

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

January 8, 2014

Part I: Mission Connection

A. Overview

Western Region (WR) Weather Forecast Office (WFO) Eureka, CA (EKA) 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 for the end marine user in the decision making process. The test period ran from September 19, 2012 to August 30th, 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 Eureka WFO experimental enhanced wave terminology to ensure that all marine customers could benefit from the enhanced wave terminology. An extension to the test period to Jun 30, 2014 is being requested to implement the needed adjustments to the enhanced wave terminology and continue to receive feedback on these adjustments. An additional motivation for the requested extension is to evaluate this enhancement for national implementation.

B. Product Description

Sea state will 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

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 and brian.garcia@noaa.gov

Telephone – 707.443.6484

Mail – Attn: Troy Nicolini and Brian Garcia
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 error when wave models did not exist. Today’s wave models struggle with resolving whether a given wave is a wind wave or swell 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 SWAN, NWPS, and the WWIII, 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.

C. Additional Information

The change that is being proposed for the extension period is to stop providing an overall wave height (significant wave height) before providing the detailed wave information. Feedback from the test period indicated that users and partners were confused by the addition of an overall wave height (“SEAS 7 TO 9 FT...” in the example below). It was also reported that the addition of an overall wave height resulted in the text containing too many sets of numbers so that comprehension of the detailed wave information was degraded. The proposed change has been thoroughly shared with a broad range of marine customers and has been well received. An example of the change and a full example of a forecast is provided below:

Format in original PDD:

SEAS 7 TO 9 FT...INCLUDING N 3 FT AT 4 SECONDS AND NW 7 FT AT 11 SECONDS.

Suggested change to improve clarity and comprehension:

WAVES N 3 FT AT 4 SECONDS... AND NW 7 FT AT 11 SECONDS.

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.

