

Proposed Expansion of the Marine Forecast Matrix

Product/Service Description Document (PDD)

November 2015

Part I – Mission Connection

- a. Product Description - The National Weather Service (NWS) Marine Forecast Matrix (MFM) is an alphanumeric text product that provides a tabular forecast of wind direction and speed, wind gust, swell direction, swell height, swell period, wind wave height, significant wave height, cloud cover, probability of precipitation, and precipitation type.

At present this product is only issued by the NWS Weather Forecast Office (WFO) in Honolulu, Hawaii. The NWS is considering expanding this product to national scope.
- b. Purpose - The MFM is derived from forecast weather parameters produced with the Graphical Forecast Editor (GFE). It is a marine version of the public Point Forecast Matrices and provides a point forecast for marine locations (e.g. buoys) of interest/concern to mariners.
- c. Audience - The primary target audience for the product is the marine community which includes ocean going vessels, barge and tug boat operators, private maritime organizations; recreational mariners, national, state, and local emergency managers, military and government agencies, media, and the general public.
- d. Presentation Format - The MFM is an alphanumeric text product that is presented in tabular form. The nationally issued MFMs will be made available to users via the internet.
- e. Feedback Method - Feedback can be provided via an [electronic survey](#) or to an [e-mail address](#). Feedback on this product will also be obtained at Focus Group Meetings and Boat Shows.
- f. Example of product – The MFM issued by WFO Honolulu is an operational product. See <http://www.prh.noaa.gov/hnl/pages/MFM.php> for the latest issuance.

Part II – Technical Description

- a. Format & Science Basis – At present the MFM is a forecast issued by WFO Honolulu for the next 60 hours, in 3 hourly increments, displayed in both Universal Coordinated Time (UTC) and Hawaiian Standard Time (HST). If expanded to other WFOs, the MFM will include the time zones of the other WFOs that will issue the product. The MFM issued by WFO Honolulu is for the following weather elements:

Wind Direction (WIND DIR) - Prevailing direction from which the wind is blowing for that hour using 8 standard compass directions.

Wind Speed (WIND SPD) – Average sustained wind speed in knots.

Wind Gust (WIND GUST) – Peak wind gust in knots.

Swell Direction (SWELL DIR) – Direction from which the dominant ocean swell is coming from using 8 standard compass directions.

Swell Height (SWELL HGT) – Open ocean swell height, in feet, measured from trough to crest.

Swell Period (PERIOD) – Difference, in seconds, between consecutive wave crests.

Wind Wave Height (WIND WAVE HT) – Height of waves, in feet, that are generated from the action of wind on the local water surface.

Significant Wave Height (SIG WAVE HT) - Average height, in feet, from trough to crest of the one-third highest waves.

Cloud Cover (CLOUDS) – Average Sky cover for that period using the following codes:

CL = Clear (0-5% cloud coverage)

FW = Few Clouds (5-30% cloud coverage)

SC = Scattered Clouds (30-70% cloud coverage)

BK = Broken Clouds (70-95% cloud coverage)

OV = Overcast (95-100% cloud coverage)

Probability of Precipitation (POP 12 HR) - Chance of precipitation in the 12 hours ending at the hour listed.

If forecast, these elements will also appear:

Obstruction to Visibility (OBVIS) – If fog (F), haze (H), smoke (K), volcanic ash (VA) and/or blowing sand (BN) is forecast to occur, the code will be listed in the appropriate column.

Weather Types - These codes will only appear if at some point during the time of the forecast they are expected to occur. If they do appear, a letter code will provide information about the forecast likelihood of that precipitation type.

Weather Codes:

RAIN

RAIN SHWRS (Rain Showers)

SPRINKLES

TSTMS (Thunderstorms)

DRIZZLE

SNOW

SNOWSHWRS (Snow Showers)

SLEET

Probability Codes:

S = Slight Chance (0-20%)

C = Chance (30%-50%)

L = Likely (60%-70%)

O = Occasional/Periods of (80%-100%)

D = Definite (80%-100%)

- b. Product Availability – The WFO Honolulu MFM is routinely disseminated in conjunction with the mandatory coastal waters forecasts; updates may be issued at any time as conditions warrant. If expanded to other WFOs, the same dissemination process will be followed.

The WFO Honolulu issued MFM can be seen on-line at

<http://www.prh.noaa.gov/hnl/pages/MFM.php>.

- c. Additional Information – The MFM is intended to supplement the official forecast with higher resolution forecast data at pre-determined locations. It is not intended to substitute for the official Coastal Waters Forecast (CWF) or the Marine Weather Message, which also convey all marine advisories and warnings in effect.