

Experimental Wave/Wind (Gerling-Hanson Plots) Graphical Point Forecasts

Part I – Mission Connection

- a. Product Description – The product is a graphical vector plot of predefined point guidance for up to six wave trains (direction, height, and period), and wind (direction, speed) through a five day period at six hourly increments. If the point is associated with a buoy location, the previous 24 hour observations, partitioned in the same manner as the forecast waves, are plotted in three hour intervals. The forecast wave information is from the Nearshore Wave Prediction System (NWPS) model output. The wind is derived from the official forecast gridded database so they are consistent with all other forecast products, such as the Coastal Waters Forecast.

WFO Eureka has been providing the Experimental Wave/Wind (Gerling-Hanson Plots) on an experimental basis since 2010. The Gerling-Hanson plots have been very useful for the marine customers but they are lacking enhancements that would make them easier to use. Based on user feedback, the Gerling-Hanson plots were re-designed to be interactive and easier to interpret. They were also enhanced to provide specific information about the impact of given sea state to increase the usefulness of the information for decision making.

If approved for operational implementation, this product will be available at all coastal WFOs.

- b. Purpose - National Weather Service (NWS) coastal forecasters use the plot to determine which, and how many, of the six wave trains will be used as initial guidance for the official gridded forecast. It also allows the forecaster to quickly estimate if hazardous marine conditions may occur as a result of wave trains coming from significant different directions or periods, or wave steepness.
- c. Audience - The product is for any marine customer within the coastal waters forecast area of any of the NWS Weather Forecast Offices (WFOs).
- d. Presentation Format – The enhanced interactive Gerling-Hanson plot is a graphical vector plot of wave and wind forecasts and is available at six hour intervals for a five day period for predefined points. It is currently being produced at WFO Eureka and WFO Miami but will expand to other coastal WFOs as the NWPS becomes available to all WFOs. Notifications will be provided as other offices begin producing the Gerling-Hanson plots.

The products can be viewed at <http://www.wrh.noaa.gov/eka/marine/vector> and <http://innovation.srh.noaa.gov/nwps/nwps.php>.

- e. Feedback Method. - Feedback on the display and usability of the product will be conducted through an e-survey at <http://www.nws.noaa.gov/survey/nws->

[survey.php?code=HPGT](#) as well as through meetings with members of the local Marine Advisory Group and general marine public.

Feedback can also be addressed to Troy.Nicolini@noaa.gov, via phone at 707-443-6484x223 or via mail to:

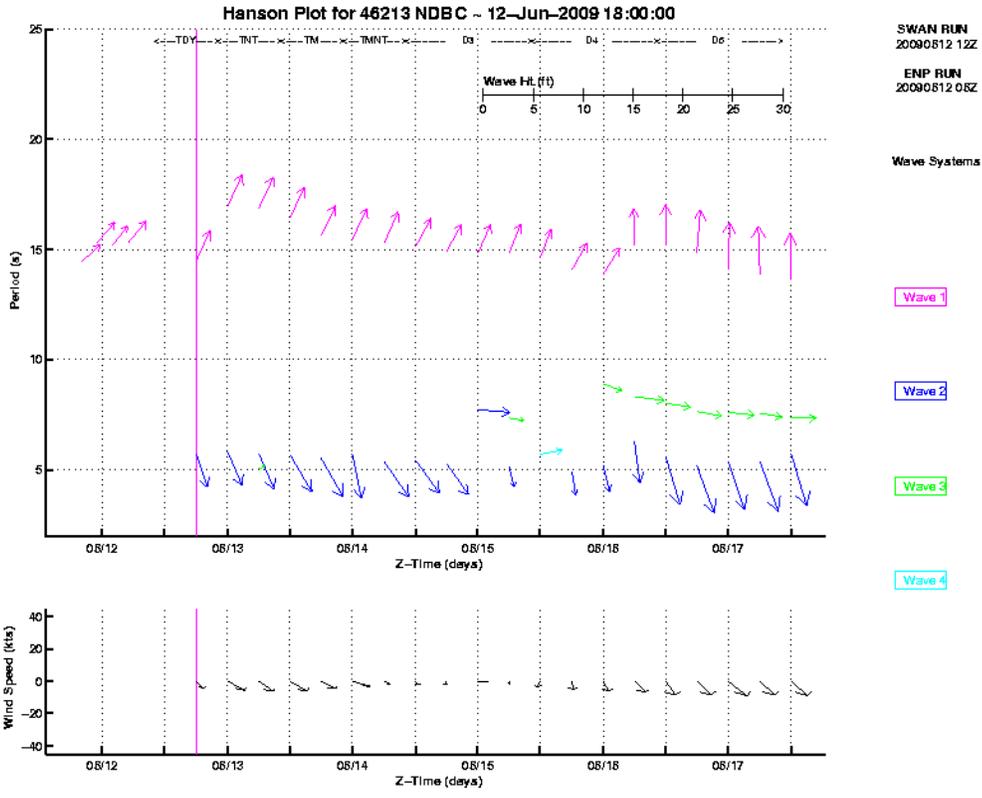
Attn: Troy Nicolini
National Weather Service
300 Startare Drive
Eureka, CA 95501-6000.

Part II – Technical Description

- a. Format and Science – NWS coastal WFOs who now run the NWPS use boundary conditions from the Wavewatch III model and forecaster generated wind grids for their coastal waters forecast area. The full wave spectrum is partitioned using the WaveSEP FORTAN algorithm and spatial and temporal tracking, maintaining the highest energy swells. This suite of wave guidance is used as input into the official wave gridded forecasts. The Gerling-Hanson plots are a graphical vector display of up to the six highest energy wave derived from the Wavewatch III model and forecaster wind grids at predefined locations. The locations are WFO-determined and include at least one point per CWF zone and at a subset of buoy locations. For an office to create the Gerling-Hanson Plots, once the NWPS is installed, simply add a list of locations with Lat/Lon values in the main site configuration file. This will allow the plots to be produced. Expect this to be a very minor workload issue for forecasters.

Gerling Hanson plots will be covered in the NWPS training module.

- b. Product Availability - This product will be available at least twice per day at approximately 0830 and 2030 UTC.
- c. Additional Information – Examples of original and enhanced version



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Wave Forecast for BUOY22 - Issued: Jul 06 2pm

Interval

✖ 07/07 8am - N 3 FT at 6 Seconds
Steepness Info
 Wave is not steep
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8pm 2am 07/06 07/07 2pm 8pm 2am 07/10