

**National Digital Forecast Database (NDFD)
Significant Wave Height Grids
NWS Product Description
Document (PDD)
September 12, 2014**

Part 1 - Mission Connection

- a. Product Description – The [National Digital Forecast Database \(NDFD\)](#) contains a seamless mosaic of digital weather forecasts from National Weather Service (NWS) field offices and the National Centers for Environmental Prediction (NCEP).

This forecast element is currently available for the contiguous U.S. (CONUS) sector at the following locations listed below, Alaska and Hawaii (OCONUS) and the 16 pre-defined NDFD CONUS subsectors.

Southern Region: All coastal WFOs

Central Region: All Great Lakes WFOs.

Eastern Region: All Great Lakes and Coastal WFOs.

Western Region: All Coastal WFOs.

Alaska Region: All WFOs continue in experimental status.

Pacific Region: All WFOs.

Oceanic Domain: Grid continues in experimental status.

- b. Purpose – In support of the mission described in the *National Weather Service Strategic Plan for FY2005 - FY 2020*, "expanded digital services allow communication of forecast information with greater resolution in time and space and facilitates the integration of data in all service program areas." The NDFD is the primary means by which digital information is available to customers and partners. As part of this digital database, Significant Wave Height grids are available in response to growing user needs for planning purposes and critical safety decisions. Future digital datasets will continue to be developed in accordance with growing user needs.
- c. Audience - The audience for the Significant Wave Height grid element includes large volume users of forecast information, emergency managers, coast guard, harbor masters, the media, numerous local, state, and federal government agencies (including NWS field offices), academia, and many other users. They are also for anyone who

wishes to decode and explore various potential applications of the Significant Wave Height data, or simply to view, post, or distribute the graphic images.

- d. Presentation Format – As with all NDFD elements, these elements are available in Gridded Binary Data Edition 2 (GRIB2) via file transfer protocol (ftp) or hypertext transfer protocol (http), eXtensible Markup Language (XML), and as graphics via the web browser.

1. GRIB2 format via file transfer protocol (ftp) or hypertext transfer protocol (http): The GRIB2 files can be decoded and converted to other formats, such as shapefiles, netCDF files, etc. A tutorial to download NDFD elements, decode them and generate images is [available online](#).

These elements are available in GRIB2 from the [NWS ftp server](#) for the CONUS, Alaska and Pacific Region, and/or for the [16 predefined NDFD CONUS subsectors](#).

2. Extensible Markup language (XML): Users can request NDFD elements over the Internet using the NDFD XML Simple Object Access Protocol (SOAP) server. The response to the user request is returned in XML format. For more information, please refer to the [NDFD XML Service Description Document](#).
3. Online NDFD graphics: Significant wave height images may be accessed from the [NWS homepage](#) by clicking on the [Graphical Forecasts](#) tab. To access these and other NDFD elements, or for further availability and technical information (e.g., temporal and spatial resolutions, forecast projections, and geographic coverage), please refer to the [NDFD technical details page](#).

- e. Feedback Method – Non-applicable as Wave Height grids have been operational for a number of years.

Part II – Technical Description

- a. Format and Science:

Definition: Significant Wave Height: The average wave height (trough to crest) of the one-third largest waves valid for the top of the designated hour. Wave height is the combination of wind wave and swell.

NDFD Grid Availability: Significant Wave Height is valid at the top of the hour every hour for the first 36 hours for CONUS and every third hour for OCONUS from NDFD issuance time, at 3-hour resolution through three days and at 6-hour resolution through six days

Collaboration Threshold: > 2 and < 6 feet (2), < 12 (3), < 16 (4), < 20 (5), < 24 (6), < 28 (7), < 32 (8). Enforce if both WFOs have forecast > 0 feet and at least one

WFO has forecast > 2 feet..

- b.** Product Availability – See Part 2, Section A for details.
- c.** Additional Information – Detailed information about the NDFD is also [available online](#).