2. SOUTH PACIFIC AND SOUTH INDIAN OCEAN TROPICAL CYCLONES

2.1 GENERAL

In accordance with CINCPACINST 3140.1 (series), Southern Hemisphere tropical cyclones are numbered sequentially from 01 July through 30 June to reflect the Southern Hemisphere tropical season.

For warning message delineation, the Southern Hemisphere AOR is divided into two basins; the South Indian (west of 135 East longitude) and the South Pacific Ocean (east of 135 East longitude). The suffixes "S" (South Indian Ocean) and "P" (South Pacific Ocean) are appended to the tropical cyclone number to differentiate warnings for these basins.

2.2 SUMMARY

Table 2-1 lists the significant tropical cyclones during this season and can be compared to the climatological mean presented in Table 2-2. Table 2-3 compares this year's tropical cyclone activity in the Southern Hemisphere sub-basins to previous years and climatology. Composites of the tropical cyclone best tracks for the Southern Hemisphere appear in Figures 2-1a, 2-1b, 2-1c, 2-2a, 2-2b, and 2-3.

Table 2-1 SOUTHERN HEMISPHERE TROPICAL CYCLONES FOR 1999 (01 JULY 1998 - 30 JUNE 1999)

TC	NAME	PERIOD	NUMBER ISSUED	EST MAX SFC WINDS KTS (M/SEC)	MSLP (MB)
01S	–	23 JUL 25 JUL	6	40 (21)	994
02S	–	29 SEP 02 OCT	8	40 (21)	994
03S	Zelia	07 OCT 10 OCT	8	45 (23)	991
04S	Alison	08 NOV 13 NOV	11	70 (36)	972
05S	Billy	02 DEC 06 DEC	16	65 (33)	976
06S	–	05 DEC 15 DEC	21	135 (69)	904
07P	–	15 DEC 16 DEC	4	35 (18)	997
*08P	–	22 DEC 23 DEC	(3)	45 (23)	991
09P	Cora	23 DEC 27 DEC	8	90 (46)	954
10S	Cathy	25 DEC 28 DEC	7	40 (21)	994
11P	Dani	14 JAN 22 JAN	18	115 (59)	927
12S	Alda	16 JAN 17 JAN	5	55 (28)	984
13P	Olinda	20 JAN 25 JAN	11	55 (28)	984
14P	Pete	22 JAN 25 JAN	8	50 (26)	987
15S	Damien	22 JAN 30 JAN	23	80 (41)	963
16P	–	25 JAN 26 JAN	4	35 (18)	997

Table 2-1 SOUTHERN HEMISPHERE TROPICAL CYCLONES FOR 1999 (01 JULY 1998 - 30 JUNE 1999)

17S	Chikita	30 JAN	04 FEB	11	40 (21)	994
18S	–	04 FEB	09 FEB	18	40 (21)	994
19P	Ella	10 FEB	13 FEB	11	45 (23)	991
20P	Rona	10 FEB	12 FEB	5	60 (31)	980
21S	–	13 FEB	15 FEB	8	45 (23)	991
22P	Frank	17 FEB	23 FEB	18	100 (51)	944
23S	–	27 FEB	01 MAR	5	30 (15)	1000
*24P	–	27 FEB	28 FEB	(2)	35 (18)	997
25S	Davina	01 FEB	14 MAR	29	105 (54)	938
26S	–	07 MAR	09 MAR	9	35 (18)	997
*27P	Hali	12 MAR	17 MAR	(11)	50 (26)	987
28S	Elaine	16 MAR	19 MAR	9	100 (51)	944
29S	–	17 MAR	19 MAR	8	35 (18)	997
30S	Vance	18 MAR	23 MAR	17	125 (64)	916
31S	Frederic	26 MAR	07 APR	28	140 (72)	898
32S	Gwenda	05 APR	07 APR	10	130 (67)	910
33S	Hamish	19 APR	24 APR	10	45 (23)	991
		JTWC TOTAL		354		
		( )NPMOC TOTAL		(16)		
		GRAND TOTAL		370		

*WARNINGS ISSUED BY NPMOC

Table 2-2 MONTHLY DISTRIBUTION OF SOUTH PACIFIC AND SOUTH INDIAN OCEAN TROPICAL CYCLONES

YEAR	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
1958-1977 AVE*	-	-	-	0.4	1.5	3.6	6.1	5.8	4.7	2.1	0.5	-	24.7
1981	0	0	0	1	3	2	6	5	3	3	1	0	24
1982	1	0	0	1	1	3	9	4	2	3	1	0	25
1983	1	0	0	1	1	3	5	6	3	5	0	0	25
1984	1	0	0	1	2	5	5	10	4	2	0	0	30
1985	0	0	0	0	1	7	9	9	6	3	0	0	35
1986	0	0	1	0	1	1	9	9	6	4	2	0	33
1987	0	1	0	0	1	3	6	8	3	4	1	1	28
1988	0	0	0	0	2	3	5	5	3	1	2	0	21
1989	0	0	0	0	2	1	5	8	6	4	2	0	28
1990	2	0	1	1	2	2	4	4	10	2	1	0	29
1991	0	0	1	1	1	3	2	5	5	2	1	1	22
1992	0	0	1	1	2	5	4	11	3	2	1	0	30
1993	0	0	1	1	0	5	7	7	2	2	2	0	27
1994	0	0	0	0	2	4	8	4	9	3	0	0	30
1995	0	0	0	0	2	2	5	4	5	4	0	0	22
1996	0	0	0	0	1	3	7	6	6	4	1	0	28
1997	1	1	1	2	2	6	9	8	3	1	3	1	38
1998	1	0	0	3	2	3	7	9	6	6	0	0	37

Table 2-2 MONTHLY DISTRIBUTION OF SOUTH PACIFIC AND SOUTH INDIAN OCEAN TROPICAL CYCLONES

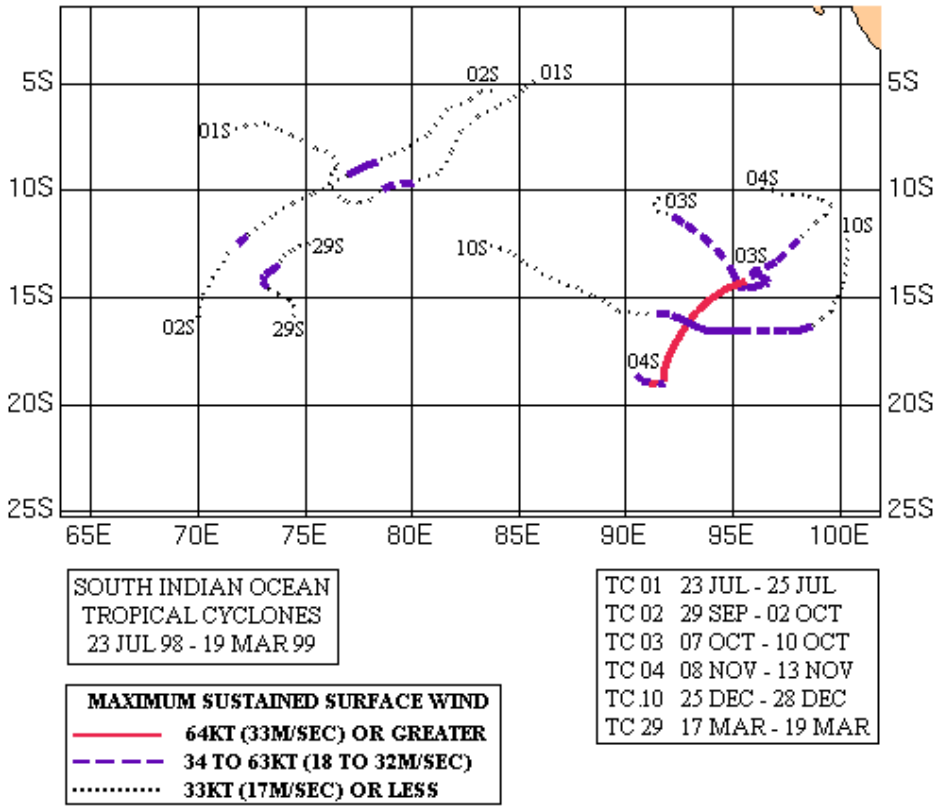
1999	1	0	1	1	1	5	7	6	6	2	0	0	30
TOTAL	8	2	7	14	29	66	119	128	91	57	18	3	542
AVERAGE (1981-1999)	0.4	0.1	0.4	0.7	1.5	3.5	6.2	6.7	4.8	3.0	0.9	0.2	28.5

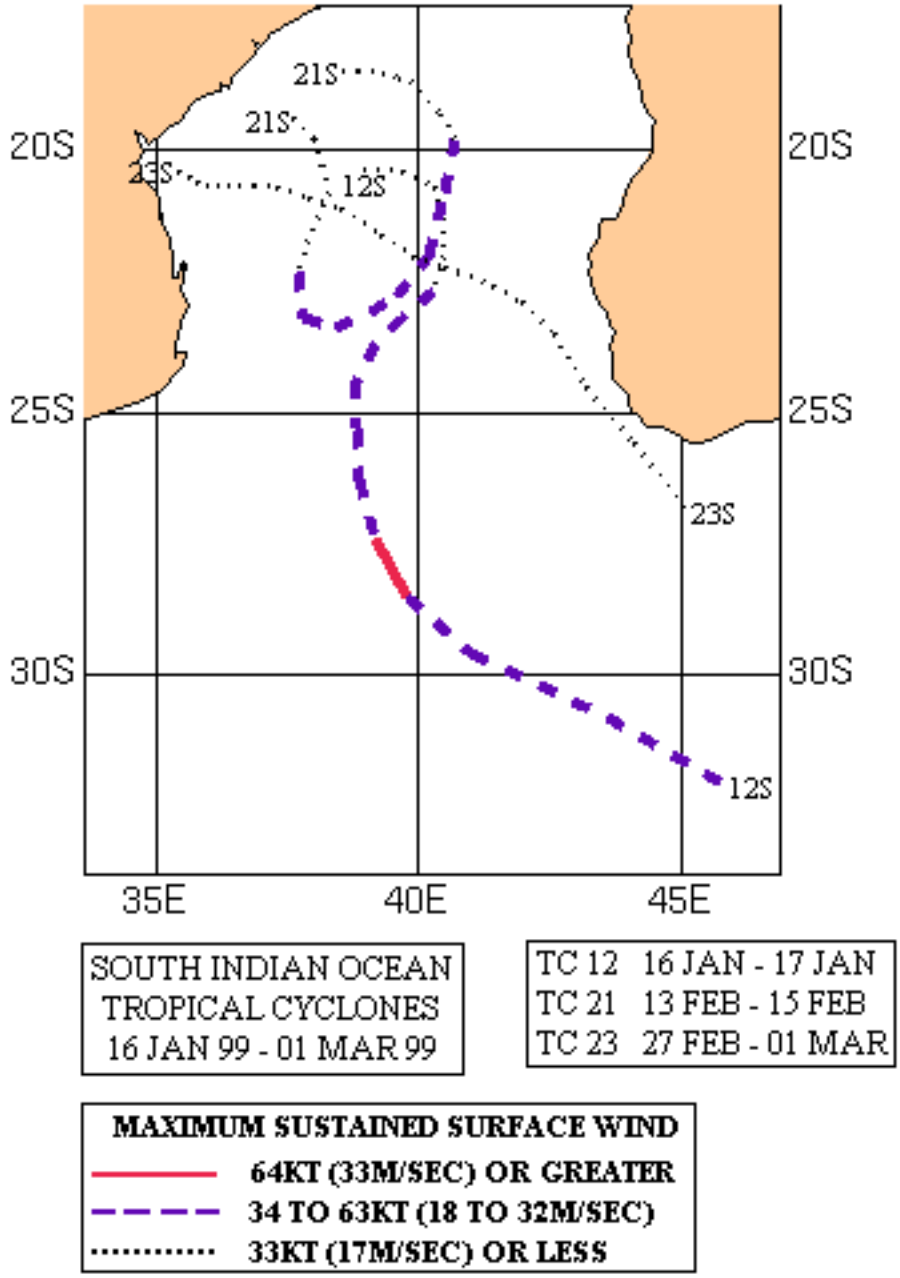
* (Gray, 1978)

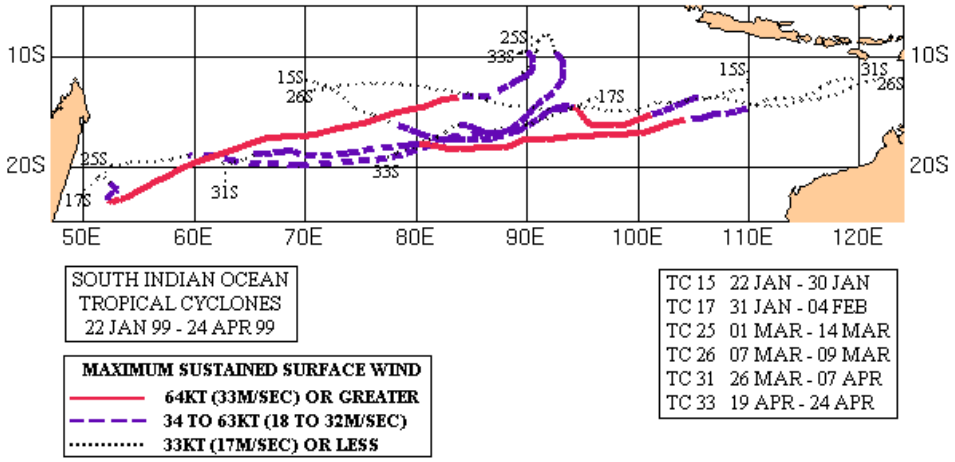
Table 2-3 ANNUAL VARIATION OF SOUTHERN HEMISPHERE TROPICAL CYCLONE BY OCEAN BASIN

YEAR	SOUTH INDIAN (WEST OF 105E)	AUSTRALIAN (105E - 165E)	SOUTH PACIFIC (EAST OF 165E)	TOTAL
1958-1977 AVERAGE*	8.4	10.3	5.9	24.6
1981	13	8	3	24
1982	12	11	2	25
1983	7	6	12	25
1984	14	14	2	30
1985	14	15	6	35
1986	14	16	3	33
1987	9	8	11	28
1988	14	2	5	21
1989	12	9	7	28
1990	18	8	3	29
1991	11	10	1	22
1992	11	6	13	30
1993	10	16	1	27
1994	16	10	4	30
1995	11	7	4	22
1996	13	11	4	28
1997	17	5	16	38
1998	12	10	15	37
1999	14	11	5	30
(1981-1999)				
TOTAL	242	183	107	542
AVERAGE	12.7	9.6	5.6	28.5

* (Gray,1978)


5S
10S
15S
20S
25S
65E
70E
75E
80E
85E
90E
95E
100E
02S
01S
01S
04S
03S
10S
29S
10S
03S
02S
29S
04S
SOUTH INDIAN OCEAN
TROPICAL CYCLONES
23 JUL 98 - 19 MAR 99
TC 01 23 JUL - 25 JUL
TC 02 29 SEP - 02 OCT
TC 03 07 OCT - 10 OCT
TC 04 08 NOV - 13 NOV
TC 10 25 DEC - 28 DEC
TC 29 17 MAR - 19 MAR
MAXIMUM SUSTAINED SURFACE WIND
64KT (33M/SEC) OR GREATER
34 TO 63KT (18 TO 32M/SEC)
33KT (17M/SEC) OR LESS


20S
25S
30S
35E
40E
45E
21S
21S
23S
12S
23S
12S
SOUTH INDIAN OCEAN
TROPICAL CYCLONES
16 JAN 99 - 01 MAR 99
TC 12 16 JAN - 17 JAN
TC 21 13 FEB - 15 FEB
TC 23 27 FEB - 01 MAR
MAXIMUM SUSTAINED SURFACE WIND
64KT (33M/SEC) OR GREATER
34 TO 63KT (18 TO 32M/SEC)
33KT (17M/SEC) OR LESS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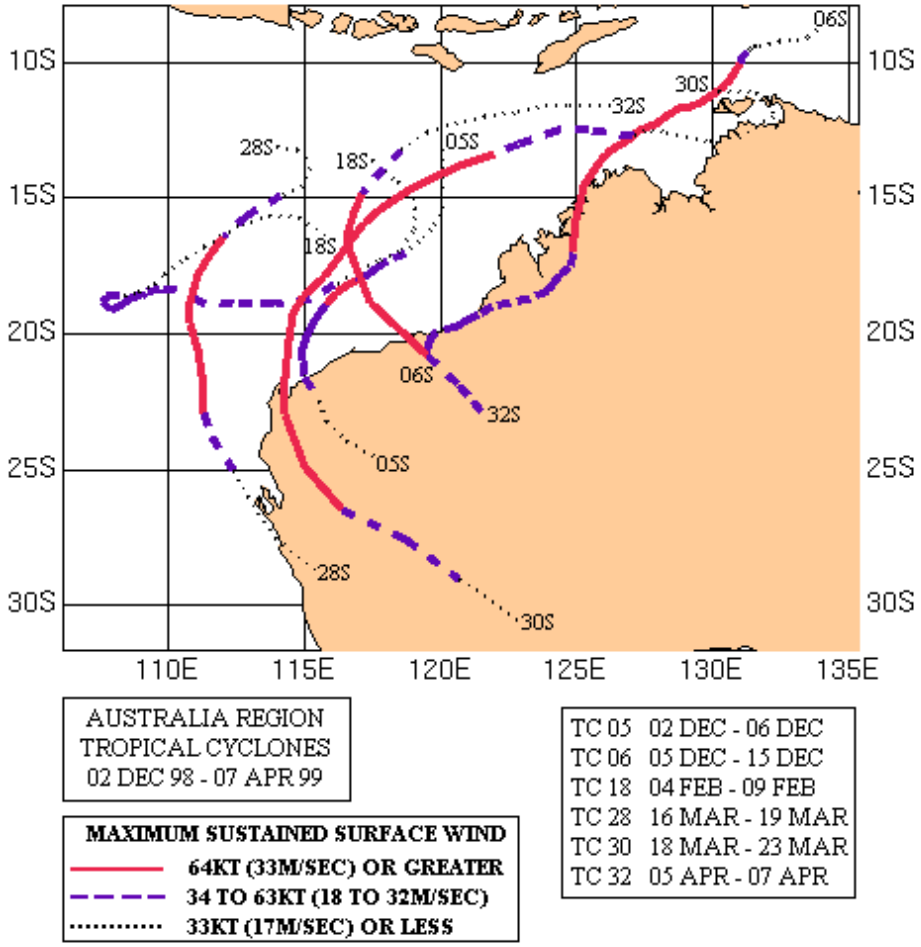
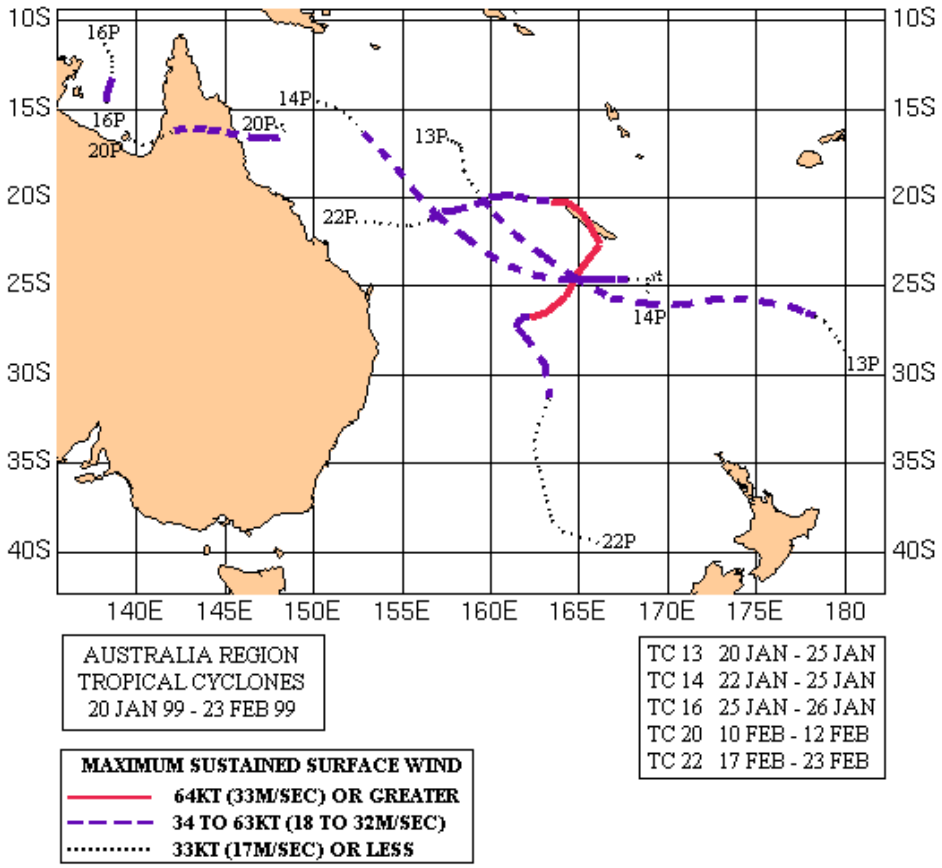
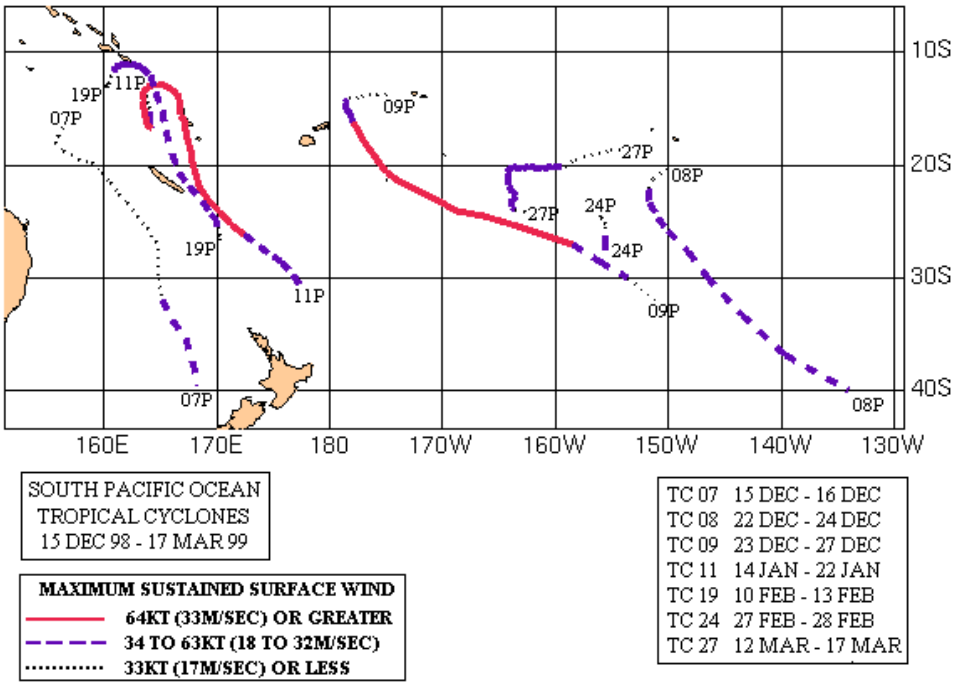
20S
50E
60E
70E
80E
90E
100E
110E
120E
25S
33S
15S
26S
17S
31S
SOUTH INDIAN OCEAN
TROPICAL CYCLONES
22 JAN 99 - 24 APR 99
MAXIMUM SUSTAINED SURFACE WIND
64KT (33M/SEC) OR GREATER
34 TO 63KT (18 TO 32M/SEC)
33KT (17M/SEC) OR LESS
TC 15 22 JAN - 30 JAN
TC 17 31 JAN - 04 FEB
TC 25 01 MAR - 14 MAR
TC 26 07 MAR - 09 MAR
TC 31 26 MAR - 07 APR
TC 33 19 APR - 24 APR


10S
15S
20S
25S
30S
110E
115E
120E
125E
130E
135E
06S
30S
32S
28S
18S
05S
18S
06S
32S
05S
28S
30S
AUSTRALIA REGION
TROPICAL CYCLONES
02 DEC 98 - 07 APR 99
MAXIMUM SUSTAINED SURFACE WIND
64KT (33M/SEC) OR GREATER
34 TO 63KT (18 TO 32M/SEC)
33KT (17M/SEC) OR LESS
TC 05 02 DEC - 06 DEC
TC 06 05 DEC - 15 DEC
TC 18 04 FEB - 09 FEB
TC 28 16 MAR - 19 MAR
TC 30 18 MAR - 23 MAR
TC 32 05 APR - 07 APR


10S
15S
20S
25S
30S
35S
40S
140E
145E
150E
155E
160E
165E
170E
175E
180
16P
16P
20P
20P
14P
13P
22P
14P
13P
22P
AUSTRALIA REGION
TROPICAL CYCLONES
20 JAN 99 - 23 FEB 99
TC 13 20 JAN - 25 JAN
TC 14 22 JAN - 25 JAN
TC 16 25 JAN - 26 JAN
TC 20 10 FEB - 12 FEB
TC 22 17 FEB - 23 FEB
MAXIMUM SUSTAINED SURFACE WIND
64KT (33M/SEC) OR GREATER
34 TO 63KT (18 TO 32M/SEC)
33KT (17M/SEC) OR LESS


10S
20S
30S
40S
160E
170E
180
170W
160W
150W
140W
130W
19P
11P
07P
09P
27P
08P
24P
27P
24P
19P
11P
09P
07P
08P
SOUTH PACIFIC OCEAN
TROPICAL CYCLONES
15 DEC 98 - 17 MAR 99
MAXIMUM SUSTAINED SURFACE WIND
64KT (33M/SEC) OR GREATER
34 TO 63KT (18 TO 32M/SEC)
33KT (17M/SEC) OR LESS
TC 07 15 DEC - 16 DEC
TC 08 22 DEC - 24 DEC
TC 09 23 DEC - 27 DEC
TC 11 14 JAN - 22 JAN
TC 19 10 FEB - 13 FEB
TC 24 27 FEB - 28 FEB
TC 27 12 MAR - 17 MAR