 48-year period 1965-2012 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 (1965-2012).

Predictors for 2013

The TSR predictors are as follows. Intense typhoon numbers and the ACE index are predicted from the forecast value for the August-September Niño 3.75 index. Tropical storm and typhoon numbers are forecast using an ensemble of two models: the Niño 3 sea surface temperature (SST) from the prior September and the forecast number of intense typhoons in 2013.

The key factor behind the TSR forecast for a near-neutral Northwest Pacific typhoon season in 2013 is the near-neutral Niño 3.75 SST anticipated in August-September 2013. Above-average (below-average) Niño 3.75 SST is 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.

Further Information

For more information about the TSR forecasts and their verifications for Northwest Pacific typhoon activity please see http://www.tropicalstormrisk.com/for_typh.html. The next TSR forecast update for the 2013 Northwest Pacific typhoon season will be issued on the 5th July 2013.

