Operational Gridded Marine Offshore and High Seas Forecasts in the National Digital Forecast Database (NDFD)
Product Description
Document August 23, 2017

Part I - Mission Connection

a. Description of Product - The National Weather Service's (NWS) National Centers for Environmental Prediction (NCEP) Tropical Analysis and Forecast Branch (TAFB) is providing gridded forecasts of five marine weather elements to the National Digital Forecast Database (NDFD) on an operational basis for its offshore waters and high seas forecast areas of responsibility for the Atlantic basin. NCEP's Ocean Prediction Center (OPC) is providing gridded forecasts of five marine weather elements to the NDFD on an operational basis for its offshore waters in the Atlantic basin. OPC high seas forecasts grids are under development.

For TAFB and OPC, the marine weather elements are: 10-m wind speed, 10-m wind direction, 10-m wind gusts, significant wave heights, and marine hazards.

b. Purpose – The NDFD is the primary means by which digital information is made available to customers and partners. As part of this digital database, offshore and high seas information will be provided in response to user needs for planning purposes and critical safety decisions. Future digital datasets will continue to be developed in accordance with growing user needs.

c. Intended Audience – The current audience for the NDFD offshore and high seas grids include the marine transportation industry, emergency managers, commercial fishermen, government agencies, and recreational users. It is also for anyone else who wishes to decode and explore various potential applications of the NWS digital data, or simply view, post, or distribute the graphic images.

d. Presentation Method – The offshore and high seas grid domain, hereafter referred to as the NDFD oceanic domain, covers the Atlantic, Pacific and Arctic basins for the offices issuing offshore waters and high seas forecasts. The upper right latitude, longitude for this grid is: 79.99N, 10.71E. The lower left corner lies directly on an NCEP Gridpoint 204, which coincides with all other Pacific region NDFD grids. The lower left lat, lon for this grid is 30.42S, 129.91E. See Figure 1 below. Specific information on the grid domain can be found at: http://graphical.weather.gov/docs/ndfdSRS.htm.

Areas of the offshore gridded forecasts that coincide with the NDFD CONUS grid will be included in the CONUS mosaic. For the purposes of operational gridded marine offshore and high seas forecasts in the National Digital Forecast Database (NDFD), the coverage area is shown in Figure 2 below.

The operational marine weather elements are available at a spatial resolution of 10 km. The data will have an operational temporal resolution of three (3) hours out to 72 hours or three (3) days for the domain, and six (6) hours then to 168 hours or seven (7) days for the domain.

The domain of the NDFD 10-km oceanic grid is illustrated in Figure 1 below:

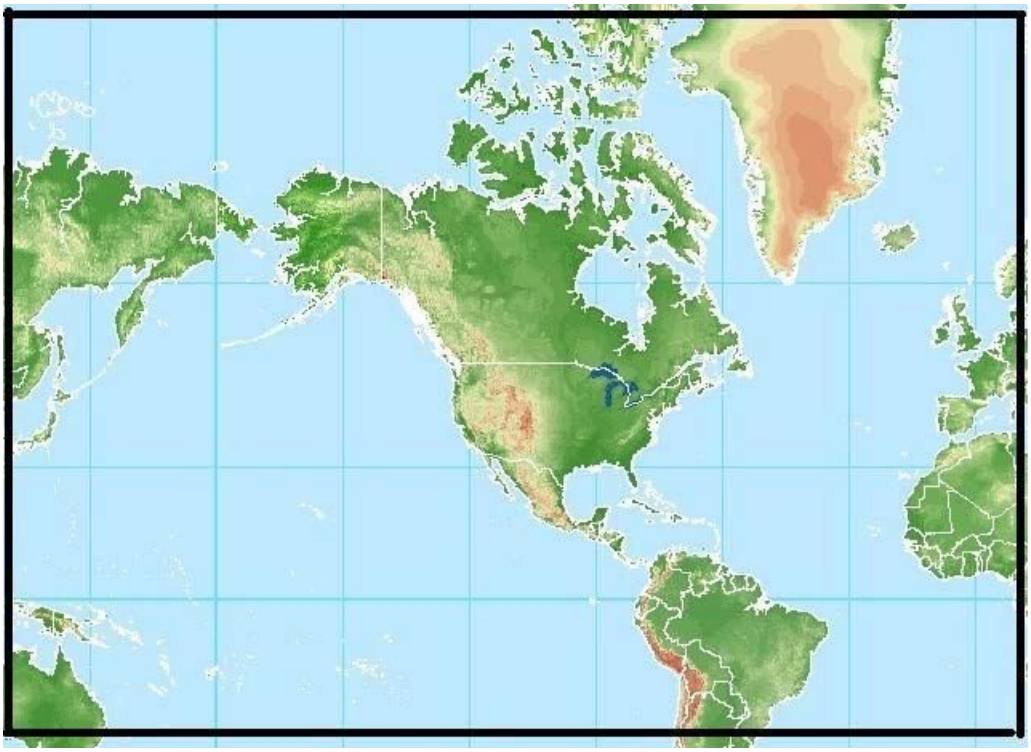

Figure 1: Domain (thick black line) of the NDFD 10-km oceanic grid

The Atlantic Offshore and High Seas Forecast Areas and their corresponding producing offices are shown in Figure 2 below:

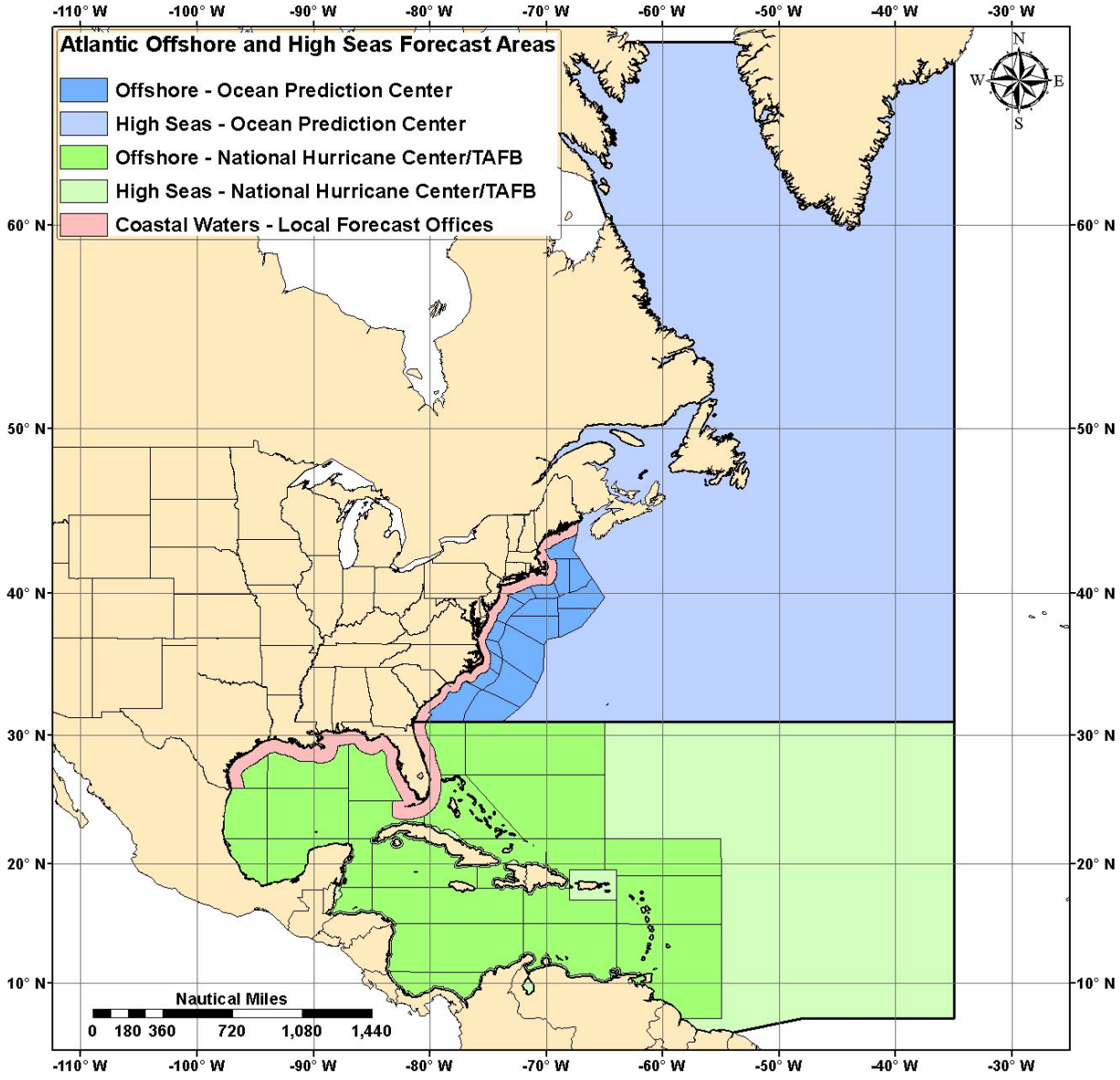

Figure 2: Offshore and High Seas Producers' AORs across the Atlantic that contain the NDFD operational Offshore (OPC in dark blue, TAFB in bright green) and High Seas (TAFB in lighter green) Grids from the providers.

The map viewer image shown below in Figure 4 shows oceanic domain forecasts that are now available via NDFD both operationally (Atlantic and Alaska) and experimentally (elsewhere in the Pacific). It includes the WFOs coastal waters, the Alaska coastal and offshore waters, the TAFB offshore and high seas areas, and the OPC offshore AOR.

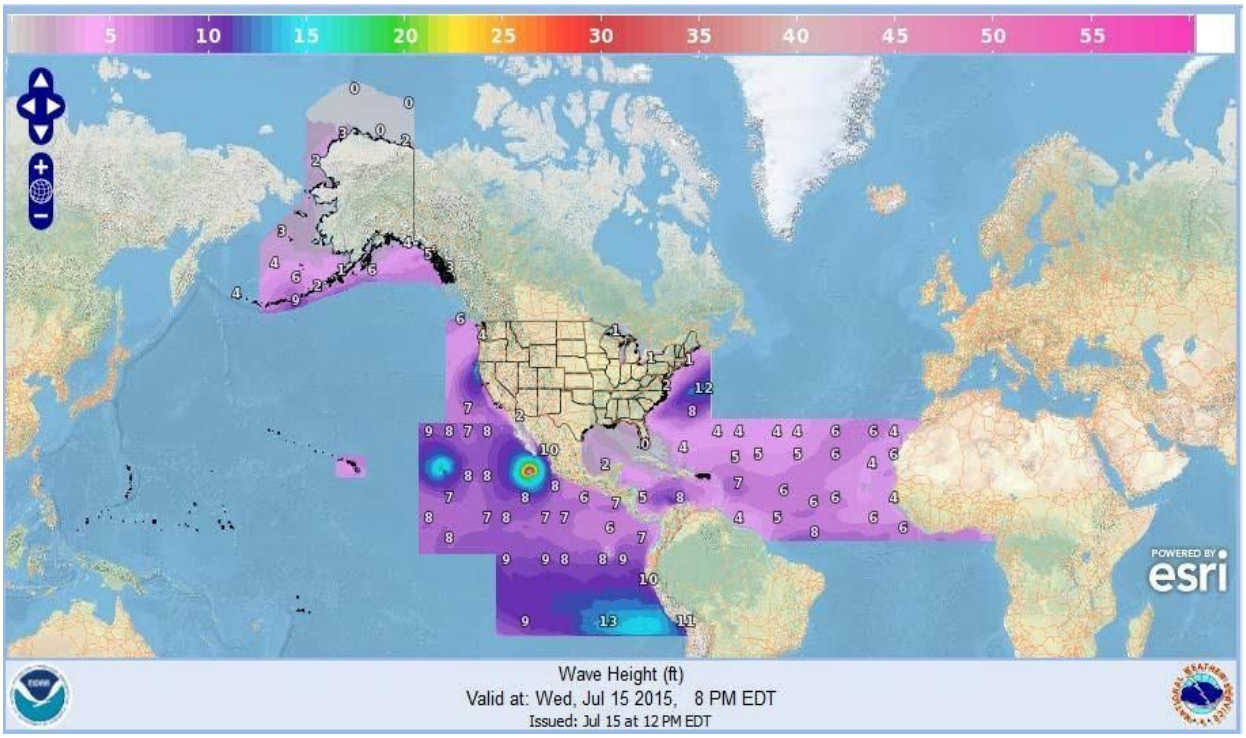

Figure 3: Coastal, Offshore, and High Seas Grids available both operationally and experimentally

e. Questions or Comments

Service questions or comments may be provided to:

National Hurricane Center/Tropical Analysis and Forecast
Branch 11691 SW 17th St
Miami, FL 33165-2149
(305) 229-4454
Hugh.Cobb@noaa.gov

National Centers for Environmental Prediction/Ocean Prediction
Center Building: NCWCP
5830 University
Research Ct College
Park, MD 20740

(301) 683-1497
Darin.Figurskey@noaa.gov

NWS/STI/Digital Forecast Services Branch
1325 East-West Highway
Silver Spring, MD 20910
(301) 427-9457
David.Ruth@noaa.gov

Part II - Technical Description

a. Format & Science Basis - The gridded marine elements are produced by the forecasters utilizing the Graphical Forecast Editor (GFE) in the Advanced Weather Interactive Processing System (AWIPS). These are value added grids with forecaster input based on marine forecast expertise over each center's respective AORs. The forecasters also use GFE "smart tools", and grid averaging techniques along each center's AOR boundaries, to take into account local marine effects, and blend forecaster and numerical model solutions as appropriate. This combination of tools and techniques, and forecaster expertise, allows gridded forecasts based on the best performing model(s), or an ensemble of model runs, in a given forecast scenario.

b. Product Availability – Each contributing Marine Center updates their grids at least four times per day.

URLs to download the operational marine grids:

ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndfd/AR.oceanic/VP.001-003/
ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndfd/AR.oceanic/VP.004-007/

URL to view the marine grids:

http://digital.weather.gov/