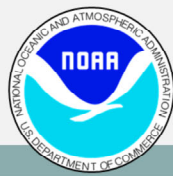


Hydro Hazard Simplification Phase 1 Overview



JILL HARDY

LAST UPDATED: DECEMBER 2020



Hi, my name is Jill Hardy and welcome to this lesson about the implementation of hydro hazard simplification, or haz simp for short.

Learning Objectives

By the end of this lesson, the student will be able to:

- Identify the product changes occurring with Hydro HazSimp – Phase 1
- Differentiate between the new Watch products and when to use them

Job sheet on the VLab!

Here are the learning objectives. This short lesson will discuss each of changes occurring with Hydro HazSimp – Phase 1, as well as what they will mean for hydro operations.

Additionally, there is a job sheet available on the VLab to guide you through practicing these changes in Hazard Services. The link is available in the Resources tab.

Three Changes in Hydro HazSimp – Phase 1

1

Reformatting of WWA text products

2

Consolidation of five Areal Flood Advisories

3

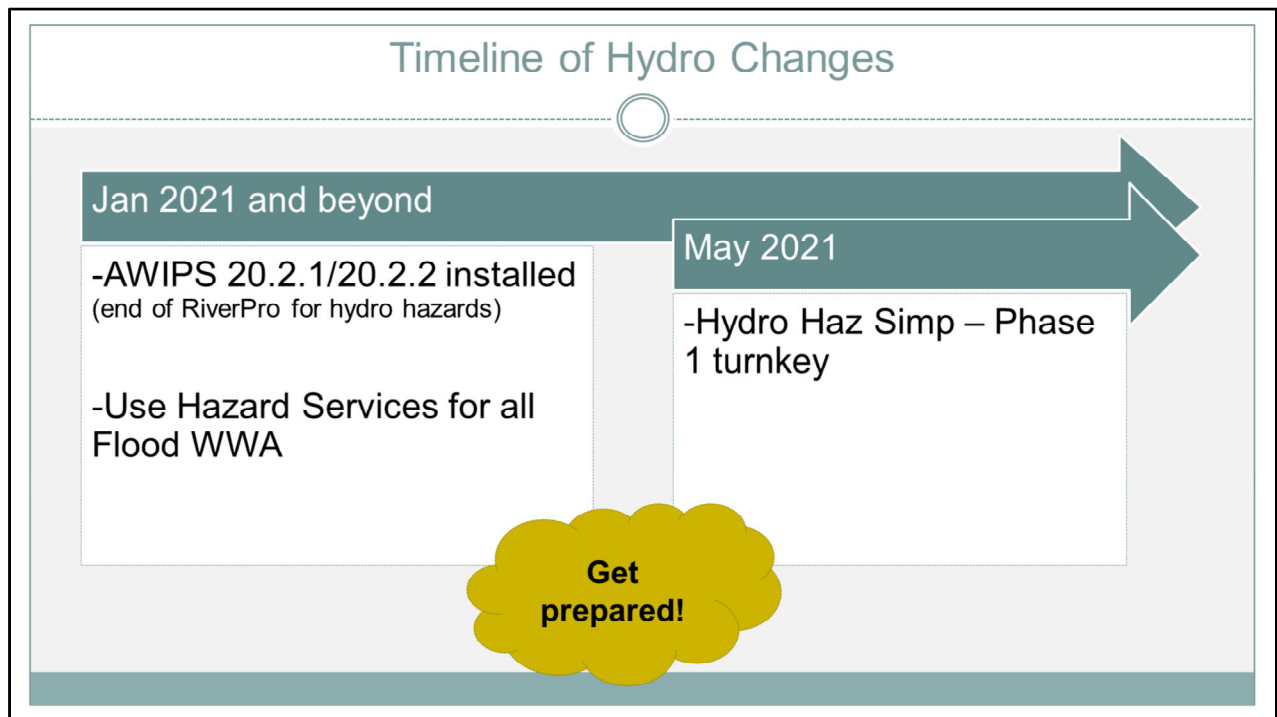
Reallocation of Flash Flood Watches

Let's begin with a summary of the three major changes occurring with Hydro HazSimp – Phase 1.

First, there's reformatting of the Watch, Warning, Advisory text products.

Second, the consolidation of the 5 Areal Flood Advisories into one Flood Advisory.

And finally, there's the reallocation of Flash Flood Watches and Flood Watches.



Before I go on, I want to briefly mention the timeline of some of these changes.

In January 2021, AWIPS build 20.2.1 and 20.2.2. will begin their rollout and will be installed at your office sometime over the next several months. Talk to your AWIPS Focal Point to find out when.

This build ends the use of RiverPro for watch, warning, and advisory generation. You will then use Hazard Services for all Flood Watch/Warning/Advisory products.

The Hydro Haz Simp – Phase 1 turnkey is currently scheduled for May 2021. So there will be several months where you will be using Hazard Services to issue hydro hazards, but not yet with the Haz Simp changes.

During this time, talk to your Hazard Services and Hydro Focal Points about the upcoming changes, get acquainted with issuing flood products with Hazard Services in practice mode, and get some practice with the Haz Simp changes using our job sheet on the VLab.

#1) Flood & Flash Flood WWA Text Reformatting

All Flood and Flash Flood Watch/Warning/Advisories*

*except Flash Flood Warnings (IBW format)

WHAT

...FLOOD ADVISORY IN EFFECT UNTIL 1145 PM CDT...

* **WHAT**...Urban and small stream flooding resulting from heavy rain.

WHERE

* **WHERE**...Northern Lake County and Northeastern McHenry County in northeastern Illinois.

This includes the following locations...
Waukegan, North Chicago, Gurnee, McHenry, Zion, Grayslake, Libertyville, Round Lake, Antioch, Beach Park, Fox Lake, Lake Villa, Park City, Gages Lake, Pistakee Highlands, Venetian Village, Long Lake, Lindenhurst, Johnsburg and Lakemoor.

WHEN

* **WHEN**...Until 1145 PM CDT

IMPACTS

* **IMPACTS**...Heavy rain will cause urban and small stream flooding. Overflowing poor drainage areas will result in minor flooding in the advisory area.

ADDITIONAL DETAILS

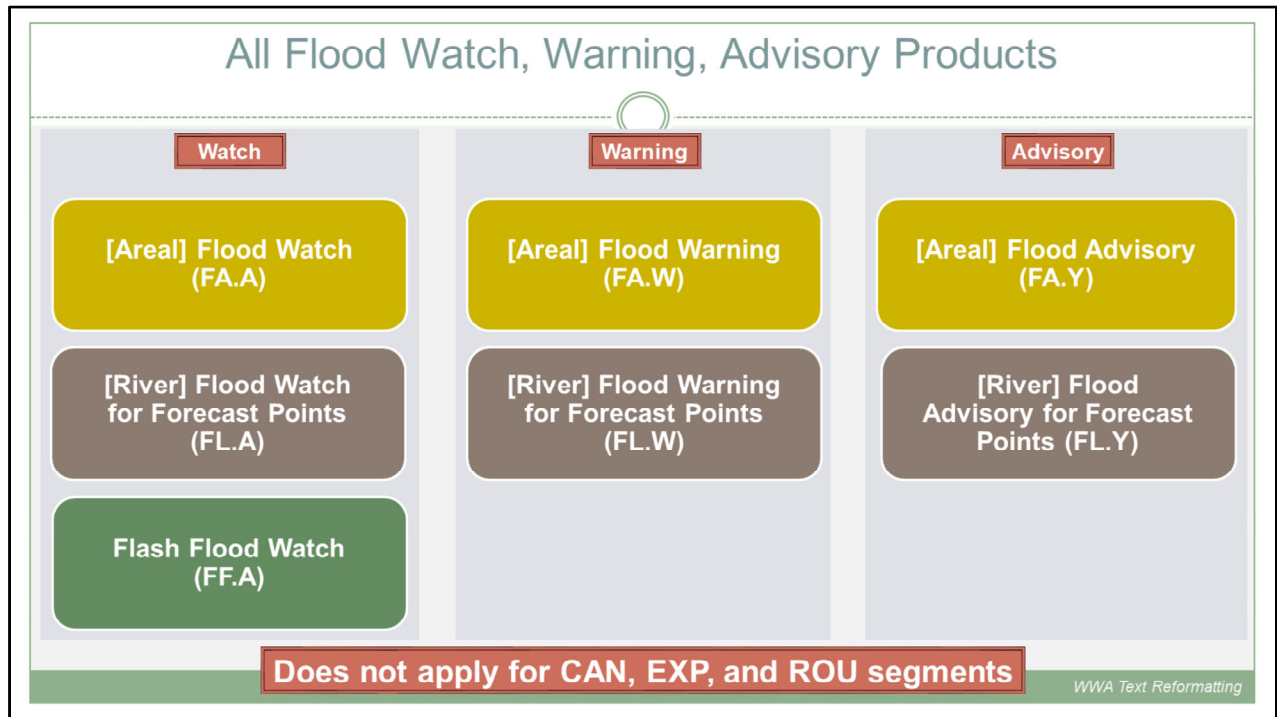
* **ADDITIONAL DETAILS**...At 040 PM CDT, Doppler radar indicated heavy rain due to thunderstorms. Up to two inches of rain have already fallen.

(bolded for effect)

WWA Text Reformatting

Alright, so first, all flood and flash flood Watch/Warning/Advisory products are being reformatted into the WHAT, WHERE, WHEN, IMPACTS, and ADDITIONAL DETAILS format. The exception to this is Flash Flood Warnings, which will remain in the impact-based warning (or IBW) format that was implemented in 2019 and early 2020.

I wanted to begin here because you will see these changes appear in text examples throughout the lesson. Here is an example of how a Flood Advisory will look with this new reformatting. Move onto the next slide when you are ready.

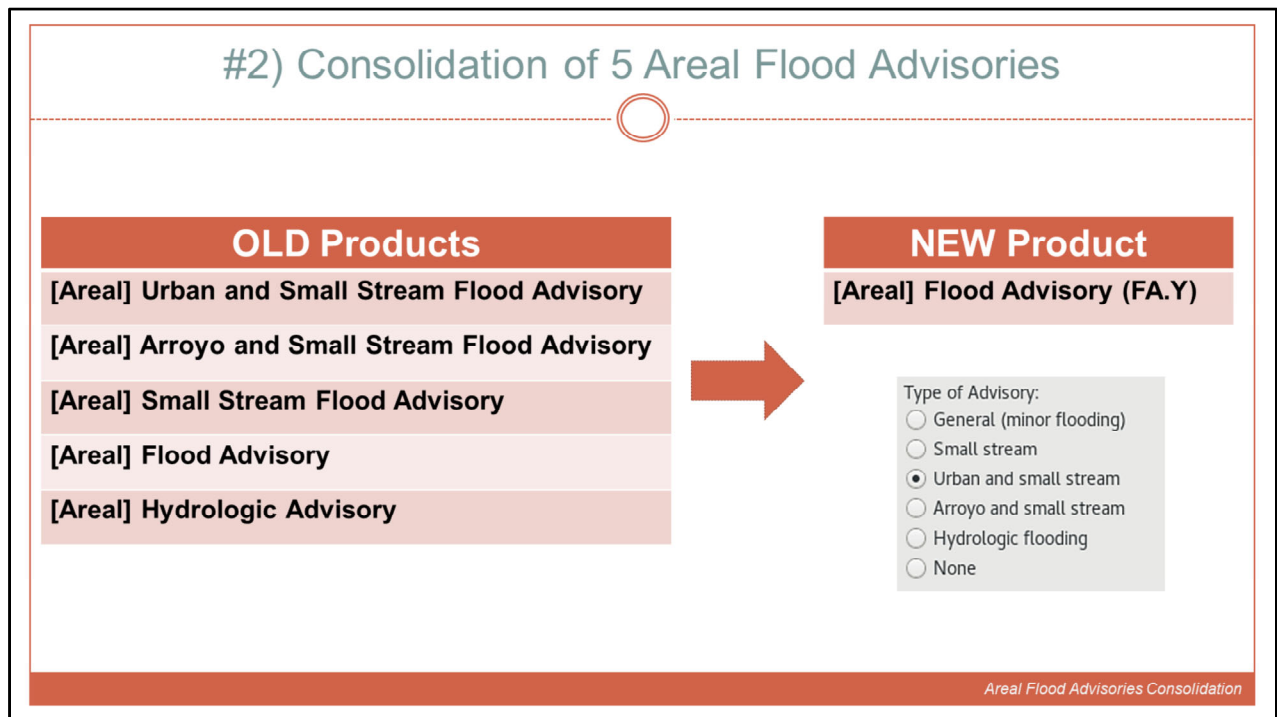


And just to reiterate, ALL of these products will now follow the What, Where, When bulleted format.

The only caveat is that this bulleted format does not apply for cancellations (CAN), expirations (EXP), or routine (ROU) segments.

Keep in mind that the long-term goal of Haz Simp is to simplify these products even more. Until then, carry on!

#2) Consolidation of 5 Areal Flood Advisories



The next change is also pretty straightforward. Instead of having the 5 different Areal Flood Advisory options, you will simply have one generic Areal Flood Advisory product. The purpose is to reduce confusion by simplifying into one product that relays the advisory-level threat of flooding.

But don't worry...You still have the option to specify the type of flooding in the Hazard Services GUI, as shown here.

Flood Advisory Example

OLD Product

The National Weather Service in Chicago has issued a

- * **Urban and Small Stream Flood Advisory** for Poor Drainage Areas for... Northern Lake County in northeastern Illinois... Northeastern McHenry County in northeastern Illinois...
- * Until 1145 PM CDT
- * At 848 PM CDT, Doppler radar indicated heavy rain due to thunderstorms. This will cause urban and small stream flooding. Overflowing poor drainage areas will result in minor flooding in the advisory area. Up to two inches of rain have already fallen.
- * Some locations that will experience flooding include... Waukegan, North Chicago, Gurnee, McHenry, Zion, Grayslake, Libertyville, Round Lake, Antioch, Beach Park, Fox Lake, Lake Villa, Park City, Gages Lake, Pistakee Highlands, Venetian Village, Long Lake, Lindenhurst, Johnsburg and Lakemoor.

NEW Product

...FLOOD ADVISORY IN EFFECT UNTIL 1145 PM CDT...

- * **WHAT**...Urban and small stream flooding resulting from heavy rain.
- * **WHERE**...Northern Lake County and Northeastern McHenry County in northeastern Illinois.

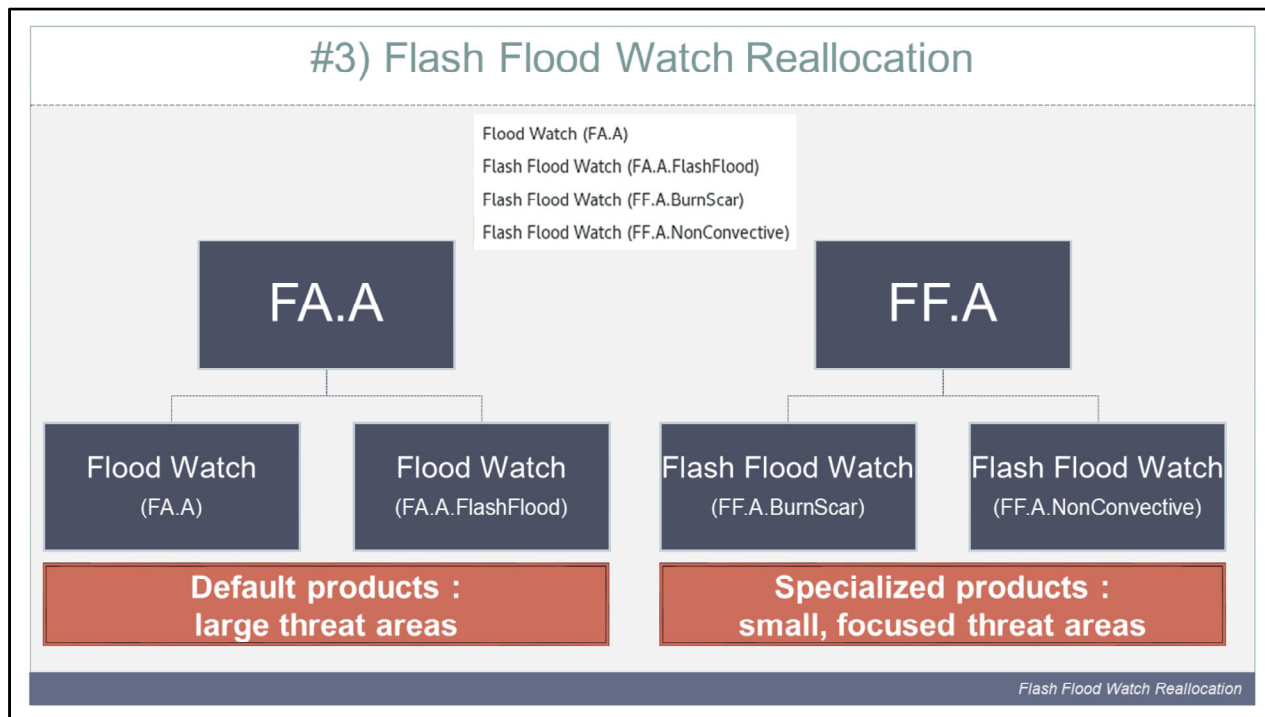
This includes the following locations... Waukegan, North Chicago, Gurnee, McHenry, Zion, Grayslake, Libertyville, Round Lake, Antioch, Beach Park, Fox Lake, Lake Villa, Park City, Gages Lake, Pistakee Highlands, Venetian Village, Long Lake, Lindenhurst, Johnsburg and Lakemoor.
- * **WHEN**...Until 1145 PM CDT
- * **IMPACTS**...Heavy rain will cause urban and small stream flooding. Overflowing poor drainage areas will result in minor flooding in the advisory area.
- * **ADDITIONAL DETAILS**...At 848 PM CDT, Doppler radar indicated heavy rain due to thunderstorms. Up to two inches of rain have already fallen.

Areal Flood Advisories Consolidation

Here is a side-by-side of the old Urban and Small Stream Flood Advisory on the left and the new Flood Advisory on the right.

Note that the headline has changed from “The National Weather Service has issued” to “FLOOD ADVISORY IN EFFECT UNTIL”.

The type of flooding that you selected will show up in the WHAT bullet. Here, it was for “urban and small stream flooding resulting from heavy rain”.



The final change is likely the one that will take the most getting used to and we'll spend the rest of the lesson on it. This is the reallocation of Flash Flood Watches.

In Hazard Services, there will be 4 watch options to choose from. They are shown here. The first two fall under the Flood Watch product, carrying the FA.A phenomenon/significance, or phensig, code. The second set falls under the Flash Flood Watch product, carrying the FF.A phensig code.

The easiest way to think about it is this: The FA.A products are your default watch products, used for large threat areas. Choose which one to use depending on whether you want to emphasize the threat of flooding or flash flooding across the area. The two FF.A products should be reserved as specialized products, for smaller, more focused threats due to less common situations, like burn scars and dam breaks.

Let's dive a little deeper.

Immediate Causes for Watches

Flood Watch (FA.A)		Flash Flood Watch (FF.A)	
FA.A & FA.A.FlashFlood		FF.A.BurnScar	FF.A.NonConvective
ER – excessive rainfall	~85% of all watches	ER – excessive rainfall	DM – dam or levee failure
RS – rain and snowmelt		RS – rain and snowmelt	DR – upstream dam or reservoir release
DM – dam or levee failure		~75% of FF.A	IJ – ice jam
DR – upstream dam or reservoir release			IC – rain and/or snowmelt and/or ice jam
IJ – ice jam			SM – snowmelt
IC – rain and/or snowmelt and/or ice jam			FS – upstream flooding + storm surge
SM – snowmelt			FT – upstream flooding + tidal effects
FS – upstream flooding + storm surge			ET – elevated upstream flow + tidal effects
FT – upstream flooding + tidal effects			WT – wind and/or tidal effects
ET – elevated upstream flow + tidal effects			GO – glacier-dammed lake outburst
WT – wind and/or tidal effects			OT – other effects
GO – glacier-dammed lake outburst			MC – other multiple causes
OT – other effects			UU – unknown
MC – other multiple causes			
UU – unknown			

Order can be changed

Flash Flood Watch Reallocation

After the implementation of Phase 1, Hazard Services will be set up to accommodate this reallocation by emphasizing different immediate causes based on the product type.

For both of the FA.A Flood Watch products, all of the immediate causes will be provided in order to give you the utmost flexibility in your default watch products. Excessive rainfall (ER) and rain and snowmelt (RS) are listed first because they make up about 85% of all watches, and will likely be your go-to choices most of the time.

For the burn scar Flash Flood Watch, only ER and RS will be given. Burn scar Flash Flood Watches make up about 75% of the FF.A category. The final product, the non-convective watch, takes out the ER and RS immediate cause, leaving just the non-convective causes to choose from. This list is ordered with the most commonly used causes first, but your AWIPS or Hazard Services focal point can make local overrides to meet your office needs.

Old Flash Flood Watch vs. FA.A.FlashFlood

OLD Flash Flood Watch (FF.A)	NEW Flood Watch (FA.A.FlashFlood)
<p>DCZ001-MDZ013-504-VAZ052>054-240600- /O.NEW.KLWX.FF.A.0012.200724T0013Z-200724T0600Z/ /00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.CO/ District of Columbia-Prince Georges- Prince William/Manassas/Manassas Park-Fairfax- Arlington/Falls Church/Alexandria- Including the cities of Washington, Bowie, and Falls Church 813 PM EDT Thu Jul 23 2020</p> <p style="background-color: yellow;">...FLASH FLOOD WATCH IN EFFECT UNTIL 2 AM EDT FRIDAY...</p> <p>The National Weather Service in Sterling Virginia has issued a</p> <ul style="list-style-type: none"> * Flash Flood Watch for portions of central Maryland, The District of Columbia, and northern Virginia, including the following areas, in central Maryland, and Prince Georges. The District of Columbia. In northern Virginia, Arlington/Falls Church/Alexandria, Fairfax, and Prince William. * Until 2 AM EDT Friday. * Slow moving thunderstorms are developing across the Washington DC Metropolitan Area this evening. Localized rainfall amounts up to two inches in an hour are possible. These amounts could lead to flash flooding, especially along small streams and in poor drainage urban areas. 	<p>DCZ001-MDZ013-504-VAZ052>054-240600- /O.NEW.KLWX.FA.A.0012.200724T0013Z-200724T0600Z/ /00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.CO/ District of Columbia-Prince Georges- Prince William/Manassas/Manassas Park-Fairfax- Arlington/Falls Church/Alexandria- Including the cities of Washington, Bowie, and Falls Church 813 PM EDT Thu Jul 23 2020</p> <p style="background-color: yellow;">...FLOOD WATCH IN EFFECT UNTIL 2 AM EDT FRIDAY...</p> <ul style="list-style-type: none"> * WHAT...Flash flooding caused by excessive rainfall is possible. * WHERE...Portions of central Maryland, The District of Columbia, and northern Virginia, including the following areas, in central Maryland, and Prince Georges. The District of Columbia. In northern Virginia, Arlington/Falls Church/Alexandria, Fairfax, and Prince William. * WHEN...Until 2 AM EDT Friday. * IMPACTS...Excessive runoff may result in flooding of rivers, creeks, streams, and other low-lying and flood-prone locations. * ADDITIONAL DETAILS...Slow moving thunderstorms are developing across the Washington DC Metropolitan Area this evening. Localized rainfall amounts up to two inches in an hour are possible.
Flash Flood Watch Reallocation	

Here is a side-by-side of the old Flash Flood Watch on the left and the new Flood Watch on the right, using the FA.A.FlashFlood sub-type. The immediate cause is Excessive Rainfall which, again, is likely to be your most common situation.

Note that the VTEC code has changed from FF.A to FA.A. Additionally, the new headline reads "FLOOD WATCH IS IN EFFECT" instead of flash flood watch. But now, the WHAT bullet is used to describe the flash flood threat, including the cause..."Flash flooding caused by excessive rainfall is possible."

New Flood Watch Products

FA.A	FA.A.FlashFlood
<pre> WGUS65 KBOU 020047 FFABOU URGENT - IMMEDIATE BROADCAST REQUESTED Flood Watch National Weather Service Denver CO 647 PM MDT Tue Sep 1 2020 COZ049-020900- /O.NEW.KBOU.FA.A.0002.200902T0047Z-200902T0900Z/ /00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.00/ Washington County- Including the cities of Akron, Otis, Last Chance, and Cope 647 PM MDT Tue Sep 1 2020 ...FLOOD WATCH IN EFFECT UNTIL 3 AM MDT WEDNESDAY... * WHAT...Flooding caused by excessive rainfall is possible. * WHERE...A portion of northeast Colorado, including the following area, Washington County. * WHEN...Until 3 AM MDT Wednesday. * IMPACTS...Excessive runoff may result in flooding of rivers, creeks, streams, and other low-lying and flood-prone locations. * ADDITIONAL DETAILS... - http://www.floodsafety.noaa.gov PRECAUTIONARY/PREPAREDNESS ACTIONS... You should monitor later forecasts and be alert for possible Flood Warnings. Those living in areas prone to flooding should be prepared to take action should flooding develop. </pre>	<pre> WGUS65 KBOU 020047 FFABOU URGENT - IMMEDIATE BROADCAST REQUESTED Flood Watch National Weather Service Denver CO 647 PM MDT Tue Sep 1 2020 COZ049-020900- /O.NEW.KBOU.FA.A.0002.200902T0047Z-200902T0900Z/ /00000.0.ER.000000T0000Z.000000T0000Z.000000T0000Z.00/ Washington County- Including the cities of Akron, Otis, Last Chance, and Cope 647 PM MDT Tue Sep 1 2020 ...FLOOD WATCH IN EFFECT UNTIL 3 AM MDT WEDNESDAY... * WHAT...Flash flooding caused by excessive rainfall is possible. * WHERE...A portion of northeast Colorado, including the following area, Washington County. * WHEN...Until 3 AM MDT Wednesday. * IMPACTS...Excessive runoff may result in flooding of rivers, creeks, streams, and other low-lying and flood-prone locations. * ADDITIONAL DETAILS... - http://www.floodsafety.noaa.gov PRECAUTIONARY/PREPAREDNESS ACTIONS... You should monitor later forecasts and be prepared to take action should Flash Flood Warnings be issued. </pre>

//location

Now here is a side-by-side of the two new Flood Watch products. Again, the difference is whether you want to emphasize the threat of flooding or flash flooding.

First, the similarities: Notice that they both carry the FA.A phensig code, and have the same headline.

They differ in the WHAT bullet (which describes flooding versus flash flooding), and in their default Calls-to-Actions.

New Flash Flood Watch Products

FF.A.BurnScar

URGENT - IMMEDIATE BROADCAST REQUESTED
 Flood Watch
 National Weather Service Denver CO
 149 PM MST Mon Dec 14 2020

COZ043-150500-
 /O.NEW.KSDH.FF.A.0003.201214T2049Z-201215T0500Z/
 /00000.4.ER.00000T0000Z.00000T0000Z.00000T0000Z.00/
 Central and South Weld County-
 Including the cities of Fort Lupton, Greeley, Eaton, and Roggen
 149 PM MST Mon Dec 14 2020

...FLASH FLOOD WATCH FOR THE HARDY BURN SCAR IN EFFECT UNTIL 10 PM
 MST THIS EVENING...

- * WHAT...Flash flooding and debris flows caused by excessive rainfall are possible over the Hardy burn scar.
- * WHERE...A portion of northeast Colorado, including the following area, Central and South Weld County.
- * WHEN...Until 10 PM MST this evening.
- * IMPACTS...Heavy rainfall over the Hardy burn scar is expected up to and during the period of the watch. Residents near the Hardy burn scar should prepare for potential flooding impacts. Be sure to stay up to date with information from local authorities.
- * ADDITIONAL DETAILS...
 - National Weather Service Meteorologists are forecasting heavy rainfall over the burn scar, which may lead to flash flooding and debris flows.
 - <http://www.floodsafety.noaa.gov>

PRECAUTIONARY/PREPAREDNESS ACTIONS...
 You should monitor later forecasts and be prepared to take action should Flash Flood Warnings be issued.

FF.A.NonConvective

URGENT - IMMEDIATE BROADCAST REQUESTED
 Flood Watch
 National Weather Service Denver CO
 140 PM MST Mon Dec 14 2020

COZ043-150445-
 /O.NEW.KSDH.FF.A.0003.201214T2040Z-201215T0500Z/
 /00000.4.DM.00000T0000Z.00000T0000Z.00000T0000Z.00/
 Central and South Weld County-
 Including the cities of Fort Lupton, Greeley, Eaton, and Roggen
 140 PM MST Mon Dec 14 2020

...FLASH FLOOD WATCH FOR THE POTENTIAL FAILURE OF JILL DAM ON THE
 HARDY RIVER IN EFFECT UNTIL 10 PM MST THIS EVENING...

- * WHAT...Flash Flooding caused by a potential dam or levee failure is possible at the Jill Dam.
- * WHERE...A portion of northeast Colorado, including the following area, Central and South Weld County.
- * WHEN...Until 10 PM MST this evening.
- * IMPACTS...Dam failure may result in flash flooding of low-lying areas below the dam.
- * ADDITIONAL DETAILS...
 - <http://www.floodsafety.noaa.gov>

PRECAUTIONARY/PREPAREDNESS ACTIONS...
 You should monitor later forecasts and be prepared to take action should Flash Flood Warnings be issued.

Flash Flood Watch Reallocation

Finally, here is a side-by-side of the two new Flash Flood Watch products, with BurnScar on the left and NonConvective on the right.

These two carry the FF.A phensig code and have “FLASH FLOOD WATCH” in the headline.

They obviously differ quite a bit, since they’re meant to be used for specialized cases, but one thing to point out is the immediate cause. Remember, BurnScar can only be excessive rainfall or rain and snowmelt. Here, it is ER. For this NonConvective example, we issued for a dam break, or DM. Take your time looking at these examples and move onto the next slide when you are ready.

Goal of this Reallocation



Reserve Flash Flood Watches (FF.A) for scenarios when the location and impacts are well-known, even at the watch time scales

- Messaged with a greater sense of confidence and urgency to partners and the public, potentially aiding in IDSS efforts (e.g. burn scar flooding)

Helps forecasters differentiate when to use each product

- Convection-driven rainfall events → Flood Watches
- Non-convective and burn scars → Flash Flood Watches

Flash Flood Watch Reallocation

So you might be asking “What’s the reason for changing all of this?” And the goal is this:

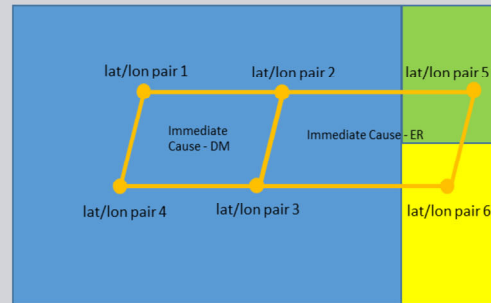
- 1) Reserve Flash Flood Watches for scenarios when the location and impacts are well-known, even at the watch time scales. For instance, burn scar causes make up about 75% of Flash Flood Watches. These events can be messaged with a greater sense of confidence and urgency to partners and the public, potentially aiding in IDSS efforts.
- 2) Additionally, this structure hopefully makes it easier on you, the forecaster, to differentiate when to use each product. It’s easy to remember that convection-driven rainfall events are always Flood Watches, while non-convective and specialized burn scar areas are Flash Flood Watches.

Long Term Goal...Full Consolidation

All watches will be
Flood Watches



Full zone-based →
Polygon-based



Flash Flood Watch Reallocation

As a brief aside, I'm calling this topic a watch "reallocation" because the long-term goal is a full "consolidation" of all watches into Flood Watches. Additionally, they will switch from being full forecast zone-based to polygon-based products.

While Hazard Services has already implemented preliminary polygon usage for watch generation, the full capability to issue polygon-based watches is still a longer-term goal that will likely take some time to develop.

Handling Overlapping Threats

Event ID	Lock Status	Hazard Type	Status	Start Time	End Time
100	U	FA.A.FlashFlood	PENDING	02:00Z 07-Dec-20	10:00Z 07-Dec-20
101	U	FF.A.NonConvective	PENDING	23:00Z 06-Dec-20	06:00Z 07-Dec-20

WGUS65 KBOU 062156
FFABOU

[continued from previous]

\$\$

COZ038-042>044-048-050-051-070600-
/O.NEW.KBOU.FA.A.0003.201207T0200Z-201207T1000Z/
/00000.O.ER.000000T0000Z.000000T0000Z.000000T0000Z.CO/
Larimer County Below 6000 Feet/Northeast Weld County-Northeast
Weld County-Central and South Weld County-Morgan County-Logan
County-Sedgwick County-Phillips County-
Including the cities of Sterling, Fort Morgan Airport, Fort
Morgan, Fort Collins, Greeley, Holyoke, Loveland, Julesburg,
Grover, New Raymer, Harmony, Haxtun, Raymer, and Brush
256 PM MST Sun Dec 6 2020

...FLOOD WATCH IN EFFECT FROM 7 PM MST THIS EVENING THROUGH
LATE TONIGHT...

*** WHAT...**Flash flooding caused by excessive rainfall is possible.

*** WHERE...**A portion of northeast Colorado, including the
following areas, Central and South Weld County, Larimer County
Below 6000 Feet/Northeast Weld County, Logan County, Morgan
County, Northeast Weld County, Phillips County and Sedgwick
County.

*** WHEN...**From 7 PM MST this evening through late tonight.

*** IMPACTS...**Excessive runoff may result in flooding of rivers,
creeks, streams, and other low-lying and flood-prone locations.

*** ADDITIONAL DETAILS...**
- <http://www.floodsafety.noaa.gov>

PRECAUTIONARY/PREPAREDNESS ACTIONS...

You should monitor later forecasts and be prepared to take action
should Flash Flood Warnings be issued.

*** IMPACTS...**Excessive runoff may result in flooding of rivers,
creeks, streams, and other low-lying and flood-prone locations.

Until that full consolidation can occur, you may have situations where overlapping threats have immediate causes that warrant both Flood and Flash Flood Watches. Take, for instance, this scenario: all zones are expecting flash flooding due to excessive rainfall, but there's also an embedded dam break.

In this case, you would issue a broad FA.A Flood Watch (event #100) for the risk of flash flooding caused by excessive rainfall over the area. But you would also embed a FF.A Flash Flood Watch (#101) due to the potential for flash flooding caused by a dam failure. Since the dam failure has a known location with known impacts, you can relay that higher confidence and urgency via the Flash Flood Watch product.

The result would be a single Flood Watch that consists of two segments. The first segment describes the zone with the overlapping hazards. In this example, it is zone 49 that has both a FF.A for a dam break and a FA.A for excessive rainfall. Both threats are described in the segment headline, and then each gets a bulleted section describing the details.

The second segment discusses the rest of FA.A flood watch for the remaining zones, with just one headline and one bulleted section.

Key Takeaways of Hydro Haz Simp – Phase 1

Reformatting of WWA text products

- WHAT, WHERE, WHEN, IMPACTS, and ADDITIONAL DETAILS format

Consolidation of 5 Areal Flood Advisories

- Single Areal Flood Advisory
- WHAT bullet describes type of flooding

Reallocation of Flash Flood Watches

- Flood Watch (FA.A) → default; large threat areas
- Flash Flood Watch (FF.A) → specialized; focused non-convective/burn scar threat

Okay, let's summarize the key takeaways.

First, the reformatting of all of the Flood WWA text products (except FFWs) creates an easier-to-read WHAT, WHERE, WHEN bulleted format.

Next, consolidating into a single Areal Flood Advisory reduces the number of products while still providing the WHAT bullet as a place to describe the type of flooding forecasted. Finally, the FA.A Flood Watches will be the default hazards issued since they should be used for larger threat areas. The Flash Flood Watches should be used for specialized cases where focused non-convective or burn scar threats are known. This will hopefully help forecasters not only easily differentiate when to use the products, but also to reserve the stronger messaging for times when the location and impacts are better known at the watch scale.

Future phases of the Hydro Haz Simp project will further consolidate flood products and messaging, so stay tuned for those changes at a later date!

This concludes this lesson. Move onto the next slide to take the quiz when you are ready.