Experimental Probability of Meeting or Exceeding Specific Temperature Thresholds

Part I - Mission Connection

a. Product Description - The Probability of Meeting or Exceeding Specific Temperature Thresholds (e.g. Freezing or 100 degrees) is a graphical display on the Internet of the probability (in percent) that temperatures will either rise above or fall below the desired threshold in a given county Warning Area (CWA) for the "Day 1" and "Day 2" forecast time periods. It will be updated as necessary, but will be issued at a minimum with each major Zone Forecast package at 3 pm and 4 am local Pacific time.

b. Product Type - Experimental

c. Purpose - The purpose of this experimental product is to provide our customers and partners with enhanced detail on the potential for specific temperatures. The probabilities represent a measure of the forecasters confidence that specific temperatures will occur in a given area.

d. Audience - The audience is any customer in the WFO forecast area who would like access to graphically-depicted probabilistic forecasts temperatures forecasts.

e. Presentation Format - All displays occur via a web page interface. Forecasters create the graphics in GFE and then run a script to transfer PNG files to the PDT home page. A graphic exists for the "Day 1" and "Day 2" probability forecasts, with a maximum temperature forecast graphic included for reference for each time period.

f. Feedback Method - We will solicit feedback through an existing NWS Feedback form and/or e-mail to the WFO webmaster:

g. Example URL = http://www.weather.gov/pendleton/prototype/100prob

h. PDD Approved by Vickie Nadolski, WRH Regional Director

Part II - Technical Description

a. Format and Science Basis - This product was developed to provide customers enhanced information on the potential for specific threshold temperatures. Forecasters create the graphics in GFE using a smart tool. As input to the tool, the forecaster chooses a forecast temperature above (or below) which there is a 100% chance that the actual temperature will reach the threshold temperature and a forecast temperature below (or above) which there is a 0% chance that the actual temperature will reach the threshold temperature. The smart tool then fits a curve to the temperature grid to interpolate the probabilities between the two endpoints. For example, when forecasting the probability of 100 degree temperatures on a day with average forecast confidence, a forecaster might choose a forecast high of 103F to be his/her 100% threshold and 97F to be the 0% threshold. The smart tool would then assign probabilities to intermediate temperatures based on the curve chosen. On a day with lesser forecast confidence the temperature spread between 100% and 0% would increase. Forecasters will have the option to post-edit the grids especially when temperature endpoint thresholds are non-homogenous across the forecast domain.

b. Availability - The graphics will be available 24/7. The graphics will be updated at a minimum of twice per day with the issuance of each major Zone Forecast Product (ZFP). However, they may also be updated at non-routine times as conditions warrant.

c. Additional Information - Forecast output from this experimental application is not intended to be a substitute for official NWS products nor is it intended for a specific user group. Its intent is to provide enhanced temperature information to all of our customers and to introduce our users to probabilistic forecasting of non-precipitation variables.