3. TROPICAL CYCLONE FIX DATA

3.1 2000 SEASON

Tables 3-1 to 3-3 list the number of tropical cyclone center "fixes", or locations, made using satellite (visible, infrared, and microwave), scatterometer, radar, and synoptic data. Fixes made by the DOD tropical cyclone reconnaissance network sites are included in the tables as well as those fixes received from other sources (e.g., Japanese Meteorological Agency, Australian Bureau of Meteorology, and U.S. National Weather Service National Environmental Satellite Data and Information Service).

TABLE 3-1 SOUTH PACIFIC SOUTH INDIAN OCEAN FIX SUMMARY FOR 2000

Tropical Cyclone		Satellite	Scatt	Radar	Synoptic	Total
01S	Ilsa	142	3	0	3	148
02S	John	120	2	0	2	124
03S	Astride	197	8	0	0	205
04S	Babiola	166	10	0	0	176
05P	Iris	82	2	0	0	84
06S	-	80	3	0	2	85
07P	Jo	110	7	0	0	117
08S	Connie	195	6	0	0	201
09S	Kirrily	170	6	0	0	176
10S	Damienne	69	0	0	0	69
11S	Leon-Eline	463	9	0	0	472
12S	Felicia	86	0	0	0	86
13P	Kim	134	5	0	0	139
14P	Steve	231	0	3	10	244
15S	Gloria	109	2	0	0	111
16S	Norman	165	4	0	0	169
17S	-	99	3	0	0	102
18P	Leo	75	0	0	0	75
19P	Mona	98	2	0	0	100
20S	Olga	86	3	0	0	89
21S	Hudah	384	7	0	0	391
22P	Tessi	58	0	0	2	60
23P	Vaughan	127	2	0	1	130
24S	Paul	219	2	0	0	221
25P	Neil	67	0	0	0	67
26S	Innocente	125	5	0	0	130
27S	Rosita	97	2	0	0	99
	Totals	3954	93	3	20	4070

TABLE 3-1 SOUTH PACIFIC SOUTH INDIAN OCEAN FIX SUMMARY FOR 2000

Percentage of Total	97.1	2.3	0.1	0.5	100

TABLE 3-2 WESTERN NORTH PACIFIC OCEAN FIX SUMMARY FOR 2000

Tropical Cyclone		Satellite	Scatt	Radar	Synoptic	Total
01W	Damrey	195	4	0	0	199
02W	Longwang	32	0	0	0	32
03W	-	12	0	0	0	12
04W	-	60	3	0	0	63
05W	Kirogi	150	4	0	0	154
06W	Kai-Tak	151	0	0	2	153
07W	-	60	4	0	2	66
08W	-	40	2	0	0	42
09W	Tembin	128	6	0	1	135
10W	-	47	1	0	0	48
11W	Bolaven	188	3	12	2	205
12W	Chanchu	50	2	0	0	52
13W	Jelewat	323	2	0	3	328
14W	-	54	0	0	0	54
15W	Ewiniar	262	6	0	0	268
16W	Wene	53	1	0	0	54
17W	-	19	0	0	0	19
18W	Bilis	187	3	0	0	190
19W	Kaemi	66	3	0	1	70
20W	Prapiroon	212	5	0	0	217
21W	Maria	105	1	0	0	106
22W	Saomai	369	14	45	0	428
23W	Wukong	153	2	0	0	155
24W	Bopha	149	3	1	0	153
25W	Sonamu	91	2	1	0	94
26W	Shanshan	208	4	0	0	212
27W	-	55	1	0	0	56
28W	-	136	6	0	5	147
29W	Yagi	195	1	71	0	267
30W	Xangsane	210	1	0	1	212
31W	Bebinca	224	1	0	1	226
32W	-	51	0	6	0	57
33W	Rumbia	213	2	0	3	218
34W	Soulik	197	3	0	0	200
	Totals	4645	90	136	21	4892
Percentage of Total		95.0	1.8	2.8	0.4	100

TABLE 3-3 NORTHERN INDIAN OCEAN FIX SUMMARY FOR 2000

Tropical Cyclone		Satellite	Scatt	Radar	Synoptic	Total
01B	-	92	3	0	0	95
02B	-	57	0	0	0	57

TABLE 3-3 NORTHERN INDIAN OCEAN FIX SUMMARY FOR 2000						
03B	-	219	0	0	0	219
04B	-	111	1	0	0	112
	Totals	479	4	0	0	483
Percentage of Total		99.2	0.8	0	0	100

3.2 2000 Western North Pacific Satellite Fix Errors

Table 3-4 and Figures 3-1 to 3-4 depict 2000 western North Pacific fix errors (nm) of the Special Sensor Microwave Imager (SSMI), ERS-2 and SeaWinds Scatterometer (SCAT), Tropical Rainfall Measuring Mission (TRMM), and geostationary (VIS/IR) satellites based on Position Confidence Numbers (PCN) and tropical cyclone strengths.

TABLE 3-4 2000 Western North Pacific Satellite Fix Errors

Sensor	PCN	Average Fix Error (nm)	Cases
SSMI	1,2	10.97	81
	3,4	17.96	167
	5,6	24.35	216
SCAT	1,2	32.74	51
	3,4	27.18	29
	5,6	45.74	8
TRMM	1,2	9.3	12
	3,4	15.29	32
	5,6	18.00	25
VIS/IR	1,2	7.69	485
	3,4	15.00	928
	5,6	24.17	2602

This analysis highlights the fact that fixes increase in accuracy as the system intensifies from tropical depression strength to typhoon strength. For all cases (Figure 3-4), the VIS/IR fixes have the lowest errors in the PCN 1,2 and PCN 3,4 category. However, the TRMM sensor has the lowest errors in the PCN 5,6 category with VIS/IR having the second lowest errors. SSMI and SCAT have the third and fourth lowest errors respectively in all PCN categories.

3.3 1999 SEASON

Satellite fix information was inadvertently omitted from the 1999 Annual Tropical Cyclone Report, and is provided in this section. Table 3-5 represents the total fix numbers for all oceanic basins within the Joint Typhoon Warning Center's area of responsibility in 1999. Fixes made by the DOD tropical cyclone reconnaissance network sites are included in the tables as well as those fixes received from other sources (e.g. Japanese Meteorological Agency, Australian Bureau of Meteorology, and U.S. National Weather Service National Environmental Satellite Data and Information Service).

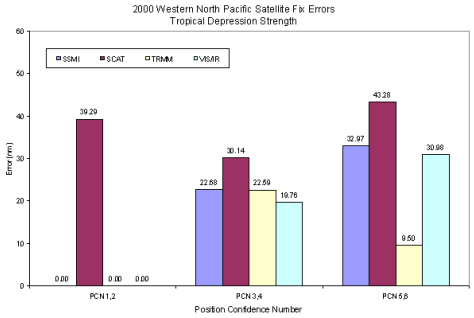

Figure 3-1. 2000 Western North Pacific fix errors (nm) of the Special Sensor Microwave Imager (SSMI), ERS-2 and SeaWinds Scatterometer (SCAT), Tropical Rainfall Measuring Mission (TRMM), and geostationary (VIS/IR) satellites based on Position Confidence Numbers (PCN) for tropical depression strength systems.

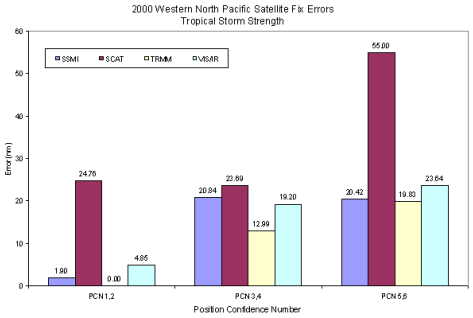

Figure 3-2. Same as in Fig. 3-1. except for tropical storm strength.

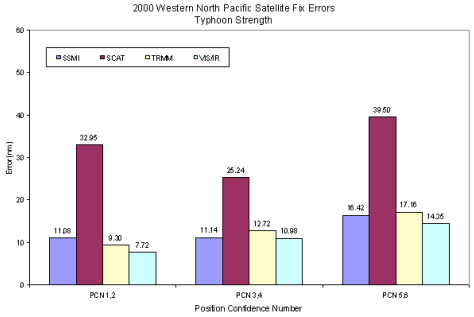

Figure 3-3. Same as in Fig. 3-1. except for typhoon strength systems.

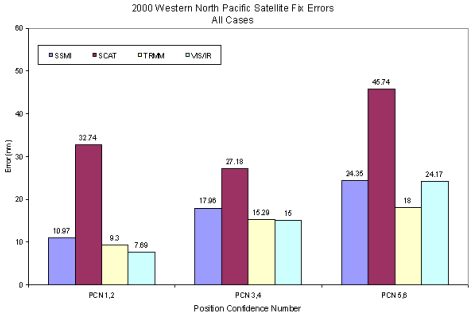

Figure 3-4. Same as in Fig. 3-1. except for systems of all strengths.

TABLE 3-5 FIXES BY OCEANIC BASIN FOR 1999	
Oceanic Basin	Total Fixes
Northwest Pacific	2,952
Southern Hemisphere	3,056
Northern Indian Ocean	493
Total	6,501