

G. TYPHOON JOAN (25-30 AUGUST 1959)

On 23 August, Guam's winds aloft shifted from easterly to north-easterly, and surface analyses indicated a surface center northeast of the island. A reconnaissance aircraft was directed into this suspect area, and a fix was made at 250325Z. On the basis of this information, Tropical Storm JOAN Warning Number 1 was transmitted with maximum surface winds near the center of 40 knots. The storm intensified very rapidly, and 23 hours later was upgraded to a typhoon with winds near the center of 85 knots.

Typhoon JOAN assumed and maintained a northwesterly course bore-sighted for the island of Taiwan. Movement began with a speed of 10 knots gradually increasing to 17 knots prior to hitting Taiwan. Her peak intensity was reached at 290800Z when aircraft reconnaissance observed maximum surface winds of 200 knots and a sea level pressure of 891 millibars. Orographic effect of the mountains of Taiwan had a decided weakening effect on JOAN as the center moved directly across the island. However, winds in excess of 50 knots were reported by several stations on Taiwan and there was considerable damage. Moving at a slower speed of 10 knots, and with surface winds under 100 knots, JOAN moved on to the Chinese Mainland at 300500Z and began to degenerate. At 301800Z, when it was evident that JOAN would remain inland and continue rapid dissipation, JTWC issued a final warning.

Climatologically JOAN was slightly premature since her track was similar to the path normal for early September. Typhoon NELLIE of September 1949 most closely approximated JOAN's track. JOAN was 1959's strongest typhoon in size and intensity. In horizontal extent, JOAN

dominated an area of the Western Pacific of more than 1,000 miles in diameter, and 50 knot winds extended up to a radius of 300 miles. Her minimum 700 millibar height and minimum sea level pressure set the record lows for the 1959 Typhoon Season. JOAN presented few forecast difficulties, although two questionables fixes on the 28th led to an erroneous recurvature forecast. Twenty-four warnings were issued covering a period of 6 days.

For damage caused by Typhoon JOAN see section VI, "Destructive Effects of Typhoons."

RECONNAISSANCE AIRCRAFT FIXES - TYPHOON JOAN

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	250325Z	16.0N	143.3E	54-P-5	1001	20	10040	30	10	10	CIRC DIA 20 MI
2	250600Z	15.9N	143.2E	54-P-5	998	45	10020	45	10	09	CIRC DIA 40 MI
3	252015Z	15.8N	140.4E	54-P-5	992	45	9890	38	12	09	EYE CIRC - OPEN NORTH
4	260215Z	15.6N	139.5E	54-P-10	984	85	9730	50	17	10	CIRC DIA 50 MI
5	260800Z	15.7N	138.7E	54-P-10	979	95	9600	60	16	09	CIRC DIA 50 MI
6	261400Z	16.0N	138.0E	54-R-15	--	--	--	--	--	--	-----
7	262315Z	16.5N	136.1E	54-P-5	972	100	9280	70	15	13	CIRC DIA 30 MI
8	270230Z	16.5N	135.4E	54-P-10	961	100	9190	80	17	12	CIRC DIA 30 MI
9	270745Z	16.7N	134.0E	54-P-5	961	100	8850	80	20	13	CIRC DIA 30 MI
10	271400Z	17.4N	132.7E	54-R-5	--	--	--	--	--	--	CIRC DIA 25 MI
11	271730Z	17.9N	132.4E	54-R-5	--	--	--	--	--	--	CIRC DIA 25 MI
12	272000Z	18.0N	131.5E	54-R-5	--	--	--	80	--	--	CIRC DIA 25 MI
13	272100Z	18.3N	131.0E	54-P-5	916	100	7930	110	23	12	CIRC DIA 25 MI
14	272230Z	18.6N	130.9E	12-R-10	--	--	--	--	--	--	CIRC DIA 20 MI
15	280200Z	18.8N	130.0E	54-P-5	906	100	7520	125	24	12	CIRC DIA 18 MI
16	280800Z	19.3N	128.8E	54-P-5	906	175	7240	125	23	15	ELLIP AXIS 20 MI
17	281100Z	20.1N	128.3E	12-R-10	--	--	--	--	--	--	CIRC DIA 20 MI
18	281415Z	21.0N	127.6E	54-R-5	--	--	--	125	--	--	CIRC DIA 18 MI
19	282125Z	21.1N	125.3E	54-P-5	891	190	6850	150	25	13	CIRC DIA 18 MI

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RECONNAISSANCE AIRCRAFT FIXES - JOAN (CONT'D)

FIX NO.	TIME	LAT.	LONG.	*UNIT METHOD & ACCY	MIN SLP MBS	MAX SFC WND	MIN 700MB HGT	MAX FLT LVL WND	MAX 700MB TEMP (°C)		700MB DEWPT (°C)	EYE CHARACTERISTICS
									700MB	700MB		
20	290200Z	21.5N	124.2E	54-P-2	898	--	7190	140	17	12	CIRC DIA 20 MI	
21	290340Z	21.8N	123.8E	56-R-5	900	150	--	--	--	--	ELLIP 35E-W 40N-S	
22	290800Z	22.4N	123.0E	54-P-2	898	200	7280	180	21	16	CIRC DIA 20 MI	
23	290522Z	22.1N	123.7E	12-R-2	--	--	--	--	--	--	=====	
24	292050Z	24.0N	120.7E	54-T-30	--	--	--	65	--	--	=====	

TYphoon Joan 25 - 30 August 1959  
POSITION AND FORECAST VERIFICATION DATA

DTG	STORM POSITION LAT. LONG.	12 HR ERROR DEG. DISTANCE	24 HR ERROR DEG. DISTANCE
250600Z	15.5N 143.2E	- - - -	- - - -
251200Z	15.5N 142.2E	025 - 58	- - - -
251800Z	15.6N 141.1E	045 - 79	- - - -
260000Z	15.7N 140.1E	051 - 112	045 - 118
260600Z	15.8N 139.0E	065 - 60	057 - 139
261200Z	15.9N 137.8E	159 - 17	060 - 174
261800Z	16.2N 136.7E	120 - 31	040 - 51
270000Z	16.4N 135.7E	110 - 54	145 - 36
270600Z	16.8N 134.5E	108 - 130	134 - 63
271200Z	17.2N 133.3E	122 - 28	112 - 106
271800Z	17.7N 132.0E	169 - 28	114 - 156
280000Z	18.4N 130.4E	116 - 13	152 - 84
280600Z	19.2N 128.8E	116 - 38	135 - 85
281200Z	20.0N 127.2E	080 - 25	099 - 66
281800Z	20.8N 125.6E	110 - 66	110 - 92
290000Z	21.5N 124.5E	036 - 123	052 - 46
290600Z	22.2N 123.5E	310 - 75	072 - 72
291200Z	23.2N 122.0E	216 - 23	033 - 221
291800Z	23.9N 120.9E	213 - 29	300 - 108
300000Z	24.7N 119.9E	345 - 48	253 - 75
300600Z	25.4N 118.9E	332 - 76	214 - 37
301200Z	26.2N 117.9E	278 - 72	017 - 180
301800Z	26.9N 116.8E	342 - 72	019 - 204
AVERAGE 12 HOUR ERROR	57.1 NM		
AVERAGE 24 HOUR ERROR	105.7 NM		

BEST TRACK  
TYphoon Joan

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Legend:

6 HR BEST TRACK POSITS

AIRCRAFT FIX

SPEED

INTENSITY

INTENSITY ≥ 64 KTS

INTENSITY < 64 KTS





