# ESCAP/WMO Typhoon Committee

FOR PARTICIPANTS ONLY

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**ENGLISH ONLY** 

# Review of the 2013 Typhoon Season

(Submitted by the RSMC Tokyo - Typhoon Center)

# **ACTION REQUIRED:**

The Committee is invited to review the 2013 Typhoon Season

# Review of the 2013 Typhoon Season

#### Provided by RSMC-Tokyo

In the western North Pacific, 31 named tropical cyclones (TCs) formed in 2013, which exceeded 30 for the first time since 1994, and 13 reached typhoon (TY) intensity (see Table 1 and figure 1). During the season, 13 named TCs hit the continent. The mean genesis point of named TCs in 2013 was 16.2°N and 135.6°E, showing a westward deviation from the 30-year average\* (16.2°N and 137.4°E).

Two named TCs formed from January to February (see yellow lines in Figure 3). Sonamu (1301) formed over the Sulu Sea in January and Shanshan (1302) formed over the South China Sea in February. They damaged the Philippines.

Seven named TCs formed from June to July (see red lines in Figure 3). Bebinca (1305) formed over the South China Sea in June and damaged China and Viet Nam. Rumbia (1306) formed east of the Philippines in June and brought damage to the Philippines and China. Soulik (1307) formed around the Mariana Islands in July and damaged Japan and China. Cimaron (1308) formed north of Luzon Island in July and damaged the Philippines and China. Jebi (1309) formed over the South China Sea in July and damaged China and Viet Nam.

Six named TCs formed in August (see purple lines in Figure 3). Manghkut (1310) formed south of Hainan Island and damaged Viet Nam. Utor (1311) formed east of the Philippines and brought heavy damage to China, which also damaged the Philippines. Trami (1312) and Kong-rey (1315) formed and damaged the Philippines, Japan and China.

Eight named TCs formed in September (see green lines in Figure 3). Toraji (1317) formed over the East China Sea and Man-yi (1318) formed south of the Ogasawara Islands, which both damaged Japan. Usagi (1319) formed east of the Philippines and brought damage to the Philippines and China. Wutip (1321) formed over the South China Sea and damaged the Indochina Peninsula. Fitow (1323) formed east of the Philippines and damaged Japan and China.

Six named TCs formed in October (see blue lines in Figure 3). Nari (1325) formed east of the Philippines and damaged the Philippines and the Indochina Peninsula. Wipha (1326) formed west of the Mariana Islands and brought heavy damage to Japan. Krosa (1329) formed east of the Philippines and damaged the Philippines.

Two named TCs formed in November (see orange lines in Figure 3). Haiyan (1330) formed south of the Chuuk Islands. Moving westward, it reached a central pressure of 895 hPa and brought massive damage to the Philippines, which also damaged China and Viet Nam. Podul (1331) formed over the South China Sea and heavily damaged Viet Nam.

\* The 30-year average is from 1981 to 2010

Table 1 List of the tropical cyclones reaching TS intensity or higher in 2013

Tropical Cyclone			Duration (UTC)				Minimum Central Pressure				Max Wind
			(TS or higher)				(UTC)	lat(N)	long(E)	(hPa)	(kt)
STS	Sonamu	(1301)	031200 Jan	-	080000	Jan	050000	7.9	112.2	990	50
TS	Shanshan	(1302)	211800 Feb	-	221200	Feb	211800	5.9	110.3	1002	35
TS	Yagi	(1303)	081200 Jun	-	120600	Jun	101200	24.4	134.9	990	45
TS	Leepi	(1304)	180000 Jun	-	210000	Jun	181800	19.7	125.7	994	40
TS	Bebinca	(1305)	201800 Jun	-	240600	Jun	220000	19.2	111.4	990	40
STS	Rumbia	(1306)	281200 Jun	-	021200	Jul	010600	19.0	112.6	985	50
TY	Soulik	(1307)	080000 Jul	-	140000	Jul	100000	21.1	135.8	925	100
TS	Cimaron	(1308)	170000 Jul	-	181800	Jul	171800	20.7	119.0	1000	40
STS	Jebi	(1309)	310000 Jul	-	031200	Aug	020600	18.8	111.8	985	50
TS	Mangkhut	(1310)	061200 Aug	_	080000	Aug	070600	18.7	106.8	992	40
TY	Utor	(1311)	091800 Aug	-	151200	Aug	111200	15.5	123.5	925	105
STS	Trami	(1312)	180000 Aug	-	221800	Aug	202100	24.9	125.3	965	60
STS	Pewa	(1313)	181200 Aug	-	250000	Aug	190000	13.3	178.4	990	55
TS	Unala	(1314)	190600 Aug	-	191200	Aug	190600	17.5	180.0	1000	35
STS	Kong-rey	(1315)	260600 Aug	_	300000	Aug	281200	22.8	122.5	980	55
TS	Yutu	(1316)	010000 Sep	-	011800	Sep	010000	32.5	176.2	1002	35
STS	Toraji	(1317)	011800 Sep	-	040000	Sep	030000	28.6	127.5	985	50
TY	Man-yi	(1318)	130000 Sep	-	161200	Sep	151200	31.5	135.0	960	65
TY	Usagi	(1319)	161800 Sep	-	230600	Sep	191800	18.7	126.4	910	110
STS	Pabuk	(1320)	210600 Sep	-	270000	Sep	241200	26.7	138.9	965	60
TY	Wutip	(1321)	270600 Sep	-	010000	Oct	290600	16.7	111.8	965	65
TS	Sepat	(1322)	300000 Sep	-	021800	Oct	020600	35.4	141.9	992	40
TY	Fitow	(1323)	301800 Sep	-	070600	Oct	041800	23.7	128.5	960	75
TY	Danas	(1324)	040600 Oct	-	090000	Oct	070000	25.2	130.2	935	90
TY	Nari	(1325)	091200 Oct	_	151800	Oct	121800	15.1	115.7	965	75
TY	Wipha	(1326)	101200 Oct	-	160600	Oct	131200	19.8	136.4	930	90
TY	Francisco	(1327)	160600 Oct	-	260600	Oct	181800	15.9	141.1	920	105
TY	Lekima	(1328)	201800 Oct	-	261200	Oct	230000	18.6	152.2	905	115
TY	Krosa	(1329)	291800 Oct	-	040600	Nov	011800	19.4	116.4	970	75
TY	Haiyan	(1330)	040000 Nov	_	110600	Nov	071200	10.2	129.1	895	125
TS	Podul	(1331)	141200 Nov	-	150000	Nov	141200	11.9	111.7	1002	35

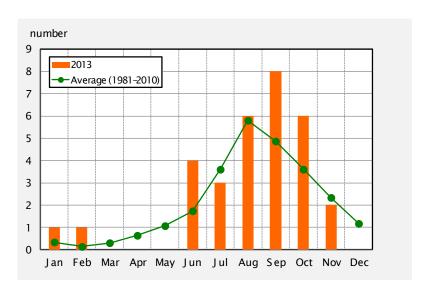


Figure 1 Monthly formation number of named TCs in 2013
Red bar: formation number in 2013, blue line: 30-year average from 1981 to 2010

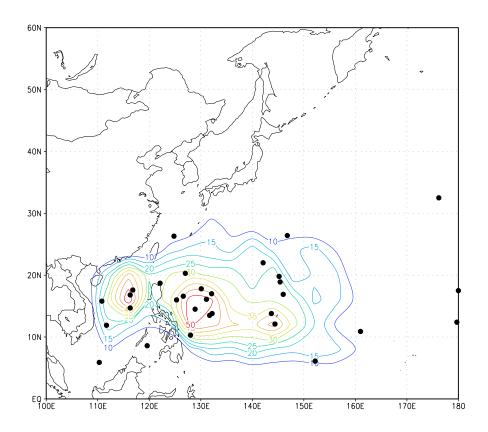


Figure 2 Genesis points of Tropical Cyclones in 2013 (dots) and frequency distribution of genesis points for 1951-2012 (lines)

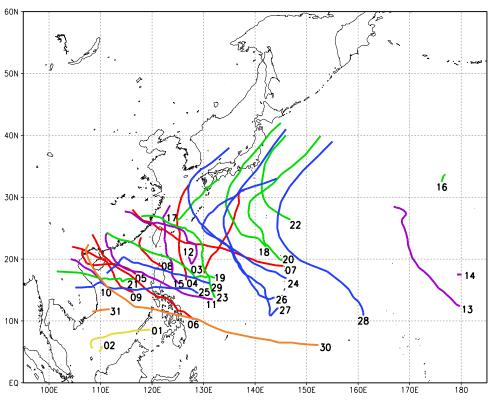


Figure 3 Tracks of Tropical Cyclones in 2013

The numbers represent the genesis points of named TCs (the last two digits of their identification numbers).

#### Narrative Accounts of the 31 Named Tropical Cyclones in 2013

## **STS SONAMU (1301)**

Sonamu formed as a tropical depression (TD) over the sea near the Caroline Islands at 00 UTC on 1 January 2013. Moving west-northwestward, it was upgraded to tropical storm (TS) intensity over the Sulu Sea at 12 UTC on 3 January after crossing Mindanao Island. Moving west-southwestward, Sonamu was upgraded to severe tropical storm (STS) intensity and reached its peak intensity with maximum sustained winds of 50 kt and a central pressure of 990 hPa near the Spratly Islands at 00 UTC on 5 January. Keeping its west-southwestward track, it was downgraded to TS intensity over the sea south of Viet Nam at 06 UTC the next day. Turning southeastward, Sonamu weakened to TD intensity over the same waters at 00 UTC on 8 January and dissipated off the coast of East Malaysia at 06 UTC on 10 January.

## TS SHANSHAN (1302)

Shanshan formed as a tropical depression (TD) over the sea southeast of Mindanao Island at 06 UTC on 18 February 2013 and moved westward. Passing south of Mindanao Island and crossing the Sulu Sea, it entered the South China Sea late on 20 February. Decelerated southwestward, Shanshan was upgraded to tropical storm (TS) intensity over the South China Sea at 18 UTC the next day when it reached its peak intensity with maximum sustained winds of 35 kt and a central pressure of 1002 hPa. Shanshan was downgraded to TD intensity over the same waters at 12 UTC on 22 February and dissipated 18 hours later.

#### TS YAGI (1303)

Yagi formed as a tropical depression (TD) east of the Philippines at 18 UTC on 6 June 2013. It moved northeastward and turned northward the next day. After turning north-northeastward on 8 June, Yagi was upgraded to tropical storm (TS) intensity over the same waters at 12 UTC the same day. Moving north-northeastward, it reached its peak intensity with maximum sustained winds of 45 kt and a central pressure of 990 hPa south of Honshu Island at 12 UTC on 10 June. Yagi decelerated northward over the same waters the next day. After turning eastward, Yagi transformed into an extratropical cyclone over the same waters at 06 UTC on 12 June. It slowly moved eastward and dissipated southeast of Hachijojima Island at 12 UTC on 16 June.

## **TS LEEPI (1304)**

Leepi formed as a tropical depression (TD) over the sea east of the Philippines at 06 UTC on 16 June 2013. Moving northward, it was upgraded to tropical storm (TS) intensity over the same waters at 00 UTC on 18 June and reached its peak intensity with maximum sustained winds of 40 kt and a central pressure of 994 hPa 18 hours later. Leepi transformed into an extratropical cyclone over the East China Sea at 00 UTC on 21 June and turned eastward. It gradually turned northeastward on 22 June and dissipated south of the Aleutian Islands at 00 UTC on 24 June.

## **TS BEBINCA (1305)**

Bebinca formed as a tropical depression (TD) over the sea west of Luzon Island at 18 UTC on 19 June 2013. Moving north-northeastward, it was upgraded to tropical storm (TS) intensity over the same waters at 18 UTC the next day after turning northwestward. Keeping its westward track, Bebinca reached its peak intensity with maximum sustained winds of 40 kt and a central pressure of 990 hPa at 00 UTC on 22 June and then crossed Hainan Island. After turning north-northwestward over the Gulf of Tonkin, it weakened to TD intensity over the northern part of Viet Nam at 06 UTC on 24 June and dissipated six hours later.

#### **STS RUMBIA (1306)**

Rumbia formed as a tropical depression (TD) over the sea northwest of the Palau Islands at 00 UTC on 27 June 2013 and moved westward. Turning northwestward, Rumbia was upgraded to tropical storm (TS) intensity northeast of Mindanao Island at 12 UTC the next day. It passed over the Philippines and entered the South China Sea late on 29 June. Keeping its northwestward track, Rumbia was upgraded to severe tropical storm (STS) intensity east of Hainan Island at 06 UTC on 1 July and reached its peak intensity with maximum sustained winds of 50 kt and a central pressure of 985 hPa. It hit the southern part of China before 00 UTC the next day. Rumbia was weakened to TD intensity over the same region at 12 UTC on 2 July and dissipated six hours later.

#### **TY SOULIK (1307)**

Soulik formed as a tropical depression (TD) northeast of the Mariana Islands at 00 UTC on 7 July 2013. Moving westward, it was upgraded to tropical storm (TS) intensity north of the islands at 00 UTC on 8 July and was further upgraded to typhoon (TY) intensity northwest of the islands at 00 UTC the next day. Turning west-northwestward, Soulik developed rapidly and reached its peak intensity with maximum sustained winds of 100 kt and a central pressure of 925 hPa north of Okinotorishima Island at 00 UTC on 10 July. Keeping its west-northwestward track and TY intensity, it hit the northern part of Taiwan Island late on 12 July. After being downgraded to severe tropical storm (STS) intensity over the island at 00UTC on 13 July, Soulik crossed the Taiwan Strait and hit China with STS intensity the same day. Turning northward, it weakened to TD intensity at 00 UTC on 14 July and dissipated at 18 UTC the same day.

## **TS CIMARON (1308)**

Cimaron formed as a tropical depression (TD) over the sea east of the Philippines at 06 UTC on 15 July 2013. Moving northwestward, it was upgraded to tropical storm (TS) intensity north of Luzon Island at 00 UTC on 17 July and reached its peak intensity with maximum sustained winds of 40 kt and a central pressure of 1000 hPa over the South China Sea 18 hours later. Gradually turning northeastward on 18 July, Cimaron weakened to TD intensity over the Taiwan Strait at 18 UTC the same day and dissipated six hours later.

## STS JEBI (1309)

Jebi formed as a tropical depression (TD) near the southern coast of Luzon Island at 18 UTC on 28 July 2013. Moving west-northwestward, it was upgraded to tropical storm (TS) intensity over the South China Sea at 00 UTC on 31 July. Moving northwestward, Jebi was upgraded to severe tropical storm (STS) intensity and reached its peak intensity with maximum sustained winds of 50 kt and a central pressure of 985 hPa over the sea east of Hainan Island at 06 UTC on 2 August. After crossing the northern part of the island and the Gulf of Tonkin, it weakened to TD intensity over the northern part of Viet Nam at 12 UTC on 3 August and dissipated six hours later.

#### **TS MANGKHUT (1310)**

Mangkhut formed as a tropical depression (TD) over the sea north of Palawan Island at 00 UTC on 5 August 2013 and moved northwestward. Keeping its northwestward track, it was upgraded to tropical storm (TS) intensity over the sea south of Hainan Island at 12 UTC the next day. Mangkhut reached its peak intensity with maximum sustained winds of 40 kt and a central pressure of 992 hPa over the Gulf of Tonkin at 06 UTC on 7 August. It hit the northern part of Viet Nam before 18 UTC the same day. Mangkhut was weakened to TD intensity over the northern part of Laos at 00 UTC the next day and dissipated six hours later.

## TY UTOR (1311)

Utor formed as a tropical depression (TD) northwest of the Yap Islands at 12 UTC on 8 August 2013. Moving westward, it was upgraded to tropical storm (TS) intensity east of the Philippines at 18 UTC the next day. Utor rapidly developed and was upgraded to typhoon (TY) intensity over the same waters at 06 UTC on 10 August. Turning west-northwestward on 11 August, it reached its peak intensity with maximum sustained winds of 105 kt and a central pressure of 925 hPa east of Luzon Island at 12 UTC the same day. After hitting the island late the same day, Utor kept its west-northwestward track and TY intensity over the South China Sea. It turned northward on 14 August and hit the southern part of China with TY intensity after 06 UTC the same day. Utor weakened to TD intensity on 12 UTC the next day and slowly moved over the southern part of China before dissipating at 12 UTC on 18 August.

## **STS TRAMI (1312)**

Trami formed as a tropical depression (TD) east of Taiwan Island at 12UTC on 16 August 2013. Moving southeastward, it was upgraded to tropical storm (TS) intensity south of Okinawa Island. Trami turned northward on 19 August and turn northwestward the next day again. It reached its peak intensity with maximum sustained winds of 60 kt and a central pressure of 965 hPa near Miyakojima Island at 21UTC on 20 August. After moving westward over the East China Sea, Trami hit China with severe tropical storm (STS) intensity late on 21 August. Moving west-northwestward, it weakened to TD intensity over central part of China at 18 UTC on 22

August. Turning southwestward, Trami dissipated over the southern part of China at 12 UTC on 24 August

# STS PEWA (1313)

Pewa moved northwestward and crossed longitude 180 degrees east with tropical storm (TS) intensity over the sea east of the Marshall Islands before 12 UTC on 18 August 2013. Moving northwestward, it was upgraded to severe tropical storm (STS) intensity and reached its peak intensity with maximum sustained winds of 55 kt and a central pressure of 990 hPa over the same waters at 00 UTC the next day. Keeping its northwestward track, Pewa was downgraded to TS intensity east of Wake Island 18 hours later. Turning north-northwestward, it weakened to tropical depression (TD) intensity over the sea far east of Japan at 00 UTC on 25 August and dissipated over the same waters at 00 UTC on 27 August.

#### **TS UNALA (1314)**

Unala moved westwards and crossed longitude 180 degrees east with tropical storm (TS) intensity over the sea east of Wake Island around 06 UTC on 19 August 2013 with maximum sustained winds of 35 kt and a central pressure of 1000 hPa. Unala weakened to tropical depression (TD) intensity over the same waters 12 UTC the same day and dissipated six hours later.

## **STS KONG-REY (1315)**

KONG-REY formed as a tropical depression (TD) east of the Philippines at 00 UTC on 25 August 2013 and moved north-northwestward. It was upgraded to tropical storm (TS) intensity east of Luzon Island at 06 UTC the next day before tuning northward. KONG-REY was upgraded to severe tropical storm (STS) intensity southeast of Taiwan Island at 00 UTC on 28 August. Keeping its northward track, it reached its peak intensity with maximum sustained winds of 55 kt and a central pressure of 980 hPa east of the island at 12 UTC the same day. After entering the East China Sea, KONG-REY was downgraded to TS intensity at 00UTC on 29 August and turned northeastward the same day. It weakened to TD intensity on 00 UTC the next day and dissipated 12 hours later.

## TS YUTU (1316)

Yutu formed as a tropical depression (TD) north of Wake Island at 00 UTC on 29 August 2013 and moved southeastward. It turned northeastward over the same waters the next day. Yutu was upgraded to tropical storm (TS) intensity northwest of the Midway Islands at 00 UTC on 1 September when it reached its peak intensity with maximum sustained winds of 35 kt and a central pressure of 1002 hPa. Yutu soon weakened to TD intensity over the same waters 18 hours later. It turned southward early on 2 September and turned west-southwestward the next day again. Yutu dissipated west-northwest of the Midway Islands at 12UTC on 5 September.

#### **STS TORAJI (1317)**

Toraji formed as a tropical depression (TD) off the northern coast of Taiwan Island at 00 UTC on 31 August 2013 and moved southeastward. It was upgraded to tropical storm (TS) intensity over the sea north of the Sakishima Islands at 18 UTC on 1 September after turning northeastward. Keeping its northeastward track, Toraji was upgraded to severe tropical storm (STS) intensity and reached its peak intensity with maximum sustained winds of 50 kt and a central pressure of 985 hPa west of the Amami Islands at 00 UTC on 3 September. After landing on Ibusuki City, Kagoshima Prefecture with STS intensity around 18 UTC that day, it transformed into an extratropical cyclone over the southwestern part of Shikoku Island six hours later. Moving east-northeastward, Toraji dissipated east of the Kii Peninsula at 12 UTC on 5 September.

# TY MAN-YI (1318)

Man-yi formed as a tropical depression (TD) east of the Mariana Islands at 18 UTC on 11 September 2013. Moving northwestward, it was upgraded to tropical storm (TS) intensity south of Chichijima Island at 00 UTC on 13 September. Gradually turning north-northeastward, Man-yi was upgraded to typhoon (TY) intensity and reached its peak intensity with maximum sustained winds of 65 kt and a central pressure of 960 hPa south of Shikoku Island at 12 UTC on 15 September. It made landfall around Toyohashi City in Aichi Prefecture with severe tropical storm (STS) intensity before 23 UTC the same day. Keeping its northeastward track, Man-yi transformed into an extratropical cyclone southeast of Hokkaido Island at 12 UTC the next day. It moved northeastward along the Chishima Islands and crossed the Kamchatka Peninsula. Man-yi dissipated over the Bering Sea at 18 UTC on 20 September.

# **TY USAGI (1319)**

Usagi formed as a tropical depression (TD) southwest of Okinotorishima Island at 00 UTC on 16 September 2013 and moved slowly eastward. After turning westward over the same waters, it was upgraded to tropical storm (TS) intensity at 18 UTC the same day. Moving slowly westward, Usagi was upgraded to typhoon (TY) intensity east of the Philippines at 12 UTC on 18 September. It rapidly developed and reached its peak intensity with maximum sustained winds of 110 kt and a central pressure of 910 hPa over the same waters at 18 UTC the next day. Keeping its west-northwestward track, Usagi passed through the Luzon Strait and entered the South China Sea on 21 September. It hit the southern part of China with TY intensity the next day and was downgraded to TS intensity at 00UTC on 23 September. Maintaining its west-northwestward track, Usagi weakened to TD intensity at 06 UTC the same day and dissipated at 06 UTC the next day.

#### **STS PABUK (1320)**

Pabuk formed as a tropical depression (TD) east of the Mariana Islands at 06 UTC on 19 September 2013 and moved northward. It turned northwestward northeast of the islands the next day. Pabuk was upgraded to tropical storm (TS) intensity around the islands at 06 UTC on 21

September. Keeping its northwestward track, it was upgraded to severe tropical storm (STS) intensity south of the Ogasawara Islands at 06 UTC the next day. Pabuk reached its peak intensity with maximum sustained winds of 60 kt and a central pressure of 965 hPa west of the islands at 12 UTC on 24 September and turned northeastward the next day. Accelerating northeastward, Pabuk transformed into an extratropical cyclone east of Japan at 00 UTC on 27 September. It crossed longitude 180 degrees east near the Aleutian Islands before 00UTC on 29 September.

## **TY WUTIP (1321)**

Wutip formed as a tropical depression (TD) over the sea west of Luzon Island at 18 UTC on 25 September 2013. After moving west-southwestward and turning in a counterclockwise direction to circle, it was upgraded to tropical storm (TS) intensity over the South China Sea at 06 UTC on 27 September. Moving westward, Wutip was upgraded to typhoon (TY) intensity and reached its peak intensity with maximum sustained winds of 65 kt and a central pressure of 965 hPa over the same waters at 06 UTC on 29 September. After hitting the northern part of Viet Nam with TY intensity, it was downgraded to TS intensity at 18 UTC the next day. Keeping its westward track, Wutip weakened to TD intensity over Laos at 00 UTC on 1 October and dissipated six hours later.

#### TS SEPAT (1322)

Sepat formed as a tropical depression (TD) over the sea east of the Ogasawara Islands at 06 UTC on 29 September 2013. It was upgraded to tropical storm (TS) intensity over the same waters at 00 UTC the next day and then turned northward. Sepat reached its peak intensity with maximum sustained winds of 40 kt and a central pressure of 992 hPa east of Japan at 06 UTC on 2 October. After turning northeastward, it transformed into an extratropical cyclone over the same waters at 18 UTC the same day. Sepat accelerated northeastward and moved along the Chishima Islands. It dissipated over the sea east of the Kamchatka Peninsula at 00 UTC on 4 October.

#### **TY FITOW (1323)**

Fitow formed as a tropical depression (TD) north of the Palau Islands at 06 UTC on 29 September 2013. Moving north-northwestward, it was upgraded to tropical storm (TS) intensity east of the Philippines at 18 UTC the next day. Fitow gradually developed before turning west-northwestward on 4 October. It was upgraded to typhoon (TY) intensity south of Okinawa Island at 12 UTC the same day and reached its peak intensity with maximum sustained winds of 75 kt and a central pressure of 960 hPa six hours later. Keeping its west-northwestward track, Fitow passed near Miyakojima Island and entered the East China Sea on 5 October. After hitting the southeastern part of China late the next day, it was downgraded to TS intensity at 00 UTC on 7 October. Moving westward, Fitow weakened to TD intensity at 06 UTC the same day and dissipated six hours later.

#### **TY DANAS (1324)**

Danas formed as a tropical depression (TD) over the sea east of the Mariana Islands at 00 UTC on

1 October 2013 and slowly moved southwestward. It turned northwestward southeast of the Mariana Islands late on 3 October. Danas was upgraded to tropical storm (TS) intensity around the Mariana Islands at 06 UTC on 4 October and was upgraded to typhoon (TY) intensity south of Japan at 00 UTC on 6 October. Keeping its northwestward track, it reached its peak intensity with maximum sustained winds of 90 kt and a central pressure of 935 hPa southwest of Minamidaitojima Island at 00 UTC on 7 October and entered the East China Sea that day. Danas gradually turned northeastward over the same waters and passed around Tsushima Island, Nagasaki Prefecture at 12 UTC on 8 October. It transformed into an extratropical cyclone over the Japan Sea at 00 UTC the next day and dissipated over the same waters 12 hours later.

#### **TY NARI (1325)**

Nari formed as a tropical depression (TD) over the sea east of the Philippines at 12 UTC on 8 October 2013. Moving westward, it was upgraded to tropical storm (TS) intensity over the same waters 24 hours later. Keeping its westward track, Nari was upgraded to typhoon (TY) intensity east of Luzon Island at 18 UTC on 10 October. After crossing the island with TY intensity, it reached its peak intensity with maximum sustained winds of 75 kt and a central pressure of 965 hPa over the South China Sea at 18 UTC on 12 October. After hitting the central part of Viet Nam, Nari was downgraded to TS intensity at 06 UTC on 15 October. Keeping its westward track, it weakened to TD intensity over Thailand at 18 UTC that day and dissipated 24 hours later.

#### WIPHA (1326)

Wipha formed as a tropical depression (TD) east of the Mariana Islands at 00 UTC on 9 October 2013. Moving westward, it was upgraded to tropical storm (TS) intensity west of the islands at 12 UTC the next day. After turning northwestward, Wipha was upgraded to typhoon (TY) intensity southeast of Okinotorishima Island at 12 UTC on 12 October. Keeping its northwestward track, it reached its peak intensity with maximum sustained winds of 90 kt and a central pressure of 930 hPa near the island at 12 UTC the next day. Turning gradually northeastward, Wipha passed around the Izu Islands with TY intensity and then transformed into an extratropical cyclone over the sea east of Japan at 06 UTC on 16 October. Keeping its east-northeastward track, it crossed longitude 180 degrees east over the Bering Sea before 12 UTC on 18 October.

## TY FRANCISCO (1327)

Francisco formed as a tropical depression (TD) east of the Mariana Islands at 12 UTC on 15 October 2013. Moving southwestward, it was upgraded to tropical storm (TS) intensity south of the islands at 06 UTC the next day. After turning northwestward, Francisco was upgraded to typhoon (TY) intensity southwest of the islands at 06 UTC on 17 October. It rapidly developed and reached its peak intensity with maximum sustained winds of 105 kt and a central pressure of 920 hPa west of the islands at 18 UTC the next day. Keeping its northwestward track, Francisco gradually weakened and turned northeastward over the sea east of Okinawa Island on 24 October.

Accelerating northeastward, it transformed into an extratropical cyclone east of the Izu Islands at 06 UTC on 26 October and dissipated 12 hours later.

## **TY LEKIMA (1328)**

Lekima formed as a tropical depression (TD) over the sea west of the Marshall Islands at 00 UTC on 19 October 2013 and moved northwestward. It was upgraded to tropical storm (TS) intensity at 18 UTC the next day over the same waters. Lekima was upgraded to typhoon (TY) intensity northwest of the islands at 06 UTC on 22 October. It rapidly developed and reached its peak intensity with maximum sustained winds of 115 kt and a central pressure of 905 hPa east of the Mariana Islands at 00 UTC the next day. Lekima turned northward southeast of the Ogasawara Islands late on 24 October and accelerated northeastward. It transformed into an extratropical cyclone far east of Japan at 12 UTC on 26 October and moved eastward. It crossed longitude 180 degrees east south of the Aleutian Islands before 18 UTC on 28 October.

#### TY KROSA (1329)

Krosa formed as a tropical depression (TD) over the sea west of the Mariana Islands at 18 UTC on 27 October 2013. Moving west-northwestward, it was upgraded to tropical storm (TS) intensity east of the Philippines at 18 UTC on 29 October. Keeping its west-northwestward track, Krosa was upgraded to typhoon (TY) intensity off the eastern coast of Luzon Island at 06 UTC on 31 October. After crossing the northern part of the island with TY intensity, it reached its peak intensity with maximum sustained winds of 75 kt and a central pressure of 970 hPa over the South China Sea at 18 UTC the next day. After turning southwestward south of Hong Kong, Krosa was downgraded to TS intensity at 12 UTC on 3 November. Keeping its southwestward track, it weakened to TD intensity southeast of Hainan Island at 06 UTC the next day and dissipated off the coast of Viet Nam18 hours later.

## **TY HAIYAN (1330)**

Haiyan formed as a tropical depression (TD) over the sea southwest of Pohnpei Island at 06 UTC on 3 November 2013. Moving westward, it was upgraded to tropical storm (TS) intensity south of the Chuuk Islands at 00 UTC the next day. Keeping its westward track, Haiyan was upgraded to typhoon (TY) intensity over the sea southeast of the Yap Islands at 12 UTC on 5 November and it reached its peak intensity with maximum sustained winds of 125 kt and a central pressure of 895 hPa northeast of Mindanao Island at 12 UTC on 7 November. Moving west-northwestward, Haiyan crossed the Philippines with TY intensity and entered the South China Sea late the next day. Turning gradually northwestward, it was downgraded to severe tropical storm (STS) intensity over the Gulf of Tonkin at 18 UTC on 10 November. After hitting the northern part of Viet Nam with TS intensity, Haiyan was downgraded to TD intensity over the southern part of China at 06 UTC the next day and dissipated six hours later.

# TS PODUL (1331)

Podul formed as a tropical depression (TD) east of Mindanao Island at 12 UTC on 11 November 2013. Moving west-northwestward, it crossed the Philippines and then turned westward over the South China Sea on 14 November. Podul was upgraded to tropical storm (TS) intensity over the same waters when it reached its peak intensity with maximum sustained winds of 35 kt and a central pressure of 1002 hPa at 12 UTC the same day. Soon after hitting Viet Nam, Podul weakened to TD intensity at 00 UTC on 15 November and dissipated 12 hours later.