Product Description Document for the Experimental Probabilistic Flood Outlook Summary

NWS WFO – Grand Forks, ND

Part 1 – Mission Connection

1. Product/Service Description:
   a. In recent years, partners along the Red River of the North have expressed a desire for a better way to receive AHPS Long Range Probabilistic Flood Outlook information during the spring snowmelt season. Currently, the primary ways partners receive the information are either through the Probabilistic Hydrologic Outlook (ESF) text product (Fig. 1) or through the "Chance of Exceeding" graphic (Fig. 2). The experimental Probabilistic Flood Outlook Summary (PFOS) is a new graphic that is intended to help reduce confusion and better communicate the probabilistic information to partners. This new experimental product depicts the probabilities of reaching certain river stages based on the standard probabilities of 95%, 90%, 75%, 50%, 25%, 10%, and 5%, but in an improved graphical format. The information used in the PFOS graphics is the same information that can be found in the ESF text product and in the "Chance of Exceeding" graphics. However, the PFOS is a representation that is believed to be easier for the end user to understand based on input from partners.

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...Table 1--Probabilities for Minor, Moderate, and Major Flooding...
             Valid Period:   03/25/2018 - 06/23/2018

                                       : Current and Historical
                                       :  Chances of Exceeding
                                       :     Flood Categories
                                       :   as a Percentage (%)
                          Categorical  :
                         Flood Stages (ft) :  Minor    Moderate   Major
Location                 Minor   Mod   Major :  CS HS    CS HS     CS HS
--------                 ------ ------ ------ : --- ---   --- ---   --- ---
Red River of the North.....
  WAHPETON                11.0   13.0   15.0 :  60  61    30  35     6  15
  HICKSON                 30.0   34.0   38.0 :  20  30     5  14    <5  <5
  FARGO                   18.0   25.0   30.0 :  92  82    45  42    17  27
  HALSTAD                 26.0   32.0   37.5 :  35  37    11  20    <5  11
  GRAND FORKS             28.0   40.0   46.0 :  93  57    34  34     6  11
  OSLO                    26.0   30.0   36.0 : >95  65    92  56    17  21
  DRAYTON                 32.0   38.0   42.0 :  82  50    44  35     6  12
  PEMBINA                 39.0   44.0   49.0 :  87  56    54  43    21  23
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Figure 1: Excerpt from a Probabilistic Hydrologic Outlook.

2. Purpose/Intended Use:
   a. This product is intended to give users an overview of the flood risk at the mainstem forecast points along the Red River of the North for the next 90 days during the spring snowmelt season.
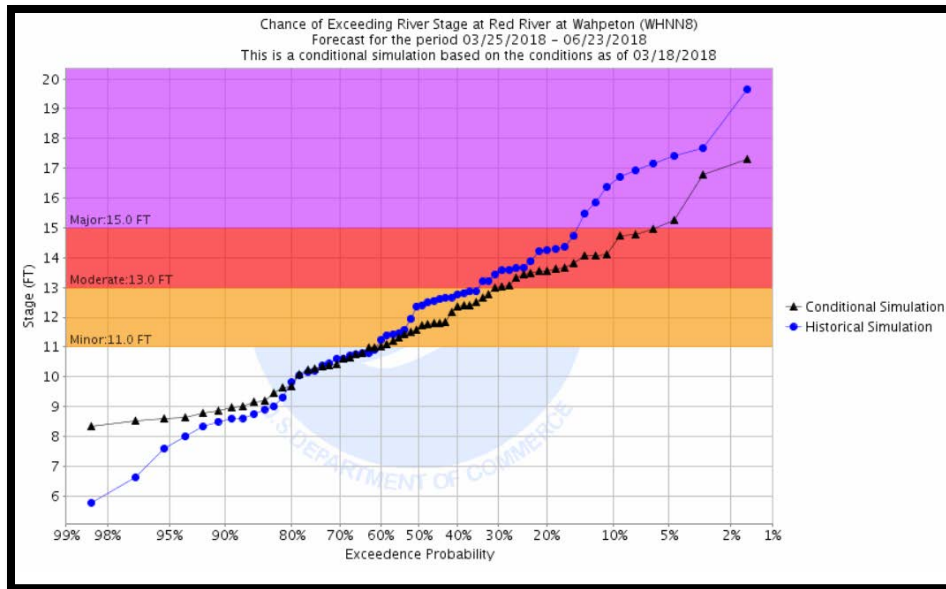
Figure 2: Example "Chance of Exceeding River Stage" graphic.

3. Audience/Users:
    a. Expected users are primarily core partners along the Red River Valley working in flood risk assessment as well as the general public to some extent.

4. Presentation Format:
    a. The product will be in an image format available on WFO Grand Forks' internet page.
    b. The units are in feet (river stage) and % (chance of reaching or exceeding a level). Valid times will cover a 90 day period from the time of the forecast. An image of the PFOS graphic is included below (Fig. 3).

5. Feedback Method:
    a. Feedback will be solicited via a user survey that will be posted on the website until May 31, 2019.
    b. Customers will also be encouraged to provide feedback regarding the product to Ryan Knutsvig, MIC, through e-mail: ryan.knutsvig@noaa.gov.

Part 2 – Technical Description
1. Format and Science Basis
    a. This product is a graphic that depicts the probabilities of reaching certain river stages based on the standard probabilities of 95%, 90%, 75%, 50%, 25%, 10%, and 5%.
    b. The locations the graphics will be created for include:
        • The Red River at Wahpeton
        • The Red River at Hickson
        • The Red River at Fargo
        • The Red River at Halstad
        • The Red River at East Grand Forks
        • The Red River at Oslo

- The Red River at Drayton
- The Red River at Pembina

2. Availability
   a. This product will be available on the internet at WFO Grand Forks' website four times per year and coincide with the spring flood outlooks issued by the North Central River Forecast Center (Chanhassen, MN) and WFO Grand Forks. The approximate dates of the spring outlook are below:
      - Late January
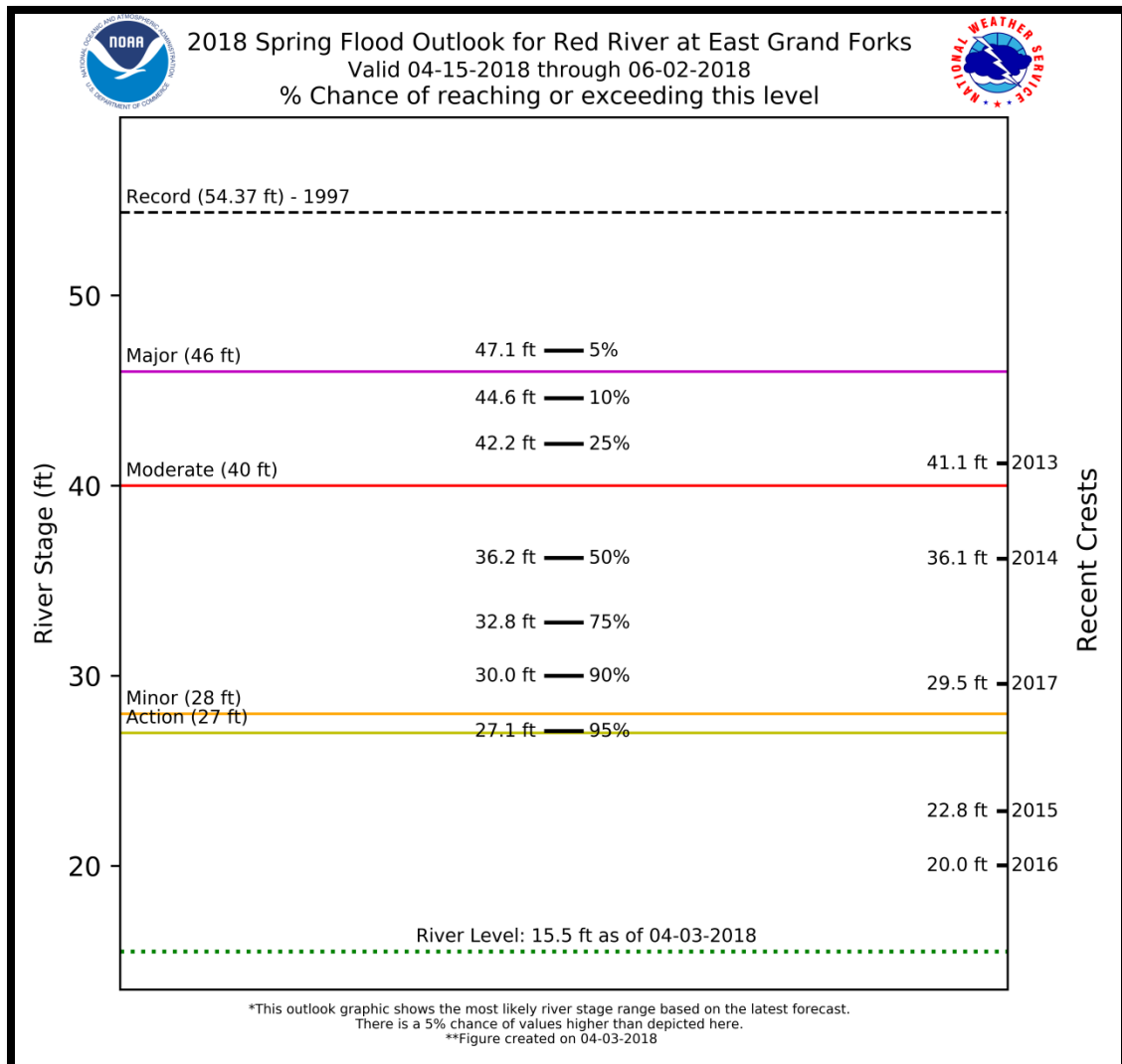   - Mid-February
      - Early March
      - Late March

Figure 3: Example of the "Probabilistic Flood Outlook Summary (PFOS)" graphic.