



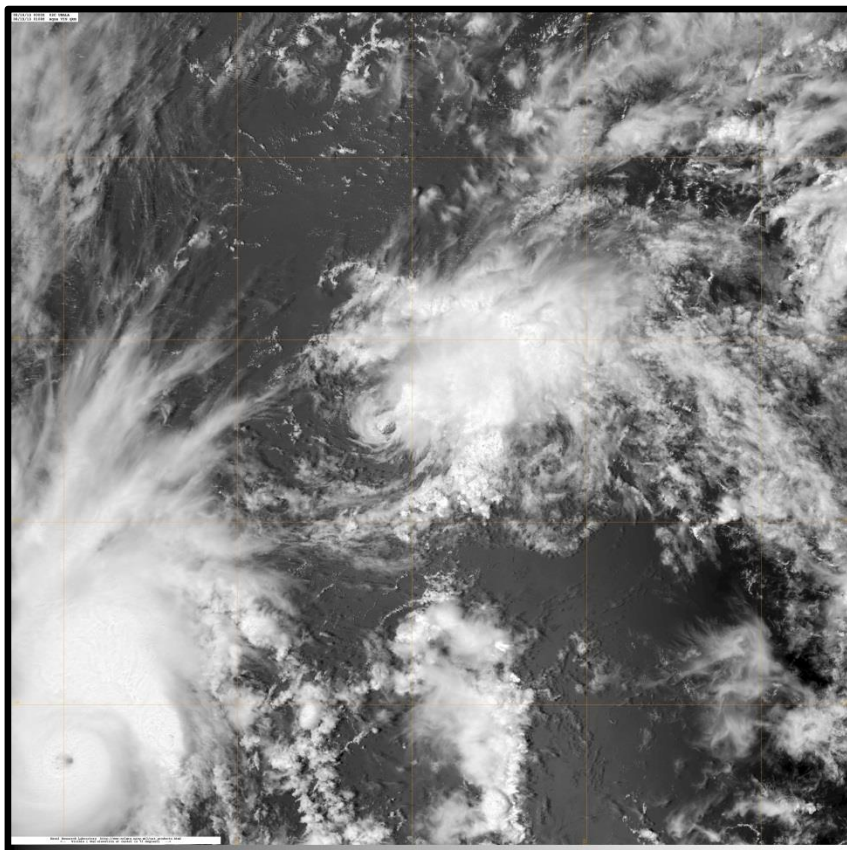
# CENTRAL PACIFIC HURRICANE CENTER TROPICAL CYCLONE REPORT



## TROPICAL STORM UNALA (CP022013)

19 August 2013

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19 June, 2014



NASA TERRA SATELLITE VISIBLE IMAGE OF TROPICAL STORM UNALA (CENTER) AT 0108 UTC 19 AUGUST WITH TROPICAL CYCLONE PEWA LOCATED TO THE SOUTHWEST. IMAGE COURTESY OF FLEET NUMERICAL METEOROLOGY AND OCEANOGRAPHY CENTER.

Unala was a short-lived tropical storm that formed in the central Pacific near the International Date Line.

# Tropical Storm Unala

19 AUGUST 2013

## SYNOPTIC HISTORY

Unala was a short-lived tropical cyclone, lasting less than a day over the open waters of the central North Pacific Ocean near the International Date Line. Unala originated from an unusually persistent area of low level troughing that produced three central Pacific tropical cyclones: Tropical Storm Pewa, Tropical Storm Unala, and Tropical Depression Three-C. This broad area of low level troughing traced westward across the eastern and central North Pacific for more than 10 days after originating as a nearly east-northeast to west-southwest oriented monsoon trough off the Mexican coast.

As the trough drifted westward to the south of the Hawaiian Islands on 14 August, three distinct embedded areas of disturbed weather became established, each separated by roughly 10 degrees of longitude. The central disturbance, which would later become Unala, developed vigorous deep convection between 1200 and 1800 UTC on 15 August. The convection failed to gain organization around any apparent low level center, becoming increasingly linear and suggestive of an elongated surface trough on 16 August as Tropical Cyclone Pewa formed to the west. On 17 August and early 18 August, the disturbance continued to travel westward along the northeast edges of the low level circulation of and the upper level anticyclone centered over Tropical Cyclone Pewa. These features acted to suppress development of the disturbance.

Late on 18 August the upper level anticyclone flattened into an upper level ridge axis that was centered just south of the disturbance, creating a marginally conducive outflow channel. At this time, visible imagery revealed a compact low level circulation center rapidly developing with organized deep convection holding within its northeast quadrant. It is estimated that Tropical Storm Unala formed at 0000 UTC 19 August when it was only 325 n mi northeast of Tropical Cyclone Pewa and roughly 400 n mi west of the disturbance that would eventually become Tropical Depression Three-C.

Due to its small size and its very close proximity to the two nearby circulations, Unala weakened quickly. Deep convection associated with Unala diminished later on 19 August as it moved westward along the northern periphery of the circulation around Tropical Cyclone Pewa. Unala weakened to a tropical depression at 0600 UTC August 19 just east of the International Date Line and dissipated before 1200 UTC 19 August before being absorbed by the circulation around Tropical Cyclone Pewa.

The “best track” chart of the tropical cyclone’s path is given in Fig. 1. The best track positions and intensities are listed in Table 1.

## METEOROLOGICAL STATISTICS

Observations in Unala (Figs. 2 and 3) include subjective satellite-based Dvorak technique intensity estimates from the CPHC, Joint Typhoon Warning Center (JTWC) and the Satellite Analysis Branch (SAB), and objective Advanced Dvorak Technique (ADT) estimates from the Cooperative Institute for Meteorological Satellite Studies/University of Wisconsin-Madison. Data and imagery from NOAA polar-orbiting satellites including the Advanced Microwave Sounding Unit (AMSU), the NASA Tropical Rainfall Measuring Mission (TRMM), the European Space Agency's Advanced Scatterometer (ASCAT), and Defense Meteorological Satellite Program (DMSP) satellites, among others, were also useful in constructing the best track of Unala.

The peak intensity of 35 kt is based on Dvorak satellite estimates from SAB. No ship or land reports of winds of tropical storm force associated with Unala were received.

## CASUALTY AND DAMAGE STATISTICS

There were no reports of damage or casualties associated with Unala.

## FORECAST AND WARNING CRITIQUE

The genesis of Unala was poorly forecast, even though the incipient disturbance had been closely tracked for over six days. The pre-Unala disturbance was first mentioned in the CPHC Tropical Weather Outlook (TWO) at 1800 UTC 12 August, when it was located about 950 n mi southeast of the Big Island of Hawaii, and it was initially assigned a low (less than 30%) chance of development during the next 48 hours.

A burst of deep convection on the night of 15 August prompted an increase in the forecast probability of development to a medium (30 to 50%) chance at 1200 UTC. A Special TWO was then issued at 1400 UTC to raise the probability of development to a high (greater than 50%) chance when the system was located roughly 575 n mi south of the Island of Oahu.

Thunderstorm activity decreased in coverage and organization on 16 August as Tropical Cyclone Pewa formed about 425 n mi to the southwest of the pre-Unala disturbance. The TWO forecast probabilities of development fell into the low range by 0000 UTC 17 August as the system continued to track westward. Due to its proximity to the low level circulation and upper level outflow associated with Tropical Cyclone Pewa, forecast probabilities for development remained in the low range until genesis on 19 August.

Since Unala was a short lived system, no verification point is available.

No watches and warnings were issued for Unala.



Table 1. Best track for Tropical Storm Unala, 19 August 2013.

<b>Date/Time (UTC)</b>	<b>Latitude (°N)</b>	<b>Longitude (°)</b>	<b>Pressure (mb)</b>	<b>Wind Speed (kt)</b>	<b>Stage</b>
19/0000	17.0	177.9W	1005	35	tropical storm
19/0600	17.3	179.4W	1007	30	tropical depression
19/1200					dissipated
19/0000	17.0	177.9W	1005	35	maximum winds and minimum pressure

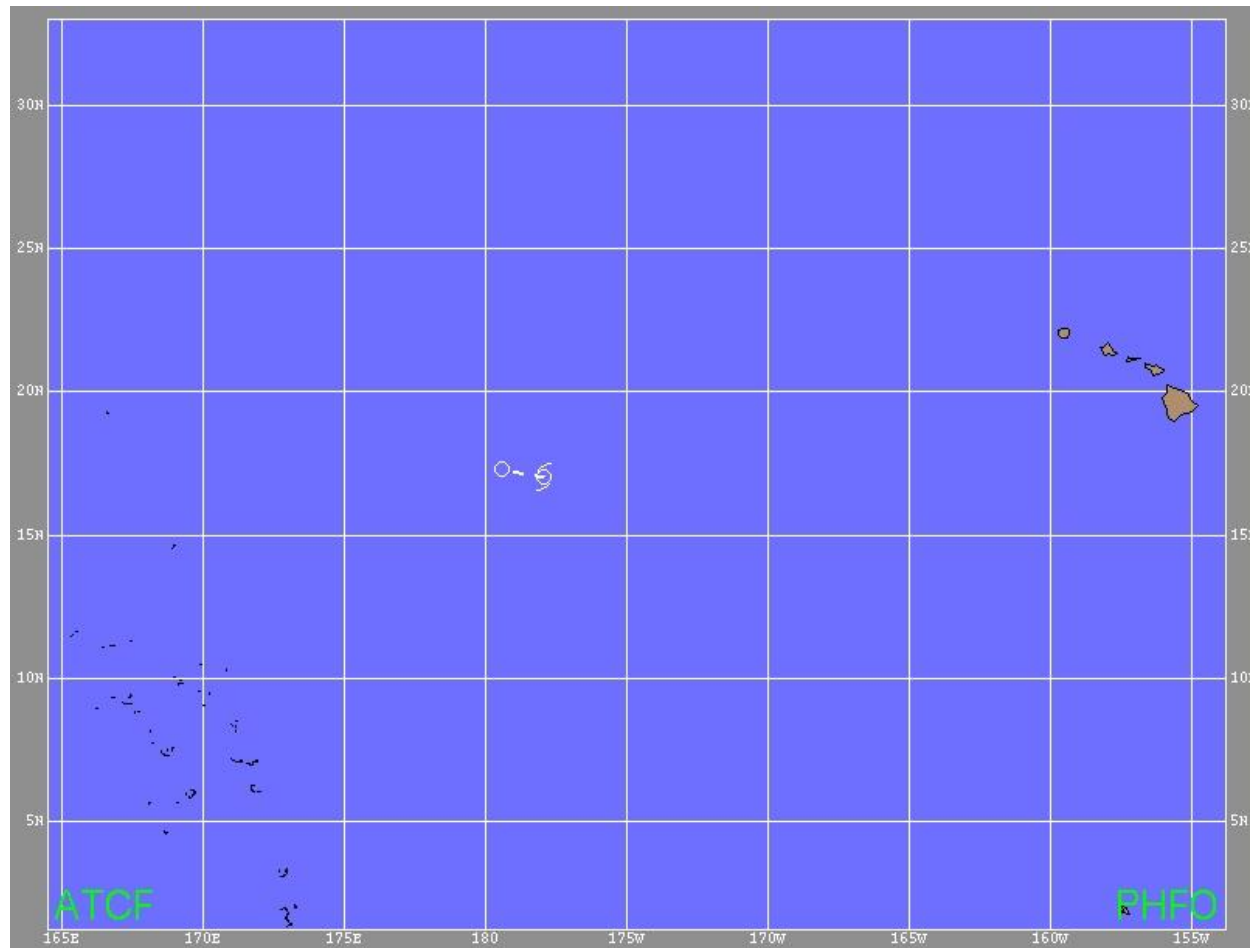


Figure 1. Best track positions for Tropical Storm Unala, 19 August 2013.