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NATIONAL WEATHER SERVICE CENTRAL REGION SUPPLEMENT 01-2014
APPLICABLE TO NWSI 10-911 and NWSI 10-921
SEPTEMBER 28, 2023

Operations and Services
Water Resources Services Programs, NWSPD 10-9
River Forecast Center Operations, NWSI 10-911
Weather Forecast Office Hydrologic Operations, NWSI 10-921

WFO-RFC COORDINATION/COLLABORATION

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SUMMARY OF REVISIONS: This supplement supersedes National Weather Service Central Region Supplement 01-2014 applicable to NWSI 10-911 and 10-921, dated December 4, 2014.

1. Updated content to clarify and reflect current coordination/collaboration practices.
2. Included NWC for national center coordination reference.
3. Removed Appendix A: RFC Chatrooms and replaced with document link to CR Hydro Google Site within section 2.1.1 Tools available for WFO-RFC coordination/collaboration.

JOHNSON.SALLY.ANN.1365860080 Digitally signed by JOHNSON.SALLY.ANN.1365860080 Date: 2023.09.19 09:16:17 -05'00'

Sally Pavlow Johnson Date
Acting Director, NWS Central Region

WFO-RFC Coordination/Collaboration

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1. Introduction

The shared mission of the National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) Weather Forecast Offices (WFO) and River Forecast Centers (RFC) to provide timely, life and property-saving forecasts and warnings and impact-based decision support services, requires collaborative operations and effective communication. The guidelines provided here attempt to identify efficient lines of communication as a best practice to follow. Ultimately, the meteorologist or hydrologist must use his or her best judgment based on the situation at hand. For the sake of this document, coordination and collaboration are defined as follows:

- Coordinate ≡ Sharing information and resources so all parties can accomplish their part in support of a mutual solution
- Collaborate ≡ Work as a team to develop a common solution

These guidelines are intended to provide the basic framework for a WFO/RFC hydrologic collaboration plan per NWSI 10-911 and NWSI 10-921.

2. Coordination/Collaboration Guidelines

The guidelines that follow define a general methodology that WFO and RFC staff can follow to collaborate river forecasts and better communicate river forecast information for customer decision support. In turn, this should enhance the understanding of forecasts by our partners and other users. These guidelines also specify responsibilities regarding quality assurance of the Advanced Hydrologic Prediction Service (AHPS) hydrographs, especially necessary for partner briefings and decision support. Consideration should also be given for collaboration with National Centers (ex. Weather Prediction Center (WPC), National Water Center (NWC).

2.1 WFO-RFC Coordination/Collaboration

2.1.1 Tools available for WFO-RFC coordination/collaboration

- NWS Chat/Google Chat
  - Established NWSChat chatrooms are provided on the CR Hydro Google Site
  - If an important message is sent by chat to which there is no acknowledgement, the person who chatted should follow up through another communication method.
- Telephone
- Conference calls/Webinars/Google Meet
- Hydrometeorological Coordination Message (HCM) (both the WFO and RFC can send an HCM)
  - WFOs and RFCs will set HCMs to be alarmed in AWIPS
- River Forecast text product (RVF) comments
  - WFOs will set RVFs to be alerted (may be alarmed if WFO prefers)
- AWIPS Collaborate Chat*(AWIPS chat client)

2.1.2 WFOs (Reference NWS Instruction (NWSI) 10-921)

The following are some of the actions or forecast/parameter changes that should be considered for coordination/collaboration:

- WFO request for extended hours of RFC operation
- Changes in radar Z-R relationships critical to precipitation estimates conducted at the RFC
- Discrepancies between snow water equivalent (SWE) measurements by the National Operational Hydrologic Remote Sensing Center (NOHRSC) or other sources and ground reports
- Changes requested by the WFO to the RFC river forecast information
  - Significant changes require coordination (ref: NWSI 10-921)
  - When a river forecast no longer aligns with observed data
- Changes in parameters that may significantly impact the forecast include:
  - River/precipitation gage changes, corrections or other significant data issues
  - Quantitative Precipitation Forecasts (QPF) differences (WPC-WFO-RFC)
  - QPF updates outside of the UTC 0600, 1200, 1800 and 2400 time periods
  - Quantitative Temperature Forecasts (QTF) during snow/ice melt situations
  - High-elevation freezing levels impacting melt or amount of liquid precipitation
  - Reservoir outflow changes

2.1.3 RFCs (Reference NWSI 10-911)

The following are some of the actions or forecast/parameter changes that should be considered for coordination/collaboration:

- RFC change in hours of operation
- Request to change radar Z-R relationships
- Initial issuances of flood forecasts especially for low confidence forecasts
- Forecasts approaching record or other known critical levels
- Significant changes in river forecasts (change in flood category (e.g., minor to moderate))
- Non-routine updates to river forecasts, particularly when the forecast does not accurately reflect observed data.
- Non-routine updates to Flash Flood and Headwater Guidance (FFG/FFH)
- Discrepancies in measured and modeled SWE
- Changes in parameters that may significantly impact the forecast include:
  - River/precipitation gage changes, corrections or other significant data issues
  - Rating curve shifts (typically automated but may need to be manual and coordinated for awareness)
  - QPF differences (WPC-WFO-RFC)
  - Change in routine QPF time period (e.g. 24 to 48 hours in official forecast)
  - QTF during snow/ice melt situations
  - High elevation freezing levels impacting melt or amount of liquid precipitation
  - Reservoir outflow changes

2.1.4 WFO-RFC QPF Collaboration

WFO staff should be proactive with QPF collaboration in accordance with Central Region Headquarters (CRH) forecast process policy. WFO and RFC staff should collaborate QPF to ensure coordinated river forecasts. For larger scale or multi-office events, the Central Region Headquarters (CRH) Regional Operations Center (ROC) may facilitate collaboration with WFOs, RFCs, WPC, and NWC.

2.2 Best Practices for Collaborated WFO-RFC Impact-Based Decision Support Services (IDSS)

- For significant changes to river forecasts, RFC staff are encouraged to provide additional information within RVF text product comments. A set of predefined comments was created for the more common reasoning (Ref. Appendix A).
- For more complicated river forecast coordination, RFC and WFO staff should communicate directly. A short summary of the discussion and outcome should be entered into the RFC and WFO shift logs and potentially in NWS Chat for multiple office awareness.
- Per NWSI 10-503 and CR Supplement to NWSI 10-503, WFO staff should provide hydrologic information in the AFD under a HYDROLOGY… section. Information from the RFC HMD text product and other collaboration can be included in the .HYDROLOGY… section of the AFD.

- To support IDSS needs outside of the typical river forecast process timing (ex. during early morning hours to support Emergency Operations Center (EOC) or Incident Command Post (ICP) briefing):
  - WFO staff shall notify the RFC of incident support needs. For example, WFO staff should share information from the EOC or ICP operations with the RFC to maintain situational awareness.
  - WFO staff are encouraged to provide the RFC with a prioritized list of river forecast points of concern.
  - RFC staff should provide pertinent information regarding the current river forecasts and anticipated changes to WFO staff.

- WFO staff quality assurance/quality control (QA/QC) of hydrometeorological data should identify discrepancies of river forecasts and observed data and communicate with the RFC for river forecast updates. This will ensure high quality forecasts for all users.

Appendix A – RVF "Change in Forecast" Comment List

- Gage issues:
  - Previous forecast influenced by ice-affected gage readings.
  - Forecast adjusted to correct for bad gage readings.
  - Forecast adjusted to reflect new observation.

- Forcings issues:
  - Forecast adjusted to reflect a change in past precipitation model input.
  - Anticipated precipitation used in earlier river forecast did not occur.
  - Anticipated precipitation used in earlier river forecast was underestimated.
  - Anticipated precipitation used in earlier river forecast was overestimated.
  - Anticipated precipitation used in earlier river forecast was modeled as snow but was observed as rain.
  - Anticipated precipitation used in earlier river forecast was modeled as rain but was observed as snow.
  - Forecast adjusted due to change in snowpack conditions.
  - Forecast adjusted due to increase in estimated snow water equivalent.
  - Forecast adjusted due to a decrease in estimated snow water equivalent.
  - Forecast adjusted due to a change in reservoir releases.

- River model issues:
  - Forecast adjusted due to shift in relationship between flow and stage.
  - Forecast adjusted due to flow/stage measurement that differs from the rating curve.
  - Routing from upstream faster than previously assumed.
  - Routing from upstream slower than previously assumed.
  - Previously simulated soil moisture appears to have been too wet.
  - Previously simulated soil moisture appears to have been too dry.
  - Forecast adjusted to reflect a slower snowmelt.
  - Forecast adjusted to reflect a more rapid snowmelt.
  - Forecast adjusted to reflect distribution of rain limited to upstream area of basin.
  - Forecast adjusted to reflect distribution of rain limited to downstream portion of basin.
  - Forecast adjusted to reflect change in timing of precipitation.

- Other
  - Forecast adjusted to reflect levee breach/overtopping.