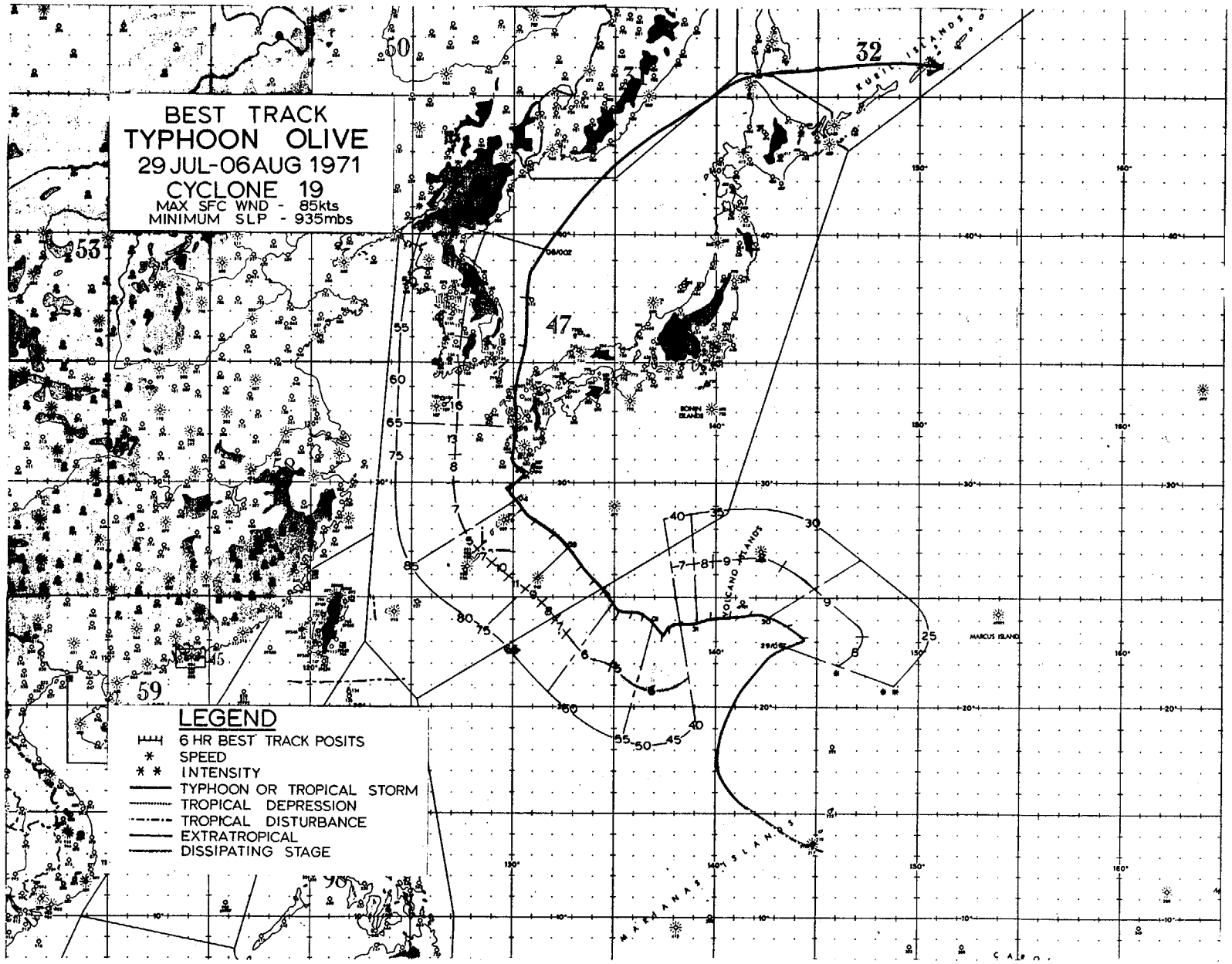
BEST TRACK
TYPHOON OLIVE
29 JUL-06AUG 1971
CYCLONE 19
MAX SFC WND - 85kts
MINIMUM SLP - 935mbs
LEGEND
6 HR BEST TRACK POSITS
SPEED
INTENSITY
TYPHOON OR TROPICAL STORM
TROPICAL DEPRESSION
TROPICAL DISTURBANCE
EXTRATROPICAL
DISSIPATING STAGE
KURIL ISLANDS
VOLCANO ISLANDS
MARIANAS ISLANDS
MARCUS ISLAND
BONIN ISLANDS

OLIVE

Olive climaxed the most active July on record as another in a succession of circulations in the equatorial trough formed east of Guam on 24 July. After drifting over Guam the system took a northward bend due to the influence of a weak trough to the north. After commencing a northeast drift, the circulation began to grow in size but did not become better organized. By the 29th a rather complex cloud system was in evidence as viewed by satellite. As the subtropical ridge began to strengthen, the depression began to slowly intensify and start an erratic, meandering westerly track, reaching storm status early on the 31st (Figure 5-28). Switching to a northwest direction, Olive finally achieved typhoon force by mid-day of the 2nd. The typhoon reached her peak intensity of 85 kt some 48 hours later as she neared Yaku-Shima in the northern Ryukyus (Figure 5-29).

With the approach of a long-wave trough off the coast of China, the typhoon swung to a northerly track with her center driving through western Kyushu east of Nagasaki on the 5th. Crossing the Ryukyus, the highest winds and lowest pressure were reported at the Japanese Yaku-Shima station with 80 kt gusting to 119 kt and 938.7 mb respectively.

Torrential rains measuring up to 59.8 inches in the mountainous regions of Kyushu (Ebino, Miyazaki prefecture) accounted for numerous landslides and for 69 persons killed, 209 injured, and over 1,700 dwellings partly or completely destroyed. At sea the 7,935-ton motorship KAMO MARU was forced aground off Hesaki Lighthouse while the 975-ton SHINMEI MARU ran aground six miles west of Anami-o-shima.

Weakened considerably by her traverse of Kyushu, Olive entered the Sea of Japan as a tropical storm and paralleled the Korean coast before turning on a northeast course and becoming extratropical.

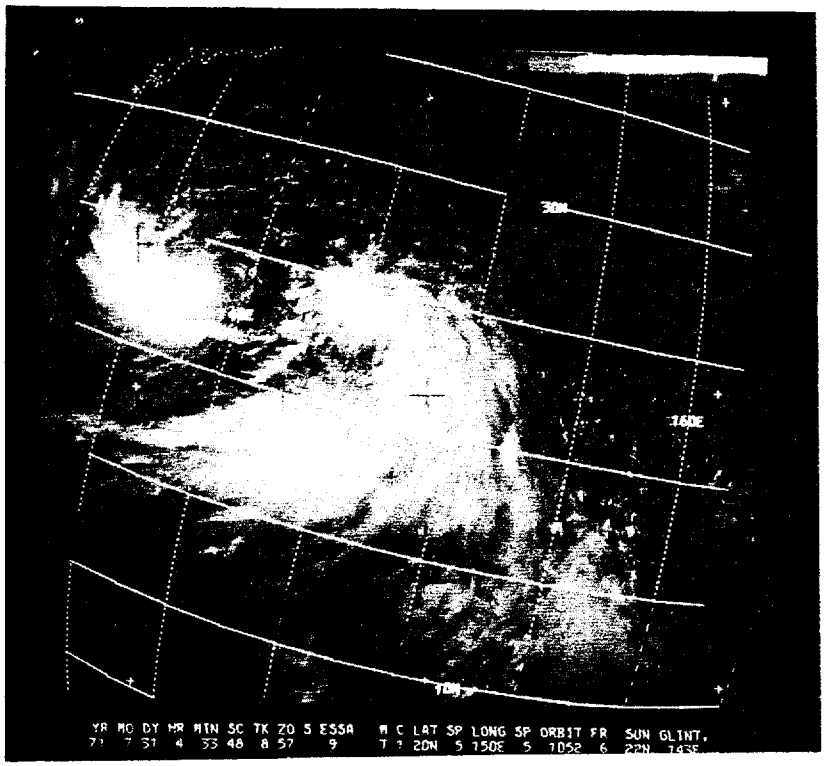

FIGURE 5-28. TROPICAL STORM OLIVE (LEFT) AS A MEMBER OF A LARGE CIRCULATION SYSTEM STRETCHING FROM WEST OF THE BONIN ISLAND GROUP TO MARCUS ISLAND - 31 JULY.

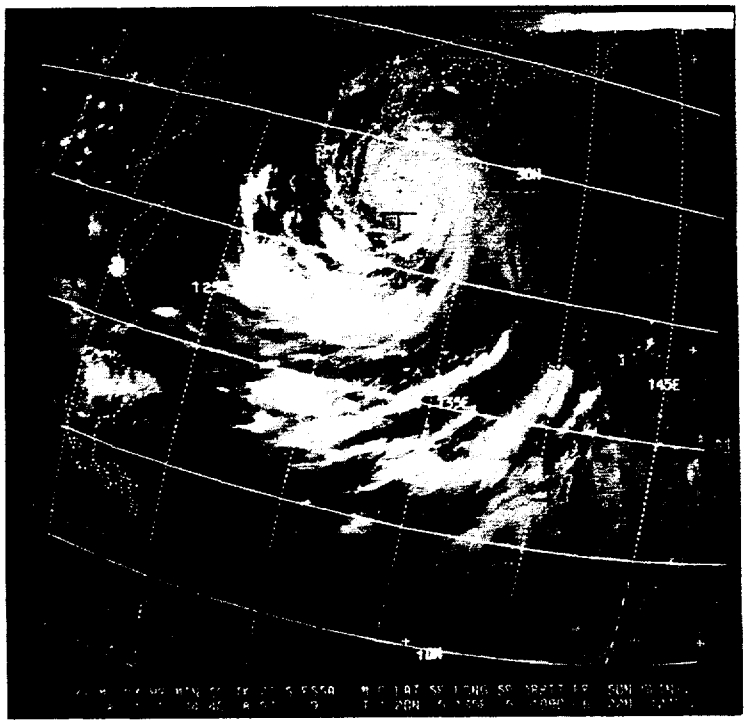

FIGURE 5-29. CAMERAS ABOARD ESSA-9 PHOTOGRAPH TYPHOON OLIVE NEAR THE RYUKYU CHAIN ON 3 AUGUST.

TYPHOON OLIVE
EYE FIXES FOR CYCLONE NO. 19
29 JUL - 06 AUG 71

FIX NO.	TIME	POSIT	UNIT-METHOD -ACCY	FLT LVL	FLT LVL WND	OBS SFC WND	OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIEN-TATION	EYE DIA	THKN WALL CLD	REMARKS	POSIT OF RADAR
1	270810Z	16.6N 140.0E	---------	-----	----	----	----	----	--/--	----	-----	--	--	C141 RDR FIX	
2	290432Z	22.5N 143.0E	SATELIT---	STG C+										FIRST BLTN	
3	291230Z	23.2N 144.3E	54-P-20-10	700MB	35	----	996	3048	09/10	----	-----	--	--	POORLY DEFINED	
4	291500Z	23.5N 143.5E	54-P- 5-10	700MB	40	----	994	3030	10/10	----	-----	--	--	700MB CNTR FIX	
5	292224Z	23.8N 142.8E	VQ-P- 3- 2	360M	----	30	990	----	27/23	----	-----	--	--	WIND EYE 2NM DIA	
6	300430Z	24.3N 141.7E	54-P-15-10	700MB	30	----	991	2990	11/11	----	-----	--	--	700MB CNTR FIX NEG RDR PRES	
7	300531Z	24.5N 141.2E	SATELIT---	STG C										LESS INTENSE	
8	300958Z	24.0N 141.0E	54-P- 5---	700MB	26	----	987	2981	15/13	ELIP	N-S	20X10	--	WK CLSD WC-700 MB CNTR FIX	
9	301121Z	24.0N 140.8E	54-P------	700MB	----	----	----	2987	--/--	----	-----	--	--		
10	301532Z	23.7N 140.3E	VQ-R-25---	-----	----	----	----	----	--/--	----	-----	--	--	EST POSIT	
11	301630Z	24.0N 140.1E	VQ-P-10- 5	-----	----	40	986	----	26/24	----	-----	25	--	WC OPEN S SEMIC	
12	302130Z	24.0N 139.4E	VQ-P-12- 8	-----	----	40	987	----	27/25	----	-----	20	--	WC OPEN N SEMIC	
13	310400Z	23.7N 138.5E	54-P- 3- 5	700MB	41	40	979	2935	19/15	----	-----	--	--	SFC CNTR WELL DEF -700 CNTR 10NM S	
14	310434Z	24.0N 137.5E	SATELIT---	STG C+										STRONGER	
15	310915Z	23.9N 138.8E	54-P- 2- 6	700MB	40	40	979	2929	18/12	----	-----	--	--	POORLY DEF-700MB CNTR 21NM SW	
16	311630Z	23.1N 137.4E	54-P- 8---	700MB	30	----	976	2890	19/10	----	-----	--	--	NO WC-700 CNTR FX	
17	312101Z	23.6N 137.3E	54-P- 8---	700MB	45	40	978	2886	16/15	ELIP	NE-SW	20X 5	--	POORLY DEFINED	
18	010517Z	24.1N 136.7E	VQ-P- 2- 2	700MB	58	60	971	2762	27/24	----	-----	--	--	WC OPEN NE-S	
19	010533Z	24.5N 136.0E	SATELIT---	STG X	DIA	2	CAT 2.0							STRONGER	
20	010936Z	24.5N 136.1E	VQ-P- 8- 2	700MB	60	65	967	2737	27/25	----	-----	30	--	WC OPEN NE	
21	011600Z	24.2N 135.4E	54-P- 3- 2	700MB	50	----	966	2807	16/16	ELIP	N-S	20X16	--	CLSD WC	
22	012200Z	24.7N 135.1E	54-P- 2- 3	700MB	60	65	966	2819	16/13	----	-----	20	--	WC POORLY DEF	
23	020421Z	25.0N 134.2E	54-P- 5---	700MB	55	55	974	2847	12/10	----	-----	--	--	VERY POORLY DEF	
24	020440Z	25.0N 135.0E	SATELIT---	STG X	DIA	3	CAT 3.0							SML EYE VISIBLE	
25	020628Z	25.4N 134.5E	54-P- 5---	700MB	60	60	----	2716	15/11	ELIP	E-W	20X10	--	POORLY DEF-SFC CNTR 15NM ENE	
26	020901Z	25.6N 134.4E	54-P- 5---	700MB	60	70	957	2679	19/12	ELIP	E-W	40X20	--	POORLY DEF-SFC CNTR 5NM E	
27	021300Z	25.8N 133.5E	VQ-R-15-10	-----	----	----	----	----	--/25	----	-----	25	8	CLSD WC	
28	021630Z	26.3N 133.4E	VQ-P-13- 3	700MB	----	----	960	2737	17/15	----	-----	25	7	CLSD WC	
29	021817Z	26.5N 133.4E	VQ-P- 8- 3	700MB	----	----	961	2771	17/13	----	-----	20	8	CLSD WC-ROTATING 30 DEG/HR	
30	030004Z	27.2N 132.8E	54-R------	-----	----	----	----	----	--/--	----	-----	--	--	FST POSIT	
31	030100Z	27.3N 132.7E	54-P- 3- 2	700MB	70	80	948	2646	16/16	----	-----	15	10	CLSD WC-700MB CNTR 4NM NW	
32	030200Z	27.5N 132.5E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
33	030400Z	27.7N 132.3E	54-P- 2- 5	700MB	70	----	945	2618	16/14	----	-----	15	10	CLSD WC-700 FIX	
34	030500Z	27.8N 132.2E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
35	030535Z	28.0N 132.0E	SATELIT---	STG X	DIA	4	CAT 4.0								
36	030600Z	28.0N 132.1E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
37	030653Z	28.1N 131.9E	VQ-P- 2- 2	700MB	70	75	945	2518	26/24	----	-----	15	7	CLSD WC	
38	030700Z	28.2N 131.9E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
39	030700Z	28.1N 131.9E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
40	030700Z	28.1N 132.8E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
41	030800Z	28.4N 131.7E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
42	030800Z	28.4N 131.6E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E

TYPHOON OLIVE
EYE FIXES FOR CYCLONE NO. 19
29 JUL - 06 AUG 71

FIX NO.	TIME	POSIT	UNIT-METHOD-ACCY	FL1 LVL	FLT LVL WND	OBS SFC WND	OBS MIN SLP	MIN 700MB HGT	FLT LVL T1/TO	EYE FORM	ORIEN-TATION	EYE DIA	THKN WALL CLD	REMARKS	POSIT OF RADAR
43	030800Z	28.2N 131.7E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
44	030900Z	28.3N 131.5E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
45	030900Z	28.5N 131.4E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
46	030900Z	28.5N 131.5E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
47	030953Z	28.3N 131.4E	VQ-P- 2- 2	700MB	----	75	943	2536	27/25	----	-----	14	7	CLSD WC	
48	031000Z	28.4N 131.3E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
49	031000Z	28.5N 131.3E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
50	031000Z	28.5N 131.3E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
51	031100Z	28.5N 131.1E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
52	031100Z	28.4N 131.1E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
53	031100Z	28.5N 131.1E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
54	031200Z	28.4N 131.0E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
55	031226Z	28.5N 130.9E	VQ-P- 3- 2	700MB	----	----	942	2646	19/16	ELIP	N-S	17X13	7	CLSD WC	
56	031300Z	28.5N 130.9E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
57	031300Z	28.4N 130.9E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
58	031300Z	28.4N 130.8E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
59	031400Z	28.5N 130.8E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
60	031400Z	28.4N 130.8E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
61	031500Z	28.5N 130.7E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
62	031500Z	28.4N 130.7E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
63	031500Z	28.5N 130.7E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
64	031600Z	28.5N 130.7E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
65	031600Z	28.4N 130.7E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
66	031600Z	28.4N 130.7E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
67	031625Z	28.6N 130.6E	54-P- 2- 2	700MB	75	----	935	2554	19/16	----	-----	18	--	CLSD WC	
68	031700Z	28.5N 130.7E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
69	031700Z	28.6N 130.7E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
70	031700Z	28.5N 130.8E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
71	031800Z	28.6N 130.8E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
72	031800Z	28.6N 130.8E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
73	031900Z	28.9N 130.5E	54-P- 2- 2	700MB	65	----	930	2536	18/16	----	-----	16	--	CLSD WC	
74	032000Z	28.8N 130.7E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
75	032030Z	29.1N 130.4E	54-P- 2---	700MB	70	----	----	2545	18/16	----	-----	12	10	CLSD WC	
76	032100Z	29.0N 130.7E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
77	032100Z	29.1N 130.7E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
78	032100Z	28.9N 130.6E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
79	032200Z	29.0N 130.6E	LND RDR---							----	-----	--	--	STN RJTD	35.7N 139.8E
80	032300Z	29.5N 130.6E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
81	040000Z	29.4N 130.5E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
82	040000Z	29.2N 130.5E	LND RDR---							----	-----	--	--	OKINAWA RDR	
83	040100Z	29.5N 130.4E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
84	040100Z	29.3N 130.5E	LND RDR---							----	-----	--	--	OKINAWA RDR	
85	040115Z	29.5N 130.4E	LND RDR---							----	-----	--	--	ITAZUKI RDR	33.6N 130.4E
86	040200Z	29.5N 130.3E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
87	040200Z	29.5N 130.5E	LND RDR---							----	-----	--	--	OKINAWA RDR	
88	040300Z	29.7N 130.0E	LND RDR---							----	-----	--	--	OKINAWA RDR	
89	040400Z	29.7N 130.0E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
90	040400Z	29.6N 130.0E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
91	040400Z	30.0N 129.7E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
92	040422Z	29.5N 130.0E	SATELIT---	STG X	DIA	3	CAT 3.0								

TYPHOON OLIVE
EYE FIXES FOR CYCLONE NO. 19
29 JUL - 06 AUG 71

FIX NO.	TIME	POSIT	UNIT-METHOD -ACCY	FLT LVL	FLT LVL WND	OBS SFC WND	OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIEN-TATION	EYE DIA	THKN WALL CLD	REMARKS	POSIT OF RADAR
93	040500Z	29.6N 130.0E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
94	040500Z	29.7N 130.0E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
95	040700Z	29.6N 130.2E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
96	040700Z	29.6N 130.3E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
97	040700Z	29.6N 130.3E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
98	040700Z	29.7N 129.8E	54-P- 0- 2	500MB	45	65	940	2371	03/03	----	-----	10	5	WC OPEN NW QUAD	
99	040800Z	29.8N 130.4E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
100	040800Z	29.8N 130.4E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
101	040800Z	29.7N 130.3E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
102	040900Z	29.8N 130.3E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
103	040900Z	30.2N 130.3E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E
104	041000Z	30.3N 130.5E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
105	041000Z	30.3N 130.5E	LND RDR---							----	-----	--	--	STN 47909	28.4N 129.5E
106	041000Z	30.2N 130.4E	54-P- 0- 5	700MB	----	----	935	2357	20/19	----	-----	--	--	WC BREAKING UP	
107	041000Z	30.2N 130.3E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E
108	041000Z	30.3N 130.5E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
109	041100Z	30.5N 130.6E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
110	041100Z	30.4N 130.2E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E
111	041100Z	30.8N 130.3E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
112	041130Z	30.6N 130.2E	54--------	-----	----	----	----	----	--/--	----	-----	--	--	EYE FILLING	
113	041200Z	30.7N 130.5E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
114	041200Z	30.5N 130.0E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E
115	041200Z	30.6N 130.0E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
116	041300Z	30.7N 130.0E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
117	041300Z	30.8N 129.7E	54-P- 0- 2	500MB	----	----	945	2392	02/02	----	-----	--	--	NO WC	
118	041400Z	30.7N 129.7E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E
119	041400Z	30.7N 129.9E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
120	041500Z	30.7N 130.0E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
121	041500Z	30.8N 130.0E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
122	041500Z	30.7N 129.7E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E
123	041500Z	30.0N 130.0E	LND RDR---							----	-----	--	--	STN 47869	30.6N 131.0E
124	041600Z	30.8N 129.8E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E
125	041600Z	30.9N 129.9E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
126	041606Z	30.7N 129.9E	VQ-R- 1---	-----	----	----	----	----	--/--	----	-----	11	--	HOLE IN RDR PRES	30.7N 128.8E
127	041700Z	31.0N 130.0E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
128	041652Z	31.1N 130.0E	VQ-P- 1- 2	700MB	----	----	947	2600	20/13	----	-----	14	3	WC OPEN W SEMIC	
129	041900Z	31.2N 130.1E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
130	042130Z	31.7N 130.1E	VQ-P- 1- 9	700MB	----	----	935	2554	17/13	----	-----	--	--	NEG RDR PRES	
131	050100Z	32.7N 130.5E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
132	050100Z	32.6N 130.4E	54-P- 2- 6	700MB	93	----	----	2624	15/13	----	-----	--	--	NEG RDR PRES	
133	050200Z	33.0N 130.4E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
134	050200Z	32.4N 130.2E	LND RDR---							----	-----	--	--	STN RJTT	35.5N 139.8E
135	050300Z	33.4N 130.4E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
136	050410Z	33.6N 130.2E	54-P- 2- 4	700MB	45	----	----	2719	17/15	----	-----	10	--	POORLY DEFINED	
137	050541Z	34.0N 130.0E	SATELIT---	STG X	DIA	4	CAT 2.0							WEAKENING	
138	050700Z	34.3N 130.1E	54-P- 3---	700MB	65	35	972	2795	16/14	----	-----	25	--	WK WC N AND SW	
139	050900Z	34.6N 130.4E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
140	051000Z	34.9N 130.7E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
141	051000Z	34.9N 130.7E	LND RDR---							----	-----	--	--	STN 47791	35.5N 133.1E
142	051000Z	35.0N 130.6E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E

TYPHOON OLIVE
EYE FIXES FOR CYCLONE NO. 19
29 JUL - 06 AUG 71

FIX NO.	TIME	POSIT	UNIT-METHOD -ACCY	FLT LVL	FLT LVL WND	OBS SFC WND	OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIEN-TATION	EYE DIA	THKN WALL CLD	REMARKS	POSIT OF RADAR
143	0510000Z	35.3N 130.3E	LND RDR---							----	-----	--	--	STN 47792	34.3N 132.8E
144	0511000Z	35.2N 130.8E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
145	0512000Z	35.7N 130.8E	LND RDR---							----	-----	--	--	STN 47791	35.5N 133.1E
146	0512000Z	35.9N 130.8E	LND RDR---							----	-----	--	--	STN 47806	33.4N 130.3E
147	0512000Z	35.7N 130.8E	LND RDR---							----	-----	--	--	STN 47791	35.5N 133.1E
148	0512000Z	35.7N 130.9E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
149	0513000Z	36.0N 130.8E	LND RDR---							----	-----	--	--	STN 47791	35.5N 133.1E
150	0513000Z	36.1N 131.0E	LND RDR---							----	-----	--	--	STN RJFF	33.6N 130.4E
151	0514000Z	36.2N 130.8E	LND RDR---							----	-----	--	--	STN 47791	35.5N 133.1E
152	0515000Z	36.4N 130.9E	LND RDR---							----	-----	--	--	STN 47791	35.5N 133.1E
153	0515200Z	36.5N 130.8E	VQ-P-25---	300M	----	55	986	----	23/21	----	-----	--	--	NO WC	
154	0516000Z	36.8N 130.9E	LND RDR---							----	-----	--	--	STN 47791	35.5N 133.1E

TYPHOON OLIVE

0600Z 29 JUL TO 0000Z 6 AUG

	BEST TRACK		WARNING					24 HOUR FORECAST				48 HOUR FORECAST				72 HOUR FORECAST			
					ERRORS					ERRORS				ERRORS				ERRORS	
	POSIT	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND	POSIT	WIND	DST	WIND
290600Z	22.8N 143.5E	25	22.0N 142.0E	30	96	5	23.2N 140.8E	60	74	30	--.- ---.-	--	--	--	--.- ---.-	--	--	--
291200Z	23.2N 144.3E	25	24.3N 143.6E	30	76	5	25.7N 144.3E	35	220	5	--.- ---.-	--	--	--	--.- ---.-	--	--	--
291800Z	23.7N 143.4E	25	23.5N 143.5E	30	13	5	23.8N 142.5E	50	148	15	--.- ---.-	--	--	--	--.- ---.-	--	--	--
300000Z	24.0N 142.5E	30	23.9N 142.7E	30	12	0	25.1N 140.4E	45	101	5	--.- ---.-	--	--	--	--.- ---.-	--	--	--
300600Z	24.2N 141.6E	30	24.4N 141.6E	30	12	0	25.9N 138.2E	45	126	5	--.- ---.-	--	--	--	--.- ---.-	--	--	--
301200Z	24.0N 140.7E	30	24.2N 140.6E	30	13	0	25.8N 137.2E	45	130	0	--.- ---.-	--	--	--	--.- ---.-	--	--	--
301800Z	24.0N 139.8E	35	24.0N 139.9E	40	5	5	24.5N 136.4E	50	82	0	25.6N 133.1E	60	139	0	--.- ---.-	--	--	--
310000Z	23.9N 139.1E	40	24.0N 139.1E	40	6	0	24.7N 135.9E	45	72	-10	25.7N 132.6E	50	135	-10	27.2N 129.5E	60	175	-15
310600Z	23.8N 138.3E	40	23.8N 138.2E	40	5	0	24.2N 134.8E	45	87	-15	25.5N 131.6E	50	162	-10	--.- ---.-	--	--	--
311200Z	23.7N 137.8E	45	23.8N 138.0E	40	12	-5	23.9N 136.2E	45	34	-15	24.5N 133.7E	60	81	-5	25.7N 131.4E	70	168	-15
311800Z	23.4N 137.3E	50	23.3N 137.3E	40	6	-10	23.6N 135.6E	50	51	-10	24.6N 133.2E	60	108	-5	--.- ---.-	--	--	--
010000Z	23.9N 136.9E	55	23.7N 137.0E	45	13	-10	24.0N 134.7E	55	49	-5	25.3N 131.9E	60	123	-15	26.7N 129.7E	60	158	-25
010600Z	24.3N 136.4E	60	24.1N 136.5E	55	13	-5	24.6N 134.3E	65	45	5	25.7N 131.4E	75	135	-5	--.- ---.-	--	--	--
011200Z	24.4N 135.9E	60	24.6N 135.8E	65	13	5	25.4N 132.9E	75	69	10	26.6N 130.1E	65	125	-20	28.0N 128.0E	60	187	-25
011800Z	24.4N 135.3E	60	24.4N 135.2E	65	5	5	25.2N 132.8E	75	79	10	26.6N 130.1E	65	139	-20	--.- ---.-	--	--	--
020000Z	24.8N 134.9E	60	24.7N 134.9E	70	6	10	25.2N 132.9E	70	120	-5	26.5N 130.1E	70	167	-15	28.0N 128.0E	70	288	5
020600Z	25.3N 134.6E	60	25.1N 134.1E	70	30	10	26.1N 131.7E	70	109	-10	27.6N 129.1E	70	144	-15	--.- ---.-	--	--	--
021200Z	25.8N 134.1E	65	25.9N 134.2E	70	8	5	27.5N 132.3E	75	87	-10	29.0N 130.1E	70	84	-15	30.8N 128.4E	70	307	15
021800Z	26.4N 133.4E	65	26.4N 133.3E	70	5	5	28.3N 131.3E	75	55	-10	30.3N 129.7E	70	49	-5	--.- ---.-	--	--	--
030000Z	27.2N 132.8E	75	26.9N 132.8E	70	18	-5	28.7N 131.0E	70	55	-15	30.7N 129.5E	60	109	-5	--.- ---.-	--	--	--
030600Z	27.9N 132.0E	80	27.8N 132.1E	80	8	0	30.4N 129.8E	75	30	-10	33.8N 128.7E	55	70	-5	--.- ---.-	--	--	--
031200Z	28.5N 131.1E	85	28.7N 131.3E	80	16	-5	31.8N 128.9E	65	110	-20	35.8N 130.2E	55	23	0	--.- ---.-	--	--	--
031800Z	28.9N 130.5E	85	28.8N 130.4E	80	8	-5	32.1N 128.7E	60	85	-15	36.2N 130.7E	50	78	0	--.- ---.-	--	--	--
040000Z	29.3N 130.2E	85	29.4N 130.4E	80	12	-5	32.0N 128.8E	65	79	0	--.- ---.-	--	--	--	--.- ---.-	--	--	--
040600Z	29.9N 129.9E	85	29.8N 129.8E	75	8	-10	32.2N 128.8E	60	121	0	--.- ---.-	--	--	--	--.- ---.-	--	--	--
041200Z	30.4N 130.3E	85	30.5N 130.0E	75	17	-10	33.0N 129.5E	60	165	5	--.- ---.-	--	--	--	--.- ---.-	--	--	--
041800Z	31.1N 129.9E	75	30.9N 129.8E	75	13	0	33.3N 129.6E	60	257	10	--.- ---.-	--	--	--	--.- ---.-	--	--	--
050000Z	32.4N 130.3E	65	32.1N 130.0E	65	23	0	--.- ---.-	--	--	--	--.- ---.-	--	--	--	--.- ---.-	--	--	--
050600Z	33.9N 130.1E	60	34.0N 130.6E	65	25	5	--.- ---.-	--	--	--	--.- ---.-	--	--	--	--.- ---.-	--	--	--
051200Z	35.6N 130.6E	55	35.6N 131.3E	55	34	0	--.- ---.-	--	--	--	--.- ---.-	--	--	--	--.- ---.-	--	--	--
051800Z	37.5N 130.7E	50	37.5N 131.1E	50	19	0	--.- ---.-	--	--	--	--.- ---.-	--	--	--	--.- ---.-	--	--	--

	TYPHOONS WHILE WIND OVER 35KTS				ALL FORECASTS			
	WARNING	24-HR	48-HR	72-HR	WARNING	24-HR	48-HR	72-HR
AVERAGE FORECAST ERROR	13NM	94NM	110NM	214NM	18NM	98NM	110NM	214NM
AVERAGE RIGHT ANGLE ERROR	10NM	47NM	71NM	118NM	13NM	50NM	71NM	118NM
AVERAGE MAGNITUDE OF WIND ERROR	5KTS	9KTS	9KTS	17KTS	4KTS	9KTS	9KTS	17KTS
AVERAGE BIAS OF WIND ERROR	-1KTS	-3KTS	-9KTS	-10KTS	-0KTS	-2KTS	-9KTS	-10KTS
NUMBER OF FORECASTS	25	25	17	6	31	27	17	6