Department of Commerce • National Oceanic & Atmospheric Administration • National Weather Service

***NATIONAL WEATHER SERVICE EASTERN REGION SUPPLEMENT 01-2008***
***APPLICABLE TO NWSI 10-912***
***NWSI 10-922***
***OCTOBER 16, 2024***

***Operations and Services***
***Water Resources Service Program, NWSPD 10-9***
***River Forecast Center Products Specification, NWSI 10-912***
***Weather Forecast Office Hydrologic Products Specification, NWSI 10-922***

# *COLD SEASON HYDROLOGY IMPACT-BASED DECISION SUPPORT SERVICES*

**NOTICE:** This publication is available at: http://www.weather.gov/directives/.

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**Type of Issuance:** Routine

***SUMMARY OF REVISIONS:*** This Supplement supersedes Eastern Region Supplement (ERS) 01-2008, *Winter/Spring Flood Outlooks*, dated September 15, 2010.

- Changed the Supplement Name to reflect a focus on Impact-Based Decision Support Services for Cold Season Hydrology.
- Removed required transmissions of ESFs and ESGs.
- Updated content to reflect a focus on Impact-Based Decision Support Services for Cold Season Hydrology.

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# Cold Season Hydrology Impact-based Decision Support Services

**Table of Contents** **Page**



## 1. Introduction

NWSI 10-922 and NWSI 10-912 describe the issuance criteria, content and format for the Hydrologic Outlook (ESF) and Extended Range Streamflow Guidance (ESG) products that Weather Forecast Offices (WFOs) and River Forecast Centers (RFCs) use to issue long-term hydrologic information on an "as-needed" basis. Over time, the use of ESF and ESG text products by the public during the cold season in ER has fallen to very low numbers (determined using "web analytics"). **While the NWSIs still offer these text product options, this ER supplement update removes the requirement of their issuance during the cold season by Eastern Region offices.**

The foundations of NWS Impact-Based Decision Support Services (IDSS) are defined in Directive 10-24. The goal of this ER supplement is to establish the authorities and responsibilities of cold season hydrology impact-based decision support services (IDSS) by ER RFCs and WFOs. Cold season hydrology IDSS takes advantage of tools like MMEFS/HEFS information, other probabilistic guidance, offices' IDSS briefings, and social media. With IDSS, the NWS stakeholders will get better cold season hydrology information than formerly provided by text products.

Cold season data collections remain critical to cold season IDSS provision. Additionally, National Operational Hydrologic Remote Sensing Center (NOHRSC), which has been incorporated in the Water Prediction Operations Division (WPOD) of the National Water Center (NWC), also relies on WFO and RFC snow measurement and snow water equivalent (SWE) data transmissions for cold region modeling operations. The primary contact within WPOD during the cold season is the Winter Hydrology Desk (WHD).

WPOD/WHD staff collaborate with RFCs for optimum scheduling of airborne snow survey flights (NWSI 10-930). Due to the seasonal nature and complexities of these data collections, NWS operations are best supported with comprehensive planning, and internal/external coordination. Thoughtful scheduling is performed to provide the best possible services to NWS users and additionally, to maintain the climatology of snow water equivalent in the East.

The purpose of this supplement is to clarify the responsibilities for Eastern Region (ER) Hydrologic Services Division (HSD), ER WFOs and ER RFCs related to data collection, interoffice, regional and partnered collaboration activities during the cold season. Execution of these responsibilities support WFO forecasters' situational awareness of cold season hydrology hazards, which in turn support their abilities to provide high-quality cold season hydrology forecasts, warnings and IDSS to the public and stakeholders.

## 2. Data Collection

This section defines the responsibilities to ensure well-coordinated snow and snow water equivalent data collection to support winter/spring flood outlooks in Eastern Region.

### 2.1 Eastern Region Hydrologic Services Division Role

The ER HSD will:

- In the September/October time frame each year, contact the Northeast Regional Climate Center (NRCC) to obtain the snow and snow water equivalent data collection dates which will ensure consistency in the climate records for snow observations in the Eastern US.
- Publish a recommended snow and snow water equivalent data collection schedule utilizing the dates provided by NRCC.
- Provide notification of the published schedule to ER WFOs, ER RFCs, NOHRSC, Central Region Headquarters (CRH), Weather Prediction Center (WPC) and NWC WPOD.

### 2.2 Weather Forecast Office Role

The ER WFOs will:

- Review cold season data needs on an annual basis in coordination with the supporting RFCs. This can include snow, ice, soil moisture, airborne flight lines, photographs, etc.
- In the September/October time frame each year, review data observing locations in their Hydrologic Service Area (HSA), analyze data sparse areas, and provide any necessary updates on locations (new NWS location identifiers (NWSLIs), latitude, longitude, etc., to the servicing RFCs and NOHRSC.
- Investigate resources available to add observations in data sparse regions where flood impacts or downstream flooding impacts may be significant.
- Provide the data collection schedule to local and state partners as appropriate.
- During the data collection months, support/coordinate and/or collect data from cooperators, ensure these are encoded into Standard Hydrometeorological Exchange Format (SHEF) and transmitted using AWIPS or other agreed to methods.
- During the data collection months, collaborate with RFCs to request airborne flight lines.

- Collaborate with WPOD/WHD on other cold season hazard information.

### 2.3. River Forecast Center Role

The ER RFCs will:

- Assist WFOs in annual review of data needs.
- During the data collection months, support/coordinate and/or collect data from cooperators that span more than one HSA, ensure data is encoded into SHEF and transmitted over AWIPS or other agreed to methods.
- During the data collection months, collaborate with WFOs to make decisions on requesting airborne flight lines.
- Collaborate with WPOD/WHD on flight lines and other cold season hazard information.

## 3. Cold Season Hydrology Impact-Based Decision Support Services

This section defines the responsibilities to ensure well-coordinated issuance of Cold Season Hydrology IDSS in Eastern Region.

### 3.1. Weather Forecast Office Role

The ER WFOs will:

- Collaborate with RFCs, State Liaison Offices (SLOs), and local/state/federal agencies as needed to provide cold season IDSS for hydrologic hazards.
- Deliver IDSS that follows the tenets of the IDSS Directive – slide briefings are not routinely mandatory, but as potentially hazardous hydrologic conditions/events warrant.
- Utilize IDSS tools that have been coordinated at the ER level or nationally to support consistency in hazard communication.
- Have the option to utilize cold season hydrologic hazard information in social media and/or partner/stakeholder outreach.

### 3.2. River Forecast Center Role

The ER RFCs will:

- Collaborate with WFOs and local/state/federal agencies as needed to provide cold season IDSS for hydrologic hazards.
- Deliver IDSS that follows the tenets of the IDSS Directive – slide briefings are not routinely mandatory, but as potentially hazardous hydrologic conditions/events warrant.
- Have the option to utilize cold season hydrologic hazard information in social media and/or partner/stakeholder outreach.

### 3.3 Collaborations

For both RFC and WFOs, collaborations may include WPOD/WHD, and ER Regional Operations Center (ROC) - especially if using experimental products (e.g. flood inundation maps and/or National Water Model information)

## 4. Cold Season Hydrology IDSS Content

The Cold Season Hydrology IDSS should follow normal Service Guidelines Criteria in the IDSS Supplement. The Cold Season Hydrology IDSS issued by RFCs and WFOs should include the following hazard information, as applicable:

- Potential for snowmelt flooding (in areas with a snow pack only)
- River ice conditions
- Observed snow depth and snow water equivalent information (in areas with a snow pack only)
- Soil moisture information
- Antecedent fall/winter/spring precipitation conditions
- Information on future weather (especially for potentially significant events)
- Water supply conditions, with focus on those areas experiencing or anticipating shortages
- IDSS Briefings will specifically state when the next briefing is to be provided.