

P. TYPHOON FREDA (13-20 NOVEMBER 1959)

On 9 November, following in the wake of Typhoon EMMA, FREDA first became evident as a weak tropical low on the Intertropical Convergence Zone south of Ponape. This diffuse low pressure area drifted slowly to the west-northwest, and on the 12th was located near Ulithi with what appeared to be a double surface center. The lowest reported pressure at that time was 1004 millibars at Ulithi. All reconnaissance aircraft were committed to Typhoon EMMA, so the suspect area was watched very closely utilizing all available data. By 121800Z the pressure at both Yap and Ulithi had dropped to 1001 millibars, multiple layers of clouds prevailed at both stations, and the surface winds at Ulithi had increased to 25 knots from the east-southeast. It was now almost a certainty that what had formerly been only a diffuse tropical low was now a cyclone of perhaps storm intensity. Reconnaissance was urgently requested, and a fix was made by a B-50 of the 54th Weather Reconnaissance Squadron at 130120Z. Based upon the fix, which positioned the center 110 miles southwest of Yap, the first warning on Tropical Storm FREDA was issued.

Subsequent reconnaissance fixes indicated that FREDA had moved somewhat erratically during the first 12 hours. However, thereafter she curved gradually northwestward at a steady 10 to 12 knots. A report from the U.S. Coast Guard Loran Station on Catanduanes Island in the eastern Philippines, which was confirmed by a reconnaissance fix, showed that FREDA moved directly over the Island at 160200Z. The wind measuring gear at the Coast Guard Station was carried away at 130 knots, and the Coast Guard observers estimated the maximum

gusts to have been 165 knots. Shortly after passing over Catan-
duanes Island, FREDA gradually began to decelerate and weaken due
to the proximity of land masses. Easterly flow aloft indicated that
FREDA would move across Luzon into the South China Sea, passing just
north of Clark Air Base. However, a polar high which moved into the
South China Sea apparently blocked any pronounced westerly movement.
As a result, FREDA passed just to the east of Baler, Luzon and moved
over Luzon from southeast to northwest. The Manila area suffered
only minor damage due to FREDA. The mountains of central Luzon fur-
ther weakened FREDA, and she was downgraded to a tropical storm at
171800Z. The zonal westerlies extended as far south as 22 degrees
north. Therefore, as FREDA passed across the extreme south tip of
Taiwan, she recurved sharply. FREDA passed directly over Okinawa at
approximately 190800Z with maximum gusts of 52 knots being reported
at Kadena Air Base. Thereafter she weakened rapidly and the final
tropical warning was issued at 200000Z.

In considering climatology, Typhoon FREDA was unusual in that
she recurved. In mid-November, for typhoons which move as far west
as the 130th meridian, the normal climatological track does not show
recurvature, rather westward movement across the Philippines and into
the South China Sea. Twenty-nine warnings were issued covering a
period of 8 days.

For damage caused by Typhoon FREDA see Section VI "Destructive
Effects of Typhoons".

RECONNAISSANCE AIRCRAFT FIXES - TYPHOON FREDA

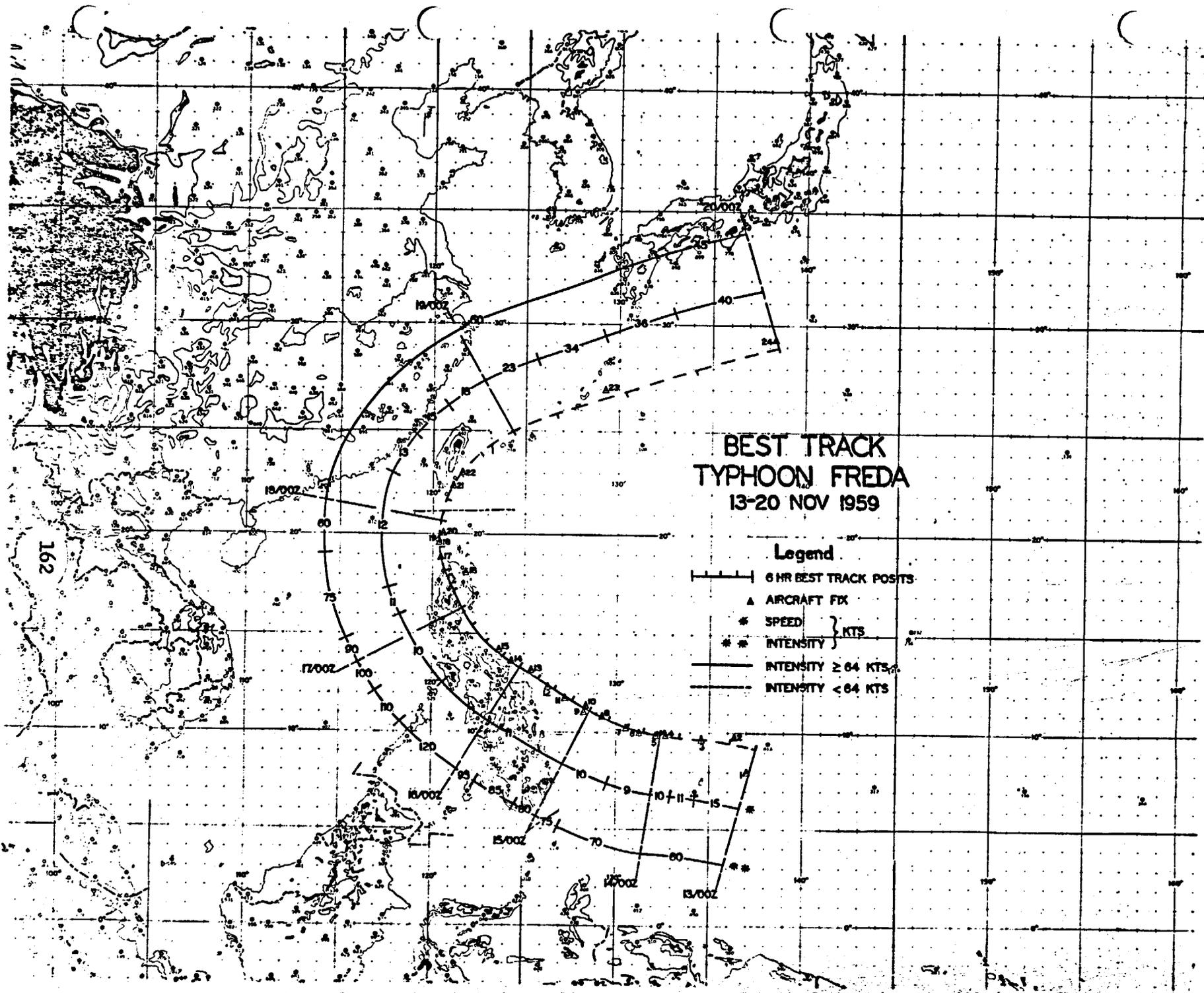
FIX NO.	TIME	LAT.	LONG.	*UNIT METHOD & ACCY	MIN SLP MBS	MAX SFC WND	MIN 700MB HGT	MAX FLT LVL WND	700MB TEMP (°C)	700MB DEWPT (°C)	EYE CHARACTERISTICS
1	130120Z	08.0N	137.0E	54-P-5	996	70	10060	65	12	12	EYE ELLIP 50X30 MI
2	130900Z	09.8N	136.3E	54-P-5	999	50	9990	50	09	09	EYE ELLIP 15X20 MI
3	131147Z	09.6N	134.6E	54-P-5	993	--	9900	40	10	08	SPIRAL BANDS SC
4	132115Z	09.9N	132.7E	54-P-8	986	65	9800	60	14	06	EYE ILL DEFINED
5	140200Z	09.8N	132.1E	54-P-10	985	75	9780	65	15	10	CIRC DIA 40 MI
6	140845Z	10.0N	131.2E	54-P-2	980	70	9530	75	14	11	CIRC DIA 30 MI
157	141221Z	10.1N	130.5E	54-R-20	--	--	--	--	--	--	CIRC DIA 40 MI
158	142030Z	10.8N	129.2E	54-R-5	--	--	--	--	--	--	CIRC DIA 35 MI
9	142130Z	11.0N	128.2E	54-P-5	973	80	9450	--	16	11	CIRC DIA 35 MI
10	150000Z	11.3N	128.3E	54-P-5	978	100	9380	--	16	12	CIRC DIA 40 MI
11	150800Z	11.8N	127.2E	54-P-5	968	90	9280	70	18	13	CIRC DIA 50 MI
12	151400Z	12.3N	126.3E	54-R-10	--	--	--	90	--	--	CIRC DIA 40 MI
13	152200Z	13.2N	125.3E	54-P-2	944	125	8530	95	20	08	CIRC DIA 60 MI
14	160200Z	13.7N	124.3E	54-P-0	936	100	8590	--	17	12	CIRC DIA 40 MI
15	160800Z	14.1N	123.6E	54-P-0	951	125	8680	--	16	12	CIRC DIA 40 MI
16	170800Z	18.1N	121.9E	54-T-12	--	75	--	--	--	--	FLT LVL CNTR W OF EYE
17	171400Z	18.9N	120.4E	54-T-5	--	--	--	--	--	--	
18	172000Z	19.8N	120.3E	54-P-1	--	--	9780	70	13	08	CIRC DIA 40 MI
19	172215Z	19.7N	120.3E	54-P-15	995	80	9800	75	13	07	CIRC DIA 75 MI

RECONNAISSANCE AIRCRAFT FIXES - TYPHOON FREDA (CONT'D)

FIX NO.	TIME	LAT.	LONG.	*UNIT METHOD & ACCY	MIN SLP MBS	MAX SFC WND	MIN 700MB HGT	MAX FLT LVL WND	700MB TEMP (°C)	700MB DEWPT (°C)	EYE CHARACTERISTICS
20	180259Z	20.0N	120.6E	56-P-1	990	40	--	--	--	--	EYE ELLIP 40X20 MI
21	180900Z	22.4N	121.1E	54-P-1	991	55	9860	60	11	10	CIRC DIA 80 MI
22	181400Z	23.0N	121.7E	54-P-3	996	--	9860	80	11	10	CIRC DIA 90 MI
23	191104Z	27.0N	129.2E	12-R-2	--	--	--	--	--	--	DIA 20MI N-S 15MI E-W
24	192125Z	29.3N	138.3E	12-P-10	993	25	10000	--	06	03	EYE OPEN S-E

TYPHOON FREDA 13 - 20 NOV. 1959
POSITION AND FORECAST VERIFICATION DATA

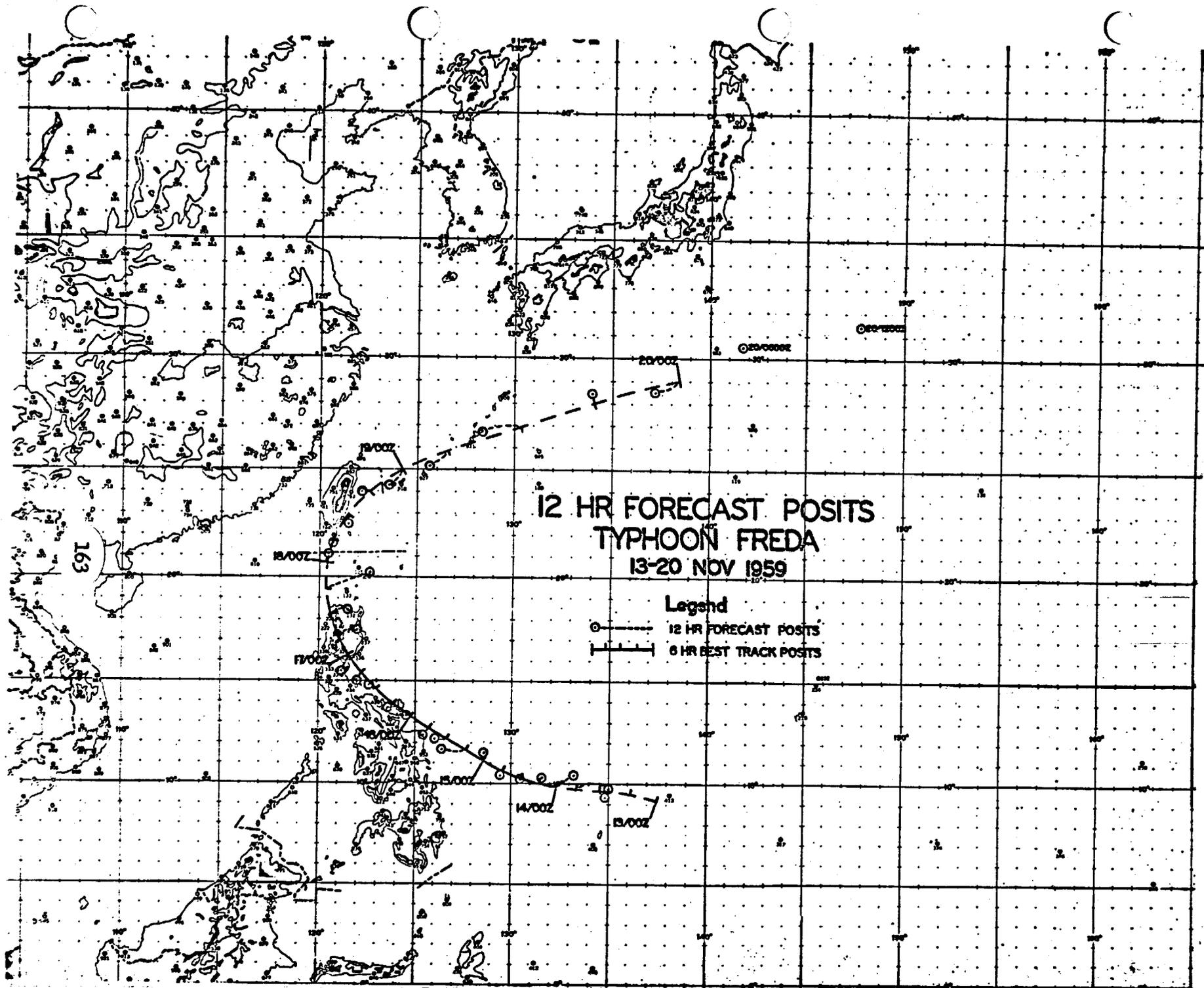
DTG	STORM POSITION		12 HR ERROR		24 HR ERROR	
	LAT.	LONG.	DEG.	DISTANCE	DEG.	DISTANCE
130000Z	09.1N	137.5E	-	-	-	-
130600Z	09.4N	136.1E	-	-	-	-
131200Z	09.6N	134.6E	165	- 76	-	-
131800Z	09.7N	133.4E	085	- 90	-	-
140000Z	09.8N	132.4E	055	- 46	168	- 64
140600Z	10.0N	131.5E	010	- 13	095	- 112
141200Z	10.2N	130.6E	240	- 14	010	- 12
141800Z	10.6N	129.6E	200	- 20	246	- 35
150000Z	11.0N	128.7E	190	- 33	210	- 37
150600Z	11.6N	127.7E	220	- 37	191	- 52
151200Z	12.1N	126.7E	268	- 41	189	- 78
151800Z	12.7N	125.8E	225	- 37	214	- 74
160000Z	13.3N	124.8E	263	- 18	247	- 71
160600Z	13.9N	123.9E	245	- 18	217	- 66
161200Z	14.6N	123.0E	295	- 32	230	- 32
161800Z	15.4N	122.3E	210	- 30	233	- 49
170000Z	16.3N	121.7E	162	- 54	275	- 96
170600Z	17.2N	121.3E	070	- 47	220	- 95
171200Z	18.2N	120.8E	070	- 36	223	- 136
171800Z	19.4N	120.5E	060	- 131	078	- 70
180000Z	20.6N	120.4E	360	- 34	108	- 74
180600Z	21.8N	120.7E	190	- 14	250	- 193
181200Z	22.9N	121.5E	210	- 21	150	- 60
181800Z	24.0N	122.6E	270	- 23	230	- 57
190000Z	25.0N	124.3E	220	- 63	250	- 85
190600Z	25.9N	126.6E	230	- 70	265	- 96
191200Z	26.9N	130.2E	255	- 50	245	- 211
191800Z	28.0N	134.1E	340	- 15	250	- 309
200000Z	29.0N	138.5E	255	- 68	255	- 281
AVERAGE 12 HOUR ERROR		41.9 NM				
AVERAGE 24 HOUR ERROR		97.8 NM				

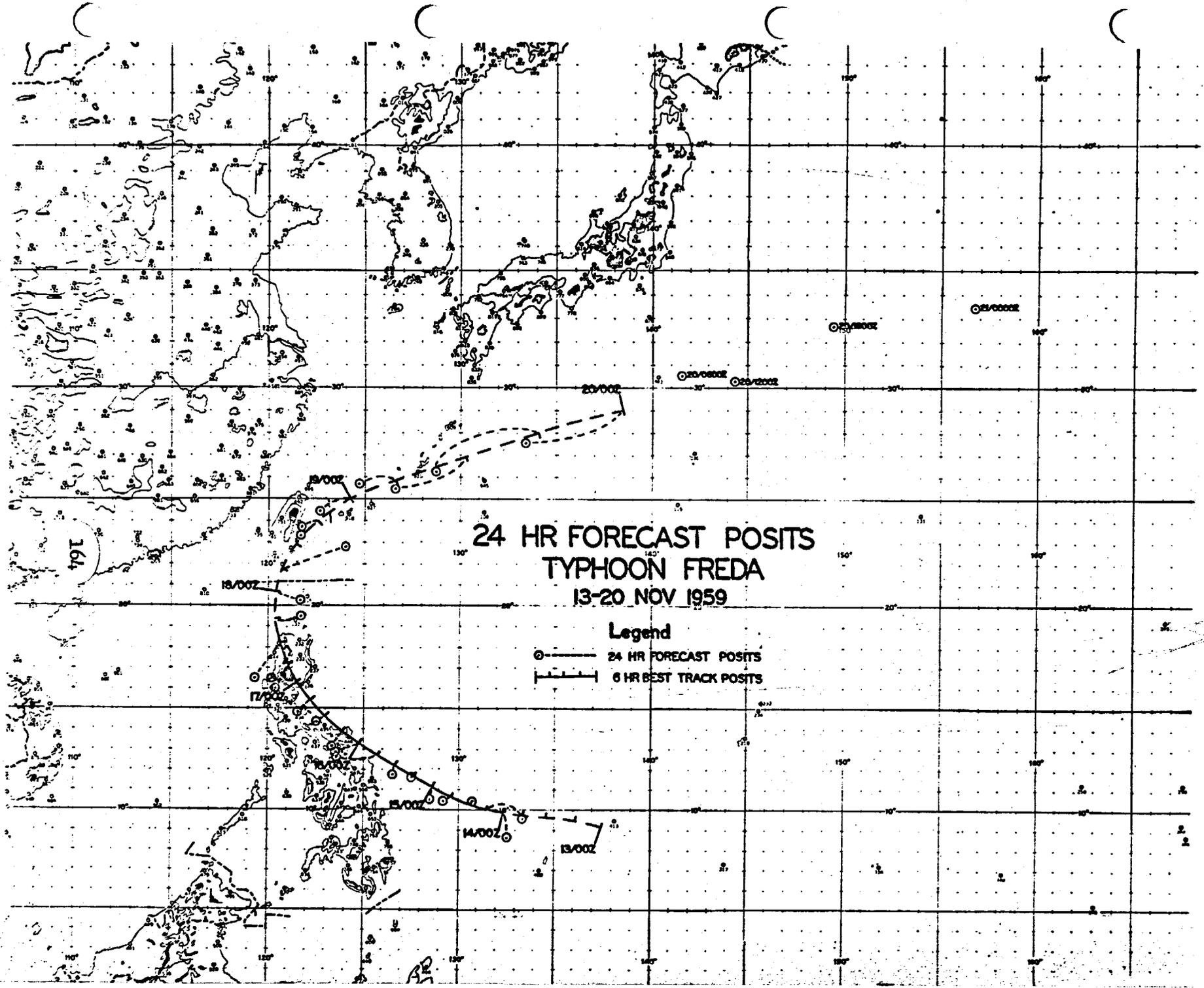


**BEST TRACK
TYPHOON FREDA
13-20 NOV 1959**

Legend

- 6 HR BEST TRACK POSITS
- ▲ AIRCRAFT FIX
- * SPEED } KTS
- ** INTENSITY }
- INTENSITY ≥ 64 KTS
- - - INTENSITY < 64 KTS





24 HR FORECAST POSITS
TYPHOON FREDA
13-20 NOV 1959

Legend

- 24 HR FORECAST POSITS
- 6 HR BEST TRACK POSITS