

The Flood Record

December 2021

FEMA Training Video – Adding Future Conditions to your next Mitigation Plan Update

Training webinar, "Investing in Our Future, Planning Now: Addressing Future Climate, Population and Land Use in Mitigation Planning" is available on [FEMA's YouTube channel](#). The webinar provides ideas, resources, and examples of how to integrate future conditions information into the hazard mitigation planning process to increase overall resilience.

As the frequency and intensity of natural disaster events increase, it is important to account for future conditions when developing a hazard mitigation plan for approval. Future conditions include the impacts of a changing climate, the built environment, and changes in population and land use.

Risk Rating 2.0 and Elevation Certificates: Using Section C or E for First Floor Height

(Adapted from ASFPM [RR2-Elevation Certificate Fact Sheet](#))

Under Risk Rating 2.0 (RR 2.0), an EC is no longer required to rate a policy, regardless of when the building was constructed. HOWEVER, an EC is still one of the best tools you have to verify compliance and often can result in a better insurance rating for the building owner. The EC has mainly been used in Illinois for buildings in the Zones A, AE, and AH. Section E is rarely used but has new relevance under RR2.0. To explain, you will need a bit more background on how flood insurance rating now uses elevation data.

How is Elevation data used in RR 2.0?

Elevation is still the most important rating element in RR 2.0 and ECs will still be used. However, under the new pricing methodology (RR 2.0), there are now three types of elevation variables considered when rating a building:

1. Elevation relative to the flooding source – Determined by comparing the building's Lowest Adjacent Grade (LAG) elevation to the average water surface elevation of the nearest flooding source;
2. Local Relative Elevation – Determines the building's risk to local flooding by comparing its LAG to the surrounding grade elevation (a square area of about 61 acres/0.1 sq. miles) to see if it is higher or lower; and
3. First Floor Height (FFH) – Height of the lowest floor above/below the building's Lowest Adjacent Grade.

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Elevation Certificate Determined FFH, Sections C and E

If a properly completed and certified EC is provided, then Section C can be used to determine the FFH.

However, Section E may also be used, in the absence of surveyed elevations, for insurance rating in all zones, even though the EC specifies this section is only used for Zone AO and Zone A (without BFE). The beauty of this option is that it can be completed by the property owner, the insurance agent, a community official, or whomever, and it does not require a licensed professional to sign it. The only requirement is that the same person completing Section E should complete Section F. Depending upon the building diagram, FFH will be what is in E1b or E2 (see Table 16 in Section III of the FIM for details).

If the Section E FFH is used for insurance rating, then the LAG obtained from FFH process described above will be used to determine the elevation relative to the flooding source and the local relative elevation.

SECTION E – BUILDING ELEVATION INFORMATION (SURVEY NOT REQUIRED) FOR ZONE AO AND ZONE A (WITHOUT BFE)			
For Zones AO and A (without BFE), complete Items E1–E5. If the Certificate is intended to support a LOMA or LOMR-F request, complete Sections A, B, and C. For Items E1–E4, use natural grade, if available. Check the measurement used. In Puerto Rico only, enter meters.			
E1. Provide elevation information for the following and check the appropriate boxes to show whether the elevation is above or below the highest adjacent grade (HAG) and the lowest adjacent grade (LAG).			
a) Top of bottom floor (including basement, crawlspace, or enclosure) is		☐ feet ☐ meters	☐ above or ☐ below the HAG.
b) Top of bottom floor (including basement, crawlspace, or enclosure) is		☐ feet ☐ meters	☐ above or ☐ below the LAG.
E2. For Building Diagrams 6–9 with permanent flood openings provided in Section A Items 8 and/or 9 (see pages 1–2 of Instructions), the next higher floor (elevation C2.b in the diagrams) of the building is		☐ feet ☐ meters	☐ above or ☐ below the HAG.
E3. Attached garage (top of slab) is		☐ feet ☐ meters	☐ above or ☐ below the HAG.
E4. Top of platform of machinery and/or equipment servicing the building is		☐ feet ☐ meters	☐ above or ☐ below the HAG.
E5. Zone AO only: If no flood depth number is available, is the top of the bottom floor elevated in accordance with the community's floodplain management ordinance? ☐ Yes ☐ No ☐ Unknown. The local official must certify this information in Section G.			

EC Section E and Floodplain Ordinance Compliance

While using Section E of the EC may help reduce cost and time for insurance rating, it could cause confusion and potential headaches for floodplain managers (e.g., CRS requirements, potential incorrect usage of the EC). With the EC expiring November 2022, expect some changes to better clarify this section's use for all flood zones. For permit compliance, this section should only be used as stated for Zones AO and Zone A.

So, while ECs are NOT required in RR 2.0, policyholders have the option of providing elevation information from an EC for any zone, and the property owner does NOT need a licensed surveyor for completing Section E.

Outreach – Links for Your Social Media and Website

If you are looking for some new social media posts check out [FloodSmart | Urban Flooding Marketing Campaign](#) and the following YouTube videos on flood insurance, flood preparedness, and winter preparedness:

[Flood Insurance – Flash Floods - YouTube](#)

[Flood Risk: What is Coastal Flooding? - YouTube](#)

[Mapping Flood Risk Along the Great Lakes - YouTube](#)

[When the Clouds Form - YouTube](#)

[Flood Risk: What is snowmelt flooding? - YouTube](#)

[When The Sky Turns Gray - Animated Video - YouTube](#)

IAFSM 2022 Conference

The IAFSM 2022 Conference will be held on March 8-9 in Bloomington-Normal. Go to www.illinoisfloods.org to register.

Local Official Scholarships will be available.

If interested, please send an email to Marilyn.Sucoe@illinois.gov or watch the IAFSM website for the application.

National Weather Service Flood Forecasting

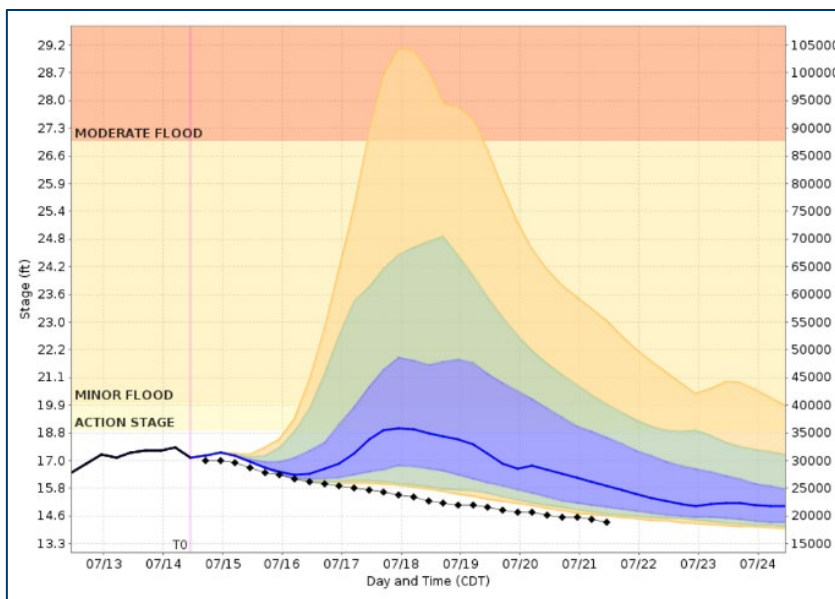
HEFS: A New Tool for Visualizing Uncertainty in River Forecasts

Guest Contributor: W. Scott Lincoln, GISP, National Weather Service, Chicago, IL

Background

The National Weather Service (NWS) is currently working to add another product to our river forecast information, one that helps to visualize uncertainty in river forecasts 1-2 weeks into the future. Because river forecasts are based upon a number of assumptions and even upon other forecasts such as precipitation and temperature, there is not always high confidence in river forecast values. Currently, river forecast information is provided using a hydrograph with values rounded to the nearest tenth of a foot, but these plots provide no additional details about forecast confidence. **By early next year, output from the Hydrologic Ensemble Forecasting System (HEFS) will become available, which will show the range of river levels possible based upon the forecasted range of precipitation and temperature values.**

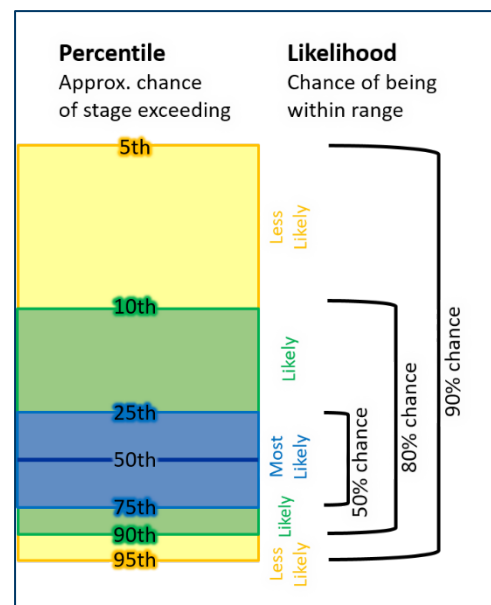
Using HEFS Output



HEFS is based upon almost 60 different model runs of future temperature and precipitation from the Global Ensemble Forecast System (GEFS). Plots will show the official, single value forecast produced by the NWS river forecast center (black line with black dots) and also shaded areas depicting the most likely and less likely river stages. A thick blue line represents the median river response, that is, the water level where 50% of model runs are below and 50% of model runs are above.

The blue shaded area around the thick blue line represents the middle 50% of model runs. HEFS is estimating that there is a 25% chance of river levels being above and a 25% chance of river levels being below the blue shaded area. HEFS estimates that there is an 80% chance of river levels being within the green or blue shaded area, and a 90% chance of river levels being within the yellow, green, or blue areas. Although it is expected that future river levels will most often be in or near the blue shaded area, they sometimes end up in the less likely shaded areas, and in rare cases end up outside the shaded range entirely. When precipitation and temperature forecasts have less uncertainty, and thus, river forecasts have less uncertainty, the width of the shaded areas would be narrower. Conversely, when uncertainty is higher, the shaded area would be wider, covering more possible river stages.

One additional benefit to HEFS is that 10 days of future rainfall and temperatures from the GEFS are used. In contrast, official forecasts



from the NWS river forecast centers typically include 2 days of less of future rainfall, depending on the time of year.

Summary

By early 2022, the NWS will make river forecast output from HEFS available at most river forecast locations, which will provide additional details about river forecast uncertainty. HEFS will provide a way to visualize less likely, but still possible, river levels 1-2 weeks into the future. HEFS will be helpful to most river forecast users, many of which have different levels of sensitivity or vulnerability to certain water levels. Entities that need to prepare for lower chance, higher impact river levels could monitor the 10th and 5th percentile values (upper ends of the green and yellow shaded areas, respectively), for example, while entities that simply need the best available forecast could focus on the official forecast from the river forecast centers and the blue shaded area.

Contact

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FEMA Public Assistance – Independent Study Courses

Before your next flood or other disaster event, FEMA offers training for their Public Assistance (PA) Program. PA grants to local governments can help you quickly respond to and recover from major disasters or emergencies. More detailed information is located in the [FEMA Public Assistance Program and Policy Guide](#). FEMA's [Emergency Management Institute](#) offers public assistance independent study courses free of charge and CEUs are provided. Here are just a few of the 27 courses offered:

[IS-1000: Public Assistance Program and Eligibility](#) (8 hours)

[IS-1002 - FEMA Grants Portal – Transparency at Every Step](#) (7 hours)

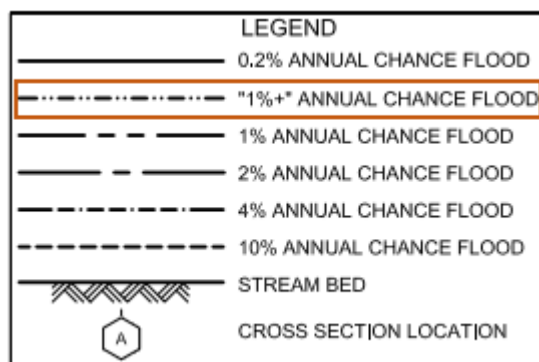
[IS-1006 - Documenting Disaster Damage and Developing Project Files](#) (8 hours)

[IS-1011: Roads and Culverts](#) (4 hours)

[IS-1021: Bridge Damage Considerations](#) (4 hours)

New 1% + Annual Chance Flood Profile

Future Flood Insurance Studies will now include a new profile line, the “1% +” Annual Chance Flood for newly studied streams. This new profile is being shown to demonstrate the uncertainty and variability that exists in the engineering methods used for determining the 1% discharge. The “1%+” elevation will not be reflected on the effective Flood Insurance Rate Maps.



Under your current floodplain regulations, this new profile will have no impact on your regulatory program. In the future, engineers and community officials may find this new profile useful in designing, planning, and permitting new development. For example, floodplain administrators can view this new profile and, depending on how much higher it is above the 1% annual chance or base flood profile, could increase the freeboard requirements for a particular stream. If you want a deeper dive into how this profile is developed go to [FEMA Guidance for Flood Risk Analysis and Mapping, Automated Engineering May 2016](#)