CENTRAL PACIFIC HURRICANE CENTER TROPICAL CYCLONE REPORT

TROPICAL CYCLONES 1997

Central Pacific Hurricane Center

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NOTE: The following was adapted from the NOAA TECHNICAL MEMORANDUM NWSTM PR-44.

INTRODUCTION

During the winter of 1996-1997 and the spring of 1997, the sea surface temperatures in the Eastern and Central Pacific near the equator showed a significant warming with the onset of an El Niño event. Sea surface temperatures reached positive anomalies of 4-5 degrees Celsius near the Equator in the Eastern Pacific and 1-4 degrees Celsius in the Central Pacific. This warming and periods of westerly winds in the lower atmosphere along the equator apparently had an effect on the tropical cyclone activity in the Central Pacific.

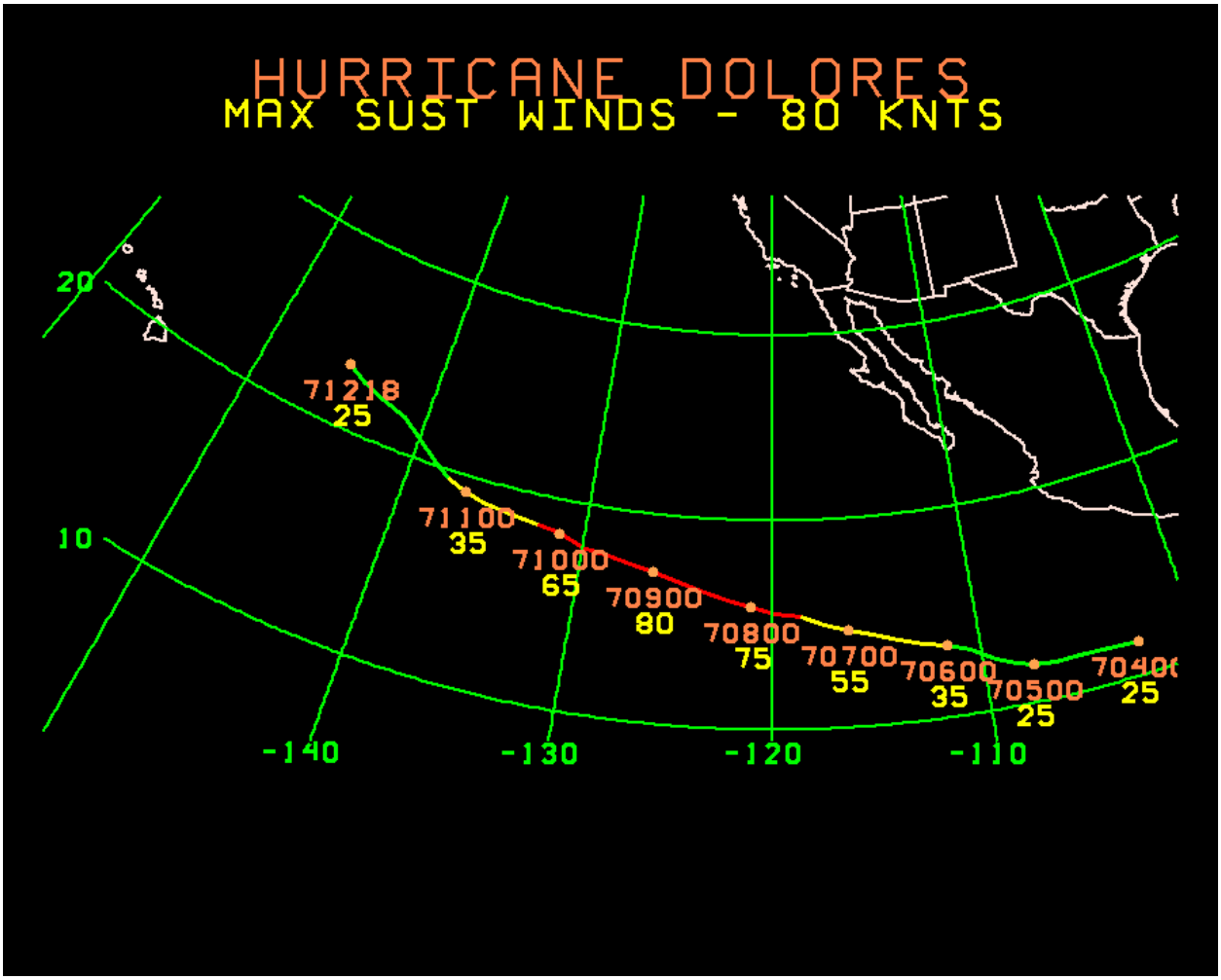
Nine tropical cyclones occurred in the Central Pacific during 1997. This is twice the 36 year average of 4.5 and substantially greater than the 1995 season (1 tropical storm) and the 1996 season (2 tropical depressions). The 1997 season had the fourth highest number of tropical cyclones in the Central Pacific since accurate and complete records were started in 1961 with the advent of weather satellites. Only 1994 (11), 1992 (11), and 1982 (10), all of which were El Niño event years, had more tropical cyclones.

Two other facts concerning the 1997 tropical cyclone activity may have been influenced by the El Niño related conditions. First, the genesis area for 4 of the 9 tropical cyclones was in the Central Pacific (140W to the International Dateline). Work documented by the El Niño Southern Oscillation (ENSO) Application Center has shown that more tropical cyclones form in this area during El Niño years. Second, for the first time in the 36 year period of record, a tropical cyclone, Tropical Storm Paka, occurred in the Central Pacific in December. Tropical Storm Paka was designated a tropical depression on December 2, 1997 and then upgraded to a tropical storm on that same day. It remained a tropical storm through December 6, 1997 when it moved across the International Dateline and the Joint Typhoon Warning Center in Guam began issuing advisories on it. As it moved west, Paka became a super typhoon and ultimately struck Guam on December 17, 1997 with winds in excess of 140 mph.

One other unusual aspect of the 1997 season was that, of the 9 tropical cyclones, none reached hurricane strength while in Central Pacific waters. This had not occurred previously during a season with 8 or more tropical cyclones. This also makes the third consecutive year without a hurricane in the Central Pacific. This has occurred only one other time during the 36 year period of record and that was from 1963-1965. The main reason for the weaker systems was the persistence of strong upper level westerly or southwesterly winds in the area of the tropical cyclones. Strong tropical cyclones would develop in the Eastern Pacific and move west where they would encounter strong westerly or southwesterly winds that would shear (low level winds from the east and upper level winds from the west or southwest) apart the storms. The storms would then rapidly weaken. Also, the upper level westerly or southwesterly winds did not provide favorable conditions for those depressions that formed in the Central Pacific to mature.

Tropical cyclones for 1997 began with Tropical Depression Dolores on July 11-12 and ended with Tropical Storm Paka on December 2-6.

TROPICAL DEPRESSION DOLORES
JULY 11-12, 1997



HISTORY. Dolores developed as a tropical disturbance near 12N 107W on the afternoon of July 3 (Hawaiian Standard Time). It initially moved west and northwest until it was named Tropical Storm Dolores on the afternoon of July 5. On July 7, it became Hurricane Dolores near 16N 121W.

Dolores continued on a west northwest track and reached a peak intensity of 80 knots on July 8-9. The storm began to weaken and was downgraded to a tropical storm on July 9 and a tropical depression on July 10. The depression crossed into the Central Pacific near 21N 140W or about 1000 miles east the Big Island of Hawaii near Hilo on the morning of July 11.

The depression continued in a west northwest direction and dissipated about 800 miles east of Honolulu. The final advisory was issued on the morning of July 12. Remnants of the tropical depression passed north of the Hawaiian Islands and did not affect weather over the island chain.

SYNOPTIC SITUATION (July 11 - July 12, 1997)

SURFACE. A moderate 1028 millibar high pressure area was centered near 40N 140W with a ridge extending southwest to 35N 150W and west southwest to near 32N 160E. This system remained nearly stationary and favored a movement of the storm toward the west northwest.

Sea surface temperatures along the storm's track in the Central Pacific were near normal at approximately 24 degrees Celsius.

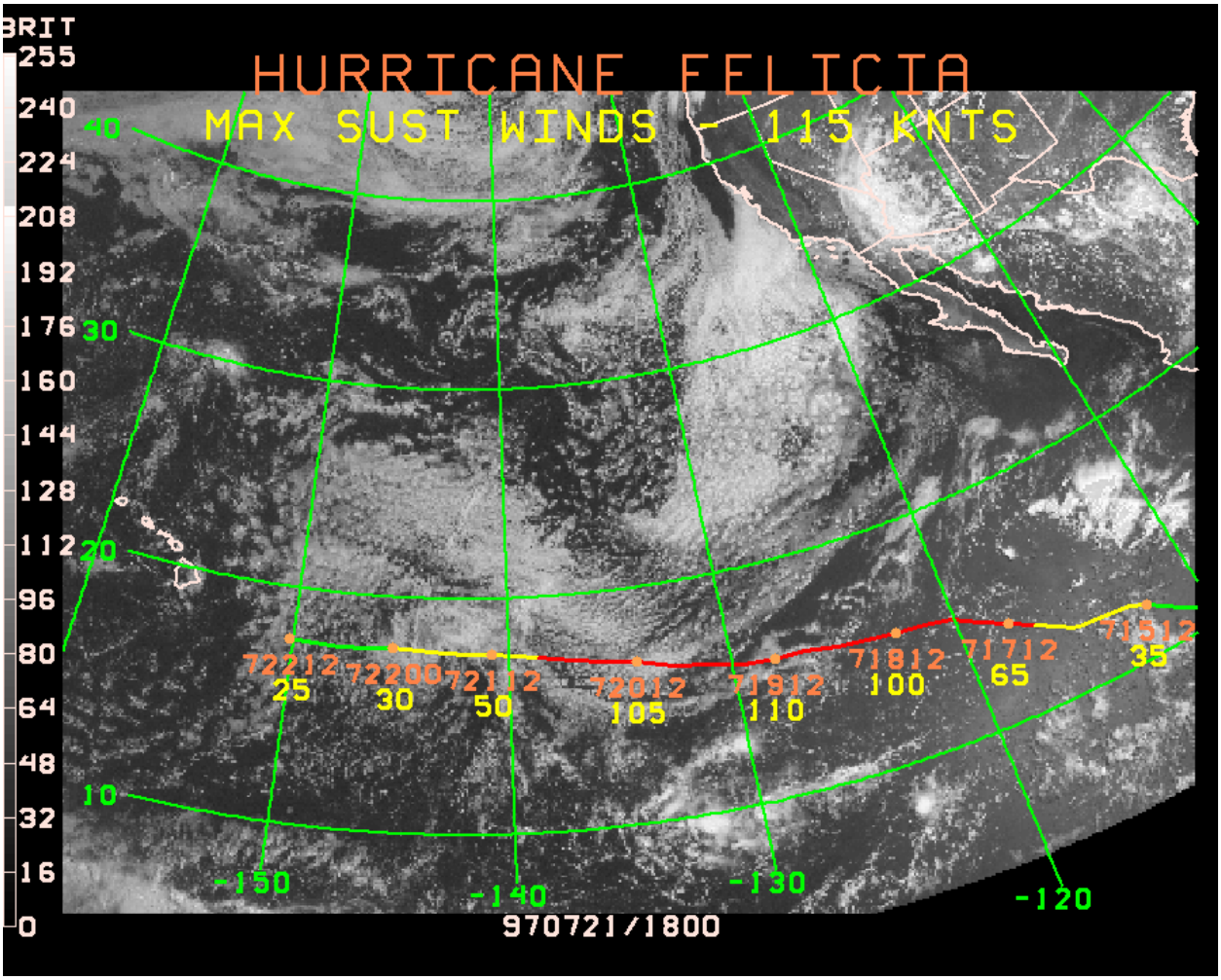
UPPER LEVELS. At 250 millibars, a trough extended northeast from the Hawaiian Islands, resulting in southwest winds between 35 and 45 knots east of the Hawaiian Islands to 138W. The storm had already been sheared as it came under the influence of this southwest flow when it crossed into the Central Pacific.

SATELLITE DATA. Tropical Depression Dolores crossed 140W with cumulus and altocumulus clouds that extended 300 miles from the center mainly in the northwest quadrant. Nearly all of the deep convection and associated thunderstorms had dissipated before it crossed into the Central Pacific.

Best Track for Tropical Depression Dolores. Included are the maximum sustained wind values for each period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
07/11/1800	21.0	140.0	30
07/12/0000	21.8	141.2	30
0600	22.2	142.7	30
1200	22.7	144.1	30
1800	23.2	145.2	25

TROPICAL STORM FELICIA
JULY 21-22, 1997



HISTORY. Felicia began as a tropical disturbance near 09N 104W on the morning of July 13. It was slow to develop as it was initially under the influence of Hurricane Enrique to the northwest. The system became a tropical depression near 10N 109W on July 14 and was named Tropical Storm Felicia on July 15 near 12N 112W. It moved in a general west northwest track and became Hurricane Felicia on the evening of July 17 near 13N 117W.

Felicia continued on a west northwest track and reached a peak intensity of 115 knots on the evening of July 18 near 16N 127W. Peak intensity remained above 100 knots until it began to rapidly weaken on July 20. It was downgraded to a tropical storm on the evening of July 20 and crossed into the Central Pacific on the morning of July 21.

The storm moved on a west to west northwest track and was downgraded to a tropical depression on the afternoon of July 21. The depression continued to weaken and the final advisory was issued on the morning o July 22 when it was located near 17.8N 151.4W or about 270 miles east southeast of Hilo.

SYNOPTIC SITUATION (July 21- July 22, 1997)

SURFACE. A moderate 1026 millibar high pressure area was centered near 35N 145W with a ridge extending to the west northwest through 38N 170W. This system remained nearly stationary and favored the movement of the storm to the west or west northwest.

Sea surface temperatures near the storm were between 25 and 26 degrees Celsius or near normal.

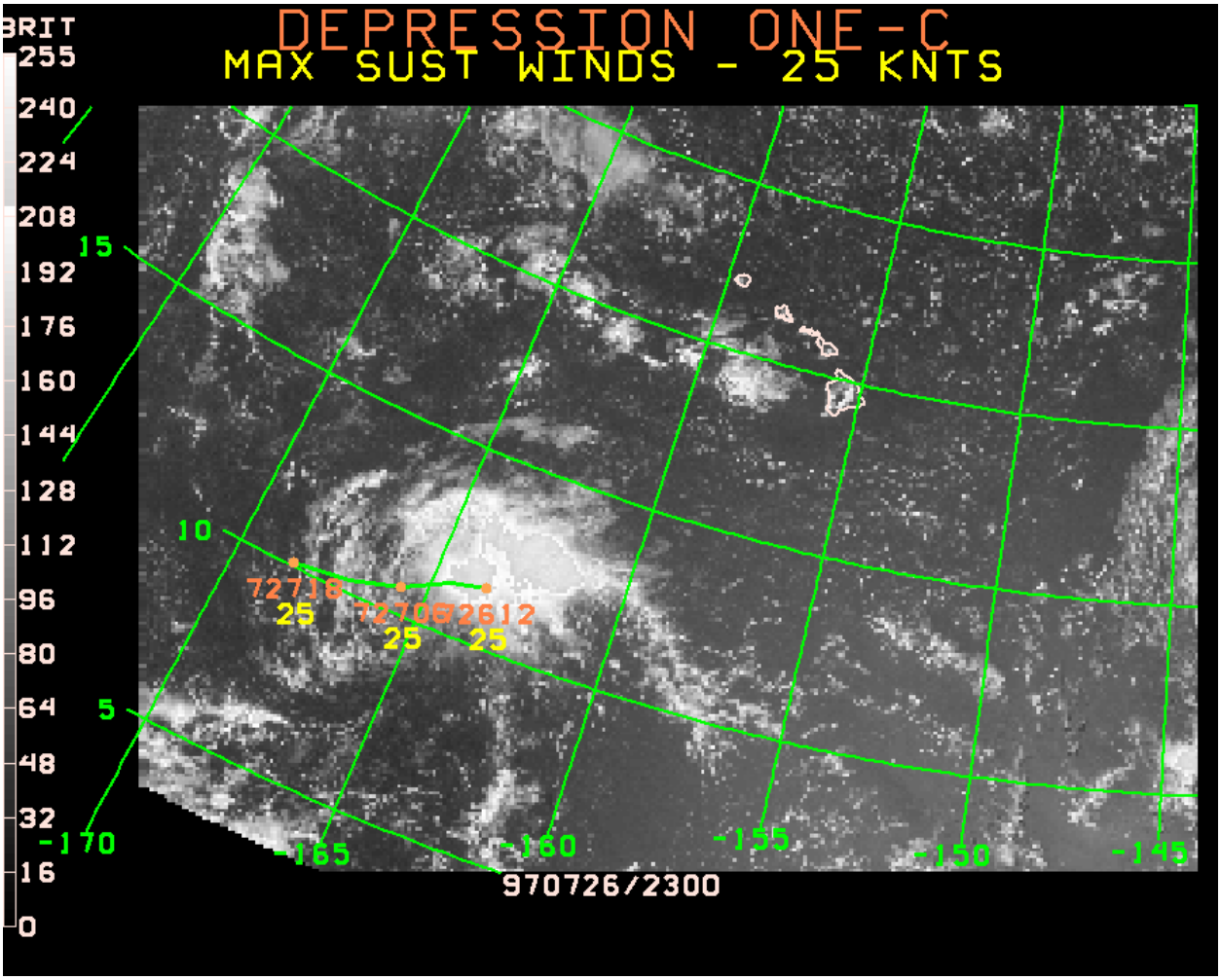
UPPER LEVELS. At 250 millibars, a trough extended from south to north along 152W, resulting in southwest winds between 35 and 40 knots to the east of the trough as far as 140W. The storm came under the influence of southwesterly flow when it crossed into the Central Pacific.

SATELLITE DATA. Tropical Storm Felicia crossed 140W with a broad area of cumulus and stratocumulus clouds to the north of the center. Very little cloudiness associated with the storm existed to the south. On the morning of July 22, no closed circulation was evident.

Best Track for Tropical Storm Felicia. Included are the maximum sustained wind values for each period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
07/21/1200	17.5	140.8	50
1800	17.6	143.0	45
07/22/0000	17.7	145.4	30
0600	17.6	147.8	30
1200	17.7	150.2	25

TROPICAL DEPRESSION ONE-C
JULY 26-27, 1997



HISTORY. Tropical Depression One-C developed as a tropical disturbance near 08N 152W on July 23, 1997. It initially moved west northwest before becoming Tropical Depression One-C on the afternoon of July 26 near 11N 165W.

One-C moved on a west to west southwest track and maintained its intensity of 25 knots through July 27.

The depression was difficult to locate during the night and became sheared on the morning of July 27. The final advisory was issued when the storm was near 10N 169W.

SYNOPTIC SITUATION (July 26 - July 27, 1997)

SURFACE. A moderate 1031 millibar high pressure area was centered near 45N 160W with a ridge extending west southwest from the center to near 38N 180. This high pressure area remained nearly stationary and favored a movement of the storm toward the west.

Sea surface temperatures near the storm were between 27 and 28 degrees Celsius or one degree above normal.

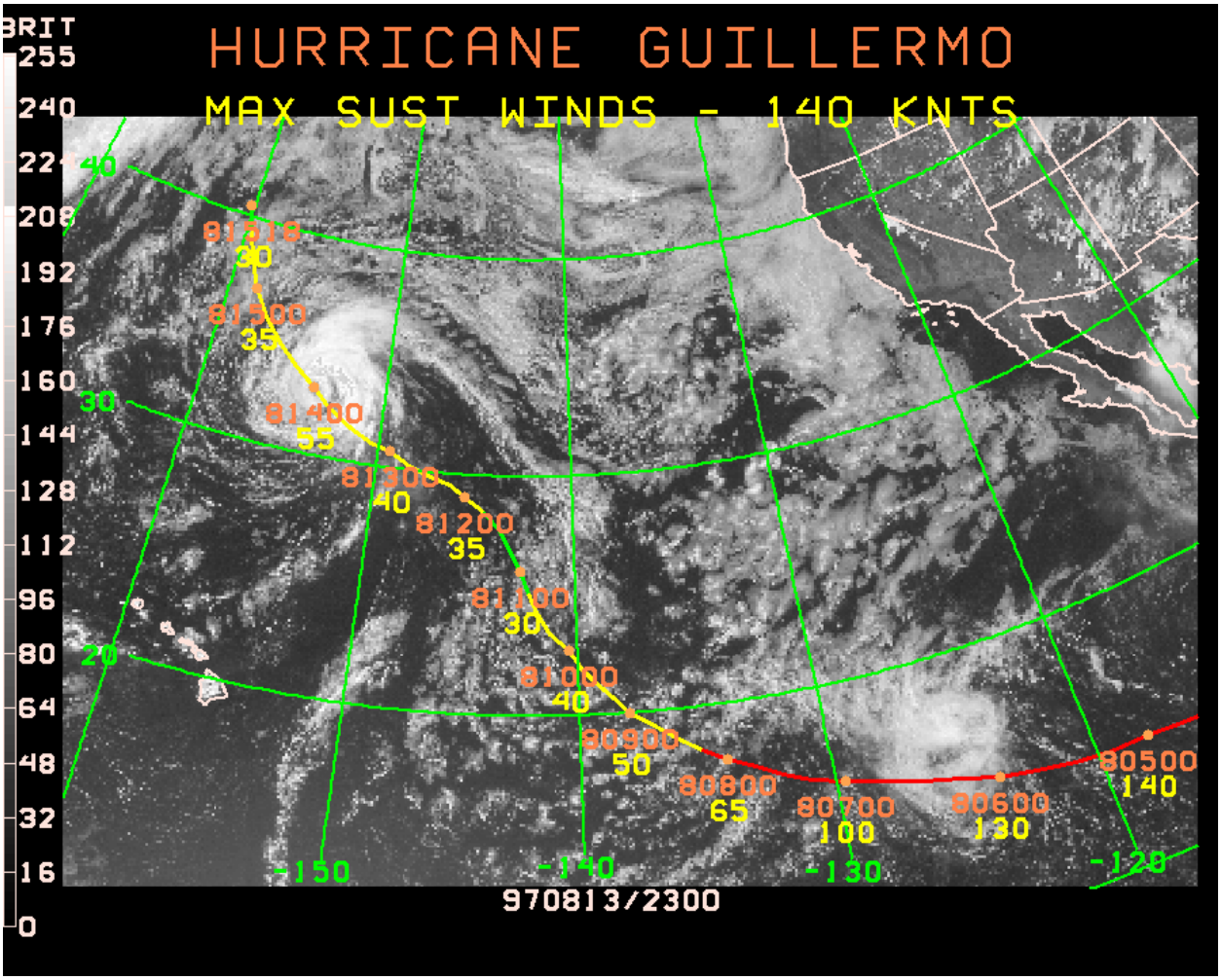
UPPER LEVELS. The wind flow was light at all levels near the storm. At 250 millibars, a jet stream formed on the southeast side of a trough. This trough, northwest of the Hawaiian Islands, dug to the south and sheared off the top of Tropical Depression One-C. The depression remained in an unfavorable shearing environment through the period and, therefore, did not develop into a tropical storm.

SATELLITE DATA. Tropical Depression One-C formed in the Central Pacific near 11N 165W with cumulonimbus clouds within 100 nautical miles of the center in the northeast quadrant. These clouds gradually dissipated during the night and the center was difficult to locate. By the afternoon of July 27, only a low level circulation remained.

Best Track for Tropical Depression One-C. Included are the maximum sustained wind values for each period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
07/27/0000	11.3	164.5	25
0600	10.7	165.7	25
1200	10.3	167.5	25
1800	10.1	168.5	25

TROPICAL STORM GUILLERMO
AUGUST 9-15, 1997



HISTORY. Guillermo developed as a tropical disturbance off the Pacific coast of Central America on July 29 and became a tropical depression on July 30. It further strengthened and became a hurricane on August 1. As it moved toward the Central Pacific, its winds peaked at 140 knots on August 4. The storm then rapidly weakened and was downgraded to a tropical storm on August 8. Tropical Storm Guillermo moved into the Central Pacific near 23N 140W on August 9.

Tropical storm Guillermo moved in a northwesterly direction and further weakened. It was downgraded to a tropical depression on August 10 near 25N 142W. As it moved northwest, it became better organized and was upgraded to a tropical storm on August 11 near 28N 144W. The storm continued to strengthen and peak winds were estimated at 55 knots on August 13 near 33N 154W.

Guillermo continued to moved northwest and began to weaken. The storm was downgraded to a tropical depression near 39N 160W on August 15. The final advisory was issued on the morning of August 15 and was declared extratropical. The extratropical low recurved over the North Pacific to a position about 500 nautical miles west of Vancouver Island, British Columbia on August 19.

It then moved to within 300 nautical miles off the northern coast of California and finally dissipated on August 24.

The only affect on Hawaii was from swell that was generated by the storm when it was at its peak intensity. The swell reached Hawaii on August 15-17, resulting in surf as high as 10 feet along some east facing shores of the Hawaiian Islands.

SYNOPTIC SITUATION (August 9 - August 24, 1997)

SURFACE. A high pressure area near 45N 145W persisted for the entire period and favored a movement of the storm toward the northwest. After the storm became extratropical, it moved in a more northerly direction along the western flank of the high. Subsequently, remnants of Guillermo moved east across the top of the high pressure area and then down the east side of it by August 19.

Sea surface temperatures near the storm were about average. When Guillermo moved into the Central Pacific, it moved roughly along the 24 degree isotherm until it moved over the 26 degree isotherm near 29N 145W and became better organized.

UPPER LEVELS. At 250 millibars, a trough extended northeast from the Hawaiian Islands, resulting in southwest winds that sheared Guillermo as it moved into the Central Pacific. However, the system moved out of the southwesterly flow as it approached 30N. The environment, therefore, became more favorable for reintensification.

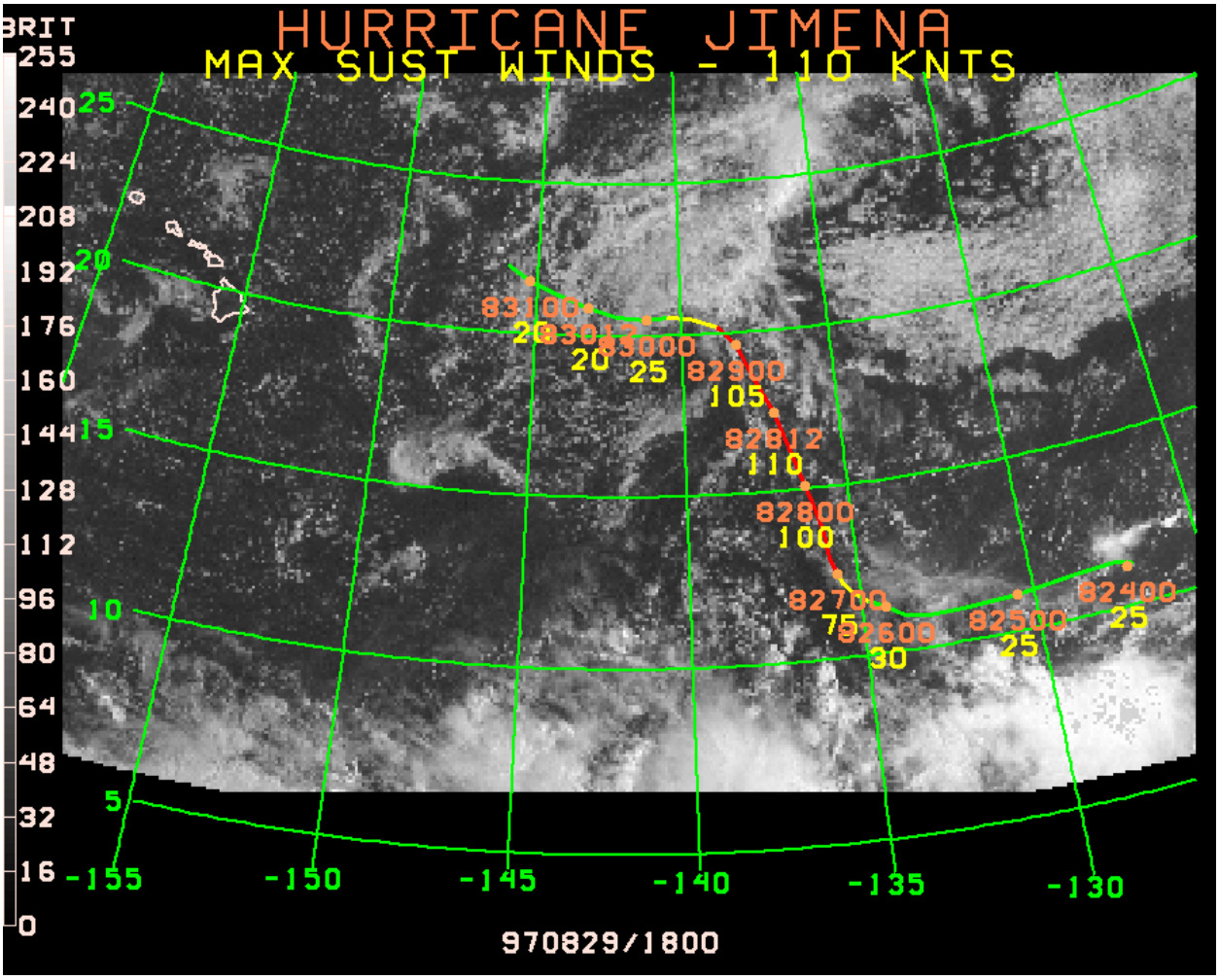
SATELLITE DATA. Tropical Storm Guillermo crossed 140W with a well defined center. Broken cumulus clouds were observed for about 300 nautical miles in a southwest semicircle. Elsewhere, there was a broad area of cumulus and altocumulus clouds. The storm generally maintained these characteristics until it became extratropical.

Best Track for Tropical Storm Guillermo. Included are the maximum sustained wind values for each period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
08/10/0000	22.6	140.4	40
0600	23.3	141.2	35
1200	24.2	141.8	35
1800	25.0	142.2	30
08/11/0000	25.9	142.6	30
0600	26.8	143.1	30
1200	27.6	143.6	30

1800	28.4	144.4	35
08/12/0000	29.0	145.4	35
0600	29.5	146.2	40
1200	29.8	147.2	40
1800	30.2	148.3	40
08/13/0000	30.7	149.4	40
0600	31.0	150.4	40
1200	31.5	151.6	40
1800	32.2	152.9	45
08/14/0000	33.0	153.9	55
0600	33.8	155.2	50
1200	34.6	156.3	45
1800	35.6	157.4	40
08/15/0000	36.8	158.4	35
0600	38.0	159.1	35
1200	39.3	159.7	30
1800	40.5	160.2	30

TROPICAL DEPRESSION JIMENA
AUGUST 29, 1997



HISTORY. Jimena developed as a tropical disturbance near 11N 127W on August 23. It moved west slowly, became a tropical depression on the morning of August 25. That night it was upgraded to Tropical Storm Jimena. It then moved generally toward the northwest and became Hurricane Jimena on August 26. The storm reached its peak intensity of 110 knots on the morning of August 28 and then rapidly weakened. Jimena was downgraded to a tropical storm on the evening of August 28 and was further downgraded to a tropical depression when it entered the Central Pacific on the morning of August 29. The system moved west and continued to weaken. The last advisory was issued on the afternoon of August 29.

SYNOPTIC SITUATION (August 29, 1997)

SURFACE. A moderate 1028 millibar high pressure area was centered near 39N 158W with ridges extending southeast and southwest. This favored a movement of the storm toward the west.

Sea surface temperatures near the storm were near normal at approximately 25 degrees Celsius.

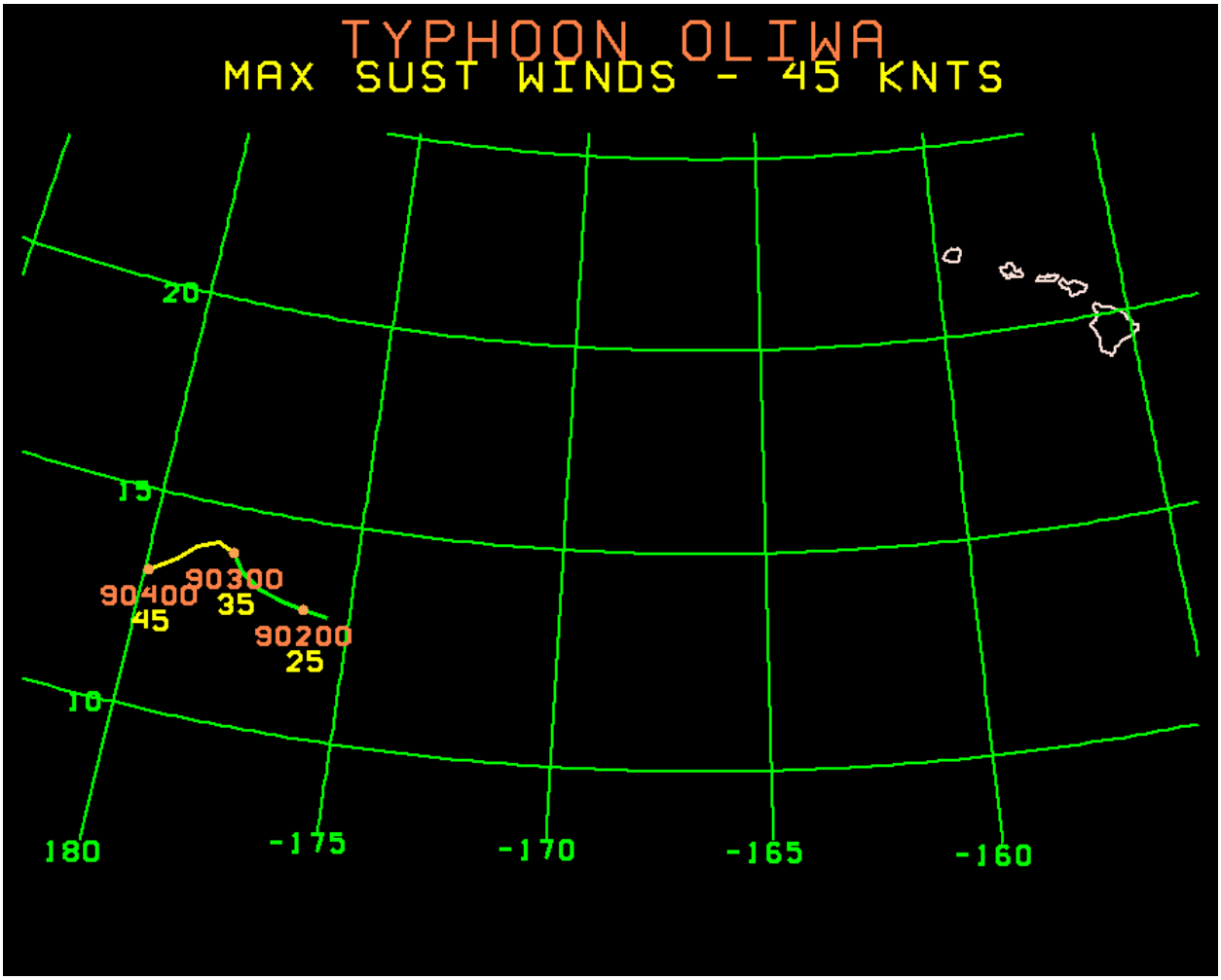
UPPER LEVELS. At 250 millibars, a trough was northeast of Hawaii, resulting in winds from the southwest between 135W and 145W. The storm had already been sheared under the influence of southwesterly flow when it entered the Central Pacific.

SATELLITE DATA. Tropical Depression Jimena crossed 140W with a broad area of low clouds that extended approximately 400 nautical miles in the western and northern semicircles. There was a well defined low level center and the system no longer had deep convection.

Best Track for Tropical Depression Jimena. Included are the maximum sustained wind values for each period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
08/29/1800	20.6	140.5	30
09/30/0000	20.5	141.2	25

TROPICAL STORM OLIWA
SEPTEMBER 2-3, 1997



HISTORY. A tropical disturbance formed southwest of Hawaii and south of Johnston Island near 12N 167W during the last week of August. It remained a disturbance and moved very little for the remainder of the month. On September 2, the disturbance was upgraded to a tropical depression and advisories were issued for Tropical Depression Two-C. By the afternoon of September 2, the system became Tropical Storm Oliwa, the Hawaiian name for Oliver and pronounced Oh LEE va.

Oliwa moved slowly toward the west and crossed the International Dateline during the early evening of September 3. Subsequent advisories were issued by the Joint Typhoon Warning Center. Oliwa passed south of Wake Island on September 6, causing some heavy showers, but no damage. The storm subsequently intensified to a typhoon and a super typhoon over the Western North Pacific. On September 12, Oliwa passed through the Northern Marianas Islands. Subsequently, at reduced intensity, it moved across Southern Japan, causing damage and several fatalities.

SYNOPTIC SITUATION (September 2 - September 3, 1997)

SURFACE. A moderate 1022 millibar high pressure area was near 32N 167W with a ridge extending southwest through 27N 180. This system remained nearly stationary and favored a general movement toward the west.

Sea surface temperatures were near 29 degrees Celsius or about one degree above normal.

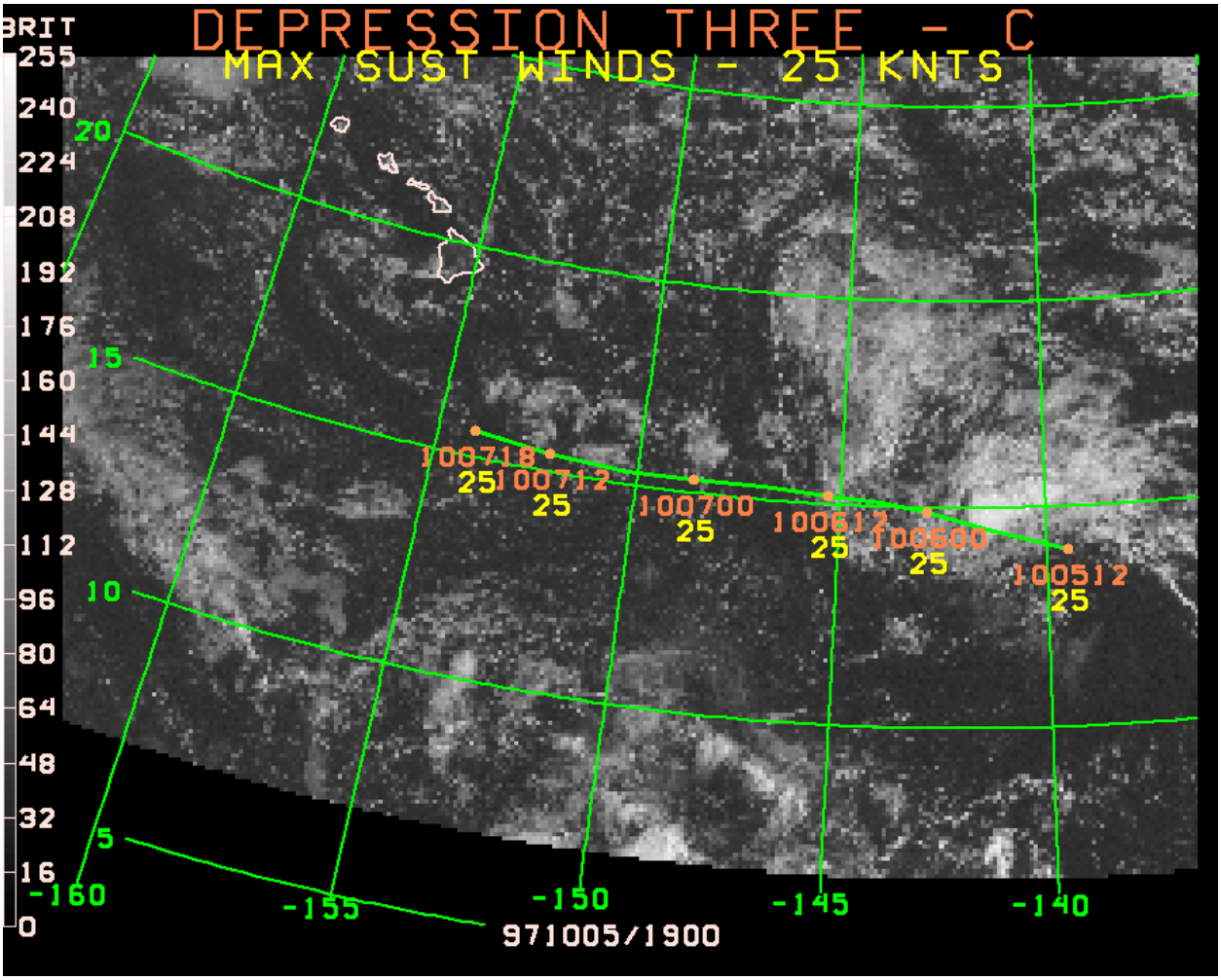
UPPER LEVELS. Winds were very light at all levels, resulting in a favorable environment for further intensification.

SATELLITE DATA. High clouds surrounded the center for about 120 nautical miles in all directions, making it difficult to locate. There may have been more than one circulation center as the storm moved west of the International Dateline.

Best Track for Tropical Storm Oliwa in the Central Pacific. Included are the maximum sustained wind values for each period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
09/02/1800	13.5	177.7	30
09/03/0000	13.9	178.0	35
0600	14.1	178.4	35
1200	13.9	178.9	40
1800	13.5	179.3	45
09/04/0000	13.1	179.9	45

TROPICAL DEPRESSION THREE-C
OCTOBER 6-7, 1997



HISTORY. A tropical disturbance formed southeast of Hawaii just east of the Central Pacific Hurricane Center's (CPHC's) area of responsibility (140W-180). The disturbance moved west and became Tropical Depression Three-C near 15N 143W on the morning of October 6.

The system continued on a westerly course with no further intensification. The depression was declared dissipated on the morning of October 7.

SYNOPTIC SITUATION (October 6 - October 7, 1997)

SURFACE. A moderate 1031 millibar high pressure area was centered near 38N 142W with ridges extending southeast through 28N 120W and 30N 170W. This system remained nearly stationary and favored a storm movement toward the west.

Sea surface temperatures near the storm were near normal between 27 and 28 degrees Celsius.

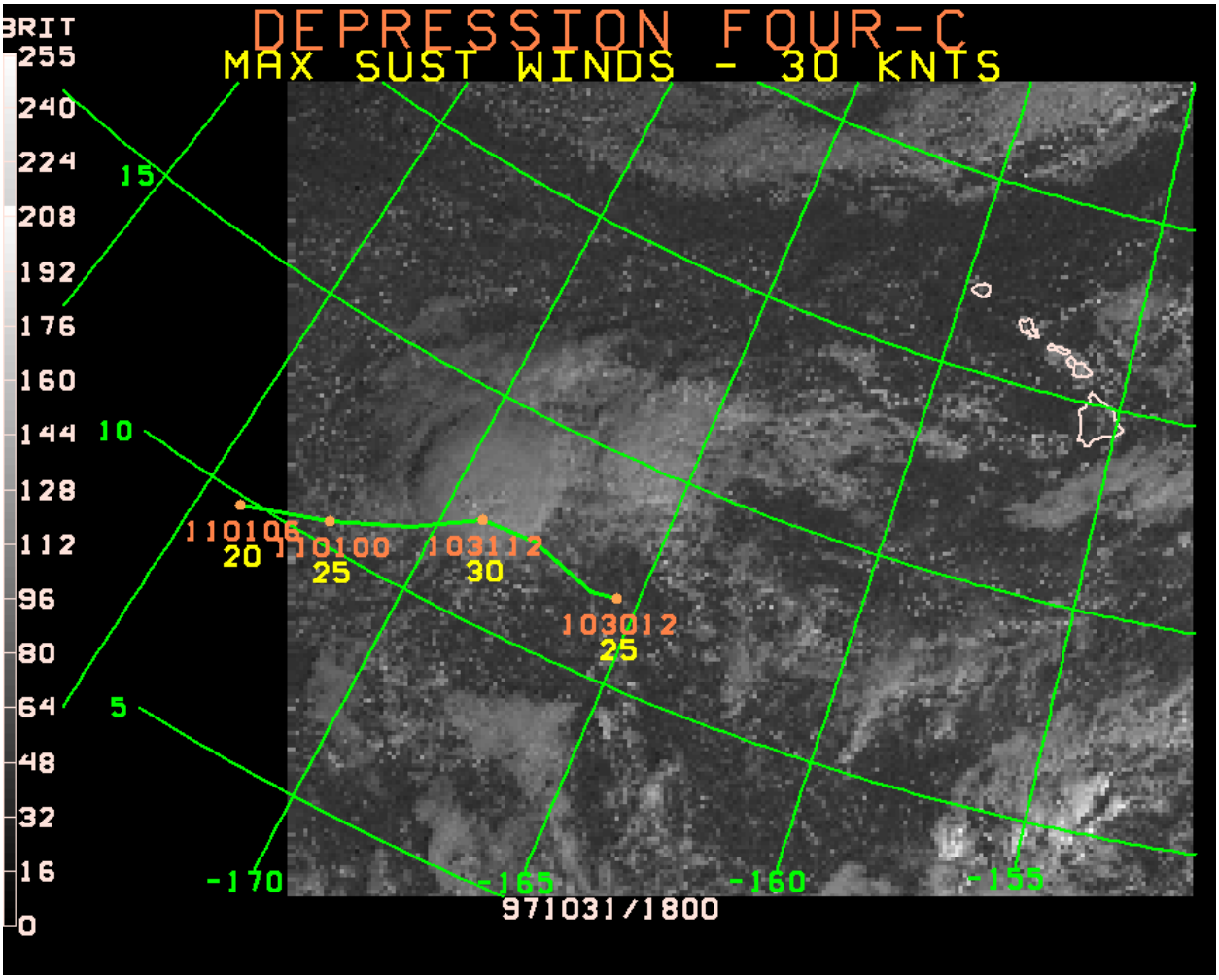
UPPER LEVELS. Winds were light at all levels near the storm from 145W through 150W. Beyond 150W, winds at 250 millibars were southwesterly between 10 and 20 knots. This inhibited further development of the storm.

SATELLITE DATA. Tropical Depression Three-C formed in the Central Pacific near 15N 145W with a well defined center and broken cumulus clouds within 200 nautical miles in the northern semicircle. Isolated cumulonimbus clouds were within 60 nautical miles of the center.

Best Track for Tropical Depression Three-C. Included are the maximum sustained wind values for each period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
10/06/1200	15.2	145.3	25
1800	15.3	146.9	25
10/07/0000	15.3	148.6	25
0600	15.3	150.3	25
1200	15.4	152.2	25

TROPICAL DEPRESSION FOUR-C
OCTOBER 30-31, 1997



HISTORY. Tropical Depression Four-C had its origin as a tropical disturbance, which had been tracked for several days in late October. The disturbance moved west approximately along 10N, well southeast of the Hawaiian Islands. The system was upgraded to Tropical Depression Four-C and the first advisory was issued on the night of October 30. The system moved west and then west southwest. It did not attain tropical storm strength, but rather remained a tropical depression and then weakened. The final advisory was issued on the night of October 31.

SYNOPTIC SITUATION (October 30 - October 31, 1997)

SURFACE. A cold front west of the Hawaiian Islands was moving steadily toward the east.

Sea surface temperatures in the vicinity of the storm were near normal at approximately 28 degrees Celsius.

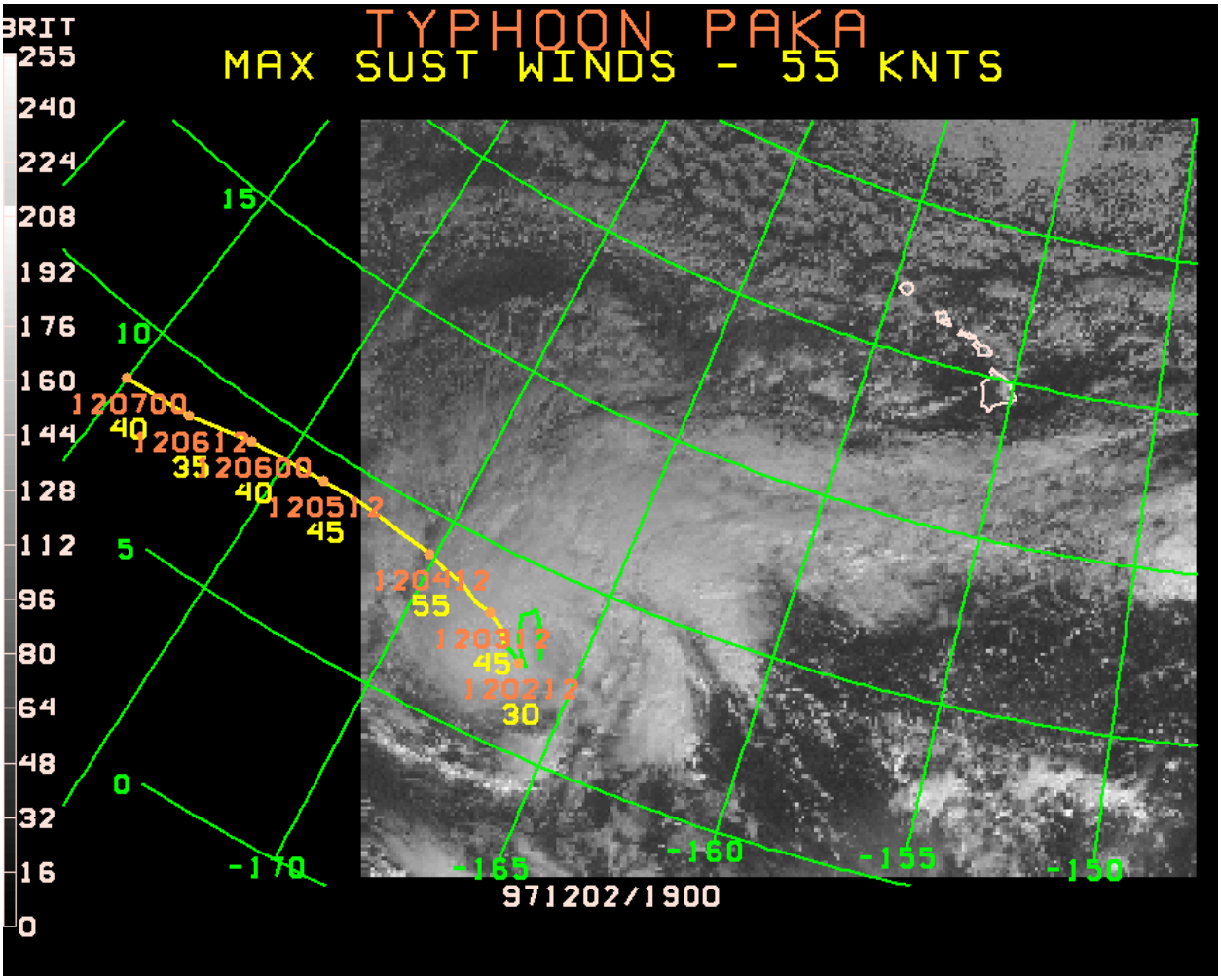
UPPER LEVELS. An upper trough that was associated with the cold front was also moving east.

SATELLITE DATA. Tropical Depression Four-C formed in the Central Pacific near 12N 168W with a well defined circulation. Convective clouds were within 90 nautical miles of the center. Water vapor imagery showed a large dry subsidence area on the north side of the depression. Visual imagery on October 31 showed that the low level circulation had been separated from the upper circulation of middle and high clouds.

Best Track for Tropical Depression Four-C. Included are the maximum sustained wind values for each time period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
10/31/0600	12.3	167.8	30
1200	12.2	169.1	30
1800	11.3	170.5	25
11/01/0000	10.5	172.2	25
0600	9.8	174.1	20

TROPICAL STORM PAKA
DECEMBER 2-6, 1997



HISTORY. Tropical Storm Paka was an out of season storm of the type that occasionally develops south of the Hawaiian Islands near the Line Islands in late November (late season) and early December (out of season) during strong El Niño episodes. Paka was tracked as a tropical disturbance near 08N 167W before advisories were issued on December 2 to upgrade it to Tropical Depression Five-C. The system strengthened and was named Tropical Storm Paka, the Hawaiian Name for Pat, on the afternoon of December 2 when sustained winds were estimated to be 35 knots.

Paka remained nearly stationary about 300 miles west of Palmyra Island near 08N 168W for about two days. This is the general area where Hurricanes Nina (1957) and Iwa (1982) formed during El Niño years. Paka, like Nina and Iwa, formed during a period of westerly surface winds at the equator. At the same time in the Southern Hemisphere, Tropical Storm Pam, a so called "twin," formed near 12S 163W and later affected the Cook Islands, including Rarotonga.

Paka gained strength as it moved slowly west and west northwest on December 4. As the storm moved west, it encountered dry, subsiding air on its north side. The entrainment of this dry air into

the circulation appeared to limit further development. Also, upper level westerly winds sheared the top off of Paka as it slowly moved toward the International Dateline. Highest sustained winds were estimated at 55 knots within the Central Pacific area.

On December 6, Tropical Storm Paka crossed the International Dateline into the Western North Pacific. Paka subsequently strengthened as it moved west, passing just south of Kwajalein as Typhoon Paka on December 12. Maximum sustained winds were 100 knots, while winds at Kwajalein had gusts as high as 45 knots. Paka further strengthened to a super typhoon. Typhoon Paka remained a super typhoon before striking Guam on December 17-18 causing major damage.

SYNOPTIC SITUATION (December 2 - December 6, 1997)

SURFACE. A strong 1032 millibar high pressure area was near 35N 170W with a ridge extending generally to the west through the International Dateline. The high gradually weakened, but the ridge persisted and favored a general movement toward the west.

Sea surface temperatures in the vicinity of the storm were between 28 and 29 degrees Celsius or about one degree above normal.

UPPER LEVELS. Initially, winds were very light at all levels, producing a favorable environment for further strengthening. As Paka approached 10N, it was influenced by light southwesterly winds, resulting in a temporary weakening of the storm. As it retreated toward the west southwest, the system again encountered light winds at all levels.

SATELLITE DATA. In the Central Pacific, high clouds surrounded the center in all directions, making the low level circulation difficult to locate.

Best Track for Tropical Storm Paka in the Central Pacific. Included are the maximum sustained wind values for each period.

Date/Time(Z)	Latitude (N)	Longitude (W)	Max Winds (KT)
12/02/1200	7.3	166.6	30
1800	7.5	166.9	35
12/03/0000	7.6	167.2	40
0600	7.9	167.4	45
1200	8.2	167.9	45
1800	8.3	168.4	45
12/04/0000	8.6	169.0	45
0600	8.7	169.6	45

1200	8.9	170.2	55
1800	9.0	171.0	55
12/05/0000	9.1	171.8	45
0600	9.2	172.8	50
1200	9.2	173.8	45
1800	9.1	175.0	45
12/06/0000	9.0	176.1	40
0600	8.8	177.1	35
1200	8.6	178.0	35
1800	8.5	179.0	35
12/07/0000	8.4	180.0	40

VERIFICATION

This section contains verification statistics for Tropical Storms Guillermo and Paka. Given the limited data set and the dissipating stages of Guillermo and the formation stages of Paka, very limited overall conclusions could be made.

For Tropical Storm Guillermo, the BAMS showed the best overall skill for this storm. Even in the extended period, the error was less than 150 nautical miles.

See the Acronym table for definitions.

The following verification statistics are for Tropical Storm Guillermo for 12, 24, 36, 48, and 72 hours. The first number is the position error in nautical miles and the number in parentheses is the number of forecasts.

Forecast/Model	**12**	**24**	**36**	**48**	**72**
CPHC	44(22)	85(20)	135(18)	192(16)	291(12)
CLIP	40(17)	77(17)	130(16)	203(14)	253(10)
BAMD	42(17)	140(17)	217(16)	300(14)	477(10)

BAMM	38(17)	70(17)	99(16)	125(14)	237(10)
BAMS	40(17)	70(17)	96(16)	118(14)	149(10)
P91E	37(17)	78(17)	140(16)	201(14)	307(10)
LBAR	41(17)	81(17)	131(16)	189(14)	282(10)
GFDL	68(7)	112(5)	174(4)	218(4)	378(3)

For Tropical Storm Paka, all three BAMs did well during the forecast periods (12, 24, and 36 hours). For the extended outlook (48 and 72 hours), the CPHC forecaster had the best skills.

The following verification statistics are for Tropical Storm Paka for 12, 24, 36, 48, and 72 hours. The first number is the position error in nautical miles and the number in parentheses is the number of forecasts.

Forecast/Model	**12**	**24**	**36**	**48**	**72**
CPHC	54(15)	74(13)	104(11)	117(9)	151(5)
CLIP	51(13)	94(11)	147(9)	309(9)	547(5)
BAMD	38(13)	64(11)	85(9)	168(9)	306(5)
BAMM	44(13)	67(11)	89(9)	183(9)	204(5)
BAMS	37(13)	92(11)	126(9)	229(9)	196(5)
P91E	66(13)	106(11)	154(9)	254(9)	495(5)
LBAR	NA	NA	NA	NA	NA
GFDL	50(6)	111(4)	105(4)	228(5)	131(3)

ACRONYMS that may have been used in this report.

Acronym	**Full Spelling/Definition**
AOR	Area of Responsibility
AVNO	Operation global forecast system model

BAMD	Deep Layer Beta Advection Model (mean layer averaged between 850 hPa and 250 hPa)
BAMM	Medium Layer Beta Advection Model (mean layer averaged between 850 hPa and 400 hPa)
BAMS	Shallow Layer Beta Advection Model (mean layer averaged between 850 hPa and 700 hPa)
CLIP	Climatology and Persistence
CPHC	Central Pacific Hurricane Center
GFDL	Geophysical Fluid Dynamics Laboratory model
hPa	Hectopascal (formerly millibar)
ITCZ	Inter-tropical Convergence Zone
JTWC	Joint Typhoon Warning Center
kts	knots
LBAR	Barotropic limited area sine transform
mb	millibars
NA	Not Available
NGPS	NOGAPS (Navy Operational Global Atmospheric Prediction System) Vortex Tracking Routine
NHC	National Hurricane Center
nm	nautical miles
P91E	Pacific Statistical Dynamic Model (adapted from NHC90 for the Eastern Pacific)
SHIFR	Statistical Hurricane Intensity Forecast
SHIP	Statistical Hurricane Intensity Prediction
SST	Sea Surface Temperature
TD	Tropical Depression

TPC	Tropical Prediction Center, Miami, FL
TUTT	Tropical Upper Tropospheric Trough
UTC	Universal Time Coordinated
WFO	Weather Forecast Office

TRACK MAPS

The tracking maps above show tracks of tropical cyclones that crossed into or formed in the Central Pacific. The strength of the storm (HURRICANE, TYPHOON, DEPRESSION) is the maximum strength, regardless of location in the Pacific. The maximum sustained winds (MAX SUST WINDS) occurred: (1) in the Eastern Pacific before crossing into the Central Pacific or (2) in the Central Pacific for systems that formed in the Central Pacific. For each track point, the top five or six numbers give the month, day, and time (Z) and the bottom number indicates the maximum sustained speed in knots.

For example, the numbers 71218 and 25 define the following: July 12 at 1800Z and sustained winds of 25 knots.