

PRODUCT DESCRIPTION DOCUMENT

Tropical Cyclone Surface Wind Speed Probabilities in the National Digital Forecast Database

Tropical Cyclone Surface Wind Speed Probabilities (TCSWSP) in the National Digital Forecast Database (NDFD)

Part I - Mission Connection

- a. Product Description - The NWS provides access to operational and experimental gridded forecasts of weather elements (e.g., maximum temperature, sky cover) through the NDFD. The NDFD contains a seamless mosaic of digital forecasts from NWS field offices working in collaboration with the National Centers for Environmental Prediction (NCEP). The TCSWSP is an NCEP-generated product and is available via the NDFD.

This product depicts probabilities, in percent, of sustained surface wind speeds. These probabilities are provided for wind speed thresholds equal to or exceeding 34-, 50-, and 64-knots. These wind speed probabilities are based on the track, intensity, and storm structure (size in terms of wind radii) uncertainties in the official forecasts from the National Hurricane Center (NHC). The product will cover the continental United States and adjacent waters.

- b. Purpose – The NHC will provide these probability products to better convey the uncertainty in its forecasts. Customers have requested additional tropical cyclone probabilistic information and the National Research Council’s (NRC) Fair Weather Report encourages probabilistic products. The NWS Wind Team also supports the display of tropical cyclone probabilistic information in the NDFD.
- c. Audience – A major audience for NDFD gridded data includes large volume users of forecast information, such as utilities, emergency managers, businesses/industry, academia, and any others who wish to decode and explore various potential applications of the NWS digital data.
- d. Presentation Format - TCSWSP data in Gridded Binary Data, Edition 2 (GRIB2) format will be made available, at 5 kilometer horizontal grid spacing, from the NDFD server via anonymous ftp. The data are provided in AWIPS grid 227 at a 0.5 degree horizontal resolution over the continental United States and surrounding ocean areas.

Technical questions about this probabilistic product may be addressed to:

National Weather Service
Attn: Richard Knabb
Tropical Prediction Center
11691 S.W. 17th Street
Miami, FL 33165-2149

or e-mail: richard.knabb@noaa.gov

For general questions regarding the NDFD, please e-mail: nws.ndfd@noaa.gov

Technical questions regarding the NDFD may be addressed to:

National Weather Service Headquarters
Attn: David Ruth, W/OST21

1325 East West Highway, SSMC2
Silver Spring, MD 20910

Part II - Technical Description

- a. Format & Science Basis - The TCSWSP for NDFD contain two types of probability values: cumulative probabilities and incremental probabilities. Cumulative probabilities are defined as the overall probability the event will occur sometime during the specified cumulative forecast period (0 – 6 hours, 0-12, 0-18, etc.) at each specific point. Incremental probabilities are defined as the probability the event will occur sometime during the specified forecast period (0 - 6 hours, 6-12, 12-18, etc.) at each specific point. The TCSWSP are based on the track, intensity, and wind structure uncertainties in the official tropical cyclone forecasts produced by the NHC. The product provides probabilities of sustained wind speeds equal to or exceeding three wind speed thresholds: 34-, 50- and 64- knots, valid for the cumulative and incremental forecast periods specified above. The product will be updated with each advisory package for each active tropical cyclone in the Atlantic or Eastern Pacific hurricane basins, which occurs every six hours (except if a special advisory is issued). Probabilistic values change with each forecast advisory package.
- b. Product Availability - NHC will make this product available no earlier than 15 minutes following the issuance deadlines for routine tropical cyclone advisories (03, 09, 15, and 21 Coordinated Universal Time – UTC) and after special advisories for all tropical and/or subtropical cyclones.
- c. Additional Information
A full description of this and other NWS Tropical Cyclone Weather Services Program products is provided in NWSI 10-601, which is available online:

<http://www.nws.noaa.gov/directives/sym/pd01006001curr.pdf>