

**NOAA/National Weather Service**  
**Eureka, CA Weather Forecast Office**  
*Experimental Enhanced Wave Terminology*

March 30, 2015

Part I: Mission Connection

A. Overview

Western Region (WR) Weather Forecast Office Eureka, CA (Eureka WFO) has been testing an enhancement to the method for communicating wave information in text products such as the Coastal Waters Forecast (CWF), NOAA Weather Radio scripts, and point-and-click forecasts. The goal is to provide greater wave detail with more clarity for marine users and partners to support better decision making. The initial test period ran from September 19, 2012 to August 30<sup>th</sup>, 2013. Feedback received during this test period suggested that: (1) there is a great need for the NWS to improve the way they communicate wave information, (2) the Eureka WFO experimental enhanced wave terminology made significant progress in meeting that need, and (3) that some adjustments were needed to the WFO Eureka experimental enhanced wave terminology to ensure that all marine users could benefit from the enhanced wave terminology. An extension to the test period to Jun 30, 2014 was granted to allow Eureka WFO to implement the needed adjustments to the enhanced wave terminology and continue to receive feedback on these adjustments. Feedback received after the adjustments were made has been very favorable.

WFO Eureka had originally timed the commencement of this terminology experiment so that its conclusion would occur after the Nearshore Wave Prediction System (NWPS) had been deployed to all field offices in the nation. This would have facilitated the internal testing of what was learned at Eureka in other regions to support the development of a nationally consistent approach to wave terminology that leveraged the emerging technology that NWPS represents. Unfortunately, the deployment of NWPS has been significantly delayed due to the need to run the software on centralized computing resources instead of on distributed field office computing resources as originally planned.

This second extension is being requested to allow WFO Eureka to work with the WR Marine Working Group and the Marine and Coastal Weather Services Branch to integrate the lessons learned from Eureka's wave terminology test and those from WFO Miami's concurrent test into a proposal for a national standard format for wave terminology. This new standard approach will then be internally tested around WR and other regions using NWPS that is scheduled for partial nationwide deployment by fall of 2015.

B. Product Description

Sea state will continue to be described by providing as much detailed wave information as is useful for the mariner based on the wave conditions. For example, when there is only a single wave, then that wave's direction, height and period will be given.

When there are two distinct waves, then the two waves that make up that sea state will also be described.

The terms WIND WAVE and SWELL will no longer be used because the characteristics of the sea state will be communicated by using the more descriptive direction, height, and period of the individual wave system. The motivation for this change and a simple explanation of the significance of wave direction, height, and period is available at:

[www.weather.gov/eureka/waves](http://www.weather.gov/eureka/waves)

#### C. Audience

The Eureka WFO's Enhanced Wave Terminology is targeted toward any marine user in the coastal waters between Point Saint George and Point Arena, CA out to 60nm. Users include, but are not limited to: Abalone Divers, Tuna and Salmon Fishers, Crabbers, Motor and Sail pleasure craft, etc.

#### D. Presentation Format

EKA Enhanced Wave Terminology CWF will maintain consistent daily issuance times to its predecessor, 0300/0900/1500/2100, and a similar format. An example of the Enhanced Wave Terminology CWF can be seen in Part II Section C, below. Due to the leveraging of wave partitioning in current wave models, the EKA Enhanced Wave Terminology will also be displayed through the use of Hanson Plots as seen below in Part II Section C.

#### E. Feedback Method

WFO EKA is requesting comments and feedback on the change to Enhanced Wave Terminology. Please feel free to contact us through the following methods.

Web survey – <http://www.nws.noaa.gov/SURVEY/NWS-SURVEY.PHP?CODE=EENWT>

Email – [troy.nicolini@noaa.gov](mailto:troy.nicolini@noaa.gov) and [brian.garcia@noaa.gov](mailto:brian.garcia@noaa.gov)

Telephone – 707.443.6484

Mail – Attn: Troy Nicolini  
National Weather Service  
300 Startare Drive  
Eureka, CA 95501

### Part II: Technical Description

#### A. Science and Methodology

The existing use of descriptive terms like "wind wave" and "swell" is an artifact of an era when wave models did not exist. Today's wave models struggle with resolving whether a given wave is a wind wave or swell, especially in 2D space, but are very good at resolving the more useful parameters of direction, height, and period.

EKA Enhanced Wave Terminology will be produced through the use of partitioned wave data from the Nearshore Wave Prediction System (NWPS) which is fed through a Graphical Forecast Editor (GFE) to create a gridded forecast database. Following the graphical forecast, a text forecast will be created for the web and NOAA Weather Radio.

#### B. Product Availability

EKA Enhanced Wave Terminology CWF will be available four times per day as required by NWSI 10-310 and WR supplement 12-2003. Issuance times are: 0300/0900/1500/2100.

Forecast will be available via NOAA Weather Radio and on [www.weather.gov/eureka/marine](http://www.weather.gov/eureka/marine).

#### C. Additional Information

WFO Eureka, CA Enhanced Wave Terminology example:

TODAY...NW WIND 5 TO 15 KT. WAVES NW 6 FT AT 10 SECONDS.

TONIGHT...N WIND 10 TO 20 KT. WAVES N 3 FT AT 4 SECONDS... AND NW 7 FT AT 11 SECONDS.

SAT...N WIND 10 TO 20 KT. WAVES N 4 FT AT 4 SECONDS... AND NW 7 FT AT 10 SECONDS.

SAT NIGHT...N WIND 20 TO 25 KT. WAVES N 7 FT AT 6 SECONDS... AND 6 FT AT 10 SECONDS.

SUN...N WIND 20 TO 30 KT WITH GUSTS TO 40 KT. WAVES N 10 FT AT 9 SECONDS.

MON...N WIND 20 TO 30 KT WITH GUSTS TO 35 KT. WAVES N 10 FT AT 9 SECONDS.

Example of Gerling-Hanson plot that shows the same information graphically.

### Hanson Plot for 470S ~ 13-Jun-2012 00:00:00 Z

