Preliminary Report
Hurricane Flossie
7-14 August 1995

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Some tropical cyclones in the eastern North Pacific appear to develop in close association with tropical waves. Others, like Hurricane Flossie, are apparently generated in a different, "monsoon-like" mode of formation in which tropical waves may not be the primary large-scale forcing.

a. Synoptic History

Hurricane Flossie formed within a large, deep cyclonic circulation and low pressure area that dominated the weather in the tropical eastern North Pacific Ocean near the end of the first week of August. The southern and southeastern part of this area was defined by a long stretch of west-southwesterly winds and by cloudiness in the eastern part of the ITCZ, which had pivoted northward through the Gulf of Tehuantepec (toward Tropical Storm Gabrielle in the western Gulf of Mexico).

The large circulation was well-developed by August 7 when thunderstorm activity began to increase and become focussed a few hundred miles southwest of Acapulco (perhaps in association with a tropical wave analyzed in the vicinity). Surface pressures were already low across the region as implied by a ship report of 1004.0 mb made near Acapulco at 0000 UTC on the 7th. Based primarily on surface analyses, this system is estimated to have become Tropical Depression Seven-E at 1200 UTC on the 7th (Table 1 and Fig. 1).

The intensity implied by satellite images continued to lag the estimates derived from surface reports. Satellite analysts at the NHC and NESDIS Synoptic Analysis Branch (SAB) had Dvorak T-numbers of 2.0 (30 knots) at 0000 UTC on the 9th (Figs. 2 and 3). However, two ships then had pressures in the 996-999 mb range and observations from ships imply that winds were likely of tropical storm force. It is now estimated that the depression became Tropical Storm Flossie at 1800 UTC on the 8th.

Flossie moved toward the northwest at 5 to 10 knots for most of its seven-day existence, to the south-southeast of a deep-layer-mean anticyclone. On this course, the center remained offshore, but the southwestern coast of Mexico and later the southern Baja California peninsula were buffeted by gusty winds and locally heavy rain.

A northeasterly vertical wind shear diminished and very cold cloud tops then developed. Flossie reached hurricane strength on the 10th and its peak intensity, 70 knots, was maintained for about 24 hours beginning at 1200 UTC that day. An embedded warm spot

appeared in satellite pictures and the center of circulation made its closest approach to land during that period, when it passed about 65 n mi to the southwest of the peninsula.

Weakening ensued over cooler waters. Flossie dropped below hurricane strength on the 12th and turned westward. It was a depression on the 13th and dissipated on the 14th.

b. Meteorological Statistics

Figures 2 and 3 show the curves of estimated minimum central pressure and maximum one-minute wind speed versus time, respectively, and the data upon which they were based. The Air Force Global Weather Central (AFGWC), the NHC Tropical Analysis and Forecast Branch (TAFB; TSAF in figures), and the NESDIS Synoptic Analysis Branch (SAB) supplied the Dvorak classifications. The figures show the early lag between Dvorak technique intensity estimates derived from satellite pictures and estimates made from surface analyses.

An observation of tropical storm force winds was received from Cabo San Lucas, Baja California which had 35 knot winds (over 10-minutes) and a gust to 48 knots at 0300 UTC on the 11th. Nearby San Jose del Cabo had a gust to 55 knots according to amateur radio reports. Selected significant ship observations are as follows:

Ship ID	Date/Time (UTC)	Lat. (°N)	Lon. (°W)	Wind Speed (knots)	Pressure (mb)
LAMF2	08/2200	19.1	106.0	28-40	1000.5
LAMF2	08/2340	19.0	105.8	56-65	
LAMF2	09/0000	19.0	105.7	37	996.0
3FDQ5	09/0000	18.3	107.1	29	998.7
ELKA7	09/1800	18.5	105.8	37	1004.0
DVRUK4D	11/0000	20.9	111.3	38	1000.0
DVRUK4D	11/0300	20.4	111.0	45	1003.0
ZCBC3	11/1200	23.2	111.3	45	995.2
ZCBC3	11/1800	22.2	109.8	40	1007.7
DEDD	11/1800	21.1	113.3	35	1004.8
NFPW	12/1200	27.5	115.5	35	1006.0

Some data from the ship **LAMF2** are likely unrepresentative.

c. Casualty and Damage Statistics

The **El Nuevo Herald** newspaper reported five lives lost in Puerto Vallarta and Mazatlan. Amateur radio reports stated that two people drowned in Cabo San Lucas. No quantitative estimates of damage have been received.

d. Forecast and Warning Critique

Flossie was of tropical storm or hurricane intensity for only about four days so there were few forecasts to evaluate. On average, the NHC track and intensity errors for that period were comparable to previous averages.

Table 2 lists tropical storm warnings and watches issued by the Government of Mexico.

Table 1. Preliminary best track, Hurricane Flossie, 7-14 August 1995.

Date/Time (UTC)	Position Lat. (°N)	Lon. (°W)	Pressure (mb)	Wind Speed (kt)	Stage
7/1200	15.2	104.2	1001	30	Tropical Depression
1800	15.3	104.7	1001	30	" "
8/0000	15.5	105.2	1000	30	" "
0600	15.8	105.7	999	30	" "
1200	16.2	106.0	998	30	" "
1800	16.6	106.3	997	35	Tropical Storm
9/0000	17.1	106.5	994	40	" "
0600	17.6	106.8	991	50	" "
1200	18.0	107.4	988	55	" "
1800	18.5	107.9	985	60	" "
10/0000	19.1	108.4	983	60	" "
0600	19.5	108.8	980	65	Hurricane
1200	20.0	109.3	979	70	" "
1800	20.5	109.7	978	70	" "
11/0000	21.3	110.3	979	70	" "
0600	22.1	111.0	980	70	" "
1200	22.9	112.0	982	65	" "
1800	23.5	113.2	983	65	" "
12/0000	24.0	114.3	984	65	" "
0600	24.2	114.9	987	60	Tropical Storm
1200	24.5	115.7	990	60	" "
1800	24.7	116.5	994	55	" "
13/0000	24.7	117.2	997	40	" "
0600	24.7	118.0	1000	30	Tropical Depression
1200	24.7	118.4	1002	30	" "
1800	24.7	118.8	1004	25	" "
14/0000	24.7	119.2	1006	25	Dissipating
10/1800	20.5	109.7	978	70	Minimum Pressure

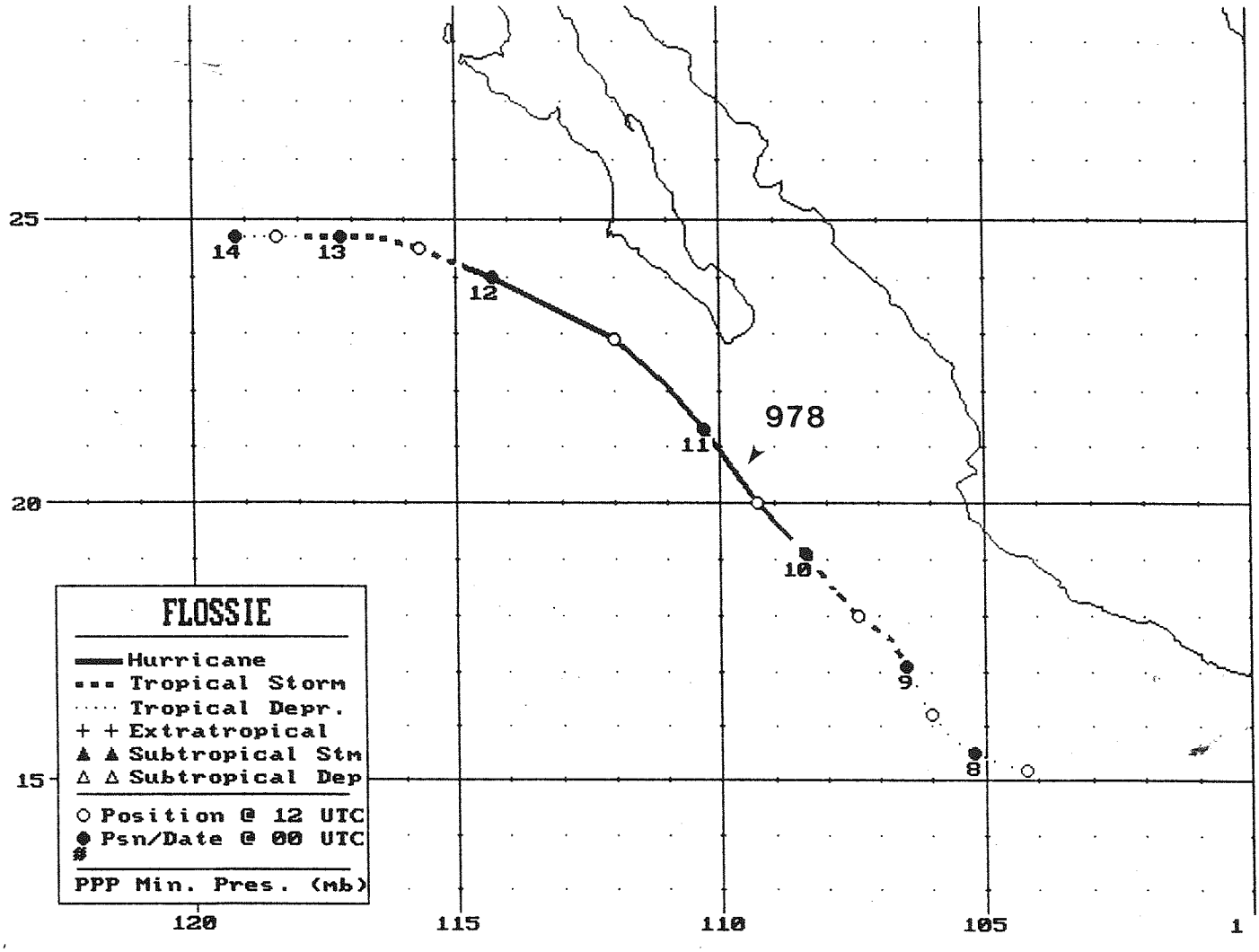

Fig. 1. Best track positions for Hurricane Flossie, 7-14 August 1995.

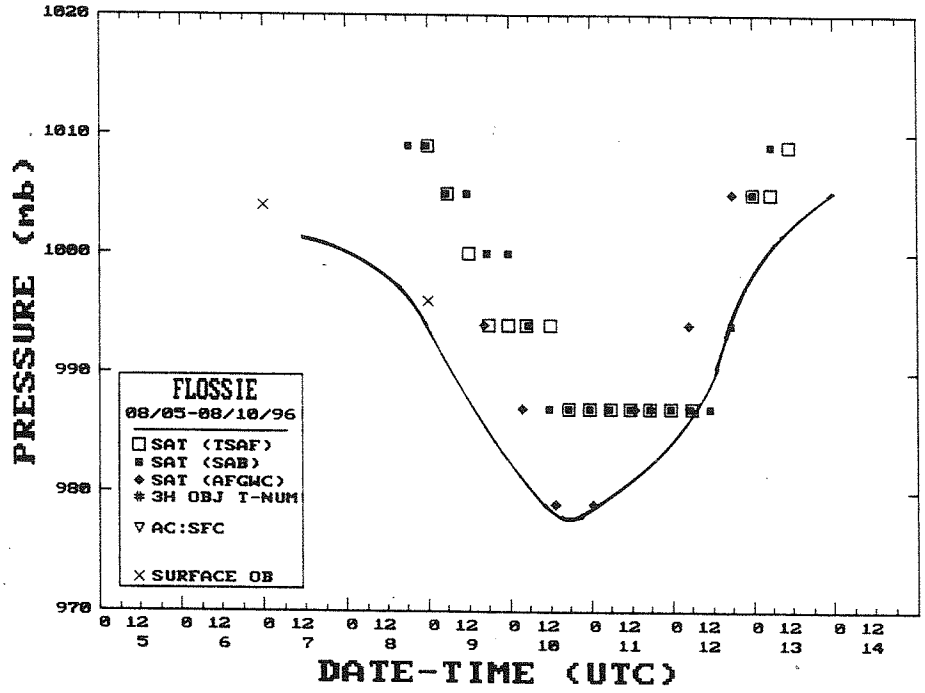

Fig. 2. Best track minimum central pressure curve for Hurricane Flossie.

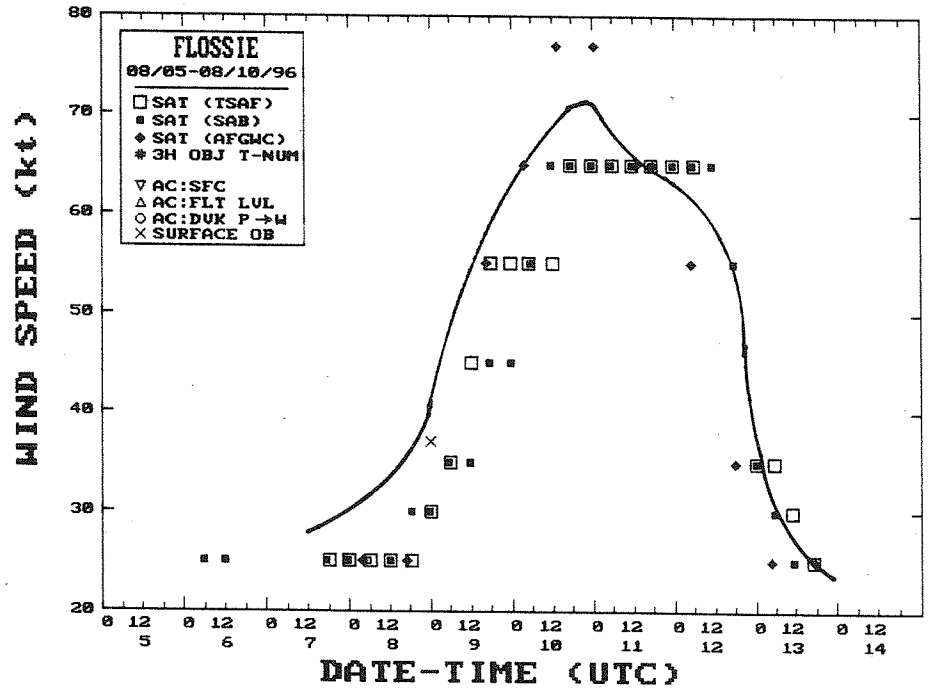

Fig. 3. Best track one-minute wind speed curve for Hurricane Flossie.

Table 2

Hurricane Flossie watch and warning summary

Date/Time (UTC)	Action	Region
09/1500	Tropical Storm Warning issued	Punta Tejupan to Cabo Corrientes
09/2100	Tropical Storm Watch issued	Baja California south of La Paz
09/2100	Tropical Storm Warning discontinued	Punta Tejupan to Cabo Corrientes
10/1500	Tropical Storm Warning issued	Baja California south of La Paz
11/1000	Tropical Storm Warning extended	Baja California to San Juanico on west coast and Loreto on east coast
12/0000	Tropical Storm Warning discontinued	All areas