

# Hydrologic Ensemble Forecasting Service (HEFS)

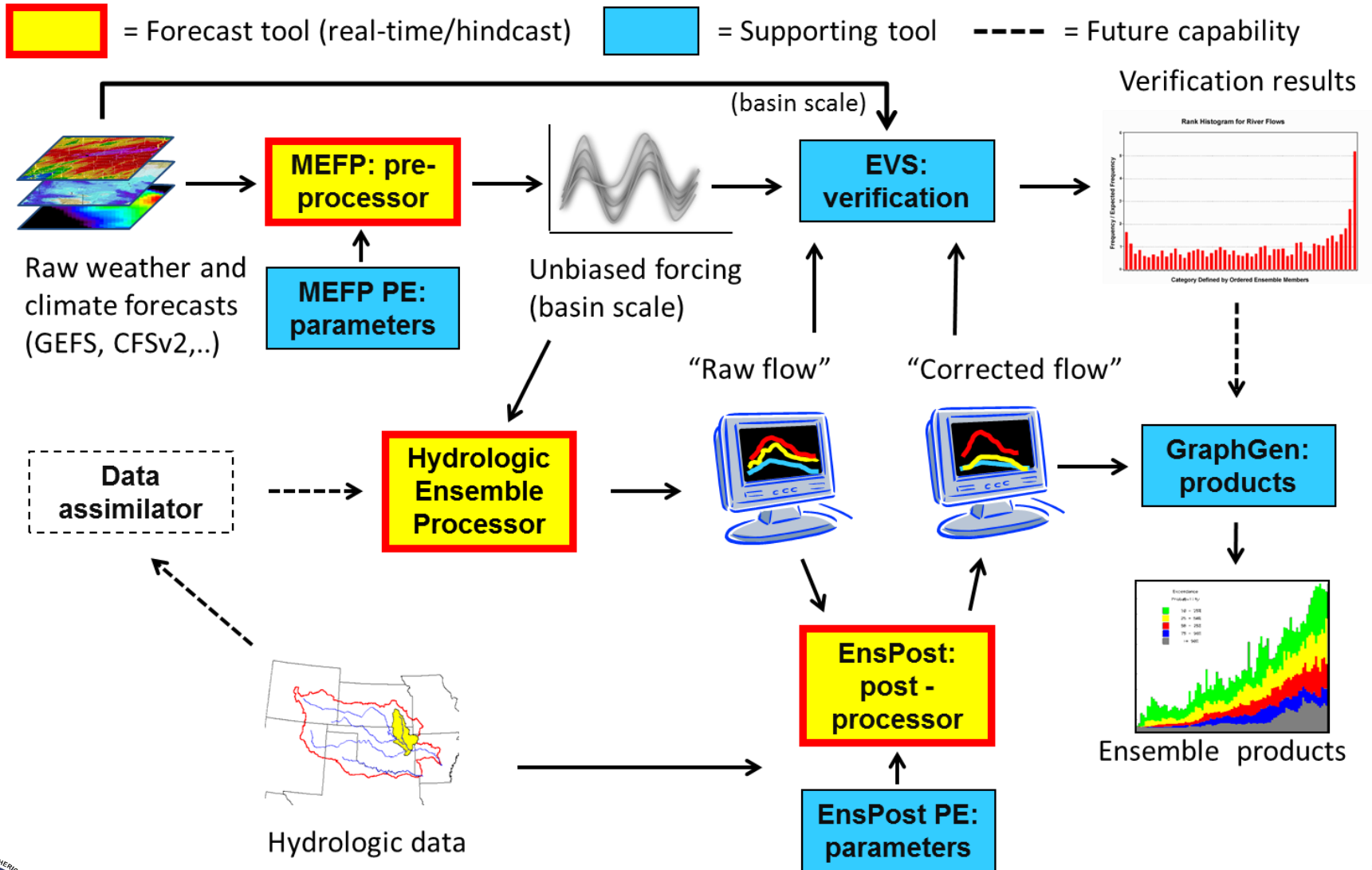
## Seminar E Next Steps

Mark Fresch

HEFS Training Workshop 4, Silver Spring, MD  
September 19, 2013



# HEFS Components



# Objective

## Confirm schedule for upcoming events

- o HEFSv1 (aka 1.0.1) installation, configuration and beta testing
- o Subsequent maintenance release

## Discuss future HEFS plans

# Up-coming Dates

## Schedule assumes

- o AB, CB, MA, and NE will install HEFSv1 (aka 1.0.1) when available
- o CB will install HEFSv1 on a stand alone temporarily until HEFS 1.0.2
- o CN will not install HEFS 1.0.1, and will wait for HEFS 1.0.2

## HEFSv1 release: Sep. 24th

## CHPS 4.0.1 release: late Oct

## HEFS maintenance release, with CHPS 4.0.1: November 15<sup>th</sup>

## HEFS workshop (with travel): week of Dec. 9<sup>th</sup>; likely 2-3 days of workshop time

# HEFSv1

## ❑ To do: AB, CB, MA, & NE

- o Install (2+ pages) takes approximately 1 hour
- o Required changes From “What’s New” (Hank Herr’s talk)
  - All MEFP and EnsPost parameters must be re-estimated
    - Use saved SA from previous estimation to save time
  - Various minor configuration changes
  - Test (sections of the Test Manual have tests and procedures):
    - 1) Section 2, make sure existing functionality works – all HEFS RFCs
    - 2) Section 3, test Fogbugz fixes - reporting RFCs
    - 3) Section 4, test enhancements – all HEFS RFCs

# HEFSv1 (continued)

## ☐ To do (continued)

- o MA and NE HEFS NYCDEP runs – these are the only remaining configuration changes requested (but weren't viable until this build)
  - Use a CHPS merge transformation to provide observed climatology after day 270 in the forecasts (see section 6.1.3 of MEFP Config. Guide: Forecast Components)
  - Switch HEFS runs to calendar year, for consistency with hindcasts
    - Use new MEFP module “advanced” run File Property, memberIndexingYear, (see section 4.4.3 of the MEFP User's Manual)

## ☐ When? Release date **Sep. 24<sup>th</sup>** – **AB, CB, MA, and NE**

- o Complete by Oct 15<sup>th</sup>? (3 weeks) – MEFP, EnsPost, and GraphGen should be executing with newly estimated parameters on the ‘live’ system with (at least) the same # of points as now.
- o Will regularly check progress since this is the last planned major release for a while

# HEFS maintenance release (1.0.2)

## □ Why plan a maintenance release soon after the HEFSv1 release?

- o CHPS 4.0.1 coming, but did not want to rely on CHPS 4.0.1 for HEFSv1
- o A quick (2 weeks) maintenance release after the CHPS 4.0.1 release ensures HEFS will work with CHPS 4.0.1 with very little additional HEFS-related work

## □ HEFS RFCs - to do

- o AB, CB, MA, and NE
  - Install and test fixes
  - No anticipated parameter estimation or configuration changes needed
- o CB – upgrade HEFS from SA to live system
- o CN - Install, re-estimate parameters, configuration changes and execute tests from 1.0.1 and 1.0.2

# HEFS maintenance release (1.0.2)

## □ HEFS RFCs – when? (assuming CHPS release)

- o Release date Nov 15<sup>th</sup>
- o Complete (Thanksgiving is Nov 28<sup>th</sup>) – running MEFP, EnsPost and GraphGen ‘live’ for all previously configured locations
  - AB, CB, MA, and NE – Nov 30<sup>th</sup>
  - CN – Dec 20<sup>th</sup>?

## □ MARFC and NERFC Operational Test

- o Purpose: to show that the HEFS forecasts are as planned
- o Schedule: December 2013; alternately could be done sooner (Oct/Nov) with HEFS 1.0.1
- o Scope: Mainly confirmation by OHD and NYCDEP reps (RTi) of things that are already happening and being checked
- o MA and NE involvement: keep flow of data and make adjustments, if issues are found



# HEFS schedule through 2013

## Questions or concerns about the proposed schedule through the end of 2013?

- o Sep 24 – Oct 15: HEFS-1.0.1 install and minor configuration
- o Late Oct: CHPS 4.0.1 install and configuration
- o Nov 15 – Nov 30: HEFS-1.0.2 install
  - CN – Dec 20<sup>th</sup>?
- o Week of Dec 9<sup>th</sup>: Travel / Workshop
- o December: NE and MA Ops Test (limited role at RFCs)

**After Dec 2013, less frequent HEFS RFC Test Team Meetings transitioning to ConOps discussions for all RFCs and OHD**

# Future HEFS Plans

## □ HEFS - now

- o Proven can run HEFS in an operational setting
- o Shows benefit in limited validation
- o Several limitations

## □ HEFS strategy related to roll-out to all RFCs

- o Recommend phased implementation at RFCs - initially for limited # locations without regulation, similar to HEFS RFC Test Team
- o HEFS “Buddies”, similar to CHPS?

# Future HEFS Plans

- **HEFS related OHD Annual Operating Plan (AOP) milestones, i.e. reported to NWS Director**
  - AOP - ConOps by March 2014
    - OHD just starting, and will need help from HEFS RFCs
  - AOP - Complete HEFS operational testing at MA and NE in support of NYCDEP by March 2014, more likely by end of Dec. 2013
  - AOP - Provide training to all RFCs by end of FY14
    - Re-package past HEFS (workshop) incremental training into end-to-end training
    - Create Training Plan which will transition training to NWC Training Center in FY15 (not part of the AOP milestone)

# Future HEFS Plans

- **HEFS related OHD AOP milestones, continued**
  - AOP - Move HEFS into CHPS baseline by end of FY14
    - Assumes CHPS “summer” build will be before end of FY14
  - AOP - “Complete transition of CHPS into AWIPS” by end of FY14
    - CHPS on AWIPS in RFCs by end of June 2014

# Future HEFS Plans

- ❑ Other HEFS plans beyond 2013 will be gelling in the next few weeks. Below is a list of possibilities, timing and details TBD, not a comprehensive list. We plan to include HEFS RFCs in the planning around the end of October
  - o More validation, e.g. compare to operational forecasts
  - o Investigate and fix most critical science issues
  - o More diagnostics with guidance
  - o Ensure distribution of model forcings grids through official means
  - o Better definition of required ensemble products

# Future HEFS Plans

## □ Other HEFS plans beyond 2013, continued

- o Connect HEFS to WFIPP (Water Forecast Improvement Preparatory Project, i.e. Water Center) activities, especially archiving and hindcasting/verification
- o After release to all RFCs, allow for additional changes
- o Add forcings: WPC QPF, other – need many years of reforecasts with somewhat stable operational model
- o Add data assimilation: start with single value model state updating to reduce the need for manual MODs (This was mentioned in the original high level requirements.)