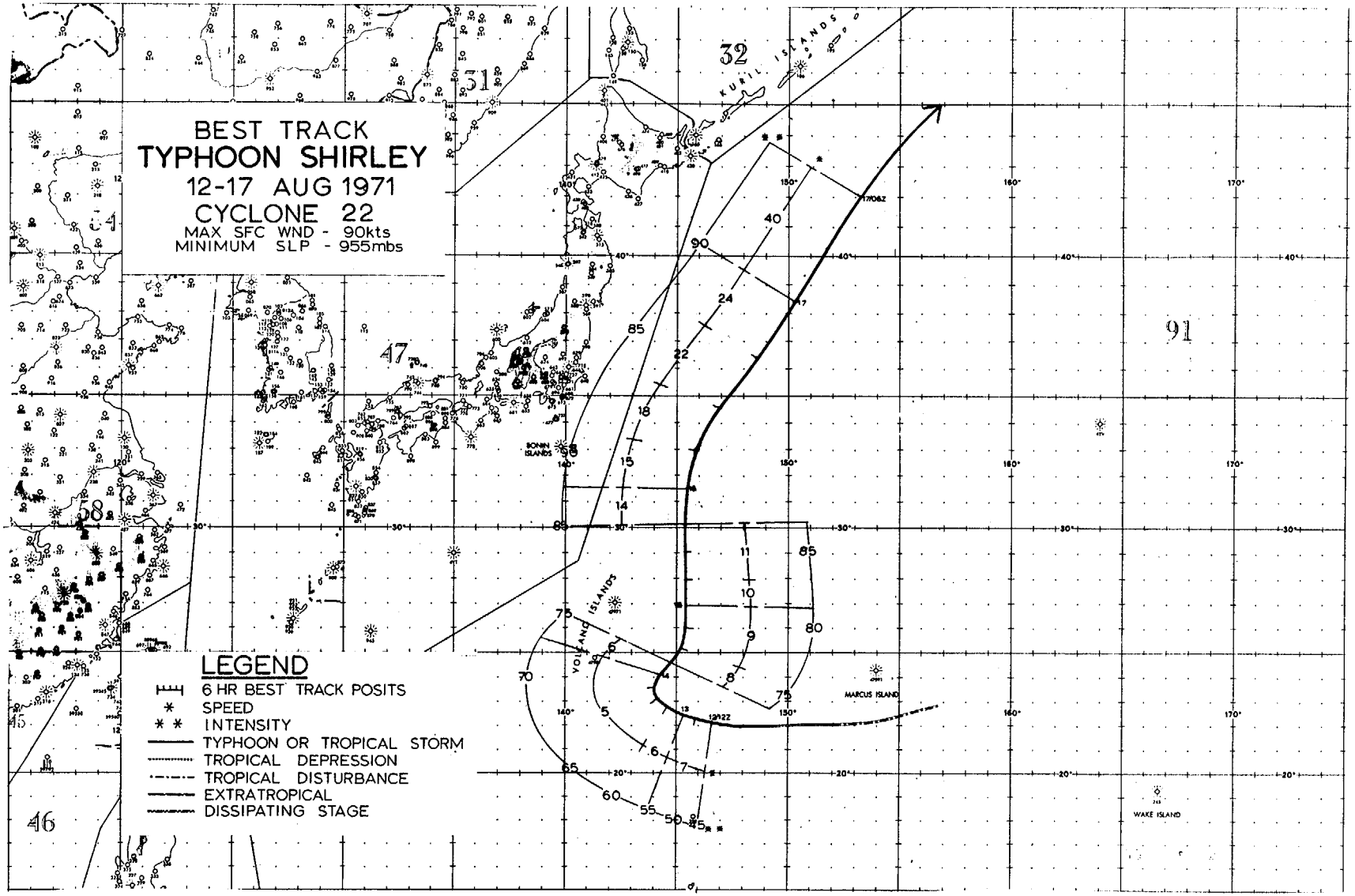
BEST TRACK
TYPHOON SHIRLEY
12-17 AUG 1971
CYCLONE 22
MAX SFC WND - 90kts
MINIMUM SLP - 955mbs
LEGEND
6 HR BEST TRACK POSITS
SPEED
INTENSITY
TYPHOON OR TROPICAL STORM
TROPICAL DEPRESSION
TROPICAL DISTURBANCE
EXTRATROPICAL
DISSIPATING STAGE
KURIL ISLANDS
BONIN ISLANDS
VOLCANO ISLANDS
MARCUS ISLAND
WAKE ISLAND
17/06Z
12/12Z

SHIRLEY

Forming from a disturbance caused by an upper-level circulation in the mid-Pacific trough, the first signs of Shirley's surface inducement came from the HAWAII BEAR on the 11th, which confirmed the existence of a circulation 300 n mi southwest of Marcus Island. Aircraft reconnaissance early on the 13th revealed the status of the system as a tropical storm with 55-kt winds and placed Shirley some 250 n mi southeast of Iwo Jima (Figure 5-33).

Situated in a weakness area in the subtropical ridge, the storm remained quasi-stationary for 12 hours before she shifted to a northerly course at 5 kt and acquired typhoon strength during the evening of the 13th.

Continuing on a northerly course along the western periphery of a high cell centered south of Ocean Station Victor, Shirley's forward movement gradually increased to 15 kt over the next four days (Figure 5-34). Maximum winds during her lifetime reached 90 kt on the 16th at a position 400 miles east-southeast of Tokyo.

As the westerlies began to take hold, she shifted course toward the northeast accelerating to 40 kt but retaining her intensity. Late on the 17th, Shirley transformed to extratropical characteristics east of Hokkaido.

Invaluable service was furnished by the Norweigen ship BONNEVILLE which responded to Fleet Weather Central Guam's request for three-hourly ship reports during the uncertain forecast period from the 12th to the 14th. Peak winds of 42 kt were experienced by the BONNEVILLE early in the morning of the 12th.

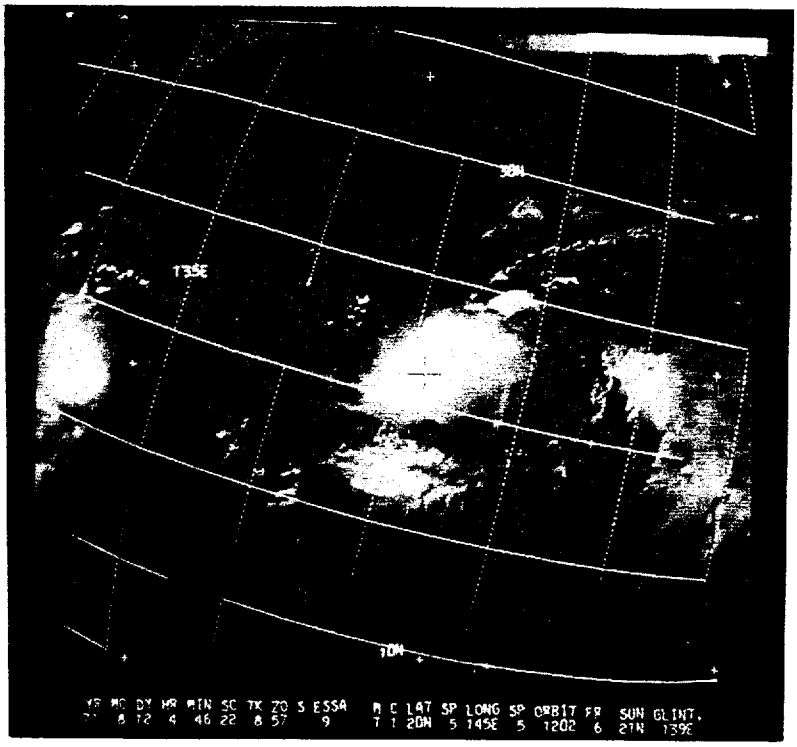

FIGURE 5-33. SHIRLEY AS A RECENTLY-DEVELOPED STORM BETWEEN MARCUS AND IWO JIMA ON 12 AUGUST. TROPICAL SYSTEM SEEN ON WESTERN PORTION OF ESSA-9 IS TYPHOON ROSE.

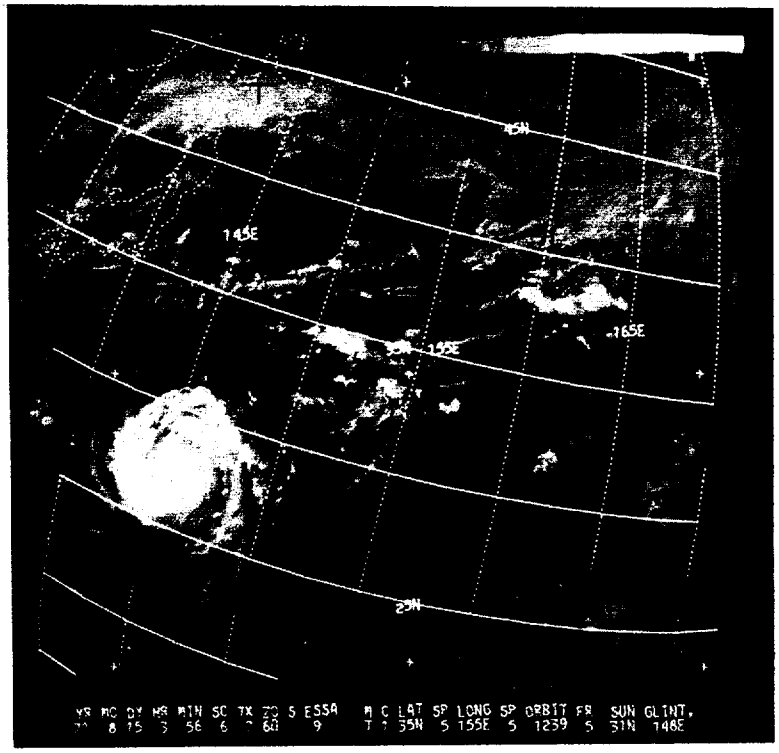

FIGURE 5-34. ESSA-9 SATELLITE VIEW OF TYPHOON SHIRLEY LOCATED EAST OF CHI CHI JIMA ISLAND ON 15 AUGUST.

TYPHOON SHIRLEY
EYE FIXES FOR CYCLONE NO. 22
12 AUG - 17 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	110348Z	17.5N 150.5E	SATELIT---	STG B										FIRST BLTN	
2	112330Z	22.0N 148.9E	54-P-30- 3	700MB	23	20	----	----	--/--	----	-----	--	--	CNTR DIA 15NM	
3	120446Z	21.5N 146.0E	SATELIT---	STG X	DIA	3	CAT 2.0							NO EYE VISIBLE	
4	130000Z	21.1N 144.1E	54-P-10---	700MB	20	25	1000	3097	12/10	----	-----	--	--	NO WC	
5	130100Z	22.6N 145.1E	54-P- 6- 6	700MB	45	75	992	3045	16/12	----	-----	10	--	WC S AND SW QUAD	
6	130350Z	23.0N 144.0E	SATELIT---	STG C+										LITTLE CHG	
7	130400Z	22.7N 144.8E	54-P- 3- 5	700MB	45	75	992	3021	16/12	----	-----	10	--	WC S AND SW	
8	131029Z	22.3N 144.8E	VQ-R- 5-15	-----	----	----	----	----	--/--	----	-----	35	8	WC OPEN NW	22.6N 145.6E
9	131120Z	22.8N 144.5E	VQ-R------	-----	----	----	----	----	--/--	----	-----	--	--		24.6N 145.0E
10	131550Z	23.3N 144.1E	VQ-P-10- 5	700MB	----	65	980	3008	15/12	----	-----	30	--	WC OPEN N	
11	132200Z	24.1N 144.2E	54-P- 5-10	700MB	50	70	984	2947	13/11	----	-----	30	--	WC OPEN NW	
12	140425Z	24.7N 144.9E	54-P- 5---	700MB	75	65	982	2908	10/08	----	-----	35	3	POORLY DEF - 700 CNTR 5NM W	
13	140448Z	25.0N 144.5E	SATELIT---	STG C+										LITTLE CHG	
14	141000Z	24.8N 145.0E	54-P- 3- 5	700MB	60	----	975	2890	14/11	----	-----	25	--	VERY POORLY DEF	
15	141545Z	25.7N 145.3E	54-P- 3- 3	700MB	65	----	974	2865	17/11	----	-----	10	2	WC OPEN NE	
16	142220Z	26.8N 145.1E	54-P-10---	700MB	----	65	969	2832	14/09	----	-----	30	--	CLSD WC	
17	150330Z	27.6N 145.1E	54-P-12---	700MB	50	60	966	2804	14/10	----	-----	10	--	CLSD WC	
18	150356Z	27.5N 145.5E	SATELIT---	STG X	DIA	2	CAT 3.5							SMALL EYE VSBL	
19	151146Z	28.7N 145.4E	VQ-R-10- 5	-----	----	----	----	----	--/--	----	-----	16	8	WC OPEN NE	27.1N 143.8E
20	151522Z	29.7N 145.8E	VQ-R-10- 5	-----	----	----	----	----	--/--	----	-----	17	--	WC OPEN SW-ROTATT NE 200 DEG/6HR	29.8N 144.8E
21	152223Z	31.1N 145.4E	54-P- 6- 2	700MB	85	90	958	2725	13/11	----	-----	20	4	OPEN NW SEMIC 700 CNTR 7NM N	
22	160400Z	32.1N 145.9E	54-P- 2- 2	700MB	85	90	958	2743	15/11	----	-----	20	3	SAME AS 04Z RMK	
23	160455Z	32.5N 146.0E	SATELIT---	STG C+										LITTLE CHG	
24	161010Z	34.0N 146.4E	54-P-14---	700MB	40	----	966	2816	16/14	----	-----	60	--	700 WIND CNTR 15 NM N OF RDR CNTR	
25	161215Z	34.5N 147.3E	54-P------	700MB	45	----	----	----	--/--	----	-----	--	--	FL CNTR IS IN NE QUAD OF RDR CNTR	
26	161600Z	35.8N 148.7E	54-P-20---	700MB	----	----	966	2813	15/15	----	-----	60	--	WC DISSIPATING	
27	162241Z	38.1N 149.9E	VQ-P-10- 5	700MB	----	100	961	2807	19/18	----	-----	16	7	WC OPEN W	
28	170400Z	40.8N 152.5E	54-P-10- 5	700MB	78	100	955	2679	16/--	----	-----	--	--	NO WC	
29	170402Z	41.0N 152.0E	SATELIT---	STG X	DIA	2	CAT 3.0							RAGGED EYE	
30	170700Z	42.5N 153.8E	54-P------	-----	----	----	----	----	--/--	----	-----	--	--	BASED ON CLD CIRC	

TYPHOON SHIRLEY

1200Z 12 AUG TO 0600Z 17 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
121200Z	22.2N 146.7E	45	22.0N 146.0E	45	41	0	22.7N 140.7E	60	200	-5	24.2N 135.8E	70	513	-5	25.6N 130.7E	75	802	-10
121800Z	22.3N 145.9E	50	22.0N 144.7E	45	69	-5	22.9N 139.4E	60	261	-10	24.4N 134.5E	70	591	-10	--.- ---.-	--	--	--
130000Z	22.5N 145.2E	55	22.5N 144.2E	55	55	0	23.0N 139.7E	70	260	0	24.2N 135.5E	75	552	-5	25.4N 131.4E	80	824	-10
130600Z	22.8N 144.7E	60	22.6N 144.5E	70	16	10	23.1N 140.8E	85	229	10	24.0N 136.6E	95	527	10	--.- ---.-	--	--	--
131200Z	23.1N 144.3E	65	22.8N 143.5E	70	48	5	23.3N 139.9E	80	310	5	24.3N 135.6E	90	591	5	25.4N 131.4E	100	967	10
131800Z	23.6N 144.1E	70	23.3N 144.2E	70	19	0	23.3N 143.2E	80	197	0	23.4N 138.9E	90	526	5	--.- ---.-	--	--	--
140000Z	24.1N 144.3E	70	24.1N 144.2E	65	5	-5	23.1N 144.0E	70	238	-10	23.0N 139.7E	75	594	-15	23.3N 135.3E	85	1174	-10
140600Z	24.5N 144.7E	75	24.6N 145.2E	65	28	-10	23.0N 143.7E	65	305	-20	23.0N 139.4E	75	683	-15	--.- ---.-	--	--	--
141200Z	25.2N 145.2E	75	24.8N 145.0E	65	26	-10	24.4N 144.5E	75	284	-10	24.0N 141.5E	85	687	0	--.- ---.-	--	--	--
141800Z	26.0N 145.3E	80	26.0N 145.4E	75	5	-5	28.4N 145.5E	85	102	0	31.8N 146.8E	85	283	0	--.- ---.-	--	--	--
150000Z	26.9N 145.3E	80	27.1N 145.3E	80	12	0	30.1N 145.0E	75	87	-15	33.3N 148.4E	45	311	-45	--.- ---.-	--	--	--
150600Z	27.9N 145.3E	85	28.0N 145.1E	80	12	-5	31.7N 145.3E	60	78	-30	34.2N 151.7E	35	446	-55	--.- ---.-	--	--	--
151200Z	29.1N 145.3E	85	28.8N 145.3E	75	18	-10	32.2N 146.1E	55	143	-30	--.- ---.-	--	--	--	--.- ---.-	--	--	--
151800Z	30.1N 145.3E	85	29.9N 145.5E	70	16	-15	33.9N 148.0E	50	146	-35	--.- ---.-	--	--	--	--.- ---.-	--	--	--
160000Z	31.6N 145.5E	90	31.5N 145.5E	85	0	-5	35.6N 151.0E	55	166	-35	--.- ---.-	--	--	--	--.- ---.-	--	--	--
160600Z	32.9N 145.9E	90	32.5N 146.2E	85	28	-5	36.2N 152.3E	50	324	-40	--.- ---.-	--	--	--	--.- ---.-	--	--	--
161200Z	34.5N 146.9E	85	33.3N 146.9E	70	72	-15	--.- ---.-	--	--	--	--.- ---.-	--	--	--	--.- ---.-	--	--	--
161800Z	36.3N 148.6E	85	36.2N 149.6E	65	49	-20	--.- ---.-	--	--	--	--.- ---.-	--	--	--	--.- ---.-	--	--	--
170000Z	38.3N 150.2E	90	38.7N 150.1E	80	24	-10	--.- ---.-	--	--	--	--.- ---.-	--	--	--	--.- ---.-	--	--	--
170600Z	41.6N 153.0E	90	4 .0N 153.4E	85	30	-5	--.- ---.-	--	--	--	--.- ---.-	--	--	--	--.- ---.-	--	--	--

	TYPHOONS WHILE WIND OVER 35KTS				ALL FORECASTS			
	WARNING	24-HR	48-HR	72-HR	WARNING	24-HR	48-HR	72-HR
AVERAGE FORECAST ERROR	29NM	208NM	525NM	942NM	29 M	208NM	525NM	942NM
AVERAGE RIGHT ANGLE ERROR	18NM	112NM	321NM	672NM	18NM	112NM	321NM	672NM
AVERAGE MAGNITUDE OF WIND ERROR	7KTS	16KTS	14KTS	10KTS	7KTS	16KTS	14KTS	10KTS
AVERAGE BIAS OF WIND ERROR	-6KTS	-14KTS	-11KTS	-3KTS	-6KTS	-14KTS	-11KTS	-3KTS
NUMBER OF FORECASTS	20	16	12	4	20	16	12	4