7. TROPICAL CYCLONE WARNING STATISTICS, TRACK AND FIX DATA

7.1 GENERAL

Due to the rapid growth of micro-computers in the meteorological community and to save publishing costs, tropical cyclone track data (with best track, initial warning, 24-, 48- and 72-hour JTWC forecasts) and fix data (satellite, aircraft, radar and synoptic) are now available separately upon request. The data will be in ASCII format on 5.25 inch floppy diskettes. The data sets are available on two diskettes. These include the western North Pacific Ocean (1 January - 31 December 1989) on one and North Indian Ocean (1 January - 31 December), South Indian and western South Pacific Oceans (1 July 1988 - 30 June 1989) on the other. Agencies or individuals desiring these data sets should send the appropriate number of floppy diskettes (two if both data sets are desired) to NAVOCEANCOMCEN/JTWC Guam with their request. When the request is received, the data will be copied onto your diskettes and returned with the explanation of the data formats. The use of floppy diskettes should facilitate the transfer of these rather large data files to your computer.

7.2 WARNING VERIFICATION STATISTICS

7.2.1 WESTERN NORTH PACIFIC

This section includes verification statistics for each warning in the western North Pacific Ocean during 1989. Pre- and post-warning best track positions are not printed, but are available on floppy diskettes by request.

JTWC FORECAST TRACK AND INTENSITY ERRORS BY WARNING

Tropical Storm Winona (01W)

	00h	24h	48h	72h
Average	25	171	346	507
# Cases	13	10	6	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89011800	1	16.5N	153.8E	16	63	225	304	40	-5	-10	15	35
89011806	2	16.4N	151.8E	5	100	314	318	45	-10	-10	25	40
89011812	3	16.2N	150.0E	18	265	527	674	50	0	5	35	45
89011818	4	15.8N	148.0E	37	279	482	718	50	0	15	35	50
89011900	5	15.2N	145.7E	8	181	254	521	55	0	25	40	45
89011906	6	14.6N	142.9E	11	177	271	N\A	55	0	35	45	N\A
89011912	7	14.0N	140.0E	18	108	N\A	N\A	55	-10	0	N\A	N\A
89011918	8	13.8N	137.2E	25	N\A	N\A	N\A	45	-5	N\A	N\A	N\A
89012006*	9	13.5N	132.3E	5	169	N\A	N\A	30	0	20	N\A	N\A
89012012	10	13.5N	130.5E	24	196	N\A	N\A	30	0	20	N\A	N\A
89012018	11	13.3N	128.9E	65	176	N\A	N\A	30	0	10	N\A	N\A
89012100	12	13.1N	127.7E	37	N\A	N\A	N\A	30	0	N\A	N\A	N\A
89012106	13	12.3N	126.3E	51	N\A	N\A	N\A	25	0	N\A	N\A	N\A

* Regenerated

Super Typhoon Andy (02W)

	00h	24h	48h	72h
Average	12	111	290	569
# Cases	26	26	22	18

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89041718	1	8.1N	147.0E	51	125	254	605	35	-5	-15	-30	-80
89041800	2	8.7N	146.4E	18	18	101	346	40	5	10	5	-65
89041806	3	9.2N	145.9E	13	157	216	413	45	0	15	-10	-75

Super Typhoon Andy (02W) (continued)

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89041812	4	9.6N	145.3E	8	126	291	664	45	5	-5	-45	-75
89041818	5	9.7N	144.5E	11	164	463	872	50	-5	-20	-70	-60
89041900	6	9.7N	143.9E	13	65	317	692	55	0	-10	-50	-65
89041906	7	9.7N	143.5E	21	165	475	857	60	-15	-45	-80	-60
89041912	8	9.9N	143.3E	8	181	559	960	70	-5	-45	-50	-20
89041918	9	10.1N	143.3E	0	89	357	617	75	0	-45	-45	-15
89042000	10	10.5N	143.5E	21	148	372	533	85	-5	-50	-45	-5
89042006	11	10.9N	143.8E	11	196	473	653	100	-5	-25	-5	35
89042012	12	11.5N	144.1E	6	242	479	614	120	5	5	35	85
89042018	13	12.0N	145.0E	0	125	267	343	135	-5	-25	0	55
89042100	14	12.6N	145.9E	5	162	307	384	140	-5	10	45	70
89042106	15	13.4N	146.9E	5	84	192	402	140	-5	-5	25	35
89042112	16	14.2N	148.2E	0	121	245	449	140	-10	0	40	30
89042118	17	15.4N	149.4E	18	66	280	509	135	-5	0	50	30
89042200	18	16.4N	150.5E	5	62	164	330	130	-10	15	35	10
89042206	19	17.4N	151.5E	8	41	168	N/A	120	-10	10	25	N/A
89042212	20	18.5N	152.5E	6	90	175	N/A	110	0	40	35	N/A
89042218	21	19.6N	153.4E	18	85	128	N/A	100	0	40	25	N/A
89042300	22	20.8N	154.3E	16	100	96	N/A	85	5	25	15	N/A
89042306	23	21.6N	155.1E	12	17	N/A	N/A	65	10	15	N/A	N/A
89042312	24	22.5N	155.6E	12	44	N/A	N/A	45	15	15	N/A	N/A
89042318	25	23.4N	156.1E	17	128	N/A	N/A	35	15	5	N/A	N/A
89042400	26	24.4N	156.7E	16	95	N/A	N/A	30	5	5	N/A	N/A

Typhoon Brenda (03W)

	00h	24h	48h	72h
Average	31	133	227	251
# Cases	20	18	12	9

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89051518	1	9.8N	130.2E	95	283	406	411	30	-5	0	30	25
89051600	2	10.4N	129.1E	147	268	339	268	30	5	5	20	20
89051606	3	11.0N	128.0E	36	190	261	223	35	10	15	15	15
89051612	4	11.7N	126.6E	81	247	306	329	40	10	5	5	0
89051618	5	12.3N	125.2E	26	156	203	247	45	0	0	-10	-15
89051700	6	12.8N	123.8E	40	90	60	82	50	5	25	15	-20
89051706	7	13.4N	122.6E	18	106	130	252	50	0	15	20	-15
89051712	8	13.9N	121.4E	13	21	57	247	40	5	10	10	-5
89051718	9	14.5N	120.5E	18	45	54	202	35	0	-5	-10	-10
89051800	10	15.2N	119.6E	11	51	92	N/A	35	5	0	-5	N/A
89051806	11	15.8N	118.8E	29	174	N/A	N/A	45	0	10	N/A	N/A
89051812	12	16.5N	118.2E	8	73	228	N/A	45	0	-10	-40	N/A
89051818	13	17.1N	117.7E	16	84	N/A	N/A	50	-5	-20	N/A	N/A
89051900	14	17.7N	117.2E	18	213	584	N/A	55	-5	-35	0	N/A
89051906	15	18.4N	116.7E	11	102	N/A	N/A	55	0	-5	N/A	N/A
89051912	16	19.1N	116.0E	12	86	N/A	N/A	65	0	-5	N/A	N/A
89051918	17	19.8N	115.2E	25	90	N/A	N/A	75	-10	15	N/A	N/A
89052000	18	20.5N	114.4E	5	105	N/A	N/A	75	0	0	N/A	N/A
89052006	19	21.1N	113.8E	6	N/A	N/A	N/A	70	5	N/A	N/A	N/A
89052012	20	21.6N	113.1E	5	N/A	N/A	N/A	70	0	N/A	N/A	N/A

Typhoon Cecil (04W)

	00h	24h	48h	72h
Average	19	127	358	N/A
# Cases	9	8	5	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89052218	1	13.6N	113.0E	50	120	329	N/A	45	0	0	-20	N/A
89052300	2	14.3N	112.6E	13	177	429	N/A	50	0	0	0	N/A
89052306	3	14.8N	112.1E	21	166	322	N/A	55	0	0	25	N/A

Typhoon Cecil (04W) (continued)

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89052312	4	15.2N	111.5E	21	154	338	N/A	55	0	-5	20	N/A
89052318	5	15.5N	111.0E	21	190	374	N/A	60	-5	0	20	N/A
89052400	6	15.7N	110.4E	13	120	N/A	N/A	65	-10	10	N/A	N/A
89052406	7	15.7N	109.7E	11	30	N/A	N/A	70	-5	30	N/A	N/A
89052412	8	15.8N	109.2E	18	58	N/A	N/A	75	0	35	N/A	N/A
89052418	9	15.8N	108.6E	6	N/A	N/A	N/A	70	-5	N/A	N/A	N/A

Typhoon Dot (05W)

	00h	24h	48h	72h
Average	16	78	148	163
# Cases	25	23	17	11

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89060500	1	9.8N	130.7E	17	95	216	236	30	-5	15	10	-10
89060506	2	10.2N	129.3E	34	79	187	161	30	0	20	-5	-25
89060512	3	10.5N	127.9E	18	21	24	59	35	-5	-10	-10	-35
89060518	4	11.0N	126.7E	13	39	41	91	35	0	-15	-10	-40
89060600	5	11.4N	125.7E	26	169	191	180	40	5	0	-20	-40
89060606	6	11.8N	124.5E	35	157	138	98	40	5	-5	-5	-30
89060612	7	12.2N	123.1E	17	42	47	81	45	5	5	-20	-25
89060618	8	12.6N	121.5E	8	47	107	173	50	5	15	-15	-30
89060700	9	13.1N	120.1E	21	120	192	260	50	0	10	-20	-35
89060706	10	13.6N	119.1E	8	53	153	204	55	0	5	-20	-40
89060712	11	14.3N	118.4E	6	82	221	252	55	0	-10	-25	-30
89060718	12	14.9N	117.6E	12	103	252	N/A	55	0	-20	-40	N/A
89060800	13	15.3N	116.7E	13	87	164	N/A	60	-5	-25	-45	N/A
89060806	14	15.7N	115.9E	8	91	203	N/A	65	0	-10	-45	N/A
89060812	15	16.1N	115.1E	17	180	N/A	N/A	85	-20	-5	N/A	N/A
89060818	16	16.4N	114.4E	18	103	N/A	N/A	95	-5	5	N/A	N/A
89060900	17	16.6N	113.6E	5	61	158	N/A	100	0	5	25	N/A
89060906	18	16.9N	112.8E	18	36	132	N/A	100	0	-10	10	N/A
89060912	19	17.2N	111.9E	6	37	84	N/A	95	0	25	35	N/A
89060918	20	17.6N	111.1E	6	41	N/A	N/A	95	0	25	N/A	N/A
89061000	21	18.1N	110.2E	12	70	N/A	N/A	95	-5	-5	N/A	N/A
89061006	22	18.6N	109.2E	13	29	N/A	N/A	80	-15	-15	N/A	N/A
89061012	23	19.0N	108.2E	11	47	N/A	N/A	60	-5	0	N/A	N/A
89061018	24	19.4N	107.3E	21	N/A	N/A	N/A	55	-10	N/A	N/A	N/A
89061100	25	20.2N	106.5E	48	N/A	N/A	N/A	55	-10	N/A	N/A	N/A

Tropical Storm Ellis (06W)

	00h	24h	48h	72h
Average	33	347	N/A	N/A
# Cases	6	6	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89062006†	1	16.4N	128.9E	24	240	N/A	N/A	25	0	5	N/A	N/A
89062018†	2	17.3N	127.4E	65	266	N/A	N/A	25	0	5	N/A	N/A
89062218*	3	20.0N	126.1E	11	463	N/A	N/A	30	0	0	N/A	N/A
89062300	4	21.0N	126.8E	42	653	N/A	N/A	35	0	0	N/A	N/A
89062306	5	23.2N	127.9E	36	336	N/A	N/A	35	0	-5	N/A	N/A
89062312	6	25.4N	128.8E	18	125	N/A	N/A	35	-5	-10	N/A	N/A

† Tropical Depression Warning
* Regenerated

Tropical Storm Faye (07W)

	00h	24h	48h	72h
Average	25	72	124	220
# Cases	21	18	12	10

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89070606	1	15.4N	129.6E	13	72	33	114	25	0	0	10	-10
89070612	2	15.9N	129.2E	43	75	42	150	25	5	-5	-5	-5
89070618	3	16.3N	128.7E	74	90	83	194	25	0	-10	10	0
89070700	4	16.7N	128.1E	60	59	185	310	30	0	-5	5	10
89070706	5	16.9N	127.4E	18	53	207	280	35	0	-5	0	20
89070712	6	17.0N	126.5E	24	81	169	248	35	0	-5	10	40
89070718	7	17.0N	125.7E	16	74	124	160	40	-5	15	25	40
89070800	8	16.7N	124.6E	11	77	183	257	45	0	10	35	60
89070806	9	16.7N	123.5E	24	55	124	230	55	0	20	40	50
89070812	10	16.9N	122.4E	30	82	166	257	60	0	20	40	45
89070818	11	17.2N	120.8E	62	69	135	N/A	40	0	25	45	N/A
89070900	12	17.3N	119.1E	11	41	32	N/A	45	0	35	30	N/A
89070906	13	17.5N	117.6E	17	62	N/A	N/A	45	0	-5	N/A	N/A
89070912	14	17.7N	116.5E	29	146	N/A	N/A	45	-5	-5	N/A	N/A
89070918	15	18.2N	115.4E	43	135	N/A	N/A	40	0	0	N/A	N/A
89071000	16	18.7N	114.0E	13	17	N/A	N/A	40	0	-5	N/A	N/A
89071006	17	19.1N	112.7E	5	88	N/A	N/A	35	0	-10	N/A	N/A
89071012	18	19.5N	111.4E	8	25	N/A	N/A	35	0	0	N/A	N/A
89071018	19	20.0N	110.3E	6	N/A	N/A	N/A	30	5	N/A	N/A	N/A
89071100	20	20.5N	109.1E	17	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89071106	21	21.2N	107.7E	0	N/A	N/A	N/A	30	0	N/A	N/A	N/A

Super Typhoon Gordon (08W)

	00h	24h	48h	72h
Average	13	68	118	146
# Cases	30	26	24	18

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89071106	1	18.6N	147.3E	72	33	80	120	30	0	-10	-15	-35
89071112	2	18.5N	145.3E	13	30	70	138	30	0	-5	-10	-35
89071118	3	18.3N	144.0E	24	23	93	121	30	0	-10	-15	-50
89071200	4	18.1N	142.6E	22	8	90	96	35	-5	-10	-20	-65
89071206	5	18.0N	141.3E	12	53	123	105	40	5	5	-15	-50
89071212	6	17.9N	139.9E	0	62	98	55	45	0	0	-25	-50
89071218	7	17.9N	138.3E	8	72	96	47	50	-5	-5	-40	-55
89071300	8	17.8N	136.7E	12	124	179	214	55	0	-10	-50	-35
89071306	9	17.6N	135.1E	8	117	149	192	60	5	0	-40	-20
89071312	10	17.0N	133.8E	12	85	183	284	65	5	-5	-65	-10
89071318	11	16.5N	132.6E	5	25	116	165	70	-5	-40	-75	-15
89071400	12	16.4N	131.4E	6	5	67	142	75	0	-35	-55	0
89071406	13	16.3N	130.2E	8	49	157	188	90	-5	-30	-35	10
89071412	14	16.3N	128.8E	5	104	136	172	100	10	-15	-15	15
89071418	15	16.4N	127.4E	13	119	112	152	115	-5	-60	-5	20
89071500	16	16.6N	126.2E	12	132	151	185	125	0	-40	10	25
89071506	17	17.0N	125.1E	13	116	130	110	140	-5	-30	15	-5
89071512	18	17.5N	124.0E	12	30	20	143	140	-5	-5	30	-5
89071518	19	17.9N	122.6E	13	97	98	N/A	140	-5	20	25	N/A
89071600	20	18.2N	121.3E	13	111	94	N/A	120	-25	10	15	N/A
89071606	21	18.3N	120.1E	5	34	98	N/A	110	-30	20	-25	N/A
89071612	22	18.5N	118.8E	6	33	116	N/A	100	-15	30	-20	N/A
89071618	23	18.6N	117.6E	12	83	250	N/A	90	0	35	-10	N/A
89071700	24	19.1N	116.6E	16	26	126	N/A	80	0	30	5	N/A
89071706	25	19.7N	115.6E	8	81	N/A	N/A	75	0	-5	N/A	N/A
89071712	26	20.4N	114.7E	6	115	N/A	N/A	70	0	-20	N/A	N/A
89071718	27	20.8N	113.6E	12	N/A	N/A	N/A	65	0	N/A	N/A	N/A
89071800	28	21.1N	112.5E	18	N/A	N/A	N/A	60	0	N/A	N/A	N/A
89071806	29	21.4N	111.3E	16	N/A	N/A	N/A	55	0	N/A	N/A	N/A
89071812	30	21.7N	110.0E	5	N/A	N/A	N/A	50	-5	N/A	N/A	N/A

Tropical Storm Hope (09W)

	00h	24h	48h	72h
Average	21	112	224	309
# Cases	21	17	14	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89071600	1	20.8N	134.8E	103	194	273	398	30	-5	0	0	-20
89071606	2	21.0N	134.0E	18	98	158	257	30	0	0	15	-15
89071612	3	21.1N	133.0E	16	111	212	324	30	5	0	15	-30
89071618	4	21.5N	131.8E	24	167	248	277	35	0	5	-10	-30
89071700	5	22.2N	130.8E	42	137	208	29	35	5	15	-15	-30
89071706	6	23.0N	130.0E	0	91	150	N/A	40	-5	-15	-10	N/A
89071712	7	23.6N	128.8E	21	134	175	N/A	40	-5	-10	-25	N/A
89071718	8	24.2N	127.9E	10	129	287	N/A	45	-5	-5	-25	N/A
89071800	9	24.5N	127.0E	0	89	235	N/A	45	0	10	-25	N/A
89071806	10	24.9N	126.4E	13	32	171	N/A	50	0	15	-15	N/A
89071812	11	25.3N	125.8E	12	60	146	N/A	50	0	15	-5	N/A
89071818	12	25.8N	125.2E	18	54	207	N/A	55	-5	0	20	N/A
89071900	13	26.6N	124.6E	16	86	276	N/A	55	0	-5	15	N/A
89071906	14	27.2N	124.1E	21	112	383	N/A	55	0	0	15	N/A
89071912	15	27.8N	123.7E	5	72	N/A	N/A	55	-10	0	N/A	N/A
89071918	16	28.4N	123.3E	16	150	N/A	N/A	55	-10	0	N/A	N/A
89072000	17	28.6N	122.9E	43	181	N/A	N/A	55	-10	0	N/A	N/A
89072006	18	28.7N	122.5E	31	N/A	N/A	N/A	45	-5	N/A	N/A	N/A
89072012	19	28.8N	122.0E	23	N/A	N/A	N/A	35	0	N/A	N/A	N/A
89072018	20	28.9N	121.5E	6	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89072100	21	29.0N	121.1E	0	N/A	N/A	N/A	30	0	N/A	N/A	N/A

Tropical Storm Irving (10W)

	00h	24h	48h	72h
Average	21	90	152	232
# Cases	14	9	4	2

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89072100	1	15.0N	116.7E	21	174	264	389	30	-5	0	5	5
89072106	2	15.1N	115.0E	17	8	29	74	35	0	10	15	5
89072112	3	15.0N	113.4E	30	163	254	N/A	40	0	20	-20	N/A
89072118	4	15.0N	112.2E	29	166	N/A	N/A	40	5	0	N/A	N/A
89072200	5	15.5N	111.3E	8	56	N/A	N/A	40	5	-10	N/A	N/A
89072206	6	16.4N	110.7E	40	49	62	N/A	40	-5	-10	-10	N/A
89072212	7	16.7N	110.2E	20	49	N/A	N/A	40	-5	-10	N/A	N/A
89072218	8	16.8N	109.5E	24	47	N/A	N/A	40	-5	-20	N/A	N/A
89072300	9	17.1N	108.6E	25	101	N/A	N/A	45	-10	-30	N/A	N/A
89072306	10	17.5N	107.7E	8	N/A	N/A	N/A	45	-15	N/A	N/A	N/A
89072312	11	18.1N	107.0E	16	N/A	N/A	N/A	45	-15	N/A	N/A	N/A
89072318	12	18.6N	106.3E	36	N/A	N/A	N/A	55	-30	N/A	N/A	N/A
89072400	13	19.2N	105.7E	18	N/A	N/A	N/A	55	-20	N/A	N/A	N/A
89072406	14	19.7N	104.9E	0	N/A	N/A	N/A	40	-10	N/A	N/A	N/A

Typhoon Judy (11W)

	00h	24h	48h	72h
Average	15	85	195	323
# Cases	28	24	20	16

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89072206	1	14.8N	138.8E	18	119	290	446	25	0	5	0	-20
89072212	2	15.4N	138.3E	52	67	39	106	25	0	0	-10	-40
89072218	3	16.1N	138.0E	31	23	24	136	30	-5	-5	-25	-45
89072300	4	16.5N	138.0E	26	60	43	85	35	0	0	-25	-35
89072306	5	17.0N	138.0E	32	30	24	139	35	0	-5	-35	-30
89072312	6	17.5N	138.0E	13	90	174	277	35	0	-5	-35	-15
89072318	7	18.2N	138.1E	30	87	180	296	35	5	-10	-30	-15
89072400	8	18.9N	138.2E	6	84	95	241	50	0	-10	0	25

Typhoon Judy (11W) (continued)

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89072406	9	19.6N	138.3E	13	42	125	308	55	0	-15	10	25
89072412	10	20.2N	138.4E	11	48	103	272	55	0	-20	10	0
89072418	11	20.9N	138.4E	11	55	111	316	65	0	-10	10	0
89072500	12	21.8N	138.4E	11	41	146	389	80	0	10	30	30
89072506	13	22.8N	138.3E	8	69	274	485	90	0	20	30	40
89072512	14	23.9N	138.0E	10	87	376	652	95	0	25	30	40
89072518	15	24.9N	137.9E	5	123	383	578	95	0	25	5	25
89072600	16	26.0N	137.5E	8	150	388	437	90	0	5	10	30
89072606	17	26.8N	136.9E	0	155	375	N/A	90	0	0	0	N/A
89072612	18	27.6N	136.3E	8	227	398	N/A	85	0	0	0	N/A
89072618	19	28.4N	135.2E	6	195	328	N/A	85	0	-5	10	N/A
89072700	20	29.2N	134.1E	5	27	30	N/A	85	0	0	5	N/A
89072706	21	30.1N	132.8E	0	74	N/A	N/A	90	-5	0	N/A	N/A
89072712	22	30.8N	131.2E	7	81	N/A	N/A	90	0	5	N/A	N/A
89072718	23	31.8N	130.0E	20	43	N/A	N/A	90	-15	10	N/A	N/A
89072800	24	32.7N	129.2E	7	52	N/A	N/A	65	0	5	N/A	N/A
89072806	25	33.5N	128.4E	15	N/A	N/A	N/A	60	5	N/A	N/A	N/A
89072812	26	34.6N	127.6E	20	N/A	N/A	N/A	50	5	N/A	N/A	N/A
89072818	27	36.4N	127.3E	30	N/A	N/A	N/A	40	10	N/A	N/A	N/A
89072900	28	38.0N	128.0E	7	N/A	N/A	N/A	30	0	N/A	N/A	N/A

Tropical Depression 12W

	00h	24h	48h	72h
Average	14	61	N/A	N/A
# Cases	3	2	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89072912	1	24.8N	124.0E	0	12	N/A	N/A	30	0	10	N/A	N/A
89072918	2	25.0N	122.8E	0	110	N/A	N/A	30	0	10	N/A	N/A
89073000	3	25.2N	122.0E	43	N/A	N/A	N/A	30	-5	N/A	N/A	N/A

Tropical Storm Ken-Lola (13W-14W)

	00h	24h	48h	72h
Average	38	193	313	382
# Cases	23	18	14	10

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89073000	1	24.3N	136.0E	20	221	509	519	30	0	-5	5	10
89073006	2	25.1N	137.3E	43	199	450	546	45	0	5	0	-10
89073012	3	26.5N	138.5E	31	397	449	306	45	0	5	5	-10
89073018	4	27.7N	136.7E	141	409	414	241	45	0	5	10	-10
89073100	5	28.5N	135.0E	246	N/A	N/A	N/A	45	0	N/A	N/A	N/A
89073112*	6	29.1N	130.9E	59	425	N/A	N/A	50	0	10	N/A	N/A
89073118	7	28.2N	129.9E	16	187	363	N/A	50	0	15	5	N/A
89080100	8	27.5N	129.5E	10	173	290	335	50	0	15	5	-10
89080106	9	27.0N	129.3E	26	151	285	378	50	0	10	10	5
89080112	10	26.8N	129.2E	43	221	362	386	45	0	10	-5	0
89080118	11	26.8N	129.0E	32	242	346	345	40	0	10	5	5
89080200	12	27.0N	128.9E	0	259	403	438	40	0	-5	10	15
89080206	13	27.7N	128.4E	18	171	311	324	45	0	10	40	30
89080212	14	28.5N	127.7E	7	30	39	N/A	45	0	15	5	N/A
89080218	15	29.5N	126.9E	37	92	76	N/A	45	-5	15	10	N/A
89080300	16	30.0N	126.0E	12	51	83	N/A	50	-10	0	5	N/A
89080306	17	30.4N	125.0E	18	106	N/A	N/A	50	-10	5	N/A	N/A
89080312	18	30.7N	123.8E	36	85	N/A	N/A	50	-10	0	N/A	N/A
89080318	19	31.1N	122.6E	11	51	N/A	N/A	45	-5	0	N/A	N/A
89080400	20	31.3N	121.3E	21	N/A	N/A	N/A	40	-5	N/A	N/A	N/A
89080406	21	31.8N	120.0E	43	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89080412	22	32.0N	119.0E	5	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89080418	23	32.1N	118.0E	11	N/A	N/A	N/A	25	0	N/A	N/A	N/A

* Post analysis indicates 13W and 14W were the same storm.

Typhoon Mac (15W)

	00h	24h	48h	72h
Average	17	167	335	520
# Cases	28	26	23	19

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89080100	1	21.2N	151.0E	36	120	230	279	30	5	15	15	10
89080106	2	21.8N	151.0E	21	73	221	299	30	10	15	5	10
89080112	3	22.5N	150.9E	12	141	244	426	35	5	15	0	10
89080118	4	23.2N	150.7E	12	137	352	551	40	5	15	-5	10
89080200	5	24.0N	150.2E	13	112	320	447	45	0	5	0	10
89080206	6	25.0N	149.8E	0	153	274	150	45	0	-5	0	10
89080212	7	26.1N	149.2E	16	227	325	283	45	5	-10	0	10
89080218	8	26.8N	148.2E	26	235	411	555	50	-5	-15	0	15
89080300	9	27.0N	147.1E	12	142	276	438	60	-5	0	10	25
89080306	10	26.9N	146.1E	6	119	264	465	70	5	20	15	30
89080312	11	26.7N	145.4E	0	110	347	622	75	0	10	15	50
89080318	12	26.5N	145.0E	10	139	435	725	80	-5	5	15	60
89080400	13	26.3N	144.6E	24	167	520	792	75	0	5	25	60
89080406	14	26.3N	144.3E	16	232	560	803	75	0	0	30	50
89080412	15	26.6N	144.1E	24	292	622	839	75	0	0	40	50
89080418	16	27.1N	144.0E	13	229	490	624	75	0	5	45	50
89080500	17	27.9N	143.9E	28	290	544	686	75	0	10	40	45
89080506	18	29.2N	143.7E	15	272	475	660	75	0	20	40	20
89080512	19	30.8N	143.2E	16	122	251	226	75	-5	20	20	15
89080518	20	32.6N	142.6E	19	46	212	N/A	70	5	30	5	N/A
89080600	21	34.2N	141.8E	19	34	169	N/A	65	5	10	10	N/A
89080606	22	35.8N	140.9E	12	98	35	N/A	50	15	5	5	N/A
89080612	23	37.4N	140.0E	11	136	125	N/A	40	5	5	5	N/A
89080618	24	39.1N	139.3E	24	274	N/A	N/A	30	5	5	N/A	N/A
89080700	25	40.4N	138.6E	36	230	N/A	N/A	30	10	5	N/A	N/A
89080706	26	41.2N	137.7E	21	224	N/A	N/A	30	5	-5	N/A	N/A
89080712	27	42.7N	136.6E	27	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89080718	28	43.6N	137.0E	11	N/A	N/A	N/A	25	0	N/A	N/A	N/A

Typhoon Owen (16W)

	00h	24h	48h	72h
Average	21	115	239	380
# Cases	28	27	23	19

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89081100†	1	17.8N	143.4E	119	317	N/A	N/A	30	-5	0	N/A	N/A
89081106†	2	18.6N	144.1E	39	48	N/A	N/A	30	0	-5	N/A	N/A
89081112†	3	19.2N	144.8E	42	53	N/A	N/A	30	0	5	N/A	N/A
89081200	4	19.4N	147.1E	24	38	96	446	30	-5	-15	-30	-30
89081206	5	19.3N	147.6E	5	82	141	402	30	0	-5	-25	-30
89081212	6	19.2N	148.1E	18	74	163	463	35	-5	-15	-30	-30
89081218	7	18.8N	148.5E	30	155	318	548	35	0	-20	-30	-25
89081300	8	18.6N	149.2E	24	156	381	554	45	0	-5	-5	5
89081306	9	18.3N	150.1E	13	210	418	592	45	0	-5	-5	5
89081312	10	18.9N	151.1E	37	253	432	553	55	0	0	5	20
89081318	11	19.7N	151.7E	8	161	279	390	60	0	-5	5	30
89081400	12	20.8N	152.3E	12	76	165	368	65	0	0	15	20
89081406	13	22.2N	152.2E	8	95	216	437	70	0	10	10	10
89081412	14	23.7N	151.8E	13	95	230	292	75	0	10	10	5
89081418	15	25.2N	151.2E	12	140	236	220	75	5	15	20	15
89081500	16	26.2N	150.6E	8	87	177	96	75	0	5	15	15
89081506	17	27.2N	150.1E	12	102	162	93	75	0	0	5	15
89081512	18	28.4N	149.5E	7	138	168	145	75	0	-10	-10	-5
89081518	19	29.3N	148.7E	7	46	48	172	70	0	-5	-5	-5
89081600	20	30.4N	148.0E	24	78	301	542	70	-5	0	5	0
89081606	21	31.5N	147.4E	28	31	259	501	65	0	-5	0	0
89081612	22	32.4N	146.8E	13	53	233	412	65	0	-10	-5	5

† Tropical Depression Warning

Typhoon Owen (16W) (continued)

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89081618	23	33.3N	146.4E	7	103	311	N/A	55	0	-5	-5	N/A
89081700	24	34.7N	145.7E	24	198	367	N/A	55	-5	0	0	N/A
89081706	25	35.9N	145.8E	15	124	155	N/A	55	0	5	5	N/A
89081712	26	37.0N	146.3E	9	69	235	N/A	55	0	0	5	N/A
89081718	27	38.7N	147.1E	11	111	N/A	N/A	45	0	0	N/A	N/A
89081800	28	40.2N	147.9E	10	N/A	N/A	N/A	40	0	N/A	N/A	N/A

Typhoon Nancy (17W)

	00h	24h	48h	72h
Average	19	146	348	510
# Cases	22	20	19	16

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89081106	1	20.9N	155.1E	50	139	163	414	25	0	0	-20	-15
89081112	2	20.6N	156.0E	36	108	189	503	25	0	-10	-30	-25
89081118	3	20.3N	156.8E	16	104	354	672	30	0	-15	-35	-25
89081200	4	20.5N	157.6E	12	69	285	572	30	0	-20	-35	-20
89081206	5	21.1N	157.9E	23	42	342	624	35	-5	-25	-25	-15
89081212	6	21.7N	157.9E	8	155	477	708	45	-5	-20	-15	5
89081218	7	22.5N	157.8E	36	260	559	771	50	-5	-20	-10	5
89081300	8	23.4N	157.5E	20	240	515	713	55	0	-10	0	25
89081306	9	24.6N	157.0E	12	148	299	520	65	0	0	15	40
89081312	10	26.1N	156.4E	18	164	307	504	70	0	5	20	50
89081318	11	27.6N	155.2E	20	122	360	553	75	0	10	25	55
89081400	12	29.2N	154.0E	10	85	318	453	75	0	5	10	20
89081406	13	30.5N	151.7E	10	153	400	350	75	0	0	10	20
89081412	14	31.7N	149.9E	7	187	326	354	75	-5	-15	5	5
89081418	15	32.9N	148.4E	19	125	167	195	75	-10	-15	5	5
89081500	16	34.2N	147.0E	19	172	239	259	70	0	-5	10	10
89081506	17	35.7N	146.2E	6	128	174	N/A	65	0	5	15	N/A
89081512	18	37.3N	145.7E	7	148	515	N/A	65	0	15	20	N/A
89081518	19	38.9N	145.2E	9	142	628	N/A	65	-5	10	10	N/A
89081600	20	40.3N	145.2E	21	232	N/A	N/A	55	0	5	N/A	N/A
89081606	21	41.5N	145.4E	52	N/A	N/A	N/A	45	5	N/A	N/A	N/A
89081612	22	42.5N	145.6E	0	N/A	N/A	N/A	35	0	N/A	N/A	N/A

Tropical Storm Peggy (18W)

	00h	24h	48h	72h
Average	24	143	335	506
# Cases	9	8	6	2

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89081600	1	19.3N	148.8E	12	132	353	583	25	0	0	10	40
89081606	2	20.4N	148.8E	6	44	244	428	30	0	5	20	50
89081612	3	21.5N	148.7E	12	92	287	N/A	35	0	10	30	N/A
89081618	4	22.4N	148.4E	17	150	361	N/A	35	0	10	35	N/A
89081700	5	23.0N	148.1E	11	226	400	N/A	35	0	5	30	N/A
89081706	6	23.3N	147.6E	16	161	364	N/A	35	0	5	30	N/A
89081712	7	23.6N	147.1E	42	174	N/A	N/A	35	0	10	N/A	N/A
89081718	8	23.7N	146.2E	56	162	N/A	N/A	35	0	15	N/A	N/A
89081800	9	23.7N	145.3E	44	N/A	N/A	N/A	35	0	N/A	N/A	N/A

Tropical Depression 19W

	00h	24h	48h	72h
Average	19	95	N/A	N/A
# Cases	6	4	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89081700†	1	29.3N	124.2E	27	105	N/A	N/A	25	0	0	N/A	N/A
89081712†	2	28.1N	123.7E	40	160	N/A	N/A	25	5	0	N/A	N/A
89081800†	3	27.3N	123.2E	17	68	N/A	N/A	30	0	0	N/A	N/A
89081812†	4	27.2N	122.5E	12	47	N/A	N/A	30	0	5	N/A	N/A
89081900†	5	27.0N	121.8E	12	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89081912†	6	26.8N	120.4E	5	N/A	N/A	N/A	25	0	N/A	N/A	N/A

† Tropical Depresion Warning

Tropical Storm Roger (20W)

	00h	24h	48h	72h
Average	32	223	473	949
# Cases	14	12	7	3

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89082412†	1	25.3N	124.0E	94	266	N/A	N/A	30	-5	-5	N/A	N/A
89082500	2	25.1N	124.7E	24	172	422	823	35	-5	0	-5	15
89082506	3	24.8N	125.6E	26	254	543	937	35	-5	0	5	15
89082512	4	24.5N	126.8E	28	345	708	1087	35	-5	0	5	15
89082518	5	24.4N	128.0E	33	412	816	N/A	35	-5	-15	0	N/A
89082600	6	26.1N	130.0E	17	165	406	N/A	40	-10	-20	-15	N/A
89082606	7	28.2N	131.2E	60	236	107	N/A	40	5	-10	-15	N/A
89082612	8	30.2N	131.9E	23	213	312	N/A	40	5	-10	-15	N/A
89082618	9	31.7N	133.0E	31	211	N/A	N/A	45	0	-10	N/A	N/A
89082700	10	33.3N	134.1E	12	208	N/A	N/A	50	0	0	N/A	N/A
89082706	11	35.2N	135.7E	18	105	N/A	N/A	40	5	0	N/A	N/A
89082712	12	37.0N	137.3E	33	92	N/A	N/A	40	5	-5	N/A	N/A
89082718	13	39.2N	139.3E	54	N/A	N/A	N/A	40	0	N/A	N/A	N/A
89082800	14	41.6N	140.9E	0	N/A	N/A	N/A	40	0	N/A	N/A	N/A

† Tropical Depression Warning

Tropical Depression 21W

	00h	24h	48h	72h
Average	23	135	N/A	N/A
# Cases	7	6	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89082506†	1	28.5N	151.6E	47	109	N/A	N/A	25	5	0	N/A	N/A
89082518†	2	30.1N	153.9E	13	143	N/A	N/A	30	0	5	N/A	N/A
89082606†	3	31.4N	155.7E	15	62	N/A	N/A	30	0	0	N/A	N/A
89082618†	4	31.4N	158.8E	33	81	N/A	N/A	30	0	0	N/A	N/A
89082706†	5	32.0N	161.0E	28	111	N/A	N/A	30	0	5	N/A	N/A
89082718†	6	32.2N	161.7E	11	303	N/A	N/A	30	0	-5	N/A	N/A
89082806†	7	32.7N	161.0E	16	N/A	N/A	N/A	25	0	N/A	N/A	N/A

† Tropical Depression Warning

Typhoon Sarah (22W)

	00h	24h	48h	72h
Average	28	165	302	450
# Cases	33	29	25	21

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89090600	1	20.9N	140.8E	16	180	313	790	30	-5	-5	-10	-5
89090606	2	20.6N	139.2E	11	108	164	355	30	0	-10	-10	-10
89090612	3	20.2N	137.8E	16	24	217	284	30	0	-15	-15	-5
89090618	4	20.0N	136.6E	13	76	145	24	35	0	-10	-10	5
89090700	5	20.0N	135.6E	6	172	186	12	40	-5	-5	-5	10

Typhoon Sarah (22W) (continued)

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89090706	6	20.1N	134.6E	24	220	136	145	45	0	5	10	30
89090712	7	20.5N	133.2E	16	231	220	124	50	-5	5	15	20
89090718	8	21.1N	131.4E	47	234	303	484	55	0	10	-5	-40
89090800	9	21.4N	129.1E	44	265	310	474	55	0	10	-5	-55
89090806	10	20.8N	126.9E	42	301	497	688	55	0	5	25	-35
89090812	11	19.7N	125.3E	34	321	586	726	60	-5	10	15	-75
89090818	12	18.5N	124.6E	61	90	354	507	65	0	20	5	-10
89090900	13	17.9N	124.3E	6	162	387	511	65	0	5	-55	-10
89090906	14	17.7N	123.9E	36	238	430	574	65	0	0	-60	5
89090912	15	17.9N	123.6E	39	253	419	517	60	5	-20	-65	10
89090918	16	18.4N	123.6E	78	281	386	542	55	10	-30	-30	25
89091000	17	19.1N	123.8E	17	91	83	360	55	10	-45	-5	40
89091006	18	19.9N	123.8E	18	68	148	406	55	10	-45	15	45
89091012	19	20.6N	123.6E	13	97	240	467	65	0	-40	30	60
89091018	20	21.1N	123.2E	6	78	224	483	75	0	-5	45	65
89091100	21	21.8N	123.1E	0	191	422	640	115	0	50	85	95
89091106	22	22.8N	122.7E	12	167	384	N/A	120	0	55	70	N/A
89091112	23	23.3N	122.0E	12	225	443	N/A	125	0	60	75	N/A
89091118	24	23.0N	121.2E	45	71	292	N/A	90	0	45	50	N/A
89091200	25	23.0N	121.6E	13	146	269	N/A	80	0	40	55	N/A
89091206	26	24.1N	122.0E	18	190	N/A	N/A	65	0	25	N/A	N/A
89091212	27	24.5N	121.3E	20	154	N/A	N/A	60	0	25	N/A	N/A
89091218	28	25.1N	120.9E	39	137	N/A	N/A	45	10	30	N/A	N/A
89091300	29	25.7N	120.3E	32	27	N/A	N/A	40	5	10	N/A	N/A
89091306	30	26.3N	119.8E	56	N/A	N/A	N/A	35	10	N/A	N/A	N/A
89091312	31	27.1N	119.6E	41	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89091318	32	27.9N	119.8E	48	N/A	N/A	N/A	25	5	N/A	N/A	N/A
89091400	33	28.7N	120.0E	50	N/A	N/A	N/A	20	0	N/A	N/A	N/A

Tropical Storm Tip (23W)

	00h	24h	48h	72h
Average	23	204	374	502
# Cases	20	18	11	8

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89090900	1	20.3N	153.9E	71	369	318	385	25	0	10	20	30
89090906	2	22.1N	154.9E	37	298	226	375	30	0	N/A	N/A	N/A
89090912	3	24.5N	155.0E	0	78	183	418	30	0	10	20	20
89090918	4	26.7N	154.0E	0	113	258	392	30	0	15	25	20
89091000	5	28.2N	152.3E	0	207	315	490	35	0	20	30	20
89091006	6	28.9N	151.0E	32	281	335	582	35	0	20	25	20
89091012	7	29.3N	150.2E	78	172	323	575	35	0	20	5	-10
89091018	8	29.8N	150.0E	20	213	477	800	35	0	5	0	10
89091100	9	30.4N	150.4E	6	24	N/A	N/A	35	0	-5	N/A	N/A
89091106	10	31.6N	151.0E	5	120	474	N/A	35	5	0	-10	N/A
89091112	11	33.0N	151.1E	7	268	648	N/A	35	5	-10	-20	N/A
89091118	12	34.0N	151.1E	11	256	565	N/A	35	0	-15	-15	N/A
89091200	13	35.0N	151.8E	7	327	N/A	N/A	35	5	-15	N/A	N/A
89091206	14	35.6N	152.7E	18	249	N/A	N/A	40	10	-15	N/A	N/A
89091212	15	36.0N	154.5E	4	174	N/A	N/A	45	0	-10	N/A	N/A
89091218	16	36.6N	156.6E	9	214	N/A	N/A	45	0	-10	N/A	N/A
89091300	17	36.6N	159.0E	15	143	N/A	N/A	50	0	0	N/A	N/A
89091306	18	36.5N	161.1E	20	163	N/A	N/A	50	0	0	N/A	N/A
89091312	19	36.6N	163.1E	15	N/A	N/A	N/A	45	0	N/A	N/A	N/A
89091318	20	36.6N	165.1E	108	N/A	N/A	N/A	45	5	N/A	N/A	N/A

Tropical Storm Vera (24W)

	00h	24h	48h	72h
Average	25	173	381	662
# Cases	16	13	10	7

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89091206	1	18.0N	144.2E	42	397	652	895	30	0	-10	10	35
89091212	2	18.7N	142.7E	12	181	355	653	35	0	-5	15	35
89091218	3	19.6N	140.9E	32	256	533	729	40	5	25	60	90
89091300	4	20.3N	139.2E	18	110	362	590	45	5	20	60	90
89091306	5	20.8N	137.5E	17	128	359	536	50	5	30	60	95
89091312	6	21.3N	135.7E	51	293	518	650	50	0	20	40	65
89091318	7	21.9N	133.9E	39	144	352	582	45	0	20	40	25
89091400	8	22.7N	131.9E	12	141	260	N/A	45	0	20	40	N/A
89091406	9	23.4N	129.9E	12	72	136	N/A	45	0	0	5	N/A
89091412	10	24.2N	128.0E	28	110	285	N/A	45	0	0	10	N/A
89091418	11	24.9N	126.2E	12	122	N/A	N/A	40	0	5	N/A	N/A
89091500	12	26.2N	124.5E	12	101	N/A	N/A	40	0	10	N/A	N/A
89091506	13	27.3N	122.9E	12	198	N/A	N/A	40	0	10	N/A	N/A
89091512	14	28.4N	121.6E	28	N/A	N/A	N/A	40	-5	N/A	N/A	N/A
89091518	15	29.3N	120.7E	33	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89091600	16	30.2N	119.9E	35	N/A	N/A	N/A	30	0	N/A	N/A	N/A

Typhoon Wayne (25W)

	00h	24h	48h	72h
Average	19	231	623	N/A
# Cases	12	10	4	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89091706†	1	23.7N	124.9E	5	115	N/A	N/A	25	0	-10	N/A	N/A
89091718	2	24.1N	125.1E	87	348	N/A	N/A	30	-5	-25	N/A	N/A
89091800	3	25.3N	125.2E	5	424	N/A	N/A	35	0	-20	-20	N/A
89091806	4	26.6N	125.3E	16	144	593	N/A	40	-5	-20	-20	N/A
89091812	5	27.7N	125.8E	12	292	753	N/A	45	0	-15	-20	N/A
89091818	6	29.0N	127.1E	16	344	720	N/A	55	0	-10	-5	N/A
89091900	7	30.3N	128.6E	15	309	N/A	N/A	65	0	-15	N/A	N/A
89091906	8	31.5N	131.4E	6	157	N/A	N/A	65	0	5	N/A	N/A
89091912	9	32.9N	134.6E	0	290	N/A	N/A	65	0	10	N/A	N/A
89091918	10	34.4N	138.6E	23	284	N/A	N/A	60	-5	5	N/A	N/A
89092000	11	36.3N	143.0E	20	N/A	N/A	N/A	55	0	N/A	N/A	N/A
89092006	12	38.4N	147.8E	26	N/A	N/A	N/A	50	0	N/A	N/A	N/A

† Tropical Depression Warning

Super Typhoon Angela (26W)

	00h	24h	48h	72h
Average	8	68	165	293
# Cases	46	43	39	35

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89092906	1	13.5N	139.7E	8	104	276	293	30	0	5	-25	-25
89092912	2	14.3N	139.3E	13	98	207	348	30	0	0	-35	-45
89092918	3	15.1N	139.0E	11	116	233	395	35	0	-10	-35	-45
89093000	4	15.5N	138.6E	5	30	165	421	40	0	-35	-45	-45
89093006	5	15.8N	138.4E	5	61	226	477	40	0	-30	-45	-45
89093012	6	16.0N	138.3E	8	103	321	653	45	0	-35	-45	-35
89093018	7	16.4N	138.1E	6	117	355	666	65	0	-5	-5	5
89100100	8	16.5N	137.7E	5	157	393	686	90	0	0	-5	-20
89100106	9	16.7N	137.3E	8	109	154	300	90	0	0	-15	-25
89100112	10	16.8N	136.7E	5	123	255	529	100	0	-5	-15	-20
89100118	11	17.1N	136.1E	8	203	392	812	105	0	-5	-10	-30
89100200	12	17.3N	135.2E	5	37	70	267	115	0	-15	-20	-40
89100206	13	17.5N	134.2E	23	45	66	242	115	0	0	-10	-35
89100212	14	17.8N	133.4E	12	66	191	412	120	0	10	-5	-35

Super Typhoon Angela (26W) (continued)

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89100218	15	18.0N	132.7E	0	81	218	436	120	0	15	-15	-35
89100300	16	18.1N	131.9E	5	85	115	92	120	0	0	-20	-35
89100306	17	18.2N	131.2E	6	32	126	216	120	-5	0	-25	-25
89100312	18	18.2N	130.7E	8	63	156	204	120	-5	0	-25	20
89100318	19	18.2N	130.1E	8	97	188	227	115	0	-15	-30	15
89100400	20	18.2N	129.4E	5	125	263	388	115	-5	-30	-45	5
89100406	21	18.2N	128.5E	0	39	72	54	115	0	-15	-50	5
89100412	22	18.2N	127.3E	17	41	68	87	115	0	-20	-10	10
89100418	23	18.2N	126.0E	0	53	87	132	125	0	-35	-5	15
89100500	24	18.1N	125.0E	6	74	118	193	125	0	-60	-20	-25
89100506	25	18.1N	123.9E	8	75	121	180	130	0	-40	-5	-40
89100512	26	18.2N	122.9E	20	71	114	173	130	0	0	0	-45
89100518	27	18.4N	122.0E	0	47	188	298	130	0	0	0	-45
89100600	28	18.6N	121.1E	13	49	108	125	125	0	35	15	-30
89100606	29	18.7N	120.1E	12	75	141	126	115	0	20	-20	-50
89100612	30	18.7N	119.3E	5	75	128	101	75	-10	-10	-45	-60
89100618	31	18.6N	118.6E	13	30	47	33	75	0	-10	-45	-55
89100700	32	18.5N	117.9E	8	16	68	146	75	0	-15	-50	-60
89100706	33	18.3N	117.2E	12	25	94	177	70	0	-35	-60	-60
89100712	34	18.2N	116.5E	8	13	86	144	65	0	-45	-55	-35
89100718	35	18.2N	115.8E	12	78	149	213	65	0	-45	-50	-5
89100800	36	18.2N	115.1E	8	51	114	N/A	70	0	-10	-10	N/A
89100806	37	18.1N	114.4E	12	80	160	N/A	85	0	-5	0	N/A
89100812	38	17.9N	113.5E	12	86	154	N/A	90	0	-5	15	N/A
89100818	39	17.7N	112.5E	5	12	58	N/A	90	0	-10	0	N/A
89100900	40	17.6N	111.6E	6	17	N/A	N/A	90	0	-15	N/A	N/A
89100906	41	17.5N	110.7E	8	38	N/A	N/A	95	0	-5	N/A	N/A
89100912	42	17.5N	109.6E	8	29	N/A	N/A	90	0	-15	N/A	N/A
89100918	43	17.4N	108.6E	6	12	N/A	N/A	85	0	20	N/A	N/A
89101000	44	17.4N	107.8E	11	N/A	N/A	N/A	85	-10	N/A	N/A	N/A
89101006	45	17.4N	106.9E	20	N/A	N/A	N/A	80	-5	N/A	N/A	N/A
89101012	46	17.4N	106.0E	8	N/A	N/A	N/A	60	0	N/A	N/A	N/A

Typhoon Brian (27W)

	00h	24h	48h	72h
Average	16	104	135	N/A
# Cases	13	10	5	N/A

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89093006†	1	20.0N	115.5E	45	197	N/A	N/A	25	0	-25	N/A	N/A
89093018	2	19.9N	115.2E	16	142	190	N/A	35	0	-10	-40	N/A
89100100	3	19.5N	114.8E	5	130	123	N/A	45	0	0	-45	N/A
89100106	4	19.2N	114.3E	12	29	142	N/A	55	0	-5	-45	N/A
89100112	5	18.9N	113.7E	12	20	95	N/A	55	0	-15	-5	N/A
89100118	6	18.6N	113.1E	0	41	124	N/A	65	0	-20	10	N/A
89100200	7	18.4N	112.4E	5	108	N/A	N/A	65	0	-20	N/A	N/A
89100206	8	18.4N	111.5E	23	165	N/A	N/A	70	-5	-20	N/A	N/A
89100212	9	18.4N	110.5E	34	184	N/A	N/A	80	-5	15	N/A	N/A
89100218	10	18.4N	109.3E	11	20	N/A	N/A	75	0	0	N/A	N/A
89100300	11	18.5N	107.8E	18	N/A	N/A	N/A	75	0	N/A	N/A	N/A
89100306	12	18.7N	106.4E	8	N/A	N/A	N/A	75	0	N/A	N/A	N/A
89100312	13	19.1N	105.1E	16	N/A	N/A	N/A	45	0	N/A	N/A	N/A

† Tropical Depression Warning

Typhoon Colleen (28W)

	00h	24h	48h	72h
Average	18	153	207	303
# Cases	27	24	20	16

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89100118	1	11.6N	150.3E	16	85	286	447	30	0	10	15	15
89100200	2	11.7N	149.3E	13	179	365	511	35	0	15	15	20
89100206	3	12.0N	148.4E	41	239	402	549	35	5	15	10	20
89100212	4	12.5N	147.9E	29	217	387	519	35	5	15	10	15
89100218	5	13.1N	147.5E	18	217	270	322	40	0	5	5	20
89100300	6	14.0N	147.3E	18	123	127	147	45	0	5	10	20
89100306	7	15.1N	147.1E	34	79	236	312	45	0	-10	-10	-25
89100312	8	16.1N	146.5E	39	191	228	134	50	0	-5	-5	0
89100318	9	17.2N	145.9E	32	80	142	147	55	0	-5	0	0
89100400	10	18.1N	145.5E	12	91	117	142	60	0	10	15	20
89100406	11	18.9N	145.1E	5	119	150	184	65	0	10	15	20
89100412	12	19.6N	144.8E	8	94	141	91	70	-5	5	15	20
89100418	13	20.2N	144.6E	29	155	251	135	75	0	15	25	20
89100500	14	20.7N	144.5E	13	38	143	182	75	5	25	30	20
89100506	15	21.2N	144.2E	8	82	115	410	75	0	25	30	20
89100512	16	21.9N	143.8E	17	133	70	616	80	-5	25	15	-5
89100518	17	22.7N	143.2E	27	174	37	N/A	75	0	25	15	N/A
89100600	18	23.6N	142.6E	0	97	81	N/A	75	0	0	-10	N/A
89100606	19	24.6N	141.8E	16	102	111	N/A	75	0	-5	-15	N/A
89100612	20	25.4N	141.1E	10	80	479	N/A	75	0	-5	-10	N/A
89100618	21	26.4N	140.5E	6	163	N/A	N/A	75	0	-5	N/A	N/A
89100700	22	27.7N	140.7E	28	337	N/A	N/A	70	5	-5	N/A	N/A
89100706	23	29.3N	141.5E	5	183	N/A	N/A	70	0	-10	N/A	N/A
89100712	24	31.0N	143.0E	13	419	N/A	N/A	70	0	-5	N/A	N/A
89100718	25	33.4N	145.4E	13	N/A	N/A	N/A	70	0	N/A	N/A	N/A
89100800	26	36.5N	148.5E	4	N/A	N/A	N/A	70	0	N/A	N/A	N/A
89100806	27	40.4N	153.3E	37	N/A	N/A	N/A	70	0	N/A	N/A	N/A

Typhoon Dan (29W)

	00h	24h	48h	72h
Average	16	105	222	375
# Cases	21	18	13	10

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89100812	1	10.3N	138.4E	58	260	459	663	25	0	-20	-10	15
89100818	2	10.5N	136.9E	24	136	345	576	30	0	-10	-10	15
89100900	3	10.7N	135.4E	8	113	277	438	40	-10	-15	-10	10
89100906	4	10.9N	133.7E	13	126	311	438	50	-15	-10	10	0
89100912	5	11.1N	131.9E	12	59	260	357	55	-10	5	0	0
89100918	6	11.4N	130.0E	24	8	152	216	55	0	-5	15	35
89101000	7	11.8N	128.1E	16	133	270	331	55	-5	5	10	25
89101006	8	12.4N	126.2E	18	134	235	308	65	0	15	10	25
89101012	9	12.9N	124.3E	5	100	145	258	65	5	20	15	35
89101018	10	13.5N	122.6E	31	94	101	170	65	5	25	25	15
89101100	11	14.2N	120.7E	18	70	120	N/A	65	0	15	20	N/A
89101106	12	15.2N	118.8E	0	68	114	N/A	60	5	10	20	N/A
89101112	13	16.0N	116.8E	24	114	91	N/A	60	5	15	-5	N/A
89101118	14	16.4N	115.1E	37	223	N/A	N/A	60	5	-15	N/A	N/A
89101200	15	16.5N	113.5E	13	47	N/A	N/A	65	0	10	N/A	N/A
89101206	16	16.7N	112.3E	5	93	N/A	N/A	70	0	10	N/A	N/A
89101212	17	17.0N	111.1E	13	74	N/A	N/A	70	0	20	N/A	N/A
89101218	18	17.4N	109.8E	8	45	N/A	N/A	65	5	20	N/A	N/A
89101300	19	17.8N	108.6E	5	N/A	N/A	N/A	65	0	N/A	N/A	N/A
89101306	20	18.1N	107.3E	5	N/A	N/A	N/A	65	0	N/A	N/A	N/A
89101312	21	18.3N	106.0E	0	N/A	N/A	N/A	55	0	N/A	N/A	N/A

Super Typhoon Elsie (30W)

	00h	24h	48h	72h
Average	12	75	145	231
# Cases	34	31	27	23

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89101400	1	16.4N	132.2E	0	138	288	392	30	0	0	-15	-55
89101406	2	16.3N	131.8E	8	121	272	353	30	5	0	-15	-50
89101412	3	16.2N	131.6E	13	24	54	44	35	0	-10	-40	-65
89101418	4	16.2N	131.4E	11	29	75	46	35	0	-10	-45	-60
89101500	5	16.1N	131.2E	17	46	62	40	40	-5	-10	-50	-55
89101506	6	16.1N	130.9E	12	54	56	12	45	-5	-20	-55	-60
89101512	7	16.1N	130.8E	21	67	54	42	50	-5	-35	-60	-55
89101518	8	16.1N	130.7E	11	48	29	71	55	0	-30	-35	-40
89101600	9	16.2N	130.6E	8	66	63	135	60	-5	-35	-35	-40
89101606	10	16.5N	130.3E	12	65	98	201	70	-5	-35	-40	20
89101612	11	16.7N	130.0E	5	69	109	226	90	0	-10	-10	60
89101618	12	16.9N	129.4E	5	66	77	242	100	0	0	-10	75
89101700	13	16.9N	128.8E	12	74	114	311	110	0	-40	-65	25
89101706	14	16.9N	128.1E	13	74	71	261	115	-5	-30	-5	20
89101712	15	16.7N	127.5E	26	79	119	243	125	-15	-30	15	35
89101718	16	16.4N	126.9E	26	52	93	175	125	-5	-30	25	45
89101800	17	16.1N	126.4E	8	42	173	252	125	-5	-40	25	45
89101806	18	16.1N	125.7E	13	137	260	348	130	0	40	15	50
89101812	19	16.2N	124.9E	21	176	289	395	130	0	60	20	55
89101818	20	16.4N	124.1E	5	142	254	374	140	-5	20	30	65
89101900	21	16.6N	122.9E	8	111	220	387	140	-5	30	40	65
89101906	22	16.7N	121.5E	23	123	236	398	80	40	35	45	65
89101912	23	16.8N	119.9E	13	62	217	374	60	20	40	55	80
89101918	24	16.8N	118.4E	11	65	222	N/A	55	30	40	65	N/A
89102000	25	16.9N	117.1E	6	36	156	N/A	55	35	45	70	N/A
89102006	26	16.9N	116.0E	8	42	152	N/A	55	15	10	15	N/A
89102012	27	17.0N	114.8E	11	60	104	N/A	55	5	10	5	N/A
89102018	28	17.2N	113.7E	13	87	N/A	N/A	55	0	15	N/A	N/A
89102100	29	17.5N	112.5E	8	45	N/A	N/A	55	0	5	N/A	N/A
89102106	30	17.8N	111.4E	6	70	N/A	N/A	50	0	5	N/A	N/A
89102112	31	18.2N	109.9E	11	54	N/A	N/A	40	0	10	N/A	N/A
89102118	32	18.3N	108.5E	13	N/A	N/A	N/A	35	5	N/A	N/A	N/A
89102200	33	18.3N	107.2E	12	N/A	N/A	N/A	35	0	N/A	N/A	N/A
89102206	34	18.3N	105.9E	29	N/A	N/A	N/A	35	-5	N/A	N/A	N/A

Typhoon Forrest (31W)

	00h	24h	48h	72h
Average	22	93	169	318
# Cases	30	27	23	18

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89102200	1	8.9N	150.2E	34	124	248	359	30	0	0	0	15
89102206	2	9.8N	149.5E	5	109	213	304	30	0	-5	5	20
89102212	3	10.7N	149.0E	13	122	223	303	35	0	-5	5	30
89102218	4	11.5N	148.5E	34	104	180	248	40	0	0	10	30
89102300	5	12.2N	148.1E	8	55	100	165	45	0	5	15	20
89102306	6	12.9N	147.6E	12	72	105	212	50	0	10	20	45
89102312	7	13.4N	147.0E	13	64	133	240	55	0	10	15	45
89102318	8	13.8N	146.4E	8	64	122	253	60	0	10	10	40
89102400	9	14.3N	145.8E	13	72	168	313	60	0	-5	0	5
89102406	10	15.0N	145.1E	16	36	86	216	60	0	-5	5	5
89102412	11	15.6N	144.4E	49	66	42	198	65	0	-5	5	5
89102418	12	16.1N	143.7E	24	164	282	361	70	0	0	20	30
89102500	13	16.6N	142.8E	6	96	210	358	75	-5	0	15	20
89102506	14	17.2N	141.9E	5	49	98	283	80	-5	5	15	20
89102512	15	17.9N	141.0E	8	53	124	386	85	0	20	20	25
89102518	16	18.6N	140.3E	26	109	186	513	90	0	20	25	30
89102600	17	19.4N	139.6E	0	16	132	457	90	0	5	10	20

Typhoon Forrest (31W) (continued)

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89102606	18	20.4N	139.1E	12	34	31	558	90	0	5	20	20
89102612	19	21.1N	138.5E	24	247	679	N/A	90	-5	-30	-30	N/A
89102618	20	21.9N	138.1E	20	116	261	N/A	90	-5	-15	-20	N/A
89102700	21	22.7N	137.7E	0	70	139	N/A	95	0	-5	0	N/A
89102706	22	23.6N	137.5E	18	33	96	N/A	95	0	0	0	N/A
89102712	23	24.6N	137.4E	12	99	33	N/A	95	0	-10	-5	N/A
89102718	24	25.8N	137.5E	20	106	N/A	N/A	90	0	-5	N/A	N/A
89102800	25	27.1N	138.1E	41	94	N/A	N/A	90	0	5	N/A	N/A
89102806	26	28.4N	139.4E	33	155	N/A	N/A	80	0	0	N/A	N/A
89102812	27	29.9N	141.4E	43	180	N/A	N/A	75	0	-5	N/A	N/A
89102818	28	31.7N	144.3E	70	N/A	N/A	N/A	70	0	N/A	N/A	N/A
89102900	29	33.9N	148.3E	50	N/A	N/A	N/A	60	0	N/A	N/A	N/A
89102906	30	36.8N	153.0E	48	N/A	N/A	N/A	60	-10	N/A	N/A	N/A

Typhoon Gay (32W)

	00h	24h	48h	72h
Average	11	67	132	209
# Cases	34	30	25	20

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89110200	1	8.2N	102.2E	5	63	N/A	N/A	35	-10	-35	N/A	N/A
89110206	2	8.3N	102.0E	17	72	54	37	35	0	-25	-50	-25
89110212	3	8.7N	101.9E	13	46	43	111	35	0	-45	-20	-35
89110218	4	9.1N	101.8E	0	24	94	205	45	-10	-50	-25	-35
89110300	5	9.3N	101.5E	8	16	79	200	65	-20	-45	-35	-30
89110306	6	9.8N	101.2E	0	26	90	224	75	-20	-30	-25	-15
89110312	7	10.2N	100.8E	0	37	123	264	90	-30	-5	-20	-10
89110318	8	10.4N	100.3E	0	31	112	253	95	-30	-10	-15	-5
89110400	9	10.5N	99.9E	11	100	213	283	100	-30	5	5	10
89110406	10	10.7N	99.2E	17	102	206	288	100	-15	0	5	5
89110412	11	11.2N	98.3E	0	59	204	291	65	15	5	15	10
89110418	12	11.3N	97.5E	11	47	181	274	75	5	5	15	5
89110500	13	11.4N	96.8E	13	91	210	294	85	0	5	10	0
89110506	14	11.7N	95.9E	8	121	211	279	90	0	5	5	-10
89110512	15	12.0N	94.8E	8	113	169	196	95	-5	5	0	-15
89110518	16	12.2N	93.8E	18	100	149	168	95	-5	5	-5	-20
89110600	17	12.4N	92.6E	17	83	110	151	95	-5	-10	-35	-10
89110606	18	13.0N	91.4E	38	67	102	173	95	-5	-25	-55	25
89110612	19	13.4N	90.2E	0	24	51	158	95	-10	-35	-65	5
89110618	20	13.7N	89.1E	11	21	77	162	95	-5	-35	-75	0
89110700	21	13.9N	88.1E	0	25	105	159	100	0	-20	-5	10
89110706	22	14.2N	87.1E	0	56	137	N/A	105	-5	-30	25	N/A
89110712	23	14.5N	86.1E	0	77	141	N/A	110	-10	-35	15	N/A
89110718	24	14.6N	85.0E	8	79	128	N/A	115	-5	-55	20	N/A
89110800	25	14.6N	83.8E	13	77	121	N/A	120	-5	-20	10	N/A
89110806	26	14.6N	82.6E	5	30	180	N/A	130	10	35	25	N/A
89110812	27	14.7N	81.5E	18	75	N/A	N/A	135	10	35	N/A	N/A
89110818	28	14.8N	80.4E	6	102	N/A	N/A	140	0	20	N/A	N/A
89110900	29	15.1N	79.1E	13	130	N/A	N/A	90	15	30	N/A	N/A
89110906	30	15.4N	77.7E	18	109	N/A	N/A	45	45	20	N/A	N/A
89110912	31	15.8N	76.5E	16	N/A	N/A	N/A	35	35	N/A	N/A	N/A
89110918	32	16.6N	75.5E	43	N/A	N/A	N/A	25	25	N/A	N/A	N/A
89111000	33	17.6N	74.6E	49	N/A	N/A	N/A	20	15	N/A	N/A	N/A
89111006	34	18.1N	74.0E	0	N/A	N/A	N/A	15	15	N/A	N/A	N/A

Typhoon Hunt (33W)

	00h	24h	48h	72h
Average	14	98	173	207
# Cases	27	25	23	19

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89111612	1	12.0N	132.7E	18	92	250	434	25	0	5	-10	-40
89111618	2	12.0N	131.7E	18	165	309	486	25	0	0	-20	-40
89111700	3	11.9N	131.0E	31	128	242	402	25	0	-5	-30	-40
89111706	4	11.8N	130.6E	24	102	181	250	30	0	-15	-45	-40
89111712	5	11.8N	130.0E	13	105	222	290	30	0	-20	-40	-40
89111718	6	12.1N	129.4E	17	109	260	306	35	0	-15	-35	-35
89111800	7	12.5N	128.9E	18	109	217	278	40	0	-15	-25	-25
89111806	8	13.0N	128.4E	6	113	245	300	50	0	-20	-20	-10
89111812	9	13.5N	127.9E	13	119	285	278	60	0	-15	-30	-20
89111818	10	14.0N	127.5E	24	55	133	119	65	0	-15	-15	-30
89111900	11	14.3N	127.2E	8	107	146	157	75	0	0	0	-5
89111906	12	14.6N	127.0E	8	84	116	121	90	0	10	10	15
89111912	13	15.0N	127.0E	5	35	52	42	90	0	10	10	25
89111918	14	15.4N	126.9E	11	47	67	36	90	0	10	0	30
89112000	15	15.4N	126.5E	18	86	80	57	90	0	0	25	30
89112006	16	15.4N	126.1E	5	91	103	63	90	0	0	40	35
89112012	17	15.3N	125.7E	8	95	98	63	90	0	0	40	40
89112018	18	15.2N	125.1E	16	81	89	84	90	0	-5	35	35
89112100	19	15.0N	124.2E	5	106	179	174	90	0	-5	30	25
89112106	20	15.1N	123.3E	13	117	191	N/A	90	0	15	30	N/A
89112112	21	15.2N	122.5E	11	123	212	N/A	90	0	25	30	N/A
89112118	22	15.5N	121.7E	18	88	136	N/A	90	-5	25	25	N/A
89112200	23	15.9N	121.1E	8	69	171	N/A	75	0	20	30	N/A
89112206	24	16.1N	120.3E	35	140	N/A	N/A	55	0	15	N/A	N/A
89112212	25	16.3N	119.6E	11	75	N/A	N/A	40	0	0	N/A	N/A
89112218	26	16.4N	119.2E	12	N/A	N/A	N/A	35	0	N/A	N/A	N/A
89112300	27	16.5N	118.7E	5	N/A	N/A	N/A	30	0	N/A	N/A	N/A

Super Typhoon Irma (34W)

	00h	24h	48h	72h
Average	18	112	212	394
# Cases	39	37	27	23

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89112106†	1	17.7N	164.8E	11	181	N/A	N/A	25	-5	0	N/A	N/A
89112118†	2	19.2N	163.0E	30	120	N/A	N/A	25	0	0	N/A	N/A
89112206†	3	19.7N	162.3E	12	160	N/A	N/A	25	-5	-10	N/A	N/A
89112500*	4	13.7N	150.6E	26	55	N/A	N/A	30	-5	0	N/A	N/A
89112512†	5	12.8N	148.4E	26	205	N/A	N/A	30	0	-5	N/A	N/A
89112600†	6	11.7N	147.0E	17	110	N/A	N/A	30	0	-15	N/A	N/A
89112612	7	10.7N	145.9E	16	94	144	213	35	-5	-15	-25	-45
89112618	8	10.4N	145.2E	24	117	168	249	35	0	-10	-20	-60
89112700	9	10.1N	144.5E	8	32	125	163	45	0	5	-10	-25
89112706	10	10.0N	144.0E	0	64	172	186	45	0	0	-15	-25
89112712	11	10.0N	143.4E	41	143	236	251	50	0	0	-15	-30
89112718	12	10.1N	142.7E	18	74	152	174	55	0	0	-30	-25
89112800	13	10.2N	141.9E	8	130	181	186	60	0	-20	-40	-5
89112806	14	10.4N	141.0E	8	135	177	142	65	0	-20	-40	5
89112812	15	10.8N	140.0E	6	71	100	92	70	0	-15	-30	10
89112818	16	11.3N	138.9E	11	26	84	105	75	0	-35	-45	-15
89112900	17	11.8N	137.8E	0	32	34	107	100	0	-15	-5	-5
89112906	18	12.3N	136.7E	5	37	36	125	105	0	-15	-5	-5
89112912	19	12.6N	135.7E	13	48	115	256	105	0	-50	-40	-25
89112918	20	12.9N	135.0E	5	40	77	250	125	-20	-40	-30	-25
89113000	21	13.2N	134.2E	8	36	112	358	140	-20	-5	0	5
89113006	22	13.5N	133.4E	11	63	206	481	140	0	-5	0	5

† Tropical Depression Warning
* Regenerated

Super Typhoon Irma (34W) (continued)

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89113012	23	13.8N	132.5E	5	100	235	546	140	0	20	20	10
89113018	24	14.1N	132.0E	12	54	238	590	135	0	10	0	-10
89120100	25	14.3N	131.6E	8	105	343	782	120	5	0	-5	0
89120106	26	14.5N	131.2E	32	123	428	906	115	0	-5	0	10
89120112	27	14.7N	131.0E	5	132	481	933	110	0	-5	-5	15
89120118	28	14.9N	130.7E	11	135	498	946	105	0	-10	-5	25
89120200	29	15.2N	130.6E	11	195	614	1027	100	0	-10	0	30
89120206	30	15.6N	130.7E	23	196	516	N/A	95	-5	-15	0	N/A
89120212	31	16.1N	130.9E	8	13	31	N/A	90	0	5	15	N/A
89120218	32	16.7N	131.3E	21	43	117	N/A	90	0	0	25	N/A
89120300	33	17.2N	131.9E	16	78	108	N/A	85	0	5	35	N/A
89120306	34	18.1N	132.8E	11	30	N/A	N/A	80	0	10	N/A	N/A
89120312	35	19.1N	133.7E	8	94	N/A	N/A	75	0	15	N/A	N/A
89120318	36	20.1N	134.5E	21	189	N/A	N/A	75	0	15	N/A	N/A
89120400	37	21.0N	136.1E	21	694	N/A	N/A	65	0	20	N/A	N/A
89120406	38	21.7N	137.4E	43	N/A	N/A	N/A	55	5	N/A	N/A	N/A
89120412	39	22.5N	138.8E	131	N/A	N/A	N/A	45	0	N/A	N/A	N/A

Tropical Depression 35W

	00h	24h	48h	72h
Average	73	212	439	N/A
# Cases	9	5	1	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89120700	1	11.0N	139.1E	106	232	439	N/A	30	-5	5	25	N/A
89120706	2	10.9N	138.7E	40	46	N/A	N/A	30	0	10	N/A	N/A
89120712	3	10.9N	138.4E	79	129	N/A	N/A	30	0	10	N/A	N/A
89120718	4	11.0N	138.2E	97	272	N/A	N/A	30	0	10	N/A	N/A
89120800	5	11.1N	138.0E	144	381	N/A	N/A	30	0	15	N/A	N/A
89120806	6	11.5N	138.0E	64	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89120812	7	12.2N	138.3E	61	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89120818	8	12.8N	138.7E	5	N/A	N/A	N/A	30	0	N/A	N/A	N/A
89120900	9	13.5N	139.0E	61	N/A	N/A	N/A	25	0	N/A	N/A	N/A

Typhoon Jack (36W)

	00h	24h	48h	72h
Average	28	95	167	317
# Cases	21	20	18	14

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89122300	1	10.2N	152.7E	6	98	N/A	N/A	30	-5	-35	N/A	N/A
89122306	2	10.9N	151.9E	0	108	191	338	35	0	-20	-50	-55
89122312	3	11.5N	151.2E	13	133	258	458	45	0	-25	-50	-60
89122318	4	11.9N	150.9E	47	6	58	215	55	0	-15	-40	-55
89122400	5	12.2N	150.5E	13	48	105	304	65	0	-15	-35	-25
89122406	6	12.5N	150.1E	8	26	138	336	70	-5	-25	-35	-10
89122412	7	12.7N	149.6E	18	37	168	355	80	-5	-20	-20	25
89122418	8	12.8N	149.2E	8	102	217	352	90	0	-25	-15	45
89122500	9	12.9N	148.8E	0	94	222	234	100	-5	-10	15	75
89122506	10	13.4N	148.5E	18	87	212	168	110	-5	-5	30	80
89122512	11	13.6N	148.3E	8	88	198	193	120	-10	-5	60	85
89122518	12	13.7N	148.2E	11	81	159	303	125	-5	5	75	80
89122600	13	13.8N	148.1E	8	75	56	303	125	0	20	85	75
89122606	14	13.8N	148.0E	5	56	36	371	125	-5	30	85	75
89122612	15	13.8N	148.0E	5	51	139	511	125	-5	50	85	80
89122618	16	13.7N	147.9E	13	44	200	N/A	120	-5	65	75	N/A
89122700	17	13.5N	147.7E	11	67	198	N/A	105	0	60	65	N/A
89122706	18	13.4N	147.4E	0	165	194	N/A	90	0	40	40	N/A
89122712	19	13.5N	147.0E	46	209	259	N/A	65	10	20	25	N/A
89122718	20	14.0N	146.5E	120	328	N/A	N/A	45	10	10	N/A	N/A
89122800	21	14.8N	145.7E	237	N/A	N/A	N/A	30	0	N/A	N/A	N/A

7.2.2 NORTH INDIAN OCEAN

This section includes verification statistics for each warning in the North Indian Ocean during 1989. Pre- and post- warning best track positions are not printed, but are available on floppy diskettes by request.

JTWC FORECAST TRACK AND INTENSITY ERRORS BY WARNING

Tropical Cyclone 01B

	00h	24h	48h	72h
Average	23	106	N/A	N/A
# Cases	14	11	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89052312	1	18.1N	89.8E	30	169	N/A	N/A	30	0	10	N/A	N/A
89052318	2	18.7N	89.5E	11	135	N/A	N/A	30	0	5	N/A	N/A
89052400	3	19.4N	89.0E	28	188	N/A	N/A	30	0	-15	N/A	N/A
89052406	4	19.6N	88.6E	37	N/A	N/A	N/A	35	-5	N/A	N/A	N/A
89052412	5	19.6N	88.3E	32	139	N/A	N/A	35	-5	-15	N/A	N/A
89052418	6	19.5N	87.9E	37	78	N/A	N/A	40	-5	-5	N/A	N/A
89052500	7	19.5N	87.8E	13	71	N/A	N/A	45	0	-20	N/A	N/A
89052506	8	19.6N	87.8E	11	51	N/A	N/A	45	5	-20	N/A	N/A
89052512	9	19.8N	87.9E	29	26	N/A	N/A	45	-5	-10	N/A	N/A
89052518	10	20.2N	87.6E	11	55	N/A	N/A	45	0	-5	N/A	N/A
89052600	11	20.3N	87.5E	8	111	N/A	N/A	50	-5	0	N/A	N/A
89052606	12	20.7N	87.4E	45	139	N/A	N/A	50	-5	0	N/A	N/A
89052612	13	21.3N	87.3E	23	N/A	N/A	N/A	55	-10	N/A	N/A	N/A
89052618	14	21.9N	87.2E	8	N/A	N/A	N/A	50	5	N/A	N/A	N/A

Tropical Cyclone 02A

	00h	24h	48h	72h
Average	41	134	N/A	N/A
# Cases	5	1	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
89061206	1	21.4N	65.7E	39	134	N/A	N/A	35	0	25	N/A	N/A
89061212	2	21.3N	64.9E	33	N/A	N/A	N/A	35	0	N/A	N/A	N/A
89061218	3	21.3N	64.2E	45	N/A	N/A	N/A	35	0	N/A	N/A	N/A
89061300	4	21.4N	63.8E	68	N/A	N/A	N/A	30	5	N/A	N/A	N/A
89061306	5	21.5N	63.4E	20	N/A	N/A	N/A	25	0	N/A	N/A	N/A

Tropical Cyclone 32W (Gay): Please see page 237 for data.

7.2.3 SOUTHERN HEMISPHERE

This section includes verification statistics for each warning in the South Indian and western South Pacific Oceans from 1 July 1988 to 30 June 1989. Pre- and post- warning best track positions are not printed, but are available on floppy diskettes by request.

JTWC FORECAST TRACK AND INTENSITY ERRORS BY WARNING

Tropical Cyclone 01S (Adelinina)

	00h	24h	48h
Average	83	235	384
# Cases	9	8	6

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 ER	48 ER
88110100	1	8.7S	76.7E	29	48	281	50	-5	0	-10
88110112	2	9.1S	76.6E	62	133	407	55	5	5	0
88110200	3	9.8S	76.7E	13	264	562	55	0	-10	-5
88110212	4	11.0S	77.6E	21	146	175	65	0	10	25
88110300	5	12.7S	79.0E	35	131	300	75	0	10	45
88110312	6	14.0S	80.4E	16	210	576	75	0	-10	-10
88110400	7	14.6S	81.7E	87	367	N/A	75	-10	-5	N/A
88110412	8	14.3S	82.7E	211	579	N/A	65	-20	-15	N/A
88110418	9	14.0S	83.2E	275	N/A	N/A	55	-30	N/A	N/A

Tropical Cyclone 02S (Barisaona)

	00h	24h	48h
Average	25	98	169
# Cases	26	24	22

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88110806	1	6.9S	96.3E	24	25	90	45	-10	-15	-5
88110818	2	6.9S	95.4E	5	45	112	55	-5	5	15
88110906	3	6.9S	94.5E	0	78	130	55	0	10	20
88110912	4	6.7S	94.1E	13	74	131	55	0	10	20
88111000	5	6.3S	93.0E	5	26	48	55	0	-10	-25
88111012	6	6.1S	92.2E	23	37	96	55	-5	-10	-25
88111100	7	6.1S	91.2E	30	111	173	55	-5	-20	-25
88111112	8	6.4S	90.1E	18	90	156	55	-10	-25	-30
88111200	9	6.7S	88.4E	26	96	231	65	0	5	5
88111212	10	7.3S	86.6E	37	66	188	65	0	0	-30
88111300	11	7.9S	85.3E	23	169	308	65	0	-10	-40
88111312	12	9.2S	83.7E	18	166	259	65	0	-10	-25
88111400	13	10.1S	81.1E	76	104	97	65	0	-10	-5
88111412	14	10.4S	78.9E	30	96	193	75	0	5	0
88111500	15	11.0S	77.1E	36	136	186	85	-20	-25	-25
88111512	16	12.1S	75.0E	5	78	229	90	-10	-25	-40
88111600	17	12.9S	73.4E	25	72	139	95	-20	-25	-45
88111612	18	13.8S	71.8E	37	178	264	100	-5	-25	-35
88111700	19	14.4S	71.0E	55	116	194	90	-5	-15	-25
88111712	20	15.1S	69.8E	16	122	206	95	-10	-10	5
88111800	21	15.7S	68.9E	21	88	140	90	-5	-15	10
88111812	22	16.3S	68.3E	23	58	160	85	-5	15	25
88111900	23	17.1S	67.7E	12	32	N/A	80	0	30	N/A
88111912	24	17.9S	66.6E	49	283	N/A	50	10	5	N/A
88112000	25	18.4S	65.8E	33	N/A	N/A	40	5	N/A	N/A
88112012	26	18.5S	65.4E	5	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 03S (Ilona)

	00h	24h	48h
Average	14	106	203
# Cases	11	8	6

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88121312	1	16.5S	120.0E	54	197	299	35	0	0	0
88121400	2	16.0S	117.9E	8	12	71	45	-5	-10	-15
88121412	3	16.1S	116.4E	12	132	269	50	0	0	-5
88121500	4	16.2S	115.8E	5	38	191	55	0	-5	-10
88121512	5	16.4S	115.4E	24	55	45	60	0	-15	-30
88121600	6	16.7S	115.1E	29	120	346	70	-5	-10	35
88121612	7	17.2S	115.1E	5	106	N/A	75	0	-10	N/A
88121700	8	18.3S	115.3E	16	183	N/A	85	0	35	N/A
88121706*	9	19.1S	115.7E	5	N/A	N/A	85	0	N/A	N/A
88121712	10	20.2S	116.0E	0	N/A	N/A	85	0	N/A	N/A
88121800	11	22.7S	117.0E	0	N/A	N/A	40	0	N/A	N/A

* Intermediate Update

Tropical Cyclone 04P (Delilah)

	00h	24h	48h
Average	20	74	110
# Cases	4	3	1

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89010118	1	18.7S	161.2E	38	106	110	45	-10	0	0
89010206	2	20.2S	165.0E	16	34	N/A	60	-20	-10	N/A
89010218	3	22.3S	167.8E	5	83	N/A	55	-20	-15	N/A
89010300	4	23.4S	168.8E	18	N/A	N/A	55	-20	N/A	N/A

Tropical Cyclone 05P (Gina)

	00h	24h	48h
Average	30	130	464
# Cases	6	4	2

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89010706	1	15.3S	172.1W	18	131	445	35	0	-10	0
89010718	2	16.4S	171.7W	29	131	483	40	0	5	20
89010806	3	17.6S	171.4W	8	112	N\A	45	-5	0	N\A
89010818	4	18.9S	171.1W	33	146	N\A	40	0	10	N\A
89010906	5	19.7S	172.8W	8	N\A	N\A	35	0	N\A	N\A
89010918	6	20.5S	175.1W	82	N\A	N\A	25	10	N\A	N\A

Tropical Cyclone 06S

	00h	24h	48h
Average	18	100	156
# Cases	9	7	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89011018	1	16.4S	40.9E	13	38	106	45	0	-10	-25
89011106	2	16.9S	41.2E	20	204	N\A	55	-10	-25	N\A
89011118	3	17.2S	41.6E	21	132	271	65	-10	-20	-45
89011206	4	17.3S	41.9E	12	69	111	65	0	15	15
89011218	5	17.5S	42.2E	26	38	156	75	-10	0	5
89011306	6	17.7S	42.6E	20	80	135	75	0	0	45
89011318	7	17.9S	42.8E	11	135	N\A	75	0	5	N\A
89011406	8	18.9S	43.8E	6	N\A	N\A	75	0	N\A	N\A
89011418	9	20.3S	44.6E	29	N\A	N\A	65	-10	N\A	N\A

Tropical Cyclone 07S (Edma)

	00h	24h	48h
Average	29	141	322
# Cases	11	10	8

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89012018	1	13.6S	82.9E	102	312	429	35	5	0	-10
89012106	2	14.0S	83.0E	17	132	182	45	0	-1	-30
89012118	3	15.0S	83.3E	5	17	12	50	0	-10	-40
89012206	4	16.4S	83.3E	33	147	369	65	-10	-35	-45
89012218	5	17.8S	82.8E	23	155	455	75	-10	-25	0
89012306	6	19.0S	82.0E	33	147	549	105	-10	10	40
89012318	7	19.5S	81.3E	20	174	267	115	0	50	75
89012406	8	20.7S	79.8E	23	73	317	105	0	25	40
89012418	9	22.3S	77.9E	28	77	N\A	75	0	25	N\A
89012506	10	23.5S	75.5E	33	172	N\A	55	-5	10	N\A
89012518	11	25.0S	72.5E	6	N\A	N\A	30	5	N\A	N\A

Tropical Cyclone 08S (Firinga)

	00h	24h	48h
Average	23	105	201
# Cases	14	10	9

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89012600	1	12.9S	66.1E	33	88	232	35	0	0	-15
89012612	2	14.3S	65.8E	21	109	234	40	0	-5	-25
89012700	3	15.2S	64.8E	5	134	232	45	0	-10	-30
89012712	4	16.4S	63.2E	32	149	212	55	-5	-10	-10
89012800	5	17.7S	60.9E	33	114	239	65	0	0	-10
89012806	6	18.2S	59.9E	8	50	129	70	0	0	0
89012818	7	19.6S	57.8E	16	87	169	90	0	20	40
89012906	8	20.5S	56.0E	28	121	156	90	5	5	15
89012918	9	21.6S	54.4E	23	98	208	85	0	15	10
89013006	10	23.0S	53.0E	108	N\A	N\A	65	5	N\A	N\A
89013018	11	24.3S	51.6E	8	100	N\A	50	10	5	N\A
89013106	12	25.9S	50.7E	6	N\A	N\A	45	-5	N\A	N\A
89013112	13	26.9S	50.5E	0	N\A	N\A	40	0	N\A	N\A
89020100	14	29.3S	50.3E	0	N\A	N\A	35	0	N\A	N\A

Tropical Cyclone 09S (Kirrily)

	00h	24h	48h
Average	27	162	313
# Cases	9	7	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89020612	1	14.5S	109.9E	17	143	297	35	0	5	25
89020700	2	15.8S	109.8E	8	55	212	50	-5	5	-20
89020712	3	16.8S	109.8E	12	82	279	50	0	0	-30
89020800	4	17.8S	109.7E	21	158	398	50	0	-25	-10
89020812	5	18.8S	109.3E	30	185	382	45	-45	-25	10
89020900	6	19.9S	108.0E	58	294	N\A	65	-65	-10	N\A
89020912	7	21.7S	106.8E	18	221	N\A	70	5	40	N\A
89021000	8	23.7S	105.1E	43	N\A	N\A	45	0	N\A	N\A
89021012	9	24.5S	103.1E	37	N\A	N\A	25	10	N\A	N\A

Tropical Cyclone 10P (Harry)

	00h	24h	48h
Average	23	111	269
# Cases	24	23	21

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89020800	1	17.3S	161.4E	24	157	281	30	5	-5	-15
89020812	2	18.3S	162.3E	28	198	307	45	0	-10	-55
89020900	3	18.2S	163.7E	66	156	283	55	-10	-30	-65
89020912	4	18.3S	165.0E	12	100	308	60	0	-35	-30
89021000	5	18.7S	165.6E	18	192	450	80	-5	-10	-5
89021012	6	19.3S	165.5E	13	155	348	110	0	20	45
89021100	7	20.1S	164.9E	5	112	306	115	0	5	0
89021106*	8	20.5S	164.4E	25	143	338	110	0	0	-20
89021112	9	20.9S	163.6E	5	145	352	105	-5	-10	-55
89021200	10	20.9S	162.5E	0	74	214	95	5	-5	-60
89021212	11	20.6S	161.5E	6	55	99	80	0	-30	-65
89021300	12	20.0S	160.6E	18	79	104	80	0	-40	-55
89021312	13	19.4S	159.7E	13	57	145	95	-5	-40	-5
89021400	14	19.2S	158.8E	24	74	221	115	0	20	30
89021412	15	19.0S	157.9E	5	92	248	130	0	25	35
89021500	16	19.3S	157.4E	11	152	376	120	-5	-10	10
89021512	17	19.5S	157.5E	24	158	426	115	-5	0	10
89021600	18	19.7S	157.7E	28	140	375	110	5	10	-5
89021612	19	19.8S	158.2E	11	96	237	95	0	-5	35
89021700	20	20.3S	159.5E	17	21	111	80	0	10	55
89021712	21	21.2S	160.9E	21	37	120	80	10	45	45
89021800	22	22.3S	162.6E	48	76	N\A	70	0	10	N\A
89021812	23	23.9S	163.9E	47	80	N\A	55	0	0	N\A
89021900	24	25.8S	165.4E	88	N\A	N\A	35	0	N\A	N\A

* Intermediate Update

Tropical Cyclone 11S (Hanitra)

	00h	24h	48h
Average	27	92	180
# Cases	23	21	19

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89021718	1	13.9S	96.9E	8	74	147	35	0	5	10
89021800	2	13.5S	95.8E	47	66	61	45	0	15	15
89021812	3	13.1S	93.6E	29	31	59	55	-10	15	-30
89021900	4	13.0S	91.3E	18	44	23	50	0	-10	-35
89021912	5	12.6S	89.0E	36	48	83	55	-5	-45	-45
89022000	6	12.7S	86.8E	24	80	216	75	-5	-20	-15
89022012	7	12.7S	85.3E	18	99	216	105	-15	0	-10
89022100	8	12.8S	84.1E	37	146	265	110	-20	-25	-50
89022112	9	12.9S	83.3E	13	96	133	115	-25	-25	-25
89022200	10	13.2S	82.8E	24	113	174	115	0	0	5
89022212	11	13.8S	82.4E	18	37	95	125	-35	-25	-20
89022300	12	14.6S	81.8E	8	91	213	125	-5	-20	-25
89022312	13	15.3S	80.7E	24	75	97	125	-10	-10	-10
89022400	14	16.2S	79.5E	5	33	111	120	-10	-10	-5
89022412	15	16.9S	78.1E	16	47	156	110	-5	5	5
89022500	16	17.9S	76.8E	37	143	387	105	-5	10	10
89022512	17	19.1S	75.4E	12	82	282	90	-10	-5	-5
89022600	18	20.4S	74.0E	28	166	402	80	-15	-20	-5
89022612	19	22.2S	72.7E	62	196	304	75	-10	0	5
89022700	20	24.9S	71.7E	37	140	N\A	65	-5	-5	N\A
89022712	21	28.0S	71.3E	26	121	N\A	55	5	10	N\A
89022800	22	30.7S	71.8E	78	N\A	N\A	45	0	N\A	N\A
89022806	23	31.7S	72.1E	15	N\A	N\A	35	0	N\A	N\A

Tropical Cyclone 12S (Gizela)

	00h	24h	48h
Average	33	154	266
# Cases	9	7	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89021812	1	15.8S	72.2E	117	125	114	45	-5	10	25
89021818	2	16.4S	72.1E	21	145	240	45	0	5	10
89021906	3	17.5S	72.0E	5	131	150	45	0	-10	5
89021918	4	18.1S	72.3E	6	62	293	60	-5	-10	15
89022006	5	19.1S	72.9E	25	189	533	65	5	15	25
89022018	6	20.7S	72.9E	42	266	N\A	65	0	20	N\A
89022106	7	21.6S	71.4E	33	162	N\A	50	5	15	N\A
89022118	8	22.1S	69.5E	23	N\A	N\A	40	15	N\A	N\A
89022206	9	23.8S	68.0E	21	N\A	N\A	30	5	N\A	N\A

Tropical Cyclone 13P (Ivy)

	00h	24h	48h
Average	50	120	207
# Cases	13	11	9

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89022318	1	17.5S	166.8E	57	196	367	30	5	15	10
89022406	2	18.0S	166.0E	29	199	400	35	0	5	0
89022418	3	18.9S	166.7E	17	127	98	40	5	-15	-45
89022506	4	19.5S	167.2E	0	82	212	50	-5	-15	-45
89022518	5	19.9S	167.6E	8	84	183	60	-5	-25	-15
89022606	6	20.2S	168.7E	18	74	88	70	20	25	15
89022618	7	20.9S	170.1E	16	87	176	90	5	25	35
89022706	8	21.5S	171.2E	6	21	157	90	0	-10	15
89022718	9	22.3S	171.9E	21	30	179	90	0	0	25
89022806	10	22.9S	172.7E	24	151	N\A	85	0	25	N\A
89022818	11	23.8S	172.8E	12	268	N\A	70	5	25	N\A
89030106	12	23.5S	171.4E	138	N\A	N\A	45	10	N\A	N\A
89030118	13	22.5S	170.4E	310	N\A	N\A	30	5	N\A	N\A

Tropical Cyclone 14P

	00h	24h	48h
Average	34	139	238
# Cases	11	9	6

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89022400	1	28.0S	137.4W	90	186	190	55	-15	-25	-40
89022412	2	27.0S	139.1W	12	145	204	65	0	10	25
89022500	3	26.7S	140.1W	22	139	194	80	-5	20	5
89022512	4	26.9S	140.6W	26	228	445	90	-10	10	25
89022600	5	28.0S	141.0W	24	185	273	80	-15	-20	0
89022612	6	29.6S	141.4W	72	44	123	75	-20	-20	-5
89022700	7	31.4S	141.8W	7	138	N\A	65	-15	-10	N\A
89022712	8	32.3S	141.2W	26	67	N\A	60	-10	-5	N\A
89022800	9	32.7S	140.3W	42	122	N\A	45	0	5	N\A
89022812	10	33.1S	139.5W	49	N\A	N\A	40	0	N\A	N\A
89030100	11	33.9S	138.4W	9	N\A	N\A	30	0	N\A	N\A

Tropical Cyclone 15P (Judy)

	00h	24h	48h
Average	22	160	390
# Cases	8	6	4

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89022400	1	21.5S	153.8W	34	139	218	35	0	-25	-40
89022412	2	22.9S	154.3W	6	266	568	55	0	-10	-30

Tropical Cyclone 15P (Judy) continued

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89022500	3	23.0S	155.2W	13	268	626	70	-5	-25	-20
89022512	4	22.7S	156.2W	21	89	148	80	-15	-10	25
89022600	5	22.4S	157.2W	28	47	N\A	90	-10	5	N\A
89022612	6	22.4S	158.3W	28	152	N\A	80	-10	30	N\A
89022700	7	22.8S	159.6W	16	N\A	N\A	75	-5	N\A	N\A
89022712	8	24.7S	160.4W	32	N\A	N\A	45	15	N\A	N\A

Tropical Cyclone 16S

	00h	24h	48h
Average	35	229	N\A
# Cases	3	1	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89022400	1	20.0S	117.3E	5	229	N\A	45	-10	15	N\A
89022412	2	21.9S	116.3E	94	N\A	N\A	30	5	N\A	N\A
89022500	3	23.6S	117.9E	6	N\A	N\A	25	-5	N\A	N\A

Tropical Cyclone 17S (Marcia)

	00h	24h	48h
Average	13	92	332
# Cases	3	2	1

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89030300	1	17.1S	100.1E	0	80	332	30	0	15	30
89030312	2	18.5S	98.7E	18	104	N/A	35	-5	20	N/A
89030400	3	19.7S	97.6E	23	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 18S

	00h	24h	48h
Average	40	220	185
# Cases	4	3	1

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89030906	1	23.9S	42.2E	63	163	185	35	0	5	10
89030918	2	26.4S	43.3E	30	228	N/A	35	0	0	N/A
89031006	3	28.9S	43.7E	37	270	N/A	35	0	0	N/A
89031018	4	30.4S	44.7E	31	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 19S (Jinabo)

	00h	24h	48h
Average	25	113	184
# Cases	13	11	3

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89032500	1	16.6S	52.7E	16	164	N/A	35	0	-30	N/A
89032512	2	18.0S	51.6E	29	167	N/A	55	0	-35	N/A
89032600	3	19.0S	51.2E	24	139	215	55	-5	-25	-20
89032612	4	19.5S	50.1E	24	112	N/A	65	-20	-35	N/A
89032618	5	19.9S	49.8E	32	81	N/A	65	0	-15	N/A
89032706	6	20.3S	49.4E	12	94	N/A	65	0	-10	N/A
89032718	7	20.8S	49.3E	50	N/A	N/A	60	-10	N/A	N/A
89032800	8	20.8S	49.4E	11	43	N/A	55	-5	-10	N/A
89032812	9	20.8S	49.4E	8	76	121	55	-5	10	10
89032900	10	20.9S	49.8E	53	158	215	45	0	5	5
89032912	11	21.0S	50.4E	5	42	N/A	35	5	10	N/A
89033000	12	21.5S	50.9E	21	168	N/A	30	5	5	N/A
89033012	13	23.2S	50.9E	40	N/A	N/A	25	5	N/A	N/A

Tropical Cyclone 20S (Ned)

	00h	24h	48h
Average	22	108	202
# Cases	19	15	11

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89032612	1	17.4S	115.0E	29	8	49	35	0	-5	-30
89032700	2	17.8S	113.5E	93	168	135	40	-5	-15	-40
89032706*	3	18.1S	112.7E	37	121	208	45	0	-20	-35
89032712	4	18.4S	111.8E	24	90	124	50	-5	-35	-30
89032718	5	18.8S	110.9E	17	95	118	55	-5	-40	-20
89032800	6	19.2S	110.2E	13	101	170	65	-10	-35	-5
89032806	7	19.5S	109.7E	8	94	220	75	-5	-30	5
89032812	8	19.9S	109.3E	5	108	246	90	-10	-5	45
89032818	9	20.3S	109.1E	37	173	347	100	-10	10	45
89032900	10	20.7S	109.0E	5	74	337	100	5	15	35
89032906	11	21.1S	109.0E	13	98	272	100	0	35	35
89032912	12	21.5S	108.9E	24	134	N/A	95	5	40	N/A
89032918	13	22.0S	108.8E	27	142	N/A	85	10	45	N/A
89033000	14	22.5S	108.7E	23	108	N/A	75	5	15	N/A
89033006	15	23.1S	108.5E	12	105	N/A	55	10	15	N/A
89033012	16	23.9S	108.4E	0	N/A	N/A	35	20	N/A	N/A
89033018	17	24.9S	108.5E	6	N/A	N/A	30	20	N/A	N/A
89033100	18	26.0S	108.7E	10	N/A	N/A	30	5	N/A	N/A
89033106	19	27.0S	109.3E	30	N/A	N/A	30	0	N/A	N/A

* 6-hourly warnings issued due to threat.

Tropical Cyclone 21S (Krissy)

	00h	24h	48h
Average	27	144	282
# Cases	18	17	16

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89033006	1	12.2S	73.0E	67	115	204	55	-15	-10	-25
89033018	2	12.4S	72.3E	13	26	146	60	-10	-15	-10
89033106	3	12.5S	71.5E	25	115	304	65	5	0	0
89033118	4	12.6S	70.7E	31	183	404	80	-10	-10	5
89040106	5	13.3S	70.1E	47	239	439	90	-20	-20	-20
89040118	6	14.3S	70.0E	40	108	153	100	-5	-5	-5
89040206	7	15.0S	70.2E	18	88	44	95	10	0	20
89040218	8	15.6S	70.5E	36	111	210	90	5	5	5
89040306	9	16.5S	70.4E	8	186	346	90	0	-5	-20
89040318	10	17.1S	69.2E	18	53	106	80	5	5	5
89040406	11	17.2S	67.4E	5	90	235	70	5	-15	-20
89040418	12	17.7S	65.8E	33	128	275	70	5	0	5
89040506	13	18.6S	63.7E	21	98	263	65	10	10	5
89040518	14	19.5S	61.4E	32	163	324	60	5	10	10
89040606	15	20.0S	58.6E	17	223	442	50	5	-10	0
89040618	16	21.8S	56.8E	50	191	616	45	10	10	0
89040706	17	23.4S	54.7E	33	332	N/A	45	0	5	N/A
89040718	18	24.5S	53.2E	0	N/A	N/A	35	0	N/A	N/A

Tropical Cyclone 22P (Kerry)

	00h	24h	48h
Average	56	158	386
# Cases	5	4	3

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89033100	1	19.3S	179.8W	57	131	303	30	5	0	-5
89033112	2	21.0S	177.5E	75	147	513	45	0	5	15
89040100	3	22.1S	177.4E	24	116	342	45	0	-10	-15
89040112	4	21.7S	177.6E	115	240	N/A	50	-5	-15	N/A
89040200	5	21.3S	177.6E	8	N/A	N/A	50	-20	N/A	N/A

Tropical Cyclone 23P (Aivu)

	00h	24h	48h
Average	27	108	172
# Cases	8	7	4

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89040100	1	10.3S	152.7E	18	158	209	35	0	-5	-35
89040112	2	11.8S	151.9E	31	167	190	45	0	-10	-45
89040200	3	13.9S	150.8E	16	54	112	60	0	-25	0
89040212	4	15.6S	149.6E	18	174	175	75	0	-60	-15
89040300	5	16.4S	149.2E	5	56	N/A	110	0	0	N/A
89040312	6	17.9S	148.8E	8	74	N/A	120	0	15	N/A
89040400	7	19.3S	147.7E	6	76	N/A	100	0	5	N/A
89040412	8	20.4S	145.9E	116	N/A	N/A	45	5	N/A	N/A

Tropical Cyclone 24S (Lazissy)

	00h	24h	48h
Average	64	260	455
# Cases	6	4	2

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89040612	1	11.9S	73.8E	74	300	512	40	-5	10	40
89040700	2	12.8S	72.1E	75	268	398	45	0	20	65
89040712	3	13.2S	71.8E	57	233	N/A	45	-10	5	N/A
89040800	4	13.5S	71.7E	130	237	N/A	45	0	20	N/A
89040812	5	14.2S	71.5E	42	N/A	N/A	35	5	N/A	N/A
89040900	6	15.5S	70.3E	8	N/A	N/A	25	0	N/A	N/A

Tropical Cyclone 25P (Lili)

	00h	24h	48h
Average	23	104	217
# Cases	9	8	8

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89040700	1	12.1S	162.2E	72	155	237	30	5	-5	-20
89040712	2	13.1S	163.9E	31	133	138	40	-5	-35	-50
89040800	3	13.8S	164.5E	18	88	150	60	5	-10	-10
89040812	4	14.4S	164.7E	17	102	285	80	0	-5	30
89040900	5	15.6S	164.6E	16	54	151	95	5	5	65
89040912	6	17.1S	164.6E	5	94	55	105	0	35	50
89041000	7	19.0S	165.0E	8	63	136	100	10	20	10
89041012	8	21.1S	166.2E	12	145	584	70	-5	20	15
89041100	9	23.1S	167.1E	24	N/A	N/A	35	0	N/A	N/A

Tropical Cyclone 26S (Orson)

	00h	24h	48h
Average	19	105	225
# Cases	12	9	7

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89041812	1	13.1S	123.7E	23	76	148	35	0	-10	-10
89041900	2	12.8S	122.3E	37	77	170	50	0	-20	-40
89041912	3	12.3S	121.0E	30	53	99	65	0	-10	-50
89042000	4	12.0S	119.9E	8	101	283	75	0	-15	-30
89042012	5	12.3S	118.7E	13	74	330	85	-5	-20	-35
89042100	6	13.4S	117.7E	21	51	186	105	0	5	0
89042112	7	14.6S	116.8E	29	64	362	115	0	-40	35
89042200	8	16.4S	116.3E	0	162	N/A	125	0	10	N/A
89042212	9	18.6S	116.3E	12	287	N/A	140	0	45	N/A
89042218*	10	20.1S	116.3E	16	N/A	N/A	125	0	N/A	N/A
89042300	11	22.0S	116.6E	12	N/A	N/A	100	0	N/A	N/A
89042306	12	24.1S	117.4E	26	N/A	N/A	75	0	N/A	N/A

* 6-hourly warnings issued due to threat.

Tropical Cyclone 27P (Meena)

	00h	24h	48h
Average	21	134	287
# Cases	16	15	12

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89050300	1	11.8S	161.3E	21	256	336	25	0	0	-10
89050312	2	11.1S	161.9E	24	102	288	30	0	0	-15
89050400	3	12.0S	161.3E	6	42	306	30	0	-10	-15
89050412	4	12.8S	161.2E	13	128	394	35	0	0	0
89050500	5	13.6S	160.3E	34	205	482	45	-5	-10	-10
89050512	6	14.7S	159.0E	11	187	N/A	45	-10	-15	N/A
89050600	7	15.6S	156.9E	16	164	337	45	-5	-5	0
89050612	8	14.7S	155.0E	74	290	408	45	0	0	0
89050700	9	13.4S	152.3E	25	66	330	40	-5	0	0
89050712	10	12.3S	150.3E	24	109	46	35	5	0	10
89050800	11	12.5S	148.8E	5	101	193	35	0	15	5
89050812	12	12.4S	146.8E	46	46	204	35	0	5	10
89050900	13	12.5S	143.3E	8	97	123	30	5	5	10
89050912	14	12.6S	141.8E	6	134	N/A	20	10	10	N/A
89051000	15	11.4S	138.7E	12	90	N/A	25	0	10	N/A
89051012	16	11.4S	136.9E	8	N/A	N/A	25	5	N/A	N/A

Tropical Cyclone 28P (Ernie)

	00h	24h	48h
Average	31	135	197
# Cases	9	7	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
89050706	1	12.4S	169.9E	29	21	25	30	0	5	20
89050718	2	12.4S	167.3E	37	124	146	30	0	10	25
89050806	3	11.9S	164.9E	33	88	206	35	0	10	20
89050818	4	11.9S	162.4E	5	97	247	30	5	10	0
89050906*	5	12.6S	160.1E	18	N/A	N/A	30	0	N/A	N/A
89051018	6	12.4S	151.5E	77	246	362	30	0	15	25
89051106	7	12.5S	150.8E	41	289	N/A	30	-5	0	N/A
89051118	8	12.7S	150.6E	11	76	N/A	30	0	5	N/A
89051206	9	12.6S	150.2E	30	N/A	N/A	30	-5	N/A	N/A

* Regenerated