ANNEX A

1. GENERAL

Due to the rapid growth of microcomputers 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 1988) on one and North Indian Ocean (1 January - 31 December), South Western Pacific and South Indian Oceans (1 July 1987 - 30 June 1988) 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.

2. WARNING VERIFICATION STATISTICS

a. WESTERN NORTH PACIFIC

This section includes verification statistics for each warning in the western North Pacific Ocean during 1988. 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

TYPHOON ROY (01W)

	00h	24h	48h	72h
Average	13	123	246	401
# Cases	41	37	33	29

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
88010800	1	7.9N	171.5E	29.7	119.1	84.8	127.2	30	0	-10	-20	-35
88010806	2	8.0N	170.3E	32.0	80.3	109.0	197.7	35	0	-5	-25	-25
88010812	3	8.1N	169.2E	13.4	78.0	213.1	251.8	45	-5	-5	-40	-20
88010818	4	8.2N	168.0E	24.7	122.4	253.7	245.3	50	0	0	-30	-5
88010900	5	8.2N	166.7E	6.0	142.4	293.3	295.2	55	0	-10	-30	-10
88010906	6	8.3N	165.3E	13.3	165.8	270.1	296.4	60	0	-20	-25	-10
88010912	7	8.3N	163.7E	23.7	225.0	299.5	325.6	65	0	-35	-15	-5
88010918	8	8.4N	161.6E	30.3	177.5	236.7	337.3	70	-5	-35	-10	-5
88011000	9	8.8N	159.4E	13.4	97.6	254.4	492.3	85	-5	-10	5	15
88011006	10	9.2N	157.3E	8.4	63.1	290.0	519.5	95	0	5	15	15
88011012	11	9.9N	155.1E	21.4	130.2	349.8	608.9	115	-10	10	15	20
88011018	12	10.6N	153.0E	12.0	243.1	438.9	645.3	115	-5	15	15	25
88011100	13	11.4N	151.5E	25.2	209.8	391.6	652.9	115	-5	-10	-10	-5
88011106	14	11.7N	150.2E	6.0	140.9	309.1	480.9	110	-5	-10	-15	0
88011112	15	12.3N	149.1E	.0	18.5	101.2	281.9	110	0	0	0	0
88011118	16	12.9N	147.9E	5.8	11.6	64.3	296.1	105	5	-10	-5	-5
88011200	17	13.1N	146.7E	6.0	34.7	102.2	351.6	110	-5	-10	0	-5
88011206	18	13.8N	145.6E	11.7	36.7	198.8	318.2	110	-5	0	10	-5
88011212	19	14.0N	144.3E	11.6	141.1	124.2	117.7	110	0	0	5	-10
88011218	20	14.6N	143.3E	.0	89.3	239.8	416.4	110	0	5	0	-5
88011300	21	15.2N	142.4E	13.3	122.2	344.0	566.0	105	0	5	0	5
88011306	22	15.3N	141.7E	8.3	214.0	534.6	866.4	105	-5	0	-15	0
88011312	23	15.2N	141.0E	11.6	225.7	479.6	739.8	100	0	5	-10	20
88011318	24	14.7N	140.2E	8.3	193.5	465.0	645.8	95	5	0	-5	30
88011400	25	14.0N	139.1E	13.3	234.4	502.5	659.6	90	0	-10	0	25

88011406	26	13.2N	137.4E	37.0	234.2	468.5	633.7	85	0	-15	0	25
88011412	27	12.6N	135.8E	8.4	64.7	46.3	76.0	85	-5	-20	0	0
88011418	28	12.3N	133.9E	11.7	77.0	24.7	50.0	90	-10	-15	10	5
88011500	29	12.4N	131.7E	6.0	93.5	146.3	145.8	90	0	-5	10	5
88011506	30	12.6N	129.7E	6.0	117.0	169.2	N/A	90	0	-5	15	N/A
88011512	31	12.8N	127.7E	.0	110.8	145.8	N/A	90	-5	10	15	N/A
88011518	32	13.0N	125.9E	13.1	157.5	163.0	N/A	85	-5	20	15	N/A
88011600	33	13.1N	124.6E	8.4	24.7	16.7	N/A	75	-5	10	10	N/A
88011606	34	13.1N	123.3E	26.3	81.6	N/A	N/A	65	0	15	N/A	N/A
88011612	35	13.7N	122.2E	6.0	87.6	N/A	N/A	50	10	10	N/A	N/A
88011618	36	13.8N	121.0E	6.0	94.9	N/A	N/A	40	5	10	N/A	N/A
88011700	37	13.4N	119.4E	8.4	96.2	N/A	N/A	40	0	5	N/A	N/A
88011706	38	13.7N	118.0E	18.5	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88011712	39	13.8N	116.6E	23.3	N/A	N/A	N/A	30	0	N/A	N/A	N/A
88011718	40	14.0N	115.4E	.0	N/A	N/A	N/A	25	0	N/A	N/A	N/A
88011800	41	13.9N	114.5E	8.4	N/A	N/A	N/A	25	0	N/A	N/A	N/A

Typhoon Susan (02W)

	00h	24h	48h	72h
Average	18	146	378	423
# Cases	17	13	9	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88053006	1	18.4N	119.4E	17.1	181.7	255.8	161.2	35	0	-20	-2	-5
88053012	2	18.2N	119.0E	13.3	108.3	127.3	208.9	45	-5	-15	-15	-5
88053018	3	18.4N	118.5E	23.6	61.4	98.2	385.7	50	-5	-5	-5	15
88053100	4	18.6N	118.2E	24.0	124.5	334.7	707.6	55	5	10	20	45
88053106	5	19.0N	118.0E	13.3	56.0	315.0	653.3	60	5	0	5	35
88053112	6	19.4N	117.9E	8.2	95.3	402.4	N/A	65	5	5	15	N/A
88053118	7	19.8N	117.9E	18.0	156.1	503.8	N/A	65	5	-10	5	N/A
88060100	8	20.2N	117.9E	23.3	246.5	664.2	N/A	70	0	-10	15	N/A
88060106	9	20.6N	118.2E	23.3	307.6	709.1	N/A	75	-5	-10	25	N/A
88060112	10	21.1N	118.7E	12.7	61.1	N/A	N/A	75	0	10	N/A	N/A
88060118	11	21.7N	119.8E	49.3	94.0	N/A	N/A	75	0	20	N/A	N/A
88060200	12	22.3N	121.2E	12.0	135.7	N/A	N/A	70	5	30	N/A	N/A
88060206	13	23.5N	122.7E	13.2	277.8	N/A	N/A	65	5	25	N/A	N/A
88060212	14	24.8N	124.4E	36.4	N/A	N/A	N/A	55	5	N/A	N/A	N/A
88060218	15	25.5N	126.5E	12.4	N/A	N/A	N/A	45	-5	N/A	N/A	N/A
88060300	16	25.6N	128.4E	16.2	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88060306	17	26.3N	130.2E	6.0	N/A	N/A	N/A	25	5	N/A	N/A	N/A

Tropical Depression (03W)

	00h	24h	48h	72h
Average	19	169	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 WE	48 WE	72 WE
88060406	1	18.8N	126.0E	18.1	160.6	N/A	N/A	30	0	10	N/A	N/A
88060412	2	19.3N	125.2E	39.8	101.0	N/A	N/A	30	0	20	N/A	N/A
88060418	3	19.9N	124.5E	20.8	184.5	N/A	N/A	30	0	15	N/A	N/A
88060500	4	20.5N	123.7E	13.2	232.8	N/A	N/A	30	0	25	N/A	N/A
88060506	5	21.0N	122.4E	5.6	N/A	N/A	N/A	30	0	N/A	N/A	N/A
88060512	6	21.5N	121.1E	16.4	N/A	N/A	N/A	30	0	N/A	N/A	N/A

Typhoon Thad (04W)

	00h	24h	48h	72h
Average	24	143	274	329
# Cases	20	16	12	8

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88062000	1	8.3N	133.1E	21.6	180.1	235.2	352.3	35	0	5	15	-15
88062006	2	9.3N	132.2E	48.0	210.0	259.6	474.0	35	0	20	-5	-30
88062012	3	10.7N	131.8E	42.4	97.7	33.9	242.8	40	0	20	10	10
88062018	4	12.0N	131.2E	46.3	205.5	195.5	47.5	45	0	15	20	35
88062100	5	13.0N	129.9E	50.3	81.1	91.2	191.9	50	-5	0	0	25
88062106	6	13.9N	128.6E	8.4	109.6	16.5	271.6	45	0	-20	-20	10
88062112	7	14.6N	127.5E	5.8	50.9	114.2	412.9	45	0	-20	-10	20
88062118	8	15.2N	126.6E	8.3	38.7	279.9	639.8	55	-5	-10	0	30
88062200	9	15.7N	125.8E	98.4	110.8	439.6	N/A	60	-5	0	25	N/A
88062206	10	16.2N	125.3E	26.0	180.0	513.4	N/A	65	0	5	30	N/A
88062212	11	16.7N	124.8E	5.7	181.8	505.7	N/A	70	5	0	15	N/A
88062218	12	17.6N	124.5E	30.0	282.5	605.0	N/A	70	-5	-10	15	N/A
88062300	13	18.7N	124.7E	13.3	110.1	N/A	N/A	70	-5	0	N/A	N/A
88062306	14	20.0N	125.2E	12.8	168.5	N/A	N/A	70	-5	10	N/A	N/A
88062312	15	21.3N	125.7E	.0	164.2	N/A	N/A	65	0	15	N/A	N/A
88062318	16	22.7N	126.6E	5.5	128.2	N/A	N/A	65	0	20	N/A	N/A
88062400	17	24.1N	127.7E	16.4	N/A	N/A	N/A	55	5	N/A	N/A	N/A
88062406	18	25.3N	129.0E	17.3	N/A	N/A	N/A	45	10	N/A	N/A	N/A
88062412	19	26.5N	130.4E	10.7	N/A	N/A	N/A	40	5	N/A	N/A	N/A
88062418	20	27.7N	131.9E	21.2	N/A	N/A	N/A	35	5	N/A	N/A	N/A

Tropical Storm Vanessa (05W)

	00h	24h	48h	72h
Average	27	194	386	N/A
# Cases	11	7	3	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88062612	1	7.6N	130.3E	34.8	228.1	486.2	N/A	30	0	10	5	N/A
88062618	2	8.3N	129.3E	6.0	125.9	322.2	N/A	35	-5	0	-10	N/A
88062700	3	9.1N	127.8E	13.3	170.0	352.1	N/A	40	-5	-10	-5	N/A
88062706	4	9.9N	126.2E	23.6	194.1	N/A	N/A	45	-10	-10	N/A	N/A
88062712	5	10.7N	124.4E	23.6	186.2	N/A	N/A	35	0	-10	N/A	N/A
88062718	6	11.4N	122.3E	30.0	227.1	N/A	N/A	35	0	0	N/A	N/A
88062800	7	12.3N	120.3E	42.6	226.7	N/A	N/A	40	0	15	N/A	N/A
88062806	8	13.6N	118.6E	63.1	N/A	N/A	N/A	40	0	N/A	N/A	N/A
88062812	9	15.2N	117.2E	29.0	N/A	N/A	N/A	40	0	N/A	N/A	N/A
88062818	10	17.3N	115.8E	18.9	N/A	N/A	N/A	40	0	N/A	N/A	N/A
88062900	11	19.4N	114.7E	21.3	N/A	N/A	N/A	35	5	N/A	N/A	N/A

Typhoon Warren (06W)

	00h	24h	48h	72h
Average	19	86	152	246
# Cases	30	28	23	16

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88071218	1	12.1N	145.3E	13.2	162.1	268.5	334.1	30	0	5	-10	-25
88071300	2	12.3N	144.7E	50.2	148.5	292.1	345.2	35	0	5	-10	-20
88071306	3	12.4N	143.8E	24.2	90.9	202.8	190.6	35	0	-5	-20	-25
88071312	4	12.4N	142.9E	8.4	56.2	103.5	77.4	35	0	-15	-30	-30
88071318	5	12.5N	142.0E	33.6	74.3	89.3	60.0	40	-5	-20	-35	-45
88071400	6	12.5N	141.2E	41.4	76.3	47.2	71.3	45	-5	-20	-30	-45
88071406	7	12.7N	140.4E	11.7	61.4	60.2	160.9	55	-15	-30	-35	-40
88071412	8	12.7N	139.6E	6.0	16.7	99.5	212.6	60	-10	-20	-20	-20
88071418	9	12.8N	138.8E	24.2	26.7	147.5	261.0	65	-10	-15	-25	-10
88071500	10	12.8N	138.0E	30.6	130.0	316.7	414.5	70	-5	0	-15	15
88071506	11	13.0N	137.3E	30.6	214.8	412.2	479.1	80	0	0	-5	25
88071512	12	13.3N	136.2E	13.1	81.3	220.4	276.6	90	0	5	-5	10

88071518	13	13.6N	134.9E	18.5	106.7	217.3	272.8	90	-5	-35	-40	-30
88071600	14	14.2N	133.5E	25.1	115.2	190.9	359.3	90	0	-20	-5	10
88071606	15	14.8N	131.9E	34.7	140.0	190.3	277.3	95	-5	-15	-5	-10
88071612	16	15.2N	130.2E	16.7	80.0	109.6	145.9	100	-5	-30	-20	-5
88071618	17	15.9N	128.5E	8.3	48.3	97.4	N/A	110	0	-25	-25	N/A
88071700	18	16.5N	127.0E	18.9	36.4	90.9	N/A	115	0	20	20	N/A
88071706	19	16.9N	125.4E	5.7	34.5	68.7	N/A	110	5	5	15	N/A
88071712	20	17.8N	124.0E	5.7	87.3	73.9	N/A	110	-5	-25	-20	N/A
88071718	21	18.4N	122.6E	5.7	32.8	6.0	N/A	105	-10	-20	-10	N/A
88071800	22	18.8N	121.6E	16.5	45.6	73.8	N/A	95	-10	15	5	N/A
88071806	23	19.3N	120.5E	13.3	54.3	126.1	N/A	90	-10	25	5	N/A
88071812	24	20.0N	119.5E	.0	44.7	N/A	N/A	85	-5	20	N/A	N/A
88071818	25	20.8N	118.1E	28.8	66.0	N/A	N/A	80	0	30	N/A	N/A
88071900	26	21.7N	117.0E	21.2	29.0	N/A	N/A	75	5	15	N/A	N/A
88071906	27	22.7N	116.3E	18.0	170.2	N/A	N/A	65	10	5	N/A	N/A
88071912	28	23.5N	115.5E	25.1	183.2	N/A	N/A	50	15	10	N/A	N/A
88071918	29	24.2N	114.4E	24.0	N/A	N/A	N/A	40	10	N/A	N/A	N/A
88072000	30	25.0N	113.5E	21.0	N/A	N/A	N/A	30	10	N/A	N/A	N/A

Tropical Storm Agnes (07W)

	00h	24h	48h	72h
Average	33	322	714	N/A
# Cases	8	5	1	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88072900	1	20.9N	140.7E	36.4	295.8	714.1	N/A	30	0	-5	5	N/A
88072906	2	21.8N	140.6E	26.5	380.0	N/A	N/A	30	0	0	N/A	N/A
88072912	3	22.8N	140.8E	39.7	401.7	N/A	N/A	35	-5	-5	N/A	N/A
88072918	4	24.0N	141.7E	81.4	427.2	N/A	N/A	40	-10	0	N/A	N/A
88073000	5	25.7N	142.4E	5.4	109.1	N/A	N/A	45	-5	5	N/A	N/A
88073006	6	27.9N	142.7E	29.1	N/A	N/A	N/A	40	0	N/A	N/A	N/A
88073012	7	29.9N	142.6E	13.1	N/A	N/A	N/A	35	5	N/A	N/A	N/A
88073018	8	31.7N	143.1E	35.5	N/A	N/A	N/A	35	0	N/A	N/A	N/A

Tropical Storm Bill (08W)

	00h	24h	48h	72h
Average	12	119	N/A	N/A
# Cases	5	3	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88080700	1	27.4N	125.6E	10.7	111.2	N/A	N/A	35	0	5	N/A	N/A
88080706	2	28.2N	124.2E	6.0	123.5	N/A	N/A	45	0	5	N/A	N/A
88080712	3	28.9N	122.7E	6.0	123.8	N/A	N/A	45	0	15	N/A	N/A
88080718	4	29.7N	121.0E	18.7	N/A	N/A	N/A	40	-5	N/A	N/A	N/A
88080800	5	30.7N	119.4E	20.8	N/A	N/A	N/A	30	0	N/A	N/A	N/A

Tropical Storm Clara (09W)

	00h	24h	48h	72h
Average	24	89	N/A	N/A
# Cases	6	3	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88081018	1	28.7N	160.1E	10.5	107.6	N/A	N/A	40	-5	0	N/A	N/A
88081100	2	28.5N	160.3E	19.8	73.1	N/A	N/A	45	-5	5	N/A	N/A
88081106	3	28.4N	160.5E	35.6	86.5	N/A	N/A	45	0	0	N/A	N/A
88081112	4	28.5N	160.5E	18.8	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88081118	5	28.9N	160.6E	16.9	N/A	N/A	N/A	35	-5	N/A	N/A	N/A
88081200	6	29.5N	160.9E	44.8	N/A	N/A	N/A	35	-5	N/A	N/A	N/A

Typhoon Doyle (10W)

	00h	24h	48h	72h
Average	14	106	316	626
# Cases	24	20	16	11

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88081512	1	20.0N	168.1E	13.3	30.5	237.1	584.4	40	0	-45	-45	-10
88081518	2	20.1N	167.1E	11.3	100.6	377.7	743.2	55	-5	-45	-35	-25
88081600	3	20.3N	166.2E	21.2	212.8	531.1	859.7	70	-5	-35	-20	-10
88081606	4	20.6N	165.5E	18.9	171.3	523.3	912.7	85	0	-15	-5	5
88081612	5	21.0N	164.8E	13.2	191.1	557.1	935.7	100	0	20	45	45
88081618	6	21.6N	164.4E	8.2	156.7	469.1	760.2	115	0	30	35	30
88081700	7	22.4N	164.3E	26.4	169.2	407.0	628.8	115	0	-15	-5	-5
88081706	8	23.1N	164.2E	12.0	140.1	368.1	566.9	110	-10	-10	0	-5
88081712	9	23.9N	164.3E	16.3	150.8	294.1	394.4	110	0	15	15	5
88081718	10	25.1N	164.7E	34.2	143.3	257.4	322.3	100	0	-5	-5	-15
88081800	11	26.1N	165.3E	21.0	49.1	44.6	180.4	95	0	-15	-25	-20
88081806	12	27.0N	165.9E	13.1	24.6	150.3	N/A	90	0	-15	-30	N/A
88081812	13	28.0N	166.7E	6.0	93.6	261.7	N/A	85	0	-20	-25	N/A
88081818	14	28.9N	167.6E	.0	135.9	303.3	N/A	80	0	-10	-25	N/A
88081900	15	29.6N	168.5E	8.0	69.8	179.9	N/A	75	5	-10	-15	N/A
88081906	16	30.2N	169.3E	7.9	39.1	103.3	N/A	70	0	-15	-20	N/A
88081912	17	30.7N	170.2E	28.5	71.8	N/A	N/A	70	-5	-15	N/A	N/A
88081918	18	31.1N	170.9E	11.9	19.2	N/A	N/A	65	0	-10	N/A	N/A
88082000	19	31.6N	171.5E	11.8	33.5	N/A	N/A	65	0	-5	N/A	N/A
88082006	20	32.0N	172.1E	12.0	133.6	N/A	N/A	65	0	-5	N/A	N/A
88082012	21	32.5N	173.0E	6.0	N/A	N/A	N/A	60	5	N/A	N/A	N/A
88082018	22	33.5N	173.4E	13.0	N/A	N/A	N/A	55	0	N/A	N/A	N/A
88082100	23	34.3N	173.5E	25.5	N/A	N/A	N/A	50	0	N/A	N/A	N/A
88082106	24	34.9N	173.5E	18.0	N/A	N/A	N/A	50	-10	N/A	N/A	N/A

Tropical Storm Elsie (11W)

	00h	24h	48h	72h
Average	31	206	N/A	N/A
# Cases	10	4	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88082812	1	21.9N	158.2E	5.6	362.3	N/A	N/A	35	0	20	N/A	N/A
88082818	2	22.3N	159.2E	47.5	205.2	N/A	N/A	35	0	15	N/A	N/A
88082900	3	23.1N	159.9E	82.0	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88082906	4	24.2N	160.8E	40.7	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88082912	5	25.4N	161.3E	16.2	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88082918	6	26.7N	161.6E	13.1	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88083100	7	32.6N	158.8E	26.0	132.7	N/A	N/A	45	-5	0	N/A	N/A
88083106	8	34.0N	157.3E	6.0	124.6	N/A	N/A	45	0	0	N/A	N/A
88083112	9	35.8N	156.0E	25.9	N/A	N/A	N/A	40	-5	N/A	N/A	N/A
88083118	10	37.1N	155.4E	51.6	N/A	N/A	N/A	35	-5	N/A	N/A	N/A

Typhoon Fabian (12W)

	00h	24h	48h	72h
Average	21	141	177	279
# Cases	18	14	10	6

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88083000	1	31.1N	144.8E	23.7	178.8	449.8	534.1	40	0	0	-5	-35
88083006	2	31.0N	145.5E	23.7	143.9	405.4	458.0	45	-5	5	-5	-40
88083012	3	31.0N	146.4E	11.9	72.7	84.6	312.0	50	-5	5	0	-5
88083018	4	31.1N	147.5E	15.8	26.1	75.0	200.2	55	0	20	10	-10
88083100	5	31.2N	148.6E	13.1	36.4	92.1	46.0	55	0	15	5	-5
88083106	6	31.4N	149.8E	15.8	115.8	182.1	125.8	55	0	0	-10	0
88083112	7	31.4N	150.7E	19.5	146.2	117.3	N/A	55	-10	-30	-45	N/A
88083118	8	31.4N	151.4E	23.7	128.2	90.3	N/A	55	-10	-25	-40	N/A
88090100	9	31.4N	152.2E	30.7	103.9	119.3	N/A	60	0	-25	-35	N/A

88090106	10	31.4N	153.2E	31.3	184.2	162.0	N/A	65	-10	-30	-20	N/A
88090112	11	31.7N	153.7E	11.8	166.5	N/A	N/A	65	-10	-20	N/A	N/A
88090118	12	32.4N	153.8E	28.0	77.2	N/A	N/A	65	-10	-35	N/A	N/A
88090200	13	33.2N	153.8E	13.0	245.2	N/A	N/A	70	5	15	N/A	N/A
88090206	14	34.0N	153.7E	.0	359.1	N/A	N/A	75	0	15	N/A	N/A
88090212	15	35.5N	153.9E	.0	N/A	N/A	N/A	75	0	N/A	N/A	N/A
88090218	16	36.8N	154.7E	15.6	N/A	N/A	N/A	75	-10	N/A	N/A	N/A
88090300	17	39.0N	156.9E	4.7	N/A	N/A	N/A	70	-5	N/A	N/A	N/A
88090306	18	41.3N	160.0E	102.0	N/A	N/A	N/A	55	-10	N/A	N/A	N/A

Tropical Storm Gay (13W)

	00h	24h	48h	72h
Average	33	98	N/A	N/A
# Cases	6	3	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88090218	1	27.5N	136.8E	35.9	88.5	N/A	N/A	40	-5	20	N/A	N/A
88090300	2	28.4N	138.0E	32.2	75.9	N/A	N/A	45	0	30	N/A	N/A
88090306	3	29.4N	139.3E	39.7	132.1	N/A	N/A	45	0	35	N/A	N/A
88090312	4	30.5N	140.9E	31.6	N/A	N/A	N/A	40	0	N/A	N/A	N/A
88090318	5	31.6N	142.6E	16.5	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88090400	6	32.7N	144.2E	44.6	N/A	N/A	N/A	35	-5	N/A	N/A	N/A

Typhoon Hal (14W)

	00h	24h	48h	72h
Average	18	122	249	355
# Cases	37	33	29	25

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88090800	1	17.5N	157.9E	41.9	177.0	214.0	177.5	30	0	-5	0	-15
88090806	2	18.0N	156.9E	11.4	134.0	178.8	226.9	30	0	-5	-5	-30
88090812	3	18.4N	155.8E	8.3	116.2	110.3	231.7	35	0	10	5	-30
88090818	4	18.9N	154.5E	17.0	51.9	137.3	308.4	40	-5	0	-15	-40
88090900	5	19.6N	153.1E	34.5	20.6	150.9	298.2	45	0	10	-5	-20
88090906	6	20.3N	152.0E	18.0	43.5	227.6	319.2	45	0	10	-20	-20
88090912	7	20.8N	151.0E	8.2	137.7	384.0	453.4	45	0	5	-30	-20
88090918	8	21.0N	150.2E	20.6	133.9	327.0	371.6	45	0	-15	-40	-50
88091000	9	21.1N	149.2E	8.2	139.3	327.9	407.2	50	-5	-20	-35	-45
88091006	10	21.2N	148.4E	5.6	141.6	313.9	341.7	55	0	-25	-35	-45
88091012	11	21.1N	147.7E	5.6	156.1	191.6	206.8	60	-5	-30	-25	-15
88091018	12	20.9N	147.0E	12.7	75.0	211.1	313.6	70	-5	-15	-5	10
88091100	13	20.5N	146.5E	26.5	157.5	271.9	424.1	80	-10	-10	0	10
88091106	14	20.1N	146.2E	8.2	152.0	306.5	504.9	95	-5	5	10	25
88091112	15	19.7N	145.8E	13.3	149.3	303.7	485.1	105	-5	10	15	35
88091118	16	20.0N	145.4E	25.6	144.9	302.7	448.8	105	-5	10	20	40
88091200	17	20.4N	145.6E	48.3	198.0	381.9	537.7	105	-5	5	15	40
88091206	18	21.0N	145.5E	47.6	158.6	352.2	511.3	105	-5	0	15	40
88091212	19	21.5N	145.4E	16.4	126.0	318.7	455.5	105	-5	0	25	45
88091218	20	22.3N	145.1E	17.7	90.2	228.5	342.6	105	-5	5	30	50
88091300	21	23.1N	144.7E	12.0	49.8	104.1	236.4	105	-5	15	35	40
88091306	22	23.9N	144.3E	8.1	12.2	33.6	120.2	105	0	25	35	40
88091312	23	25.0N	143.9E	6.0	8.0	44.6	198.1	105	0	30	40	45
88091318	24	26.0N	143.7E	5.4	38.2	46.6	361.8	100	0	10	20	25
88091400	25	27.1N	143.4E	16.1	23.8	146.2	601.8	100	-10	-10	-5	-5
88091406	26	28.2N	143.2E	18.8	48.3	217.0	N/A	90	-5	0	0	N/A
88091412	27	29.3N	142.9E	5.2	86.5	383.9	N/A	85	-10	-5	-10	N/A
88091418	28	30.3N	142.3E	15.8	155.4	457.0	N/A	80	-5	0	-5	N/A
88091500	29	31.3N	142.0E	13.0	180.8	561.6	N/A	80	-5	-10	0	N/A
88091506	30	32.2N	142.3E	15.2	139.4	N/A	N/A	75	0	0	N/A	N/A
88091512	31	33.2N	142.9E	16.2	162.3	N/A	N/A	70	5	0	N/A	N/A
88091518	32	34.4N	143.6E	9.9	276.9	N/A	N/A	65	0	-5	N/A	N/A
88091600	33	35.7N	144.8E	18.9	371.8	N/A	N/A	65	0	0	N/A	N/A

88091606	34	37.0N	146.6E	22.6	N/A	N/A	N/A	60	-5	N/A	N/A	N/A
88091612	35	38.4N	149.1E	38.1	N/A	N/A	N/A	55	-5	N/A	N/A	N/A
88091618	36	39.7N	152.4E	23.8	N/A	N/A	N/A	50	-5	N/A	N/A	N/A
88091700	37	40.4N	156.3E	37.7	N/A	N/A	N/A	45	0	N/A	N/A	N/A

Typhoon Uleki (01C)

	00h	24h	48h	72h
Average	17	82	146	153
# Cases	21	19	15	11

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88090806	1	25.2N	179.8W	6.0	39.4	63.6	78.7	90	0	-10	-20	-20
88090812	2	25.6N	178.7E	18.8	90.7	226.0	332.9	90	0	-10	-20	-15
88090818	3	26.1N	177.3E	17.2	27.8	105.3	122.7	90	0	-10	-20	-15
88090900	4	26.7N	176.1E	20.1	36.7	70.9	120.1	90	-5	-20	-30	-20
88090906	5	27.2N	175.2E	8.0	93.8	139.5	212.2	90	-5	-20	-20	-20
88090912	6	27.5N	174.3E	.0	94.1	129.8	230.7	90	5	-5	-5	-10
88090918	7	27.6N	173.5E	16.0	55.9	87.7	136.9	90	0	-15	-10	-10
88091000	8	27.6N	172.8E	12.2	86.6	98.7	126.4	90	-10	-25	-15	-15
88091006	9	27.8N	172.2E	18.8	99.5	125.8	65.2	90	-15	-10	-5	-5
88091012	10	28.2N	171.4E	19.9	70.2	119.4	119.6	90	-10	0	0	5
88091018	11	28.8N	170.7E	6.0	72.6	150.4	139.8	90	-10	-10	-10	10
88091100	12	29.4N	170.3E	10.5	97.4	302.0	N/A	90	0	-10	-15	N/A
88091106	13	29.8N	169.7E	26.0	151.4	398.9	N/A	80	10	0	-5	N/A
88091112	14	30.2N	169.3E	13.1	39.0	100.6	N/A	75	0	10	15	N/A
88091118	15	30.6N	169.0E	11.9	63.0	74.7	N/A	75	0	0	15	N/A
88091200	16	31.0N	168.6E	7.9	102.0	N/A	N/A	70	5	-5	N/A	N/A
88091206	17	31.2N	168.1E	23.7	145.9	N/A	N/A	70	0	0	N/A	N/A
88091212	18	31.2N	167.6E	48.3	123.7	N/A	N/A	65	0	-5	N/A	N/A
88091218	19	31.2N	167.1E	24.5	73.9	N/A	N/A	65	-5	0	N/A	N/A
88091300	20	31.3N	166.4E	26.3	N/A	N/A	N/A	60	-5	N/A	N/A	N/A
88091306	21	31.6N	165.4E	26.3	N/A	N/A	N/A	55	-5	N/A	N/A	N/A

Tropical Storm Irma (15W)

	00h	24h	48h	72h
Average	17	76	94	158
# Cases	16	14	10	6

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88091200	1	22.6N	160.1E	21.1	91.9	60.9	84.7	40	0	5	0	0
88091206	2	23.2N	159.9E	12.0	80.5	78.2	93.9	45	0	5	5	5
88091212	3	23.6N	159.6E	25.1	52.0	24.1	57.8	45	0	-5	-10	-5
88091218	4	23.9N	159.0E	17.5	54.4	140.0	210.0	45	0	-5	-10	0
88091300	5	24.4N	158.4E	6.0	134.5	214.6	238.3	45	0	0	-10	10
88091306	6	24.9N	158.0E	6.0	87.6	157.2	264.3	50	5	5	5	20
88091312	7	25.2N	157.9E	12.4	34.2	72.4	N/A	55	0	5	10	N/A
88091318	8	25.7N	157.8E	36.4	131.1	143.8	N/A	55	0	5	15	N/A
88091400	9	26.3N	157.6E	16.1	57.6	13.1	N/A	55	0	10	25	N/A
88091406	10	26.6N	157.4E	17.2	45.9	36.4	N/A	55	0	15	30	N/A
88091412	11	27.0N	157.0E	18.8	67.8	N/A	N/A	55	0	-10	N/A	N/A
88091418	12	27.3N	156.7E	5.3	39.8	N/A	N/A	55	0	-5	N/A	N/A
88091500	13	27.6N	156.4E	8.0	69.2	N/A	N/A	55	-5	0	N/A	N/A
88091506	14	28.3N	156.0E	36.7	124.0	N/A	N/A	50	0	15	N/A	N/A
88091512	15	28.9N	155.7E	15.9	N/A	N/A	N/A	45	-5	N/A	N/A	N/A
88091518	16	29.8N	155.6E	19.7	N/A	N/A	N/A	40	-5	N/A	N/A	N/A

Tropical Storm Jeff (16W)

	00h	24h	48h	72h
Average	15	64	103	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 WE	48 WE	72 WE
88091400	1	16.3N	136.7E	21.4	77.0	103.3	N/A	35	0	-5	10	N/A
88091406	2	17.1N	137.5E	12.9	62.0	N/A	N/A	40	5	5	N/A	N/A
88091412	3	18.0N	138.2E	8.3	79.6	N/A	N/A	45	0	10	N/A	N/A
88091418	4	19.0N	138.9E	8.3	60.0	N/A	N/A	45	0	15	N/A	N/A
88091500	5	20.1N	139.5E	24.7	45.0	N/A	N/A	45	-5	5	N/A	N/A
88091506	6	21.4N	140.0E	30.4	N/A	N/A	N/A	45	0	N/A	N/A	N/A
88091512	7	22.8N	140.5E	.0	N/A	N/A	N/A	35	5	N/A	N/A	N/A
88091518	8	24.0N	141.0E	18.0	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88091600	9	25.3N	141.5E	13.2	N/A	N/A	N/A	35	0	N/A	N/A	N/A

Tropical Storm Kit (17W)

	00h	24h	48h	72h
Average	26	96	120	N/A
# Cases	12	8	4	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88091906	1	16.7N	124.2E	26.6	75.2	56.4	N/A	30	0	5	-5	N/A
88091912	2	17.5N	122.9E	18.2	46.4	124.7	N/A	30	0	-10	-20	N/A
88091918	3	18.0N	121.8E	42.4	96.1	129.7	N/A	35	0	0	-5	N/A
88092000	4	18.3N	120.8E	49.3	121.9	170.5	N/A	35	0	-5	10	N/A
88092006	5	18.7N	119.8E	30.8	107.2	N/A	N/A	35	0	-10	N/A	N/A
88092012	6	19.3N	119.1E	51.3	145.3	N/A	N/A	40	0	-5	N/A	N/A
88092018	7	19.8N	118.5E	34.4	112.1	N/A	N/A	45	0	0	N/A	N/A
88092100	8	20.4N	118.0E	8.2	68.6	N/A	N/A	50	-5	5	N/A	N/A
88092106	9	20.8N	117.5E	20.7	N/A	N/A	N/A	55	0	N/A	N/A	N/A
88092112	10	21.4N	117.0E	11.2	N/A	N/A	N/A	60	0	N/A	N/A	N/A
88092118	11	22.3N	116.5E	12.0	N/A	N/A	N/A	55	0	N/A	N/A	N/A
88092200	12	23.1N	116.1E	12.6	N/A	N/A	N/A	45	0	N/A	N/A	N/A

Tropical Storm Lee (18W)

	00h	24h	48h	72h
Average	21	127	221	265
# Cases	15	11	7	3

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88092100	1	18.4N	134.5E	22.8	84.7	150.9	99.8	35	0	-10	0	20
88092106	2	18.4N	133.4E	52.7	117.9	185.7	231.0	45	0	0	10	35
88092112	3	18.5N	132.3E	18.0	88.0	148.6	465.4	50	5	10	20	45
88092118	4	18.8N	131.4E	32.1	107.0	237.5	N/A	55	0	10	20	N/A
88092200	5	19.2N	130.5E	12.0	66.9	194.0	N/A	55	0	-5	5	N/A
88092206	6	19.6N	129.7E	12.8	36.4	286.9	N/A	55	-10	-10	10	N/A
88092212	7	20.0N	128.7E	16.9	30.0	346.1	N/A	55	0	5	25	N/A
88092218	8	20.7N	127.9E	13.2	100.0	N/A	N/A	55	0	0	N/A	N/A
88092300	9	21.3N	127.3E	30.5	214.7	N/A	N/A	55	0	10	N/A	N/A
88092306	10	22.1N	126.8E	6.0	227.9	N/A	N/A	55	0	15	N/A	N/A
88092312	11	22.8N	126.4E	12.0	330.1	N/A	N/A	55	0	15	N/A	N/A
88092318	12	24.1N	126.6E	37.5	N/A	N/A	N/A	55	0	N/A	N/A	N/A
88092400	13	25.0N	127.7E	24.3	N/A	N/A	N/A	45	0	N/A	N/A	N/A
88092406	14	26.3N	128.8E	10.8	N/A	N/A	N/A	40	0	N/A	N/A	N/A
88092412	15	27.4N	130.3E	18.8	N/A	N/A	N/A	40	-5	N/A	N/A	N/A

Tropical Storm Mamie (19W)

	00h	24h	48h	72h
Average	36	N/A	N/A	N/A
# Cases	4	0	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88092206	1	16.7N	112.5E	41.6	N/A	N/A	N/A	40	0	N/A	N/A	N/A
88092212	2	17.9N	112.6E	36.5	N/A	N/A	N/A	45	-5	N/A	N/A	N/A
88092218	3	19.0N	113.1E	60.3	N/A	N/A	N/A	45	-5	N/A	N/A	N/A
88092300	4	19.7N	113.5E	8.2	N/A	N/A	N/A	45	-10	N/A	N/A	N/A

Super Typhoon Nelson (20W)

	00h	24h	48h	72h
Average	10	64	128	148
# Cases	30	26	22	18

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88100112	1	12.2N	136.1E	21.3	110.9	215.5	243.5	45	0	0	-25	-60
88100118	2	12.4N	135.0E	24.0	133.7	191.1	190.9	45	0	-5	-40	-60
88100200	3	12.8N	134.0E	5.9	122.1	211.6	191.4	45	0	-10	-40	-55
88100206	4	13.4N	133.0E	5.8	89.1	132.1	54.0	55	-5	-20	-50	-60
88100212	5	14.1N	131.8E	8.4	37.4	63.8	58.3	65	-10	-15	-50	-50
88100218	6	14.7N	130.6E	12.0	62.4	105.9	105.5	70	-10	-25	-50	-45
88100300	7	15.5N	129.4E	6.0	36.0	74.0	96.6	75	0	-25	-50	-45
88100306	8	16.1N	128.4E	8.3	61.6	56.0	107.1	90	-10	-35	-50	-45
88100312	9	16.8N	127.5E	8.3	41.2	81.9	127.8	100	-10	-35	-40	-35
88100318	10	17.5N	126.6E	8.3	17.9	78.8	168.0	115	-15	-20	-10	-15
88100400	11	18.5N	125.8E	13.3	22.4	84.2	168.1	120	-5	-5	0	0
88100406	12	19.3N	125.2E	5.7	110.8	143.1	144.1	130	-5	-5	-15	-25
88100412	13	20.0N	124.7E	5.6	30.0	123.9	162.9	140	0	-5	-5	-10
88100418	14	20.7N	124.4E	8.2	75.4	187.8	230.8	140	0	0	-10	-10
88100500	15	21.3N	124.4E	.0	68.1	172.9	99.4	140	0	-5	-15	5
88100506	16	21.9N	124.7E	8.2	71.9	141.6	197.2	140	0	0	-25	-5
88100512	17	22.5N	125.1E	11.1	76.1	101.9	141.2	140	-10	-15	-25	-15
88100518	18	23.3N	125.9E	12.0	99.7	150.0	180.6	130	-10	-25	-25	-25
88100600	19	24.0N	126.7E	11.0	60.9	82.9	N/A	125	-10	-15	-20	N/A
88100606	20	24.6N	127.7E	13.2	49.7	75.5	N/A	115	-5	-25	-20	N/A
88100612	21	25.3N	128.9E	6.0	81.9	231.5	N/A	115	-10	-10	-5	N/A
88100618	22	25.9N	130.0E	13.2	33.5	115.0	N/A	115	-15	-10	-5	N/A
88100700	23	26.6N	131.1E	.0	52.3	N/A	N/A	115	-15	5	N/A	N/A
88100706	24	27.6N	132.2E	8.0	41.4	N/A	N/A	115	-20	-15	N/A	N/A
88100712	25	28.5N	133.6E	8.0	24.5	N/A	N/A	100	-10	-5	N/A	N/A
88100718	26	29.5N	135.0E	10.4	56.5	N/A	N/A	90	0	-5	N/A	N/A
88100800	27	30.4N	136.5E	12.0	N/A	N/A	N/A	85	-5	N/A	N/A	N/A
88100806	28	31.4N	138.3E	15.8	N/A	N/A	N/A	75	-5	N/A	N/A	N/A
88100812	29	32.5N	140.6E	26.0	N/A	N/A	N/A	70	-5	N/A	N/A	N/A
88100818	30	33.6N	143.6E	23.3	N/A	N/A	N/A	70	-15	N/A	N/A	N/A

Typhoon Odessa (21W)

	00h	24h	48h	72h
Average	16	100	245	686
# Cases	22	18	10	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88101112	1	19.0N	132.5E	6.0	110.2	354.0	640.8	35	0	10	-5	-25
88101118	2	18.9N	131.3E	13.3	182.9	447.9	749.7	35	5	10	0	-25
88101200	3	18.9N	130.4E	6.0	191.3	475.2	778.0	40	5	20	25	0
88101206	4	19.2N	129.6E	21.3	243.1	545.6	853.1	45	0	-10	-10	-25
88101212	5	19.8N	129.4E	.0	57.4	216.0	408.6	45	0	-10	-25	-25
88101218	6	20.5N	129.2E	12.7	17.7	N/A	N/A	45	-5	-35	N/A	N/A
88101300	7	21.1N	129.0E	13.2	190.7	N/A	N/A	45	-5	-40	N/A	N/A
88101306	8	21.6N	128.9E	5.6	39.1	48.6	N/A	65	5	-25	-60	N/A
88101312	9	21.9N	129.2E	11.1	56.3	N/A	N/A	65	0	-45	N/A	N/A

88101318	10	22.1N	129.5E	11.1	81.4	N/A	N/A	65	0	-45	N/A	N/A
88101400	11	22.4N	130.0E	5.5	60.0	58.2	N/A	65	5	-40	-55	N/A
88101406	12	23.0N	130.5E	.0	42.0	88.0	N/A	75	-5	-35	-30	N/A
88101412	13	23.6N	130.9E	8.1	37.6	91.4	N/A	90	-10	5	15	N/A
88101418	14	24.2N	131.3E	.0	17.3	132.0	N/A	90	0	20	45	N/A
88101500	15	24.7N	131.8E	.0	36.9	N/A	N/A	90	0	0	N/A	N/A
88101506	16	25.2N	132.4E	5.4	93.6	N/A	N/A	90	0	5	N/A	N/A
88101512	17	25.6N	132.9E	8.1	159.3	N/A	N/A	90	0	15	N/A	N/A
88101518	18	25.8N	133.3E	.0	191.4	N/A	N/A	90	-5	20	N/A	N/A
88101600	19	26.1N	133.4E	22.4	N/A	N/A	N/A	85	0	N/A	N/A	N/A
88101606	20	26.3N	133.1E	74.0	N/A	N/A	N/A	75	0	N/A	N/A	N/A
88101612	21	26.4N	132.8E	117.0	N/A	N/A	N/A	65	-10	N/A	N/A	N/A
88101618	22	26.5N	132.4E	16.1	N/A	N/A	N/A	55	-20	N/A	N/A	N/A

Typhoon Pat (22W)

	00h	24h	48h	72h
Average	17	140	303	436
# Cases	17	13	9	5

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88101818	1	15.6N	133.2E	6.0	99.6	297.7	498.7	35	0	0	5	35
88101900	2	16.2N	131.8E	8.3	139.7	323.9	457.2	40	5	0	25	35
88101906	3	16.5N	130.6E	6.0	149.9	365.4	502.5	45	0	-10	25	45
88101912	4	16.5N	129.3E	23.8	152.7	367.7	402.3	50	0	-10	10	40
88101918	5	16.4N	127.8E	12.0	129.4	268.8	320.1	55	0	-5	25	55
88102000	6	16.3N	126.1E	5.8	92.0	229.3	N/A	65	0	-10	0	N/A
88102006	7	16.3N	124.6E	8.3	185.4	299.4	N/A	75	0	10	20	N/A
88102012	8	16.4N	123.1E	13.0	215.2	319.4	N/A	75	15	10	35	N/A
88102018	9	16.5N	120.9E	6.0	132.7	262.9	N/A	70	-15	0	30	N/A
88102100	10	16.6N	118.5E	29.4	133.8	N/A	N/A	65	0	20	N/A	N/A
88102106	11	17.0N	116.5E	26.6	146.4	N/A	N/A	65	0	20	N/A	N/A
88102112	12	17.4N	114.7E	18.9	99.2	N/A	N/A	65	0	10	N/A	N/A
88102118	13	17.8N	113.2E	21.3	145.0	N/A	N/A	65	0	0	N/A	N/A
88102200	14	18.2N	111.6E	23.6	N/A	N/A	N/A	65	0	N/A	N/A	N/A
88102206	15	18.6N	110.1E	16.5	N/A	N/A	N/A	60	0	N/A	N/A	N/A
88102212	16	19.2N	108.6E	26.5	N/A	N/A	N/A	55	-5	N/A	N/A	N/A
88102218	17	20.0N	107.4E	41.1	N/A	N/A	N/A	45	0	N/A	N/A	N/A

Typhoon Ruby (23W)

	00h	24h	48h	72h
Average	28	113	163	210
# Cases	30	26	22	18

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88102112	1	9.9N	135.9E	56.1	102.2	34.8	203.2	35	0	-5	-15	-65
88102118	2	9.7N	135.4E	93.9	152.0	39.5	168.0	40	-5	-10	-20	-65
88102200	3	9.5N	134.8E	16.9	110.5	287.9	425.4	45	-5	-15	-25	0
88102206	4	9.5N	134.1E	18.0	109.4	230.5	326.8	50	0	10	0	40
88102212	5	9.6N	133.2E	11.8	133.1	276.5	288.2	60	-5	-15	-20	40
88102218	6	10.0N	132.2E	8.4	92.9	181.4	143.8	65	0	-5	-20	45
88102300	7	10.7N	131.0E	29.5	164.3	230.0	161.6	70	0	-10	10	20
88102306	8	11.1N	129.6E	21.5	106.3	237.8	283.7	80	-5	-10	15	10
88102312	9	11.5N	128.2E	6.0	82.7	145.7	71.0	90	0	-20	20	25
88102318	10	12.2N	126.7E	24.7	90.9	99.0	70.9	95	0	-30	10	20
88102400	11	12.9N	125.4E	25.1	93.8	64.4	69.7	100	-5	-10	25	40
88102406	12	13.8N	124.1E	13.3	24.9	102.2	132.7	110	-10	45	55	65
88102412	13	14.6N	122.8E	8.3	119.1	231.4	360.6	125	0	35	45	-20
88102418	14	15.2N	121.7E	8.3	120.5	174.0	278.1	120	0	25	35	5
88102500	15	16.0N	120.4E	8.3	114.6	190.2	352.7	90	0	35	40	10
88102506	16	16.2N	118.9E	5.8	116.7	138.1	291.1	70	-5	10	15	10
88102512	17	16.4N	118.0E	31.2	132.0	94.3	75.3	65	5	10	20	30
88102518	18	16.5N	117.6E	37.8	109.6	119.6	81.9	65	5	15	40	40

88102600	19	16.5N	117.1E	36.0	130.6	164.8	N/A	65	5	15	35	N/A
88102606	20	16.8N	116.6E	29.6	141.2	164.8	N/A	65	0	0	15	N/A
88102612	21	17.2N	115.8E	50.1	131.5	176.5	N/A	65	0	5	20	N/A
88102618	22	17.6N	115.0E	22.9	77.0	222.5	N/A	65	-5	0	15	N/A
88102700	23	17.9N	114.3E	58.1	256.1	N/A	N/A	60	0	-15	N/A	N/A
88102706	24	18.2N	113.3E	18.0	51.1	N/A	N/A	60	0	5	N/A	N/A
88102712	25	18.4N	112.5E	16.5	87.0	N/A	N/A	55	0	5	N/A	N/A
88102718	26	18.5N	111.7E	18.0	108.7	N/A	N/A	50	0	10	N/A	N/A
88102800	27	18.8N	110.9E	20.8	N/A	N/A	N/A	45	0	N/A	N/A	N/A
88102806	28	18.7N	110.1E	36.1	N/A	N/A	N/A	35	5	N/A	N/A	N/A
88102812	29	18.4N	109.3E	54.3	N/A	N/A	N/A	30	5	N/A	N/A	N/A
88102818	30	18.2N	108.5E	79.8	N/A	N/A	N/A	25	5	N/A	N/A	N/A

Typhoon Skip (24W)

	00h	24h	48h	72h
Average	18	99	199	260
# Cases	30	29	21	17

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88110318	1	9.1N	139.4E	18.8	145.8	303.9	419.3	35	0	-20	-30	-20
88110400	2	9.0N	139.0E	21.4	126.6	270.2	394.7	45	0	-25	-25	-10
88110406	3	8.9N	138.4E	36.1	148.1	269.5	371.9	55	-5	-20	-25	20
88110412	4	8.8N	137.7E	13.4	77.2	166.4	294.9	65	0	-10	-15	-10
88110418	5	8.8N	136.8E	11.9	97.5	189.2	305.4	75	0	-5	-5	-5
88110500	6	8.9N	135.7E	12.0	21.4	100.5	287.6	90	5	0	5	20
88110506	7	9.1N	134.6E	.0	86.1	230.0	443.7	95	0	-20	5	15
88110512	8	9.3N	133.3E	8.4	51.0	176.2	359.8	100	0	-5	25	35
88110518	9	9.4N	132.2E	13.3	35.9	213.8	285.0	105	-5	-5	5	10
88110600	10	9.6N	131.0E	13.4	69.2	233.3	239.6	115	0	10	15	20
88110606	11	9.8N	129.9E	8.4	77.4	181.4	247.2	125	0	30	15	25
88110612	12	10.2N	128.6E	.0	67.9	174.4	116.5	125	0	0	-20	-20
88110618	13	10.4N	127.3E	11.8	95.0	134.0	68.1	120	5	-15	-25	-20
88110700	14	10.8N	126.0E	.0	126.5	123.4	36.0	120	5	25	20	0
88110706	15	11.4N	124.5E	24.3	166.1	164.2	210.4	105	15	10	15	40
88110712	16	12.3N	122.8E	21.3	133.0	138.1	197.1	100	15	15	20	55
88110718	17	12.8N	120.7E	31.6	50.6	54.3	154.3	95	20	20	30	75
88110800	18	13.1N	119.1E	29.5	180.5	407.4	N/A	90	10	10	-45	N/A
88110806	19	13.3N	117.8E	37.8	145.1	N/A	N/A	90	0	-5	N/A	N/A
88110812	20	13.7N	116.7E	35.5	165.1	N/A	N/A	90	-5	-25	N/A	N/A
88110818	21	14.1N	115.8E	35.4	152.7	N/A	N/A	90	-5	-25	N/A	N/A
88110900	22	14.5N	115.0E	6.0	92.7	203.4	N/A	85	0	-5	5	N/A
88110906	23	14.9N	114.3E	11.6	132.0	252.5	N/A	85	0	0	-10	N/A
88110912	24	15.2N	113.7E	5.8	88.5	215.4	N/A	90	0	10	-10	N/A
88110918	25	15.3N	113.2E	23.9	116.3	N/A	N/A	90	0	10	N/A	N/A
88111000	26	15.4N	112.9E	34.7	109.9	N/A	N/A	90	-10	10	N/A	N/A
88111006	27	15.5N	112.6E	13.0	.0	N/A	N/A	75	-10	0	N/A	N/A
88111012	28	15.5N	112.3E	18.9	99.9	N/A	N/A	65	0	5	N/A	N/A
88111018	29	15.6N	111.8E	21.1	26.6	N/A	N/A	55	5	0	N/A	N/A
88111100	30	15.7N	111.3E	31.3	N/A	N/A	N/A	45	-10	N/A	N/A	N/A

Typhoon Tess (25W)

	00h	24h	48h	72h
Average	14	57	123	N/A
# Cases	10	8	4	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88110400	1	9.2N	119.3E	18.8	59.7	183.0	N/A	30	0	-20	-25	N/A
88110406	2	9.3N	118.5E	23.7	87.7	181.9	N/A	35	0	-5	0	N/A
88110412	3	9.4N	117.5E	11.8	63.2	85.5	N/A	35	0	-20	10	N/A
88110418	4	9.6N	116.6E	5.9	18.9	43.0	N/A	40	0	-10	0	N/A
88110500	5	9.7N	115.8E	6.0	72.4	N/A	N/A	55	0	5	N/A	N/A
88110506	6	9.8N	114.5E	29.6	119.6	N/A	N/A	50	5	15	N/A	N/A

88110512	7	10.2N	113.3E	8.4	25.2	N/A	N/A	65	0	30	N/A	N/A
88110518	8	10.5N	112.3E	13.4	13.2	N/A	N/A	65	0	15	N/A	N/A
88110600	9	10.8N	111.2E	8.4	N/A	N/A	N/A	65	0	N/A	N/A	N/A
88110606	10	11.0N	110.2E	21.5	N/A	N/A	N/A	55	0	N/A	N/A	N/A

Tropical Storm Val (26W)

	00h	24h	48h	72h
Average	57	228	768	N/A
# Cases	10	6	1	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 WE	48 WE	72 WE
88122218	1	11.9N	129.5E	21.5	128.9	N/A	N/A	30	0	0	N/A	N/A
88122300	2	13.0N	127.6E	67.8	390.5	767.9	N/A	30	5	-25	-10	N/A
88122306	3	13.8N	126.2E	42.9	367.7	N/A	N/A	35	0	-25	N/A	N/A
88122312	4	14.3N	125.7E	8.4	186.3	N/A	N/A	40	-5	-15	N/A	N/A
88122318	5	14.6N	125.3E	6.0	107.0	N/A	N/A	45	5	25	N/A	N/A
88122400	6	14.7N	125.0E	47.9	187.7	N/A	N/A	55	0	-5	N/A	N/A
88122406	7	14.8N	124.7E	90.2	N/A	N/A	N/A	55	0	N/A	N/A	N/A
88122412	8	14.9N	124.5E	93.5	N/A	N/A	N/A	50	0	N/A	N/A	N/A
88122418	9	14.9N	124.4E	88.8	N/A	N/A	N/A	45	0	N/A	N/A	N/A
88122500	10	15.0N	124.3E	108.3	N/A	N/A	N/A	40	0	N/A	N/A	N/A

b. NORTH INDIAN OCEAN

This section includes verification statistics for each warning in the North Indian Ocean during 1988. 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 01A

	00h	24h	48h	72h
Average	61	188	484	N/A
# Cases	10	6	2	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
88061000	1	16.9N	69.4E	183.8	360.8	577.5	N/A	35	0	-10	-10	N/A
88061006	2	16.8N	69.0E	86.4	253.1	N/A	N/A	35	0	-10	N/A	N/A
88061012	3	16.6N	68.6E	81.3	210.2	N/A	N/A	35	0	-10	N/A	N/A
88061018	4	16.3N	68.7E	84.0	251.7	390.1	N/A	35	0	-10	-5	N/A
88061100	5	16.2N	69.0E	29.2	29.2	N/A	N/A	35	0	-10	N/A	N/A
88061106	6	16.1N	69.5E	33.3	23.8	N/A	N/A	35	0	0	N/A	N/A
88061112	7	16.2N	69.8E	29.2	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88061118	8	16.3N	70.2E	26.6	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88061200	9	16.4N	70.4E	34.0	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88061206	10	16.6N	70.7E	31.1	N/A	N/A	N/A	25	10	N/A	N/A	N/A

Tropical Cyclone 02B

	00h	24h	48h	72h
Average	30	N/A	N/A	N/A
# Cases	3	0	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
88101812	1	19.6N	91.3E	25.6	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88101818	2	20.8N	90.6E	13.2	N/A	N/A	N/A	30	5	N/A	N/A	N/A
88101900	3	22.2N	89.9E	53.1	N/A	N/A	N/A	30	5	N/A	N/A	N/A

Tropical Cyclone 03B

	00h	24h	48h	72h
Average	28	N/A	N/A	N/A
# Cases	3	0	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
88111800	1	17.7N	90.9E	17.1	N/A	N/A	N/A	40	0	N/A	N/A	N/A
88111806	2	18.7N	91.7E	34.5	N/A	N/A	N/A	50	0	N/A	N/A	N/A
88111812	3	19.7N	93.0E	33.5	N/A	N/A	N/A	55	0	N/A	N/A	N/A

Tropical Cyclone 04B

	00h	24h	48h	72h
Average	22	90	186	409
# Cases	22	20	16	12

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	72 ER	BT WN	WW ER	24 ER	48 ER	72 ER
88112406	1	10.0N	93.6E	56.1	123.8	196.1	374.7	35	0	5	-5	0
88112412	2	10.4N	93.1E	.0	59.6	114.6	229.4	40	-5	-15	-25	-25
88112418	3	10.7N	92.6E	5.9	72.0	118.8	209.2	45	-5	-15	-20	-20
88112500	4	11.0N	92.0E	26.7	18.9	75.9	193.5	50	-5	-10	-10	-25
88112506	5	11.1N	91.4E	13.4	51.2	75.8	216.9	50	0	-5	-5	-15
88112512	6	11.1N	90.7E	8.4	48.5	212.7	387.3	55	0	-10	0	0
88112518	7	11.2N	90.1E	5.9	84.1	234.9	439.2	60	5	0	5	-30
88112600	8	11.3N	89.5E	11.8	113.4	270.7	511.7	65	10	20	15	-20
88112606	9	11.6N	89.0E	35.8	144.8	301.8	552.5	70	5	10	5	-40
88112612	10	12.1N	88.5E	25.2	130.0	292.4	630.6	75	0	10	10	-75

88112618	11	12.7N	88.3E	46.4	133.8	307.3	663.2	75	0	10	5	-60
88112700	12	13.2N	88.1E	30.0	56.7	216.4	508.8	75	5	5	0	20
88112706	13	13.7N	88.0E	13.3	25.0	96.3	N/A	75	0	-15	-45	N/A
88112712	14	14.2N	87.9E	29.4	44.1	151.7	N/A	80	-5	-20	-55	N/A
88112718	15	14.7N	87.7E	35.3	41.8	147.8	N/A	85	0	-10	-30	N/A
88112800	16	15.3N	87.7E	36.7	69.0	168.4	N/A	90	0	-15	0	N/A
88112806	17	15.8N	87.7E	8.3	115.3	N/A	N/A	90	0	-15	N/A	N/A
88112812	18	16.6N	87.8E	29.6	196.0	N/A	N/A	90	0	-30	N/A	N/A
88112818	19	17.7N	88.0E	51.0	181.1	N/A	N/A	95	-5	-20	N/A	N/A
88112900	20	19.0N	88.1E	18.0	101.6	N/A	N/A	100	0	5	N/A	N/A
88112906	21	20.4N	88.3E	12.8	N/A	N/A	N/A	105	5	N/A	N/A	N/A
88112912	22	21.8N	89.0E	6.0	N/A	N/A	N/A	110	-25	N/A	N/A	N/A

Tropical Cyclone 05B

	00h	24h	48h	72h
Average	37	171	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
88120700	1	9.7N	89.7E	18.9	211.7	N/A	N/A	35	10	30	N/A	N/A
88120706	2	10.3N	89.8E	33.7	234.5	N/A	N/A	40	5	30	N/A	N/A
88120712	3	10.8N	90.5E	47.2	168.4	N/A	N/A	45	-5	20	N/A	N/A
88120718	4	11.0N	91.4E	60.1	72.5	N/A	N/A	40	-5	15	N/A	N/A
88120800	5	11.1N	92.3E	42.9	N/A	N/A	N/A	35	0	N/A	N/A	N/A
88120806	6	11.7N	92.7E	24.0	N/A	N/A	N/A	35	0	N/A	N/A	N/A

c. SOUTHERN HEMISPHERE

This section includes verification statistics for each warning in the South Indian and western South Pacific Oceans from 1 July 1987 to 30 June 1988. 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

	00h	24h	48h
Average	33	124	216
# Cases	20	18	15

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 ER	48 ER
87110118	1	5.6S	79.9E	18.9	80.4	233.8	35	0	10	25
87110206	2	5.9S	77.5E	21.6	114.2	212.4	35	0	10	30
87110218	3	6.4S	75.8E	49.2	184.4	381.0	45	0	20	45
87110300*	4	6.6S	75.1E	77.7	237.8	421.4	45	5	30	40
87110306	5	6.9S	74.5E	41.7	176.8	343.6	45	0	20	25
87110312*	6	7.2S	73.8E	32.1	168.5	263.9	45	0	20	25
87110318	7	7.6S	73.4E	24.7	144.7	162.4	45	0	20	25
87110400*	8	8.0S	73.0E	37.9	127.0	134.2	40	5	0	-5
87110406	9	8.6S	72.6E	62.6	112.0	129.1	40	0	-10	-10
87110418	10	10.0S	71.9E	39.7	198.4	N/A	40	-5	-15	N/A
87110506	11	10.4S	70.7E	36.5	96.5	195.1	45	-5	5	0
87110518	12	10.8S	69.8E	32.2	74.9	109.1	45	-5	-10	-15
87110606	13	11.4S	68.8E	8.4	29.9	42.6	45	0	-20	-15
87110618	14	11.8S	68.0E	30.0	66.7	204.4	50	-5	-15	-5
87110706	15	12.2S	67.1E	5.9	52.6	189.5	55	-5	0	0
87110718	16	12.8S	66.0E	17.6	108.9	218.9	50	0	5	0
87110806	17	12.9S	64.6E	47.4	171.0	N/A	45	0	5	N/A
87110818	18	12.5S	63.2E	60.6	102.2	N/A	35	10	0	N/A
87110906	19	11.9S	62.3E	6.0	N/A	N/A	35	0	N/A	N/A
87110918	20	11.7S	61.3E	16.8	N/A	N/A	35	-5	N/A	N/A

* Six hourly warnings were issued due to systems proximity to Diego Garcia.

Tropical Cyclone 02S

	00h	24h	48h
Average	20	57	N/A
# Cases	5	1	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
87112406	1	10.7S	41.5E	16.8	N/A	N/A	35	0	N/A	N/A
87112418	2	11.5S	41.1E	26.7	56.8	N/A	40	5	10	N/A
87112506	3	12.2S	40.6E	.0	N/A	N/A	35	0	N/A	N/A
87112518	4	13.2S	40.0E	46.2	N/A	N/A	25	5	N/A	N/A
87112606	5	14.5S	39.6E	13.3	N/A	N/A	20	5	N/A	N/A

Tropical Cyclone 03S

	00h	24h	48h
Average	34	127	272
# Cases	10	7	6

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
87120918	1	12.3S	87.9E	17.6	60.3	167.1	35	5	10	15
87121006	2	13.1S	85.9E	11.7	164.3	213.1	40	0	-5	10
87121018	3	14.6S	84.8E	24.0	172.5	270.7	50	0	5	15
87121106	4	16.1S	84.4E	35.1	91.0	203.7	55	5	15	10
87121118	5	16.8S	84.0E	16.6	70.7	299.0	55	10	5	5
87121206	6	17.8S	83.1E	12.9	140.6	481.2	55	0	-10	0
87121218	7	18.5S	82.3E	18.9	192.9	N/A	55	-10	-15	N/A
87121306	8	17.8S	81.2E	91.0	N/A	N/A	55	-15	N/A	N/A

87121318	9	17.1S	79.3E	87.9	N/A	N/A	45	-10	N/A	N/A
87121406	10	17.1S	76.5E	24.7	N/A	N/A	35	-10	N/A	N/A

Tropical Cyclone 04P

	00h	24h	48h
Average	58	N/A	N/A
# Cases	2	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
87122200	1	13.8S	179.3E	80.7	N/A	N/A	30	0	N/A	N/A
87122212	2	15.2S	180.8E	36.0	N/A	N/A	25	5	N/A	N/A

Tropical Cyclone 05S

	00h	24h	48h
Average	39	158	517
# Cases	11	9	1

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
87122700	1	13.9S	70.1E	33.4	288.2	516.6	35	0	0	-5
87122718	2	13.4S	67.8E	29.8	264.3	N/A	35	0	-5	N/A
87122806	3	13.7S	65.6E	55.4	244.6	N/A	35	0	-5	N/A
87122818	4	13.2S	63.1E	50.2	96.0	N/A	35	0	-5	N/A
87122906	5	12.8S	60.9E	42.9	48.0	N/A	35	0	-5	N/A
87122918	6	13.4S	59.2E	12.0	46.8	N/A	35	0	-5	N/A
87123006	7	14.6S	57.7E	35.4	169.1	N/A	35	0	0	N/A
87123018	8	14.9S	56.2E	6.0	122.0	N/A	35	0	0	N/A
87123106	9	15.5S	55.8E	46.3	144.6	N/A	30	5	5	N/A
87123118	10	15.9S	55.3E	88.7	N/A	N/A	30	0	N/A	N/A
88010106	11	15.2S	51.3E	29.6	N/A	N/A	25	0	N/A	N/A

Tropical Cyclone 06P

	00h	24h	48h
Average	62	242	432
# Cases	16	11	6

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88010606	1	17.1S	161.2E	5.7	90.8	312.2	35	0	20	5
88010618	2	17.1S	159.8E	71.0	313.6	480.7	35	0	10	0
88010706	3	16.4S	158.3E	42.4	N/A	N/A	25	0	N/A	N/A
88010900*	4	13.4S	156.1E	74.0	131.0	336.6	30	5	20	25
88010906	5	13.2S	155.8E	98.1	177.2	298.8	35	0	10	5
88010918	6	12.8S	155.0E	85.8	201.5	N/A	35	0	-10	N/A
88011006	7	11.8S	154.5E	171.9	N/A	N/A	35	0	N/A	N/A
88011018	8	11.0S	154.6E	85.4	136.7	266.0	40	15	35	35
88011106	9	10.7S	154.3E	16.8	N/A	N/A	45	-5	N/A	N/A
88011118	10	10.8S	153.8E	53.5	34.7	N/A	50	-10	-20	N/A
88011206	11	11.1S	153.1E	18.9	314.7	900.8	55	0	-20	-20
88011218	12	13.1S	154.0E	47.1	402.3	N/A	55	0	-30	N/A
88011306	13	15.0S	155.4E	128.1	630.7	N/A	60	-5	-5	N/A
88011318	14	17.2S	158.7E	21.3	230.1	N/A	70	0	35	N/A
88011406	15	20.0S	163.4E	86.9	N/A	N/A	50	25	N/A	N/A
88011418	16	23.1S	167.4E	.0	N/A	N/A	30	-5	N/A	N/A

* regenerated

Tropical Cyclone 07P

	00h	24h	48h
Average	24	112	198
# Cases	14	12	10

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88010712	1	5.8S	177.8E	26.7	130.9	212.7	35	0	5	-5
88010800	2	6.8S	176.0E	18.9	56.1	138.7	35	5	5	-25
88010812	3	7.7S	174.2E	71.6	201.2	216.3	45	5	0	-40
88010900	4	9.0S	172.9E	54.3	205.5	399.5	50	5	-20	-60
88010912	5	10.0S	171.1E	8.4	90.8	138.5	65	-5	-40	-45
88011000	6	11.4S	169.1E	11.8	68.3	41.4	90	-5	-35	0
88011012	7	13.0S	167.1E	8.4	49.4	147.7	115	5	5	55
88011100	8	15.0S	165.4E	18.9	111.5	210.5	140	-5	30	65
88011112	9	16.8S	164.3E	12.0	168.3	306.2	130	0	25	45
88011200	10	18.5S	164.3E	23.5	137.3	170.0	115	0	35	45
88011212	11	20.1S	165.2E	6.0	48.9	N/A	85	5	15	N/A
88011300	12	21.7S	165.8E	46.2	86.8	N/A	60	5	15	N/A
88011312	13	23.4S	167.2E	30.1	N/A	N/A	45	5	N/A	N/A
88011400	14	25.2S	170.1E	8.1	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 08S

	00h	24h	48h
Average	15	60	75
# Cases	5	2	2

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88011312	1	13.3S	53.8E	13.3	70.4	80.3	35	5	0	10
88011400	2	14.4S	52.3E	31.4	50.3	69.6	45	-10	-20	5
88011412	3	15.6S	50.9E	13.3	N/A	N/A	55	0	N/A	N/A
88011500	4	16.3S	50.2E	8.3	N/A	N/A	65	0	N/A	N/A
88011512	5	17.1S	49.3E	12.9	N/A	N/A	40	0	N/A	N/A

Tropical Cyclone 09S

	00h	24h	48h
Average	36	115	232
# Cases	17	12	9

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88012306	1	12.7S	66.9E	47.2	218.1	338.2	35	0	0	10
88012318	2	13.0S	62.5E	16.8	109.3	228.8	40	5	10	35
88012406	3	13.6S	58.9E	18.0	66.3	220.9	50	5	15	0
88012418	4	14.2S	55.3E	13.1	113.6	N/A	55	0	0	N/A
88012506	5	14.8S	52.4E	26.1	N/A	N/A	55	0	N/A	N/A
88012518	6	14.7S	50.6E	56.1	N/A	N/A	45	5	N/A	N/A
88012606	7	14.2S	49.3E	133.2	N/A	N/A	30	0	N/A	N/A
88012800*	8	17.2S	43.0E	.0	41.5	90.7	45	-10	-20	-50
88012812	9	18.7S	41.6E	70.7	173.7	311.9	55	-15	-40	-90
88012900	10	20.2S	40.8E	46.6	161.2	240.2	65	0	-25	-55
88012912	11	21.2S	39.8E	29.3	12.5	113.3	75	5	-50	-45
88013000	12	22.3S	38.9E	24.0	60.2	223.6	90	0	-30	-10
88013012	13	24.1S	38.3E	31.9	112.6	326.3	115	-25	-25	20
88013100	14	26.3S	38.2E	21.0	139.2	N/A	115	-15	10	N/A
88013112	15	28.8S	38.9E	21.9	176.8	N/A	105	-15	35	N/A
88020100	16	31.5S	41.2E	35.6	N/A	N/A	85	-5	N/A	N/A
88020112	17	34.6S	44.8E	30.2	N/A	N/A	45	15	N/A	N/A

* regenerated

Tropical Cyclone 10S

	00h	24h	48h
Average	24	178	430
# Cases	6	4	2

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88013100	1	13.6S	96.6E	18.5	166.6	359.1	35	0	-10	20
88013106	2	14.8S	96.5E	21.1	130.9	500.9	40	5	10	30
88013118	3	17.1S	95.9E	12.9	122.0	N/A	50	25	30	N/A
88020106	4	19.1S	96.0E	8.3	294.5	N/A	55	20	30	N/A
88020118	5	20.6S	95.5E	17.9	N/A	N/A	45	5	N/A	N/A
88020206	6	21.2S	93.9E	70.2	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 11S

	00h	24h	48h
Average	25	133	282
# Cases	16	14	11

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88020812	1	15.8S	101.1E	63.1	302.8	568.1	30	5	10	-5
88020900	2	16.0S	99.1E	50.9	194.2	439.8	35	0	0	-35
88020912	3	15.9S	97.2E	28.9	110.4	196.0	40	-5	-30	-55
88021000	4	15.8S	95.0E	23.9	115.5	271.0	45	-5	-30	-55
88021012	5	15.6S	93.4E	16.7	156.2	322.0	60	-10	-20	-10
88021100	6	15.7S	91.9E	40.9	173.4	287.4	70	-10	-35	-15
88021112	7	16.1S	90.8E	16.6	93.1	143.5	80	-20	-20	-15
88021200	8	17.1S	90.1E	8.3	123.4	379.2	90	-25	-10	0
88021212	9	17.8S	89.3E	36.3	107.6	309.3	80	-15	5	10
88021300	10	18.4S	88.5E	24.7	36.0	37.2	70	-15	-5	-10
88021312	11	18.6S	87.8E	28.4	40.2	N/A	60	-10	-10	N/A
88021400	12	19.1S	86.5E	16.5	198.6	N/A	50	0	-15	N/A
88021412	13	18.8S	85.0E	11.4	98.4	156.0	45	10	5	0
88021500	14	18.6S	83.9E	17.1	114.6	N/A	45	0	-5	N/A
88021512	15	18.2S	82.6E	16.6	N/A	N/A	40	-5	N/A	N/A
88021600	16	18.2S	80.9E	8.3	N/A	N/A	35	-5	N/A	N/A

Tropical Cyclone 12P

	00h	24h	48h
Average	30	133	261
# Cases	12	8	7

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88022100	1	13.7S	158.4E	53.8	255.7	419.4	35	0	5	5
88022106	2	13.9S	158.0E	46.6	202.1	406.4	35	0	-5	-5
88022118	3	14.3S	157.4E	96.2	238.9	197.7	35	0	0	0
88022206	4	14.6S	156.8E	16.7	63.4	77.4	40	0	0	10
88022218	5	14.6S	156.0E	52.3	615.2	179.1	40	0	-10	5
88022306	6	14.6S	155.2E	6.0	79.2	200.1	45	0	15	30
88022318	7	14.8S	164.5E	586.0	143.0	158.3	45	0	15	10
88022406	8	15.5S	154.6E	8.3	49.4	N/A	40	5	10	N/A
88022418	9	16.6S	155.0E	33.9	N/A	N/A	30	0	N/A	N/A
88022806	10	19.0S	148.3E	28.4	N/A	N/A	35	5	N/A	N/A
88022818	11	18.9S	147.7E	6.0	N/A	N/A	35	0	N/A	N/A
88022906	12	19.3S	147.2E	13.3	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 13P

	00h	24h	48h
Average	25	167	337
# Cases	20	16	15

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88022400	1	11.6S	178.6E	31.7	149.0	432.1	30	10	20	5
88022412	2	13.9S	177.2E	29.7	N/A	N/A	35	0	N/A	N/A
88022500	3	15.2S	177.0E	42.8	270.2	442.8	35	10	-5	-10
88022512	4	15.6S	176.0E	37.9	317.2	358.9	45	0	-10	-10
88022600	5	15.1S	173.8E	37.6	126.4	170.4	50	5	10	5
88022612	6	14.5S	171.4E	5.8	220.1	310.6	55	0	0	-35
88022700	7	15.3S	170.7E	16.7	86.6	214.3	55	0	-20	-60
88022712	8	16.2S	170.1E	24.9	114.8	190.5	55	0	-35	-60
88022800	9	16.4S	169.2E	34.5	124.3	287.6	60	-5	-45	-55
88022812	10	16.6S	168.3E	31.1	207.2	298.4	80	-5	0	0
88022900	11	16.8S	168.3E	5.7	165.7	228.6	90	0	-5	-20
88022912	12	17.3S	169.5E	5.7	69.0	162.2	95	0	-5	10
88030100	13	18.1S	169.7E	23.6	140.9	347.5	95	5	5	15
88030112	14	18.0S	169.0E	12.9	143.2	476.2	105	5	30	35
88030200	15	17.7S	169.2E	13.3	108.3	518.8	95	5	15	15
88030212	16	17.7S	169.8E	16.6	277.1	616.7	80	0	0	5
88030300	17	18.2S	171.2E	8.3	156.5	N/A	70	-5	-15	N/A
88030312	18	19.5S	174.3E	12.8	N/A	N/A	60	0	N/A	N/A
88030400	19	22.7S	177.3E	6.0	N/A	N/A	55	0	N/A	N/A
88030412	20	26.0S	178.6E	113.8	N/A	N/A	45	0	N/A	N/A

Tropical Cyclone 14S

	00h	24h	48h
Average	21	111	269
# Cases	8	6	4

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88022718	1	17.9S	41.1E	12.9	51.3	196.1	40	-5	-20	-40
88022806	2	18.8S	40.0E	22.7	159.3	270.3	55	0	-5	-30
88022818	3	19.1S	40.0E	8.3	90.7	266.6	65	0	-5	-5
88022906	4	19.3S	39.8E	12.0	111.4	342.8	75	0	10	45
88022918	5	19.2S	39.5E	29.4	185.4	N/A	80	10	15	N/A
88030106	6	18.9S	38.5E	20.8	69.7	N/A	85	-10	0	N/A
88030118	7	18.6S	37.1E	20.9	N/A	N/A	85	-25	N/A	N/A
88030206	8	17.7S	36.0E	42.0	N/A	N/A	40	-5	N/A	N/A

Tropical Cyclone 15P

	00h	24h	48h
Average	58	158	558
# Cases	8	5	4

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88022818	1	16.9S	201.2E	56.7	95.1	349.5	25	10	20	20
88022906	2	19.2S	201.1E	66.1	259.8	563.9	30	5	0	5
88022918	3	20.5S	204.2E	39.3	94.6	404.8	35	10	-10	5
88030106	4	22.7S	207.3E	20.5	227.9	913.4	40	5	10	15
88030118	5	25.4S	210.3E	17.3	114.5	N/A	45	5	10	N/A
88030206	6	28.1S	212.9E	28.8	N/A	N/A	35	5	N/A	N/A
88030218	7	31.2S	212.1E	57.8	N/A	N/A	25	15	N/A	N/A
88030306	8	34.2S	209.7E	177.9	N/A	N/A	25	5	N/A	N/A

Tropical Cyclone 16S

	00h	24h	48h
Average	31	168	298
# Cases	16	14	13

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88031600	1	14.6S	71.0E	13.3	177.7	284.7	35	0	15	5
88031612	2	14.3S	68.8E	55.2	138.6	244.5	40	0	0	-25
88031700	3	14.0S	66.8E	37.8	25.0	80.6	50	0	-5	-35
88031712	4	14.5S	65.2E	5.8	79.7	276.9	65	0	-30	-30
88031800	5	15.1S	64.0E	24.7	74.1	309.0	85	-10	-35	-25
88031812	6	15.8S	63.2E	21.1	142.1	477.7	115	-15	-25	-15
88031900	7	16.3S	63.0E	23.8	260.4	301.9	130	0	5	-15
88031912	8	16.5S	64.2E	37.5	286.8	342.5	125	0	0	0
88032000	9	16.7S	66.6E	13.3	187.0	433.6	115	0	-5	-5
88032012	10	17.9S	68.9E	21.3	141.0	325.4	105	0	0	5
88032100	11	20.0S	70.5E	46.6	200.7	177.1	95	0	-5	10
88032112	12	21.8S	70.9E	83.4	231.2	187.9	80	0	5	5
88032200	13	22.6S	70.8E	30.0	191.1	442.2	70	-10	5	5
88032212	14	24.2S	71.4E	27.4	218.0	N/A	50	0	10	N/A
88032300	15	27.0S	72.9E	12.3	N/A	N/A	40	0	N/A	N/A
88032312	16	29.7S	74.3E	54.2	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 17S

	00h	24h	48h
Average	20	204	375
# Cases	7	5	3

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88031718	1	11.0S	50.9E	21.5	300.7	578.7	35	0	15	35
88031806	2	10.1S	51.0E	13.3	150.6	262.3	40	0	10	35
88031818	3	10.2S	52.2E	16.8	199.4	283.5	40	0	10	40
88031906	4	11.8S	53.0E	60.3	312.5	N/A	45	-5	15	N/A
88031918	5	13.1S	54.4E	18.5	60.0	N/A	40	0	0	N/A
88032006	6	13.7S	55.8E	13.3	N/A	N/A	35	0	N/A	N/A
88032018	7	14.4S	56.5E	.0	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 18S

	00h	24h	48h
Average	19	N/A	N/A
# Cases	3	0	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88032706	1	15.0S	51.4E	18.9	N/A	N/A	35	5	N/A	N/A
88032718	2	15.8S	50.4E	26.6	N/A	N/A	35	0	N/A	N/A
88032806	3	16.5S	49.5E	13.0	N/A	N/A	30	0	N/A	N/A

Tropical Cyclone 19P

	00h	24h	48h
Average	22	117	292
# Cases	11	9	3

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88040918	1	17.7S	170.2E	68.2	260.9	468.0	45	-10	-20	0
88041006	2	18.1S	170.5E	18.0	133.9	N/A	50	-5	-5	N/A
88041018	3	17.9S	170.8E	13.3	N/A	N/A	55	-15	N/A	N/A
88041106	4	17.7S	170.6E	24.7	N/A	N/A	60	-20	N/A	N/A
88041118	5	18.0S	170.6E	41.4	136.2	N/A	65	-25	-35	N/A
88041206	6	18.2S	170.8E	.0	85.1	178.4	70	-10	20	10
88041218	7	19.1S	171.4E	.0	64.1	N/A	65	-15	-25	N/A
88041306	8	20.0S	171.8E	37.6	131.2	N/A	60	-10	-25	N/A
88041318	9	21.0S	172.2E	8.2	39.6	N/A	60	-15	-25	N/A

88041406	10	22.0S	172.6E	12.0	136.0	229.6	60	-15	-10	-10
88041418	11	23.6S	173.1E	18.8	72.0	N/A	55	-15	-15	N/A

Tropical Cyclone 20S

	00h	24h	48h
Average	18	139	277
# Cases	3	1	1

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88050918	1	15.0S	64.6E	24.7	139.1	276.5	40	-5	5	5
88051006	2	15.2S	64.9E	13.0	N/A	N/A	35	5	N/A	N/A
88051018	3	15.3S	65.5E	16.7	N/A	N/A	35	-5	N/A	N/A

Tropical Cyclone 21S

	00h	24h	48h
Average	32	207	N/A
# Cases	4	2	0

DTG	W#	BT LAT	BT LON	POS ER	24 ER	48 ER	BT WN	WW ER	24 WE	48 WE
88051900	1	12.7S	96.5E	42.9	193.0	N/A	35	-5	15	N/A
88051912	2	16.0S	97.9E	36.6	221.1	N/A	35	0	20	N/A
88052000	3	19.2S	101.1E	16.5	N/A	N/A	30	0	N/A	N/A
88052012	4	22.9S	105.0E	34.3	N/A	N/A	25	5	N/A	N/A