September's fourth typhoon developed from a disturbance associated with an upper tropospheric low that was first noted between Wake and Marcus Island by satellite on September 14th. The low aloft drifted southwestward and induced a circulation at the surface. (See Figure 5-46 for satellite view sequence of Bess.)

By the 17th, aircraft reconnaissance located Bess about 300 n mi east of the Marianas with associated maximum winds of 40 kt. Bess developed into a typhoon on September 18th passing near Agrihan Island that afternoon. On the morning of the 20th, Bess had intensified further to be the season's fifth super typhoon with maximum winds of 140 kt generated under her wall cloud encircling a 30 n mi eye (Figure 2-5). In the meantime, the typhoon's central pressure dipped to 906 mb* within a few hours.

With the subtropical ridge extending to the Ryukyu chain, Bess proceeded on a steady west-northwesterly track with forward speed gradually decreasing from 16 to 12 kt as she approached the southern Ryukyus. On the afternoon of the 22nd, the typhoon passed a few miles south of Ishigaki Jima and crossed directly over Younaguni Jima. Bess was measured at 91 kt gusting to 124 kt at the Japanese weather station on Younaguni Jima while Ishigaki Jima received 9.3 inches of rainfall during the typhoon's passage. The southern Ryukyu Islands reported two persons killed and more than 2,000 people made homeless. The islands were declared a major disaster area.

On the evening of September 22nd, Bess--the second typhoon to strike Taiwan during September--moved inland near Ilan which recorded a minimum sea level pressure of 955.5 mb. The eye of the storm, estimated at 40 n mi in diameter, passed over Taipei between 1420 and 1505 GMT. Highest sustained winds recorded were 108 kt at Pengchiayu and the maximum gust observed was 130 kt at Keelung. A storm surge of 9.9 ft was experienced at Tanshui on the island's northern coast during passage of the eye.

Bess emerged into the Taiwan Straits as a minimal typhoon in the early morning of the 23rd near Taoyuan and struck mainland China near Fuichow that afternoon.

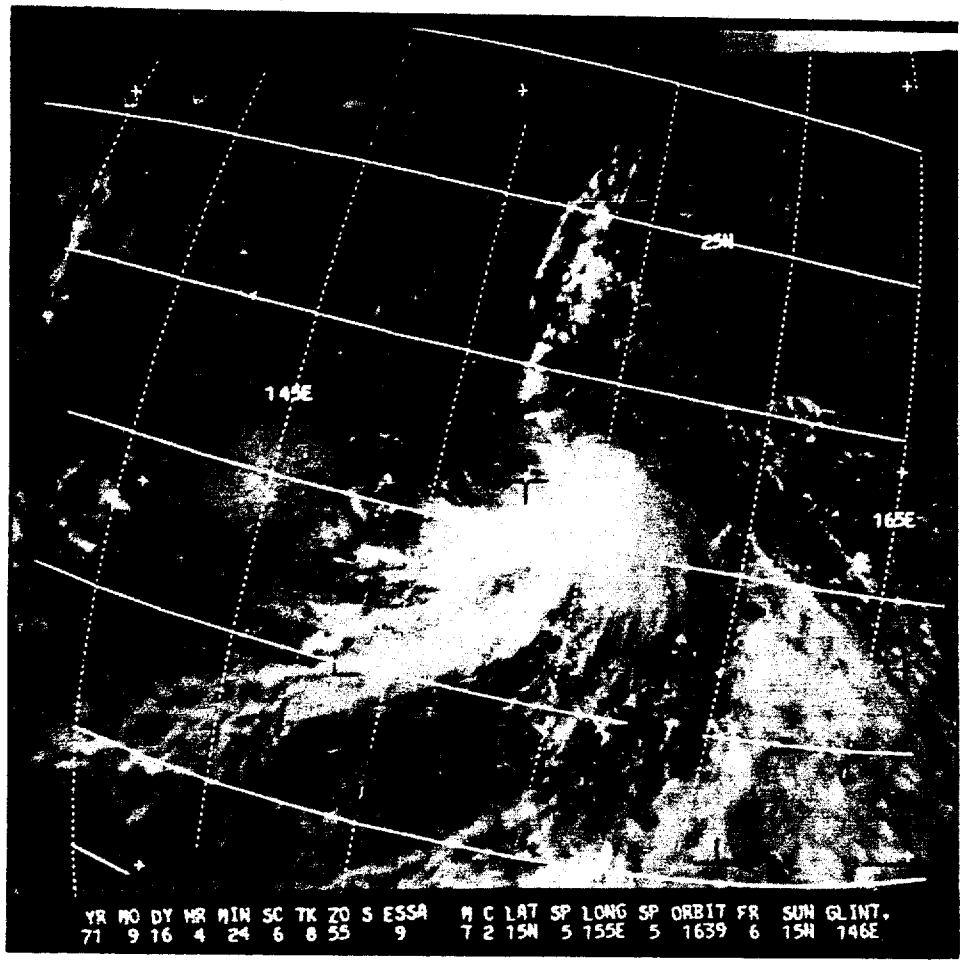
---

*Reduced from a minimum 700 mb height of 2268 m.

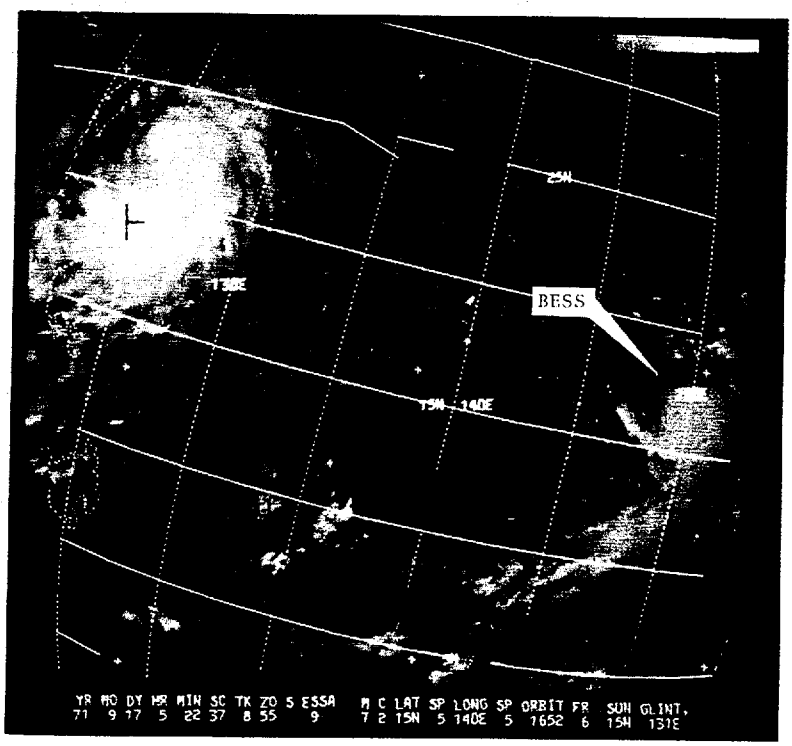
The storm weakened to depression status over land then, drifting northward, she recurved and crossed the Yellow Sea as an extratropical system.

Flooding in Taipei was extreme in places and all main roads branching out of Taipei were made temporarily impassable by the storm. The torrential rainfall in the mountainous terrain amounted to 18.7 inches at Alishan. The typhoon was also responsible for serious damage to rice, sugar cane and banana crops. In total, Bess accounted for 30 deaths with 6 reported missing and over 2,200 dwellings destroyed.

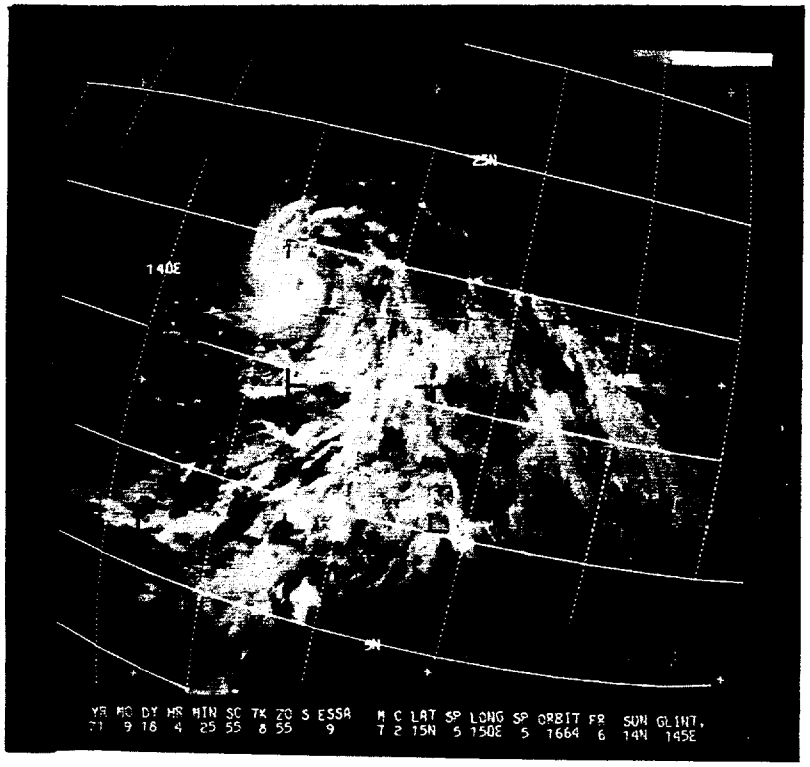
FIGURE 5-46. ESSA-9 VIEW SEQUENCE OF TYPHOON BESS.



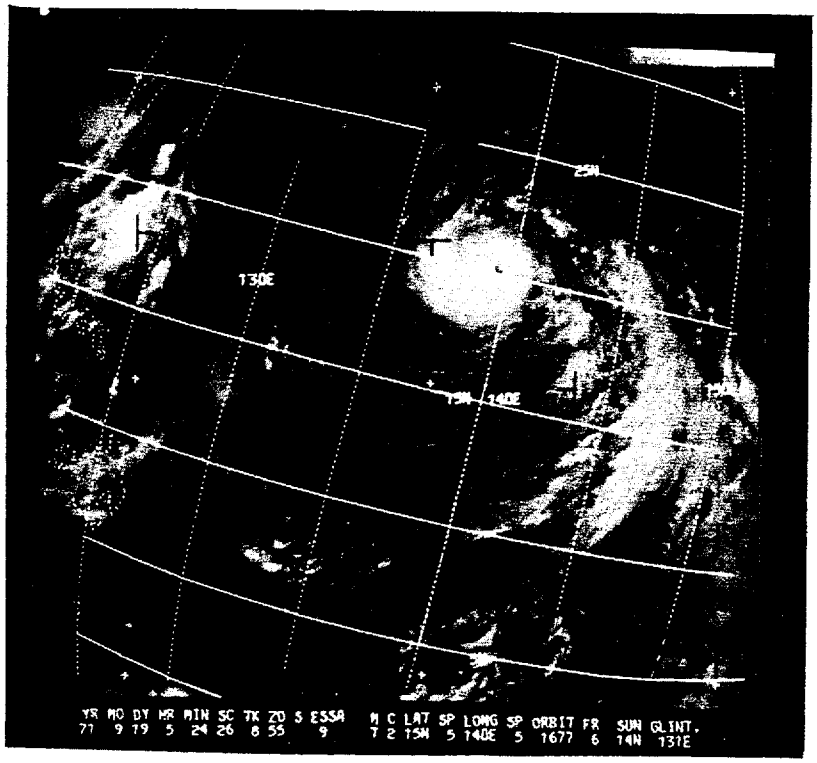
16 SEPTEMBER - TROPICAL DEPRESSION



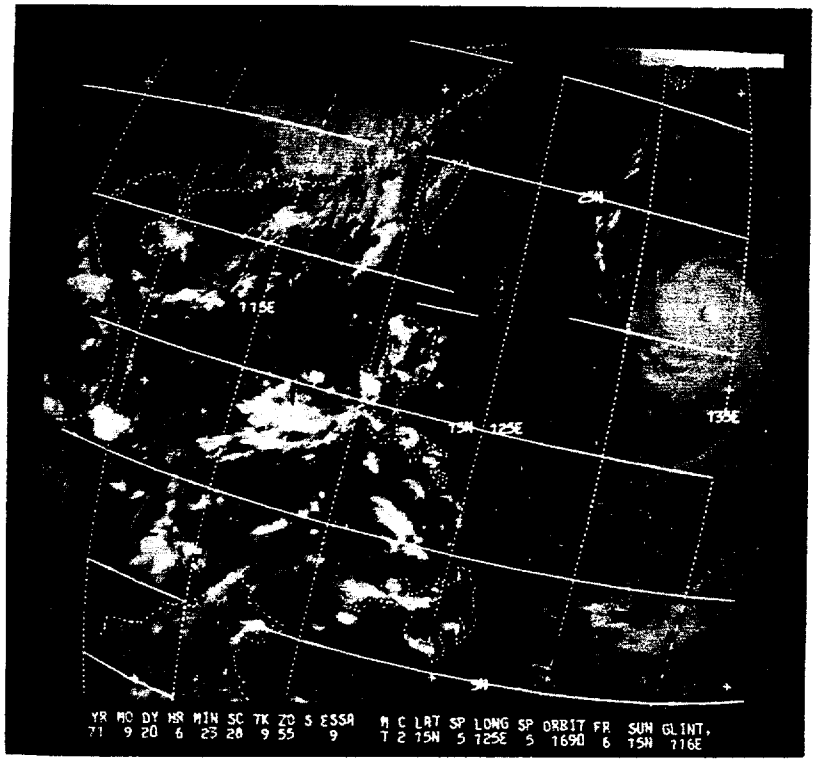
17 SEPTEMBER - TROPICAL STORM STAGE (AGNES IS SEEN ON WESTERN EDGE OF PHOTO.)



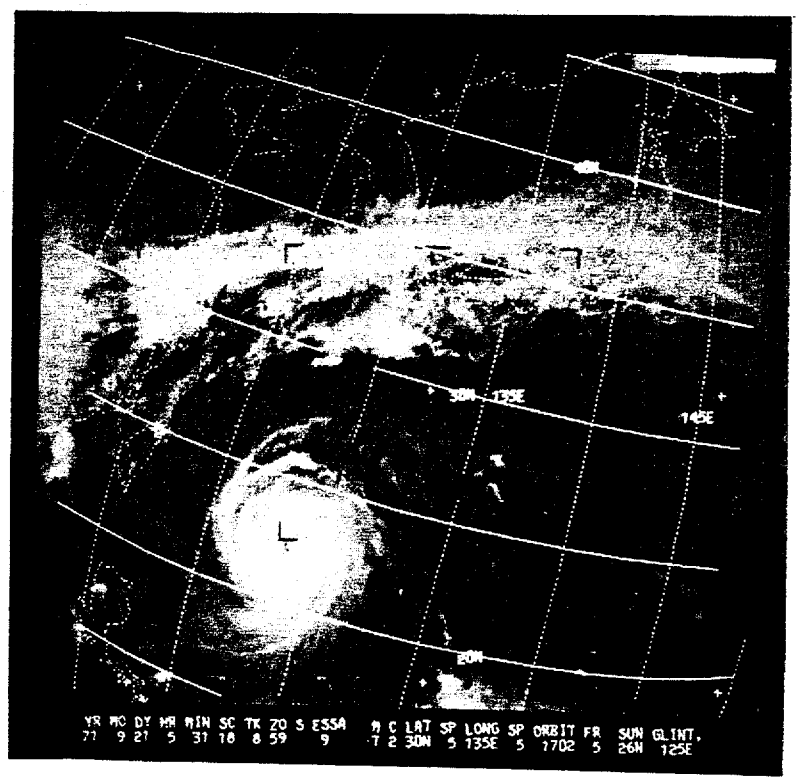
18 SEPTEMBER - TYPHOON STRENGTH 70 KT.



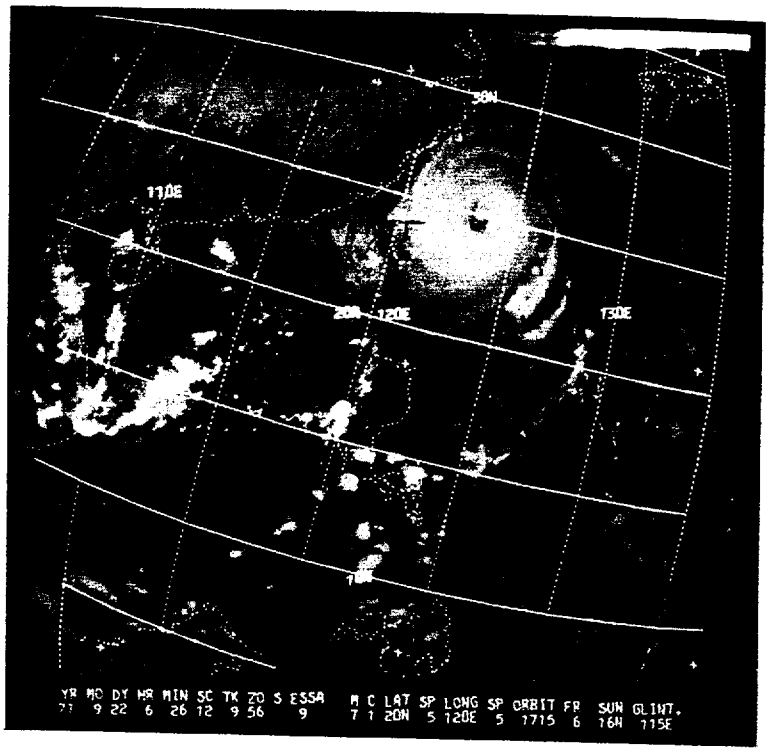
19 SEPTEMBER - TYPHOON STRENGTH 120 KT.



20 SEPTEMBER - SUPER TYPHOON STRENGTH (140 KT)



21 SEPTEMBER - TYPHOON STRENGTH (125 KT)



22 SEPTEMBER - TYPHOON STAGE (115 KT)

TYPHOON BESS
EYE FIXES FOR CYCLONE NO. 30
17 SEP - 23 SEP 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	160424Z	18.0N 154.3E	SATELIT---	STG B											
2	162305Z	16.3N 151.0E	54-P-10---	700MB	25	30	995	3033	12/12	CIRC		15	--	POORLY DEFINED	
3	170405Z	17.1N 149.6E	54-P- 5---	700MB	43	50	987	2987	14/09	CIRC		25	--	WC FRMG S SEMIC 700 CNTR 5NM NW	
4	170522Z	16.5N 150.0E	SATELIT---	STG X	DIA	3	CAT 2.0								
5	170955Z	16.9N 149.2E	VQ-R- 3- 9	----	----	----	----	----	--/--	CIRC		12	5	WC FRMG E QUAD	16.7N 148.8E
6	171640Z	17.2N 148.6E	VQ-P- 8---	700MB	----	----	970	2941	16/12	CIRC		12	--	ILL-DEFINED WC	
7	172200Z	17.8N 147.5E	54-P-15---	700MB	50	60	980	2899	14/12	----	----	--	--	POORLY DEFINED	
8	180345Z	18.3N 146.6E	54-P-15---	700MB	55	65	974	2871	14/11	----	----	--	--	POORLY DEFINED	
9	180425Z	18.2N 146.0E	SATELIT---	STG X	DIA	2	CAT 3.0							TREG SHAPED EYE	
10	180954Z	18.8N 144.9E	VQ-P- 2- 2	----	----	90	970	----	26/23	CIRC		28	--	POORLY DEFINED	
11	181550Z	19.1N 143.3E	VQ-P- 1- 2	700MB	----	100	954	2758	26/23	CIRC		24	3	CLSD WC	
12	182230Z	19.8N 141.5E	54-P- 2- 3	700MB	100	110	927	2499	21/11	CIRC		22	7	CLSD WC	
13	190320Z	20.0N 140.3E	54-P- 4- 3	700MB	105	120	910	2402	26/14	CIRC		18	6	CLSD WC-700 CNTR 7NM NNW	
14	190524Z	20.1N 139.6E	SATELIT---	STG X	DIA	3	CAT 4.0							EYE VISIBLE	
15	190952Z	19.1N 139.1E	VQ-R- 3- 8	----	----	----	----	----	--/--	CIRC		19	6	CLSD WC	19.6N 140.6E
16	191620Z	20.6N 136.9E	VQ-P- 3- 2	700MB	----	----	914	2346	21/11	CIRC		18	7	CLSD WC	
17	192230Z	21.0N 135.4E	54-P- 5- 5	700MB	110	120	924	2429	19/09	CIRC		30	7	CLSD WC	
18	200623Z	21.5N 133.5E	SATELIT---	STG X	DIA	4	CAT 4.0							EYE VISIBLE	
19	201720Z	21.7N 131.1E	VQ-R-15---	----	----	----	----	----	--/--	----	----	--	--	EST POSIT	21.0N 132.9E
20	201844Z	21.9N 130.7E	VQ-P- 3---	700MB	----	----	911	2369	19/14	CIRC		30	6	CLSD WC	
21	202144Z	22.1N 130.3E	VQ-P- 3---	700MB	----	----	920	2384	19/11	CIRC		30	--	CLSD WC	
22	210110Z	22.2N 129.6E	54-P- 5- 5	700MB	110	----	----	----	18/14	CIRC		30	7	CLSD WC	
23	210349Z	22.4N 129.0E	54-P- 3- 5	700MB	100	100	----	----	18/13	CIRC		30	7	CLSD WC	
24	210531Z	22.2N 128.8E	SATELIT---	STG X	DIA	4	CAT 4.0							EYE VISIBLE	
25	210600Z	22.6N 128.6E	54-P- 3- 3	700MB	100	----	----	----	18/12	CIRC		30	7	CLSD WC	
26	210800Z	22.5N 128.3E	LND RDR---							----	----	--	--		
27	210900Z	22.8N 127.5E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
28	211000Z	22.8N 127.5E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
29	210955Z	22.8N 127.0E	54-P- 5- 3	700MB	100	80	921	2385	17/13	ELIP	NE-SW	24X20	12	CLSD WC	
30	211100Z	22.7N 127.4E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
31	211240Z	23.0N 127.0E	54-P- 5- 4	700MB	100	----	----	----	18/14	CONC	-	60X25	10	CLSD WC-INNER EYE	
32	211300Z	22.7N 127.1E	LND RDR---							----	----	--	--	STN 47927 ELLIPTICAL 20X30	24.8N 125.3E
33	211400Z	22.7N 126.9E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
34	211500Z	22.7N 126.8E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
35	211530Z	22.9N 126.7E	54-P- 5- 3	700MB	100	----	926	----	17/11	CIRC		80	6	CLSD WC-INNER EYE DISSIPATING	
36	211600Z	22.8N 126.7E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
37	211800Z	23.1N 126.2E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
38	211900Z	23.2N 126.1E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
39	211949Z	23.3N 126.0E	VQ-R-15---	----	----	----	----	----	--/--	CIRC		18	6	WC OPEN SE QUAD	22.2N 126.2E
40	212000Z	23.3N 126.0E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
41	212000Z	23.1N 125.8E	LND RDR---							----	----	--	--	STN 47918	24.3N 124.2E
42	212200Z	23.4N 125.5E	LND RDR---							----	----	--	--	STN 47918	24.3N 124.2E
43	212210Z	23.4N 125.6E	VQ-P- 5- 3	700MB	----	----	944	2621	17/10	ELIP	N-S	25X15	--	CLSD WC	
44	212300Z	23.4N 125.2E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E
45	212300Z	23.4N 125.3E	LND RDR---							----	----	--	--	STN 47918	24.3N 124.2E
46	220000Z	23.4N 125.0E	LND RDR---							----	----	--	--	STN 47927	24.8N 125.3E

TYPHOON BESS
EYE FIXES FOR CYCLONE NO. 30
17 SEP - 23 SEP 71

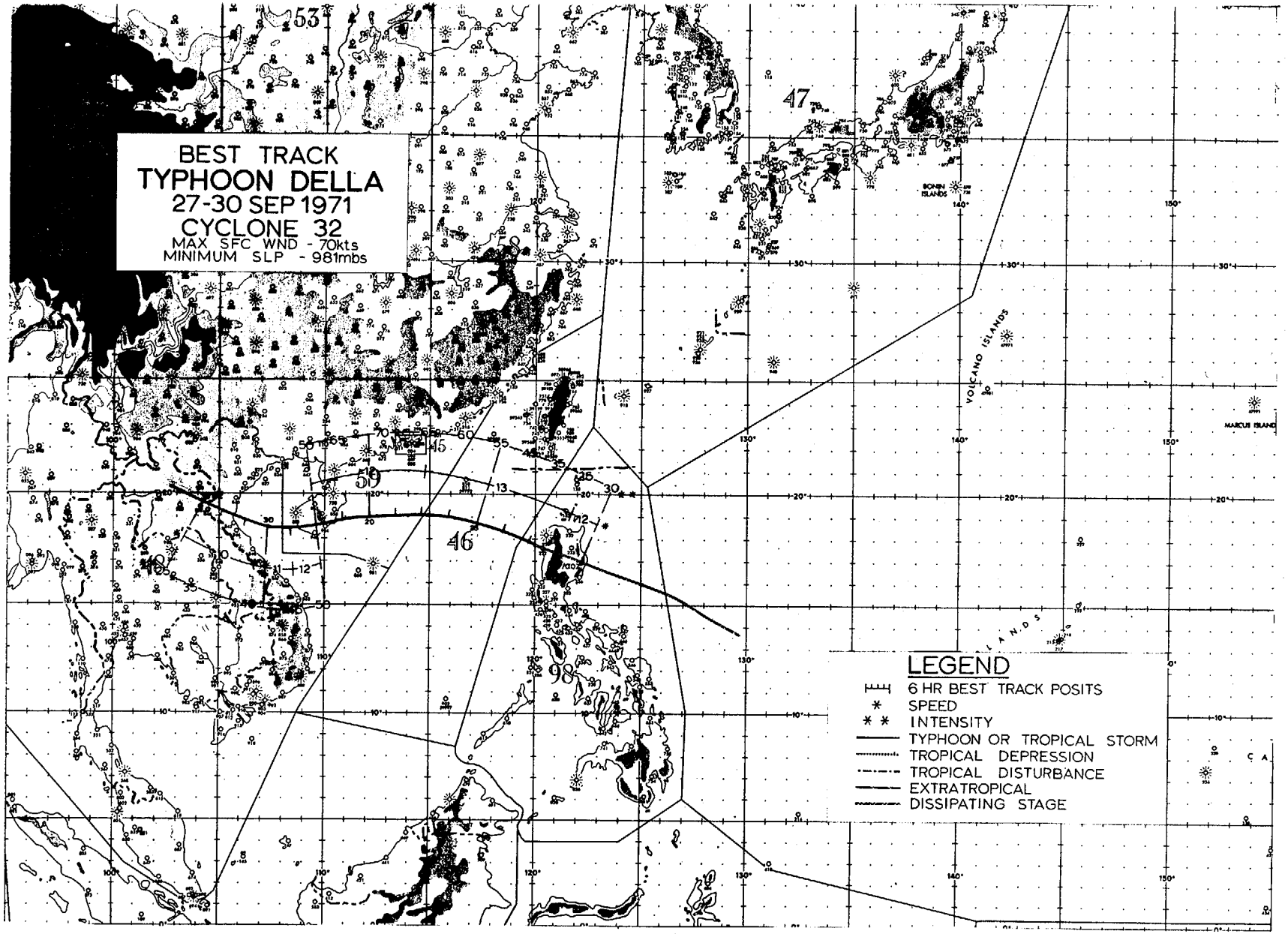
FIX NO.	TIME	POSIT	UNIT-METHOD -ACCY	FLT LVL	FLT LVL WND	OBS SFC WND	OBS MIN SLP	MIN 700MB HGT	FLT LVL TI/TO	EYE FORM	ORIEN-TATION	EYE DIA	THKN WALL CLD	REMARKS	POSIT OF RADAR
47	220000Z	23.4N 125.0E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
48	220014Z	23.5N 125.2E	VQ-R-10---	-----	----	----	----	----	--/--	CIRC		20	9		22.5N 124.6E
49	220130Z	23.3N 124.8E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
50	220200Z	23.6N 124.6E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
51	220200Z	23.5N 124.7E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
52	220230Z	23.5N 124.5E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
53	220300Z	23.6N 124.6E	LND RDR---							----	-----	--	--	STN 46763	34.0N 131.5E
54	220300Z	23.6N 124.4E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
55	220300Z	23.7N 124.4E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
56	220400Z	23.7N 124.3E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
57	220400Z	23.7N 124.3E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
58	220419Z	23.8N 124.2E	54-P- 3- 5	700MB	110	----	943	2576	17/10	CIRC		40	--	CLSD WC	
59	220515Z	23.7N 124.0E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
60	220600Z	23.8N 123.9E	LND RDR---							----	-----	--	--	TAIPEI RDR	25.0N 121.5E
61	220600Z	23.9N 124.0E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
62	220626Z	24.8N 123.6E	SATELIT---	STG X	DIA	4	CAT 4.0							EYE VISIBLE	
63	220700Z	24.1N 123.8E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
64	220700Z	24.0N 123.6E	54-P- 3- 2	700MB	120	----	940	2570	17/11	CIRC		40	--	CLSD WC	
65	220700Z	23.9N 123.8E	LND RDR---							----	-----	--	--	SUNGSHAN RDR	
66	220800Z	24.2N 123.7E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
67	220900Z	24.3N 123.4E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
68	220900Z	24.3N 123.2E	54-P- 5- 5	700MB	100	----	940	2585	17/10	CIRC		40	--	CLSD WC-TOPS 35K	
69	220900Z	24.3N 123.4E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
70	221000Z	24.5N 123.2E	LND RDR---							----	-----	--	--	STN 47927	24.8N 125.3E
71	221000Z	24.5N 123.2E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
72	221200Z	24.3N 122.6E	LND RDR---							----	-----	--	--	STN 47918	24.3N 124.2E
73	221236Z	25.0N 122.6E	VQ-R- 3-15	-----	----	----	----	----	--/--	----	-----	--	--	POOR RDR PRES	24.9N 123.7E
74	221240Z	24.7N 122.3E	LND RDR---							----	-----	--	--	TAIPEI RDR	25.0N 121.5E
75	221300Z	24.7N 122.2E	LND RDR---							----	-----	--	--		
76	221300Z	24.8N 122.3E	LND RDR---							----	-----	--	--	TAIWAN RDR	
77	221500Z	25.0N 121.5E	----------	-----	----	----	----	----	--/--	----	-----	--	--	EYE POSIT TAIPEI	
78	221627Z	25.2N 121.3E	VQ-R- 3-20	-----	----	----	----	----	--/--	----	-----	--	--	V POOR RDR PRES	25.8N 121.6E

TYPHOON BESS

0000Z 17 SEP TO 0600Z 23 SEP

	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	
170000Z	16.3N 150.9E	40	16.4N 150.9E	30	6	-10		17.1N 147.7E	50	58	-15		--.- ---.-	--	--	--		--.- ---.-	--	--	--	
170600Z	16.5N 150.0E	50	16.7N 149.2E	50	47	0		18.1N 144.6E	75	85	5		19.6N 140.7E	95	79	-25		--.- ---.-	--	--	--	
171200Z	16.9N 149.2E	55	17.0N 148.8E	60	24	5		18.0N 144.8E	85	64	5		19.4N 141.0E	100	186	-25		21.0N 137.6E	110	308	-20	
171800Z	17.3N 148.3E	60	17.2N 148.3E	60	6	0		18.1N 145.0E	85	150	-10		19.3N 141.4E	100	287	-30		--.- ---.-	--	--	--	
180000Z	18.0N 147.3E	65	17.9N 147.1E	65	13	0		19.9N 143.4E	80	124	-35		22.1N 140.4E	100	306	-35		24.4N 138.1E	110	484	-20	
180600Z	18.6N 146.0E	70	18.4N 146.5E	70	31	0		20.4N 143.4E	85	218	-35		22.4N 140.7E	100	404	-40		--.- ---.-	--	--	--	
181200Z	19.0N 144.4E	80	19.0N 144.3E	90	6	10		21.4N 139.2E	110	90	-15		24.2N 135.6E	120	247	-15		27.4N 133.6E	125	434	0	
181800Z	19.5N 142.8E	95	19.2N 142.9E	95	19	0		21.4N 137.7E	115	79	-15		24.1N 134.0E	125	215	-5		--.- ---.-	--	--	--	
190000Z	19.9N 141.2E	115	19.9N 141.2E	110	0	-5		21.8N 135.0E	125	42	-10		24.4N 130.6E	125	142	-5		27.5N 127.9E	125	283	10	
190600Z	20.3N 139.5E	120	20.2N 139.7E	120	13	0		22.1N 134.1E	135	58	-5		24.9N 129.9E	130	160	0		--.- ---.-	--	--	--	
191200Z	20.5N 137.9E	125	20.4N 138.2E	125	18	0		22.7N 133.0E	130	82	-5		25.5N 129.3E	120	190	-5		28.5N 126.6E	110	312	0	
191800Z	20.7N 136.5E	130	20.8N 136.4E	130	8	0		22.8N 131.1E	130	55	0		25.3N 127.3E	120	137	0		--.- ---.-	--	--	--	
200000Z	21.1N 135.0E	135	21.1N 135.0E	125	0	-10		22.8N 129.3E	110	39	-20		25.0N 124.6E	100	94	-15		27.6N 120.7E	85	125	20	
200600Z	21.3N 133.5E	140	21.4N 133.5E	130	6	-10		22.7N 127.7E	120	39	-10		24.4N 122.9E	105	59	-10		--.- ---.-	--	--	--	
201200Z	21.6N 132.1E	135	21.8N 131.8E	130	20	-5		23.1N 126.0E	115	72	-10		24.8N 121.1E	90	82	-20		--.- ---.-	--	--	--	
201800Z	21.9N 130.9E	130	22.1N 130.4E	130	30	0		23.5N 124.5E	110	100	-10		25.3N 119.7E	65	82	-20		--.- ---.-	--	--	--	
210000Z	22.2N 129.6E	130	22.3N 129.8E	125	13	-5		24.3N 126.2E	110	77	-5		26.3N 123.0E	95	166	30		--.- ---.-	--	--	--	
210600Z	22.6N 128.4E	130	22.5N 128.6E	120	13	-10		24.7N 124.3E	105	47	-10		27.0N 121.3E	90	128	50		--.- ---.-	--	--	--	
211200Z	22.9N 127.3E	125	23.0N 127.2E	115	8	-10		25.4N 122.7E	100	42	-10		--.- ---.-	--	--	--		--.- ---.-	--	--	--	
211800Z	23.2N 126.3E	120	23.2N 126.3E	115	0	-5		25.5N 121.9E	100	45	15		--.- ---.-	--	--	--		--.- ---.-	--	--	--	
220000Z	23.5N 125.1E	115	23.6N 125.3E	110	12	-5		25.8N 121.4E	90	76	25		--.- ---.-	--	--	--		--.- ---.-	--	--	--	
220600Z	24.0N 123.9E	115	24.0N 123.9E	105	0	-10		25.8N 119.4E	75	42	35		--.- ---.-	--	--	--		--.- ---.-	--	--	--	
221200Z	24.7N 122.6E	110	24.0N 122.6E	100	6	-10		--.- ---.-	--	--	--		--.- ---.-	--	--	--		--.- ---.-	--	--	--	
221800Z	25.1N 121.2E	85	25.1N 120.7E	80	27	-5		--.- ---.-	--	--	--		--.- ---.-	--	--	--		--.- ---.-	--	--	--	
230000Z	25.6N 120.0E	65	25.7N 120.2E	75	12	10		--.- ---.-	--	--	--		--.- ---.-	--	--	--		--.- ---.-	--	--	--	
230600Z	26.4N 119.0E	40	26.2N 119.1E	60	13	20		--.- ---.-	--	--	--		--.- ---.-	--	--	--		--.- ---.-	--	--	--	

	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	77NM	174NM	324NM	13NM	77NM	174NM	324NM
AVERAGE RIGHT ANGLE ERROR	7NM	41NM	96NM	218NM	7NM	41NM	96NM	218NM
AVERAGE MAGNITUDE OF WIND ERROR	6KTS	14KTS	19KTS	13KTS	6KTS	14KTS	19KTS	13KTS
AVERAGE BIAS OF WIND ERROR	-2KTS	-6KTS	-10KTS	-3KTS	-2KTS	-6KTS	-10KTS	-3KTS
NUMBER OF FORECASTS	26	22	17	6	26	22	17	6


BEST TRACK
TYPHOON DELLA
27-30 SEP 1971
CYCLONE 32
MAX SFC WND - 70kts
MINIMUM SLP - 981mbs
LEGEND
6 HR BEST TRACK POSITS
SPEED
INTENSITY
TYPHOON OR TROPICAL STORM
TROPICAL DEPRESSION
TROPICAL DISTURBANCE
EXTRATROPICAL
DISSIPATING STAGE
BONIN ISLANDS
VOLCANO ISLANDS
MARCUS ISLAND