Summary of 2013 NW Pacific Typhoon Season and Verification of Authors' Seasonal Forecasts

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Summary

The 2013 NW Pacific typhoon season was a season of two halves. Activity was well below average until mid-September and then well above average thereafter. The most significant event of the 2013 NW Pacific typhoon season was typhoon Haiyan, an exceptionally powerful and deadly tropical cyclone that caused devastation across a swathe of the Philippines. The May and July forecasts performed well but the August forecast under-predicted activity.

The Tropical Storm Risk (TSR) consortium presents a validation of their seasonal forecasts for the NW Pacific basin ACE index, numbers of intense typhoons, numbers of typhoons and numbers of tropical storms in 2013. These forecasts were issued on the 7th May, 8th July and the 6th August 2013. The 2013 NW Pacific typhoon season ran from 1st January to 31st December.

Features of the 2013 NW Pacific Season

- Featured 27 tropical storms, 15 typhoons, 9 intense typhoons and a total ACE index of 268. Six out of the last seven years have had an ACE index below the 1965-2012 climate norm of 295.
- The second half of the season was incredibly active compared to the first half. 78% of the ACE index and seven out of the nine intense typhoons occurred in the eight-week period from 16th September to the 11th November.
- Typhoon Haiyan was arguably the strongest tropical cyclone ever to make landfall in terms of wind speed when it struck the Philippines with 1-minute sustained winds near 195 mph. Haiyan killed over 6,000 people, destroyed over half a million homes and affected the livelihoods of more than 4 million people.

Verification of Forecasts

NW Pacific ACE Index and System Numbers in 2013

		ACE Index ($\times 10^4$ knots^2)	Intense Typhoons	Typhoons	Tropical Storms
Average Number (±SD) (1965-2012)		295 (±105)	8.5 (±3.0)	16.3 (±3.7)	26.1 (±4.6)
Actual Number 2013		268	9	15	27
TSR Forecasts (±FE)	6 Aug 2013	230 (±83)	6.6 (±2.4)	13.2 (±3.3)	22.3 (±4.2)
	8 Jul 2013	294 (±90)	8.4 (±2.4)	15.8 (±3.4)	25.4 (±4.3)
	7 May 2013	311 (±87)	8.9 (±3.0)	16.0 (±3.4)	25.6 (±4.2)
Shanghai Typhoon Institute	26 Jul 2013	-	-	-	22-25
	25 Apr 2013	-	-	-	22-25

The TSR May and July forecasts performed well correctly predicting a near-average season. TSR reduced its forecast in early August due to the unusual lack of activity up to the 1st August and because historically years which see low typhoon activity between January and July tend to see below-norm activity over the whole year. This turned out to be a mistake due to the sudden and unexpected switch in September to a period of high activity. This very active period was sufficient to increase the 2013 NW Pacific typhoon season overall activity to near to the long-term norm.

Tropical Storm Catalogue 2013

NW Pacific Individual Storm Summary 2013					
No.	Name	Dates	Peak wind (kts)[x]	Typhoon category	Landfall country and storm category at landfall*
1	Sonamu	3-8 Jan	45	-	-
2	Yagi	8-12 Jun	55	-	-
3	Leepi	17-20 Jun	35	-	-
4	Bebinca	20-23 Jun	35	-	China (TS)
5	Rumbia	28 Jun-2 Jul	65	1	Philippines (TS), China (TS)
6	Soulik	7-13 Jul	125	4	Taiwan (1)
7	Cimaron	15-18 Jul	40	-	China (TS), Philippines (TD)
8	Jebi	31 Jul-3 Aug	60	-	China (TS)
9	Mangkhut	5-7 Aug	40	-	Vietnam (TS)
10	Utor	8-14 Aug	130	4	Philippines (4), China (1)
11	Trami	17-21 Aug	75	1	China (1)
12	Kong-Rey	26-31 Aug	55	-	-
13	Toraji	1-4 Sep	50	-	Japan[+] (TS)
14	Man-yi	12-16 Sep	60	-	Japan[+] (TS)
15	Usagi	16-22 Sep	140	5	China (2)
16	Pabuk	21-26 Sep	90	2	-
17	Wutip	26-30 Sep	90	2	Vietnam (2)
18	Sepat	30 Sep-2 Oct	35	-	-
19	Fitow	30 Sep-6 Oct	90	2	China (TS)
20	Danas	3-8 Oct	90	2	-
21	Nari	9-15 Oct	105	3	Philippines (3), Vietnam (1)
22	Wipha	10-15 Oct	115	4	-
23	Francisco	16-25 Oct	140	5	-
24	Lekima	20-26 Oct	140	5	-
25	Krosa	29 Oct-4 Nov	100	3	Philippines (2)
26	30W	3-6 Nov	35	-	Philippines (TD)
27	Haiyan	3-11 Nov	170	5	Philippines (5), China (1)

[x] 1-min sustained winds.

* Landfall is defined as the intersection of the surface centre of a tropical storm with a coastline.

[+] Mainland only.

TD = Tropical Depression, TS = Tropical Storm, 1-5 = Saffir-Simpson hurricane scale.

Forecasts for 2014

The issue dates for TSR outlooks for NW Pacific typhoon activity in 2014 are the 6th May, 7th July and 5th August 2014. Forecasts will be deterministic and probabilistic.