NOAA TECHNICAL MEMORANDUM NWSTM PR-42

1995 TROPICAL CYCLONES - CENTRAL NORTH PACIFIC

HONOLULU, HI
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Honolulu, Hawaii
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INTRODUCTION

The 1995 Central Pacific tropical cyclone season was a near record for the lowest number of storms in the Central Pacific. Tropical Storm Barbara was the only system observed in the Central Pacific during 1995. This is the lowest number since 1979 when no tropical cyclones were observed in the Central Pacific. Other years in which no tropical cyclones were observed were 1964, 1969, and 1977. The statistics are based on records from 1961 through 1995 when satellite data were available for much of the period.

A negative sea surface temperature anomaly and a weaker than normal North Pacific subtropical surface ridge of high pressure were likely contributing factors to the below average number of tropical cyclones in the Central Pacific this season. Sea surface temperatures in the Central Pacific near the Equator were between zero and one degree Celsius below average during this season.

The season began and ended in July with one tropical storm. Although none of the Hawaiian Islands received strong winds from the storm, associated moisture produced rainfall amounts between 2 and 4 inches over the Big Island of Hawaii.

TROPICAL STORM BARBARA
JULY 16 - JULY 17, 1995

HISTORY: Barbara initially developed as a tropical disturbance near 8.5N 94.7W on July 4, 1995. It initially moved on a west northwest path before becoming Tropical Depression Two-E and Tropical Storm Barbara on July 7. It then moved on a west track and became Hurricane Barbara on July 9 near 13.1N 112.0W.

Barbara continued on a westerly track and reached a peak intensity of 120 knots on July 13. The storm began to weaken and was downgraded to a tropical storm on July 15. It crossed 140W with maximum winds of 40 knots on July 16 and moved west northwest near 10 knots.

The storm was downgraded to a tropical depression on the afternoon of July 16 and continued to weaken. The final advisory was issued on the afternoon of July 17 near 17N 145W or about 680 miles east southeast of Hilo on the Big Island of Hawaii.

SYNOPTIC SITUATION (July 16- July 17, 1995)

SURFACE. A high pressure area with a central pressure near 1032 millibars was centered near 45N 138W with a ridge extending southwest from the center to near 27N 160W. This system remained nearly stationary and favored a storm movement toward the west northwest.

Sea surface temperatures near the storm were near normal (between 26 and 27 degrees Celsius).

700, 500, AND 250 MILLIBARS. An anticyclone remained north of the storm. Easterly flow continued in the vicinity of the storm between 140W and 145W. At 700 millibars, temperatures were between 10 and 11 degrees Celsius. Model relative humidity values were above 70 percent. At 500 millibars, temperatures were between minus 5 and minus 6 degrees Celsius. At 250 millibars, the storm was on the western part of a weak anticyclonic circulation with winds from the southeast near 10 knots. North of the system, winds were from the west between 10 and 20 knots.

SATELLITE DATA.

Tropical Storm Barbara crossed 140W with an area of cumulus and stratocumulus clouds that extended about 300 nautical miles to the north and west. Very little cloudiness was to the south and east. Nearly all of the deep convection and associated thunderstorms had already dissipated before the storm crossed into the Central Pacific.

DISCUSSION

Barbara was in its weakening stages as a tropical storm when it crossed into the Central Pacific on July 16 with maximum sustained winds near 40 knots. Before reaching 140W, a weak trough moved over the storm, resulting in its weakening to a tropical storm and, subsequently, a tropical depression. On the afternoon of July 16, the storm was downgraded to a tropical depression as it continued to move in a west northwest direction. The last advisory was issued on the afternoon of July 17 near 17N 145W.

Remnants of the storm continued west northwest and the circulation was just south of South Point on the Big Island of Hawaii on July 20. Moisture from the storm produced much needed rains over the Hawaiian Islands. Amounts between two and four inches were over the Big Island with lesser amounts elsewhere.

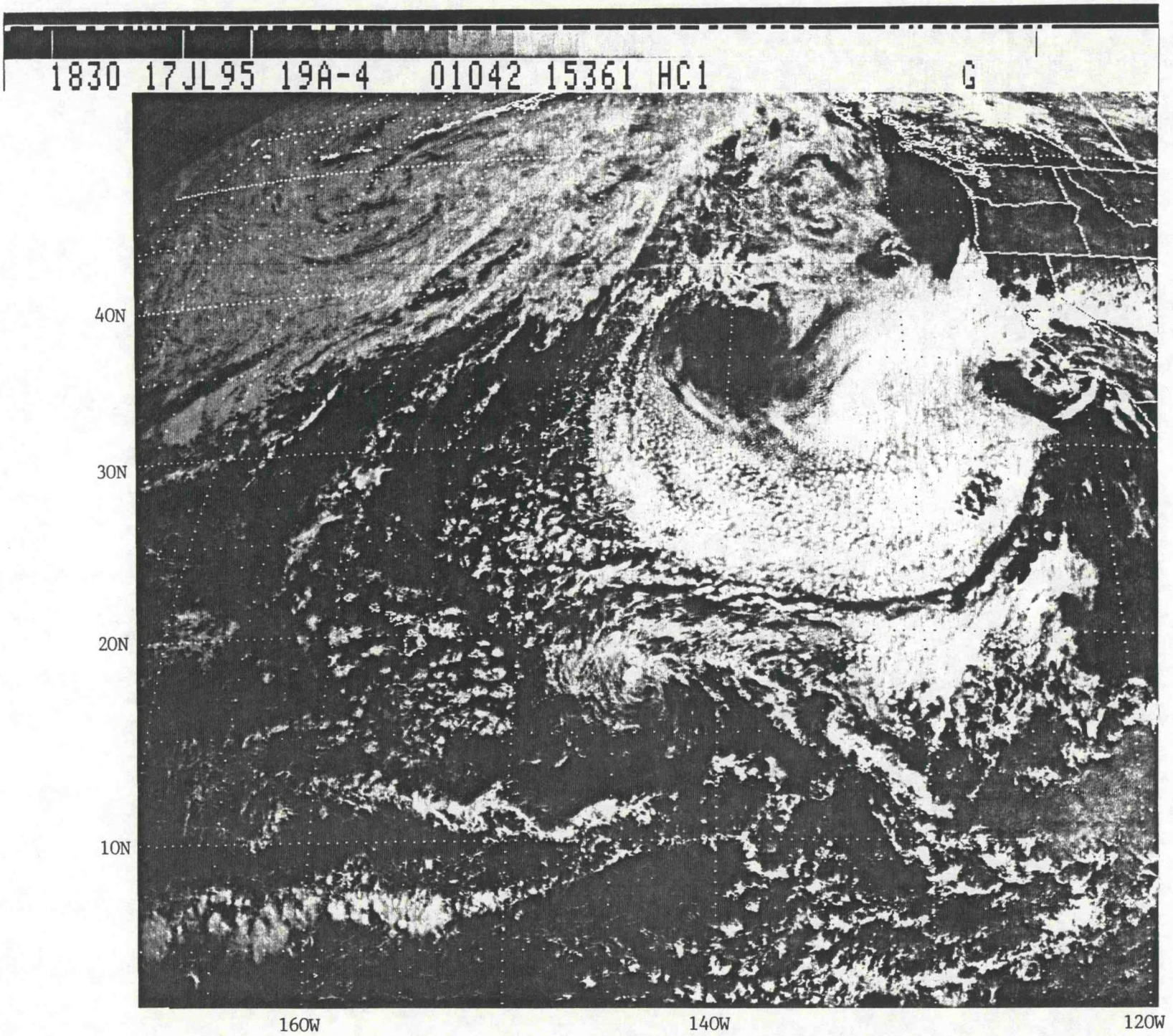
The following is the best track data for Tropical Storm Barbara for each six hour synoptic time period. Included are the maximum sustained wind values for each period.

DATE/TIME(Z)	LATITUDE (N)	LONGITUDE (W)	MAX WINDS (KT)
07/16/1800	16.0	139.5	40
07/17/0000	16.3	140.5	30
0600	16.5	141.5	30
1200	16.8	142.4	30
1800	17.1	143.4	30
07/18/0000	17.3	144.4	25

VERIFICATION

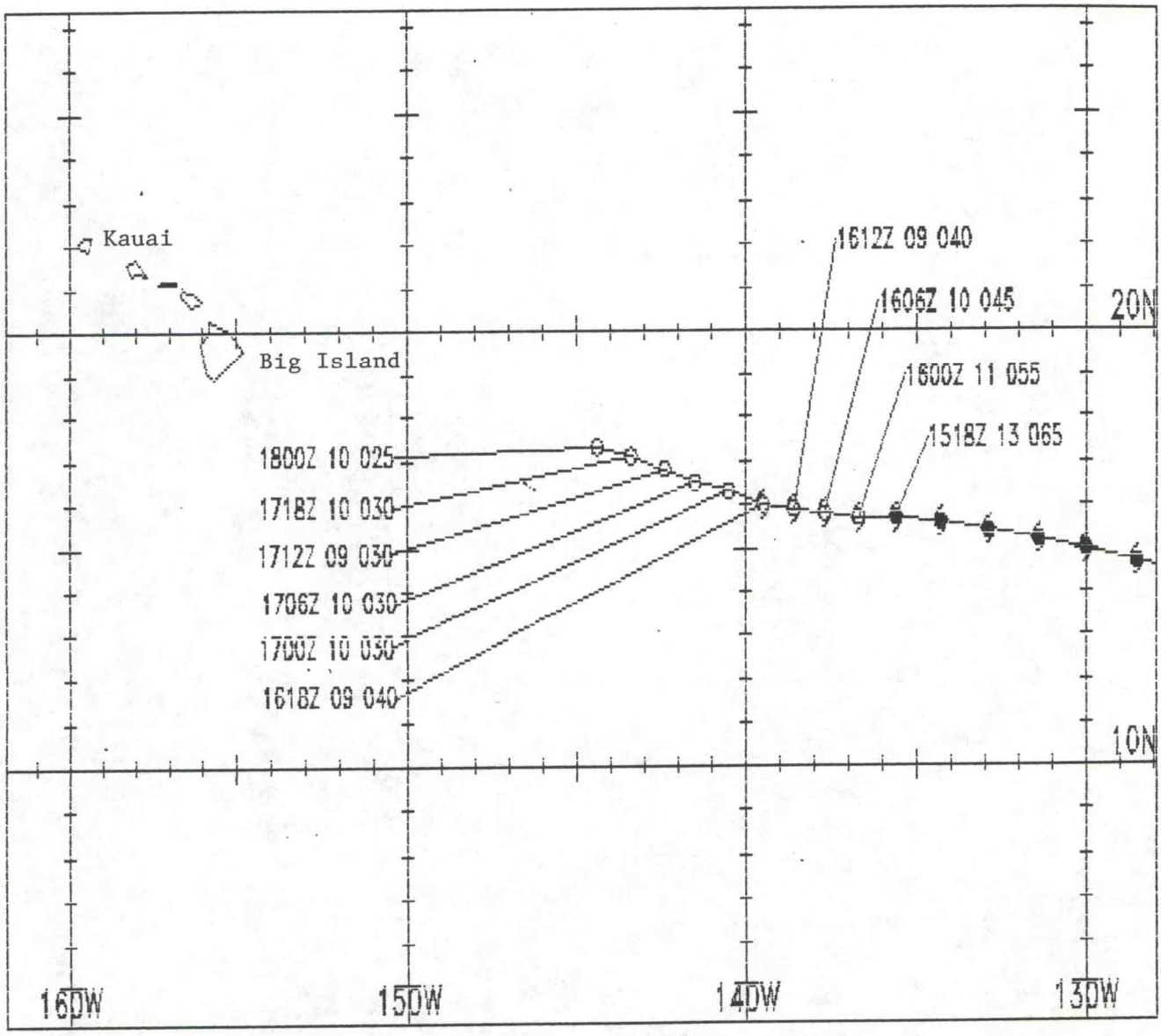
Statistics are normally done only for hurricanes, but are provided for this one storm. Since the storm lasted slightly over a day, no statistics were available for 36, 48, and 72 hours. Because of the small sample, no one model did significantly better or worse than the others.

FORECASTER/MODEL		ERROR IN NAUTICAL MILES 12 HOURS	24 HOURS
Central Pacific Hurricane Center	**CPHC**	**25**	**48**
CLImatology and Persistence	**CLIP**	**25**	**46**
Beta Advection Model - Deep	**BAMD**	**56**	**53**
Beta Advection Model - Medium	**BAMM**	**44**	**55**
Beta Advection Model - Shallow	**BAMS**	**19**	**60**
Pacific Statistical Synoptic	**PSS**	**39**	**28**
Pacific Statistical Dynamic	**P91E**	**54**	**50**



GOES-7 SATELLITE PHOTOGRAPH OF TROPICAL DEPRESSION BARBARA NEAR 17N 143W AT 1830Z JULY 17, 1995

BEST TRACK PLOT FOR TROPICAL STORM BARBARA



For positions provided, the first figure is the date and time group, followed by the speed of the system and the maximum sustained winds.

For example, the first position shown after Barbara crossed 140W gives the following information: 1700Z 10 030, which is the position on July 17, 1995 at 0000Z. The system was moving at 10 knots and had maximum sustained winds of 30 knots.

No. 19 A Program to Compute Turbulence in the vicinity of Lee Waves Downstream of Selected Mountains in the Hawaiian Islands. Lawrence D. Burroughs. October 1978. (PB-289-792)

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No. 30 1984 Tropical Cyclones - Central North Pacific. W. Au, A. Chun, A. Inouye, L. Iwai, H. Rosendal, T. Yamashiroya. March 1986. (PB86-183-951/AS)

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No. 41 1994 Tropical Cyclones - Central North Pacific. A. Garza, G. Trapp, B. Hablutzel, H. Rosendal, R. Farrell, R. Matsuda, J. Hoag. January 1995. (PB95-182036)

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