K. TYPHOON VERA (21-27 SEPTEMBER 1959)

As early as 20 September, surface map analyses indicated a diffuse area of low pressure lying between Guam and Truk. During the 21st the low pressure area, now located approximately 300 miles east of Saipan, appeared to intensify and drift slowly westward. Late on the 21st a reconnaissance aircraft, dispatched to investigate the suspect area, was unable to reach the forecast position of the center due to an engine failure. However, periferal data from the aircraft were sufficient to confirm the existence of a tropical cyclone of at least tropical storm intensity. Tropical Storm VERA was named and the first warning, with a valid time of 211800Z, was issued.

At 220645Z an aircraft reconnaissance fix positioned VERA 110 miles north-northeast of Saipan. Later reconnaissance indicated the surface winds to be 75 knots near the center, and VERA was upgraded to a typhoon at 221800Z. VERA intensified rapidly, and at 231200Z reached her greatest intensity with winds of 165 knots near the center. At this time VERA was centered 400 miles north-northwest of Guam. During the 23rd and 24th VERA moved in a northwesterly direction at an average speed of 10 to 12 knots, with little change in intensity. Iwo Jima, although 225 miles northeast of VERA, reported gusts of 77 knots and minor damage. On the 25th, a gradual recurvature to the north began, together with a rapid acceleration in speed of movement to 18 knots. At approximately 260900Z, VERA crossed the coast of Honshu just to the west of Shiono-Misaki. The pressure tendencies and wind shifts at this station were quite classical in depicting the passage of the typhoon. At 260900Z the 3 hourly pressure tendency

showed a drop of 41.8 millibars with sustained winds of 60 knots from the southeast. At 261200Z, 3 hours after the passage of VERA, the station showed a pressure rise of 51.0 millibars and sustained winds of 50 knots from the west-southwest. To depict the lateral size as well as the intensity of Typhoon VERA, a checkerboard, showing surface reports from a number of representative stations in Japan, is included as page 113. As she passed inland, VERA moved at speeds as high as 33 knots. She thus made a rapid transit across Central Honshu, passed just to the west of Nagoya, and entered the Sea of Japan at 261530Z at a point north of Toyama. Moving into the Westerlies, VERA assumed a more easterly component and moved over the north coast of Honshu near Sakata. Movement over land plus strong cold air advection rapidly weakened her as she headed into the North Pacific Ocean at 262300Z. At 270600Z VERA was reduced to a tropical storm and the final tropical warning issued. By this time she was obviously losing her tropical characteristics and was imbedded in the Polar Front.

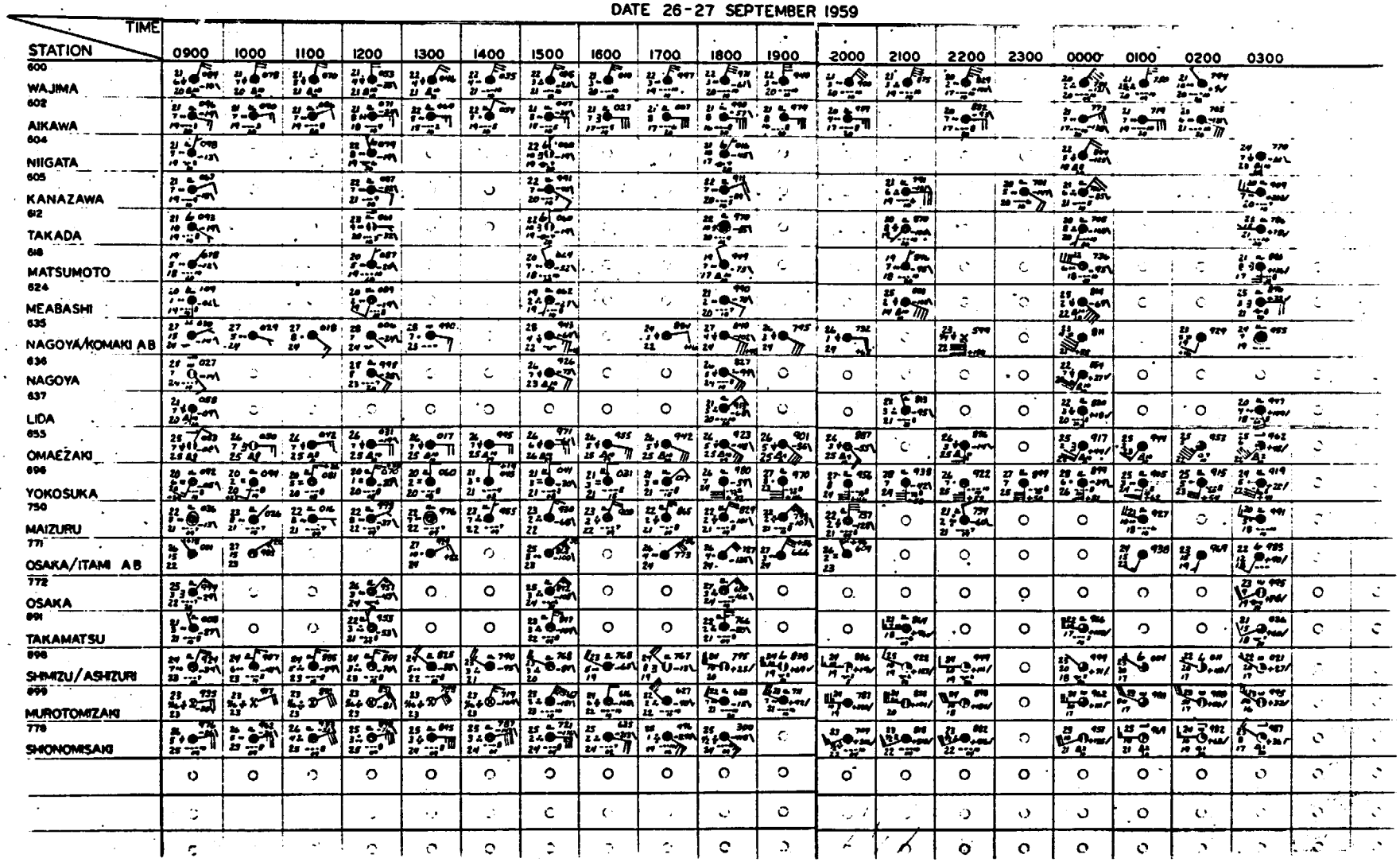
Typhoon VERA reached her peak intensity early in her history, and did not weaken appreciably until reaching well into northern latitudes. This may be attributed in part to strong divergence aloft which accompanied VERA until she moved into the Zonal Westerlies over Japan. As VERA moved northeastward across central Honshu, a wide swath of 50 knot winds was reported. Komaki Air Base, near Nagoya, reported 80 knot winds with gusts to 120, as the eye passed slightly to the west. Widespread heavy rain and floods accompanying the typhoon winds caused the greatest loss of life and destruction of property in Japanese Typhoon History. Climatologically, VERA followed

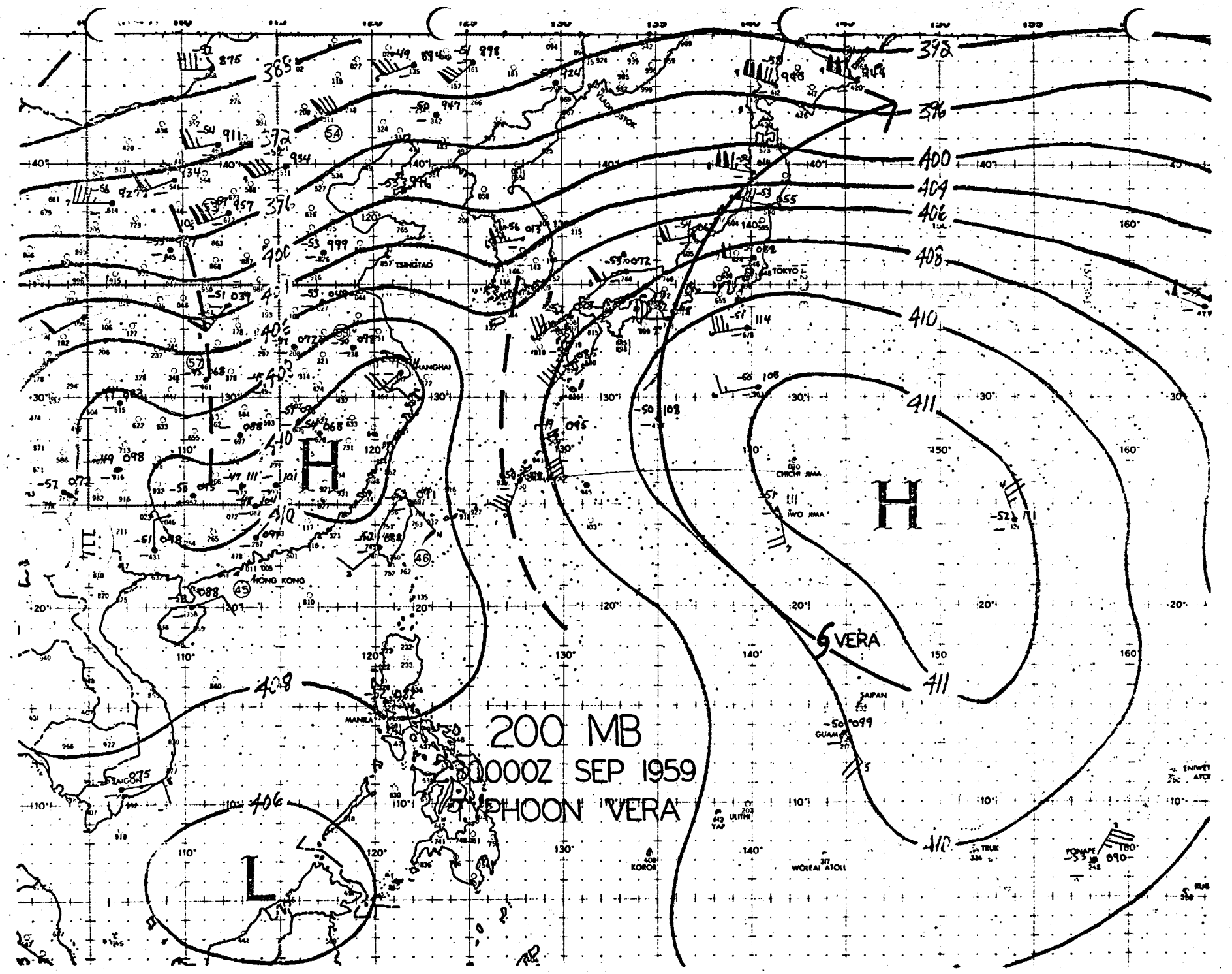
the normal September track. Forecasting accuracy was considerably better than average because of excellent steering results obtained using the 200 millibar flow (see page 114).

VERA caused an appalling loss of life and property in Japan. For details on the damage see Section VI, "Destructive Effects of Typhoons.".

SEQUENCE WEATHER REPORTS – TYPHOON VERA

DATE 26-27 SEPTEMBER 1959




200 MB
30000Z SEP 1959
TYPHOON VERA
VERA
H
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TSINGTAO
SHANGHAI
HONG KONG
MANILA
SAIGON
TOKYO
CHICHI JIMA
IWO JIMA
SAIPAN
GUAM
YAP
ULITHI
KOROR
WOLEAI ATOLL
TRUK
PONAPE
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RECONNAISSANCE AIRCRAFT FIXES - TYPHOON VERA

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	220645Z	16.8N	146.7E	54-P-2	969	60	9360	- -	15	11	CIRC DIA 10 MI
2	220800Z	17.0N	146.3E	54-P-2	964	60	9260	65	15	10	CIRC DIA 10 MI
3	221400Z	17.9N	145.6E	54-R-2	964	- -	- -	- -	15	10	CIRC DIA 10 MI
4	222000Z	17.5N	144.5E	54-P-3	925	75	8160	50	22	06	CIRC DIA 20 MI
5	230200Z	18.7N	143.4E	54-P-10	899	175	7450	80	28	17	CIRC DIA 15 MI
6	230600Z	19.0N	142.9E	54-P-2	896	175	7180	85	30	18	ELLIP 15X30 MI
7	231400Z	20.0N	141.3E	54-T-50	- -	- -	- -	- -	- -	- -	----------
8	232000Z	20.4N	140.6E	54-P-5	897	140	7280	110	21	13	CIRC DIA 30 MI
9	240200Z	20.8N	139.6E	54-P-10	911	165	7490	110	20	20	CIRC DIA 20 MI
10	240800Z	21.9N	139.1E	54-P-5	909	166	7660	105	23	23	CIRC DIA 25 MI
11	241400Z	22.4N	137.9E	54-T-10	- -	- -	- -	110	- -	- -	----------
12	242230Z	23.5N	136.2E	54-P-10	906	150	7300	140	18	18	CIRC DIA 25 MI
13	242302Z	24.4N	136.6E	12-R-15	- -	- -	- -	- -	- -	- -	CIRC DIA 30 MI
14	250200Z	24.7N	136.3E	54-P-5	905	120	7340	- -	20	17	CIRC DIA 25 MI
15	250800Z	24.8N	135.5E	54-P-5	910	- -	7390	110	23	17	CIRC DIA 20 MI
16	251115Z	26.5N	135.5E	12-R-10	- -	- -	- -	- -	- -	- -	CIRC DIA 30 MI
17	251400Z	26.8N	134.3E	54-T-15	- -	- -	- -	- -	- -	- -	----------
18	252045Z	28.9N	134.8E	54-P-2	929	- -	7960	100	18	16	CIRC DIA 20 MI
19	252252Z	29.2N	134.3E	12-R-10	- -	- -	- -	- -	- -	- -	CIRC DIA 20 MI

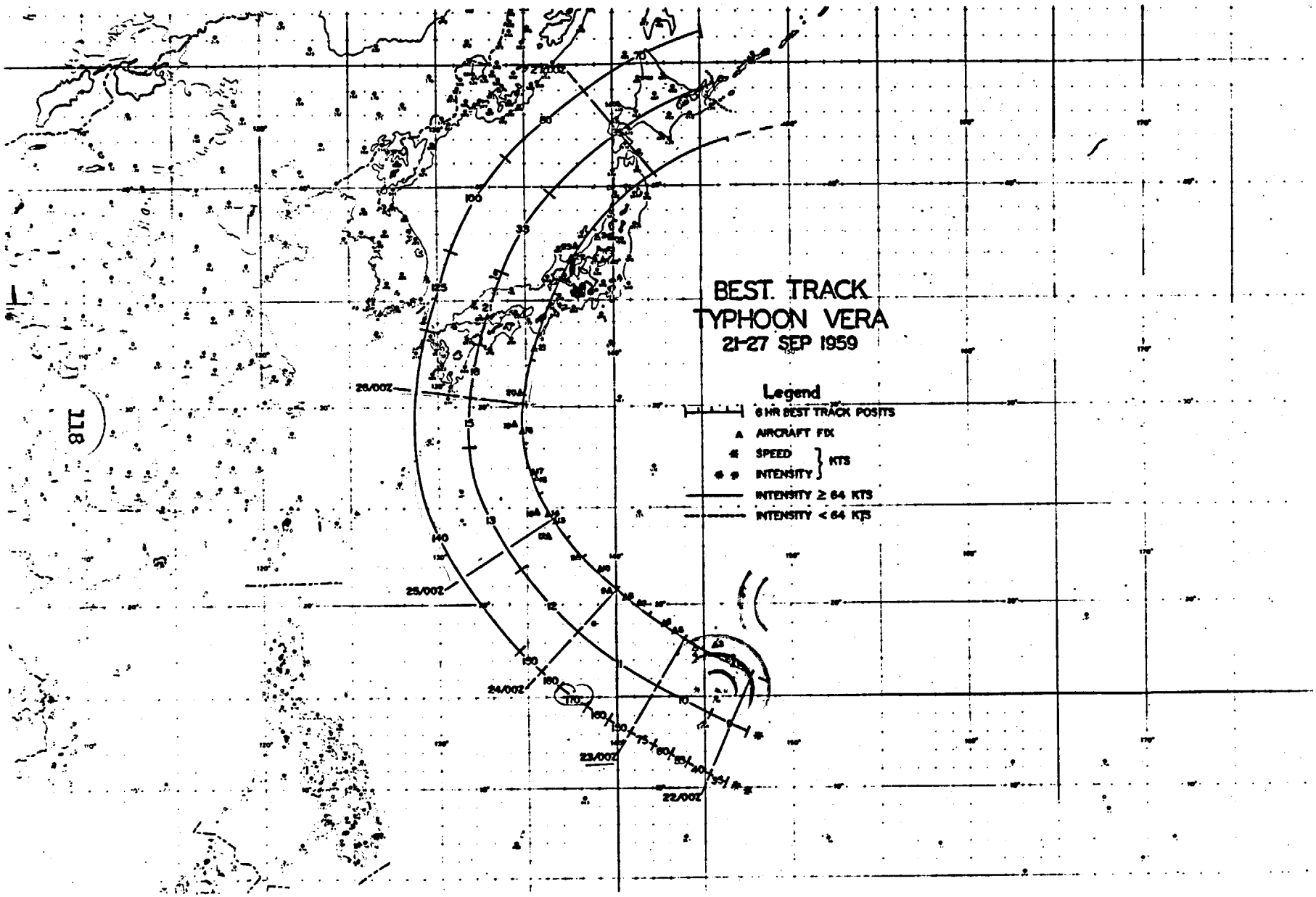
RECONNAISSANCE AIRCRAFT FIXES - TYPHOON VERA (CONT'D)

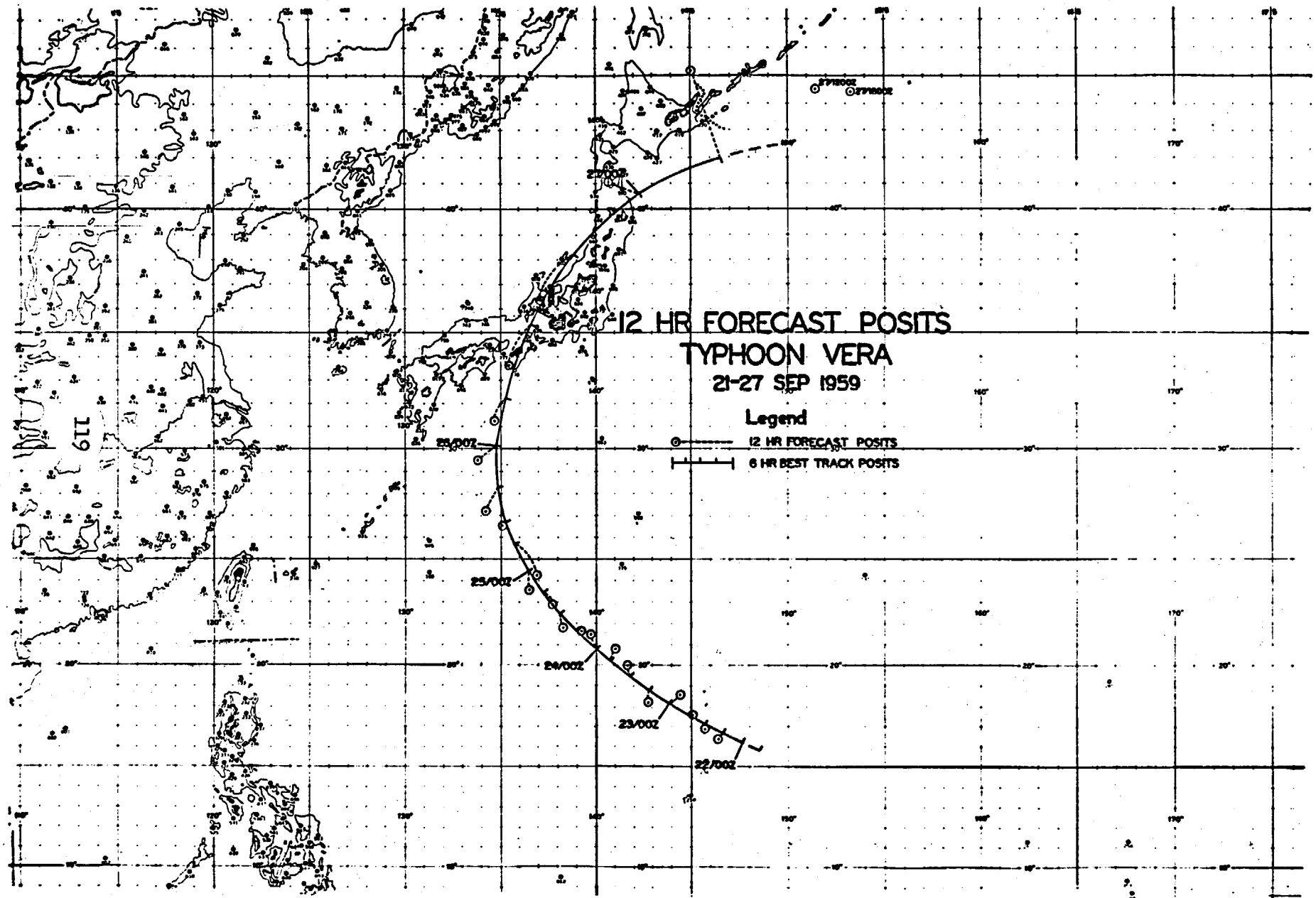
FIX NO.	TIME	LAT.	LONG.	*UNIT METHOD & ACCY	MIN SLP MBS	MAX SFC WND	MIN 700MB HGT	MAX FLT LVL WND	700MB TEMP (°C)	700MB DEWPT (°C)	EYE CHARACTERISTICS
20	260200Z	30.7N	134.7E	54-P-10	929	160	8010	100	20	17	EYE INDEFINITE
21	260800Z	32.8N	135.5E	54-P-2	926	100	8020	150	18	18	CIRC DIA 20 MI
22	261500Z	36.8N	137.6E	* *	- -	- -	- -	- -	- -	- -	----------
23	261600Z	37.4N	137.9E	* *	- -	- -	- -	- -	- -	- -	----------
24	261700Z	37.8N	139.1E	* *	- -	- -	- -	- -	- -	- -	----------

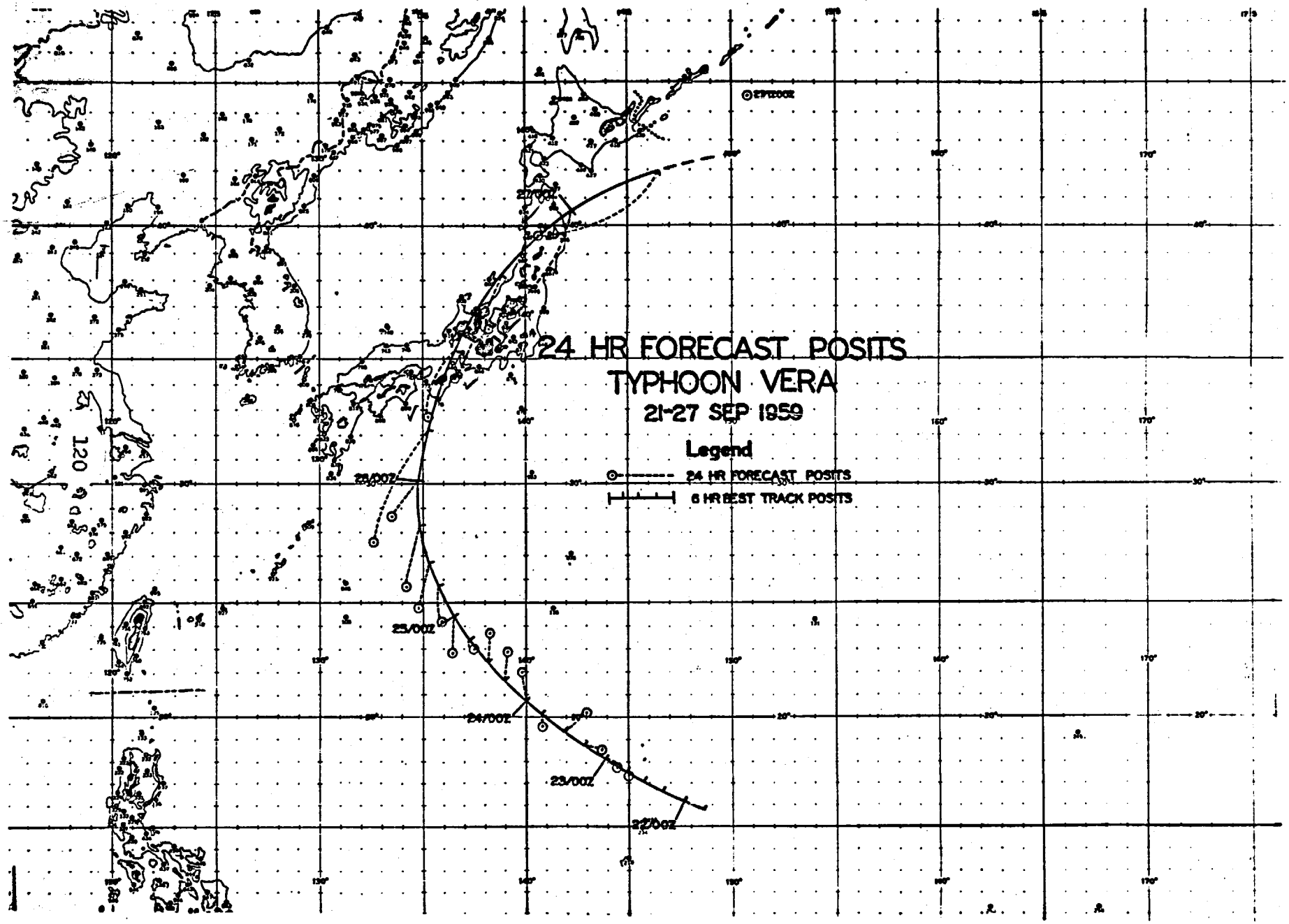
TYPHOON VERA 21 - 27 SEPT. 1959
POSITION AND FORECAST VERIFICATION DATA

DTG	STORM POSITION LAT.	LONG.	12 HR ERROR DEG.	DISTANCE	24 HR ERROR DEG.	DISTANCE
211800Z	15.8N	148.5E	- - - -		- - - -	
220000Z	16.2N	147.6E	- - - -		- - - -	
220600Z	16.6N	146.7E	239	25	- - - -	
221200Z	17.1N	145.8E	212	15	- - - -	
221800Z	17.5N	144.9E	305	06	161	17
230000Z	18.2N	143.9E	042	34	121	37
230600Z	18.8N	142.9E	180	39	107	48
231200Z	19.5N	142.0E	327	38	060	70
231800Z	20.2N	141.0E	360	36	205	31
240000Z	20.8N	140.0E	220	29	360	56
240600Z	21.6N	139.0E	090	10	076	75
241200Z	22.4N	138.1E	175	35	004	75
241800Z	23.4N	137.2E	322	37	156	27
250000Z	24.4N	136.4E	175	57	360	92
250600Z	25.6N	135.7E	175	77	172	87
251200Z	26.8N	135.7E	209	20	190	118
251800Z	28.3N	134.9E	196	132	194	166
260000Z	30.1N	134.9E	238	65	223	105
260600Z	32.2N	135.3E	202	67	207	305
261200Z	35.3N	136.6E	- - - -		- - - -	
261800Z	38.3N	138.9E	- - - -		- - - -	
270000Z	40.6N	142.2E	- - - -		- - - -	
270600Z	40.2N	146.5E	- - - -		- - - -	

AVERAGE 12 HOUR ERROR 42.5 NM
AVERAGE 24 HOUR ERROR 87.3 NM


BEST TRACK
TYPHOON VERA
21-27 SEP 1959
Legend
6 HR BEST TRACK POSITS
AIRCRAFT FIX
SPEED
INTENSITY
KTS
INTENSITY ≥ 64 KTS
INTENSITY < 64 KTS
21/00Z
22/00Z
23/00Z
24/00Z
25/00Z
26/00Z


12 HR FORECAST POSITS
TYPHOON VERA
21-27 SEP 1959
Legend
12 HR FORECAST POSITS
6 HR BEST TRACK POSITS
22/00Z
23/00Z
24/00Z
25/00Z
26/00Z
27/00Z
27/18Z
27/18Z


24 HR FORECAST POSITS
TYPHOON VERA
21-27 SEP 1959
Legend
24 HR FORECAST POSITS
6 HR BEST TRACK POSITS
27/00Z
26/00Z
25/00Z
24/00Z
23/00Z
22/00Z
120