NWS Hydrology Forecast Verification Team: 3rd Meeting

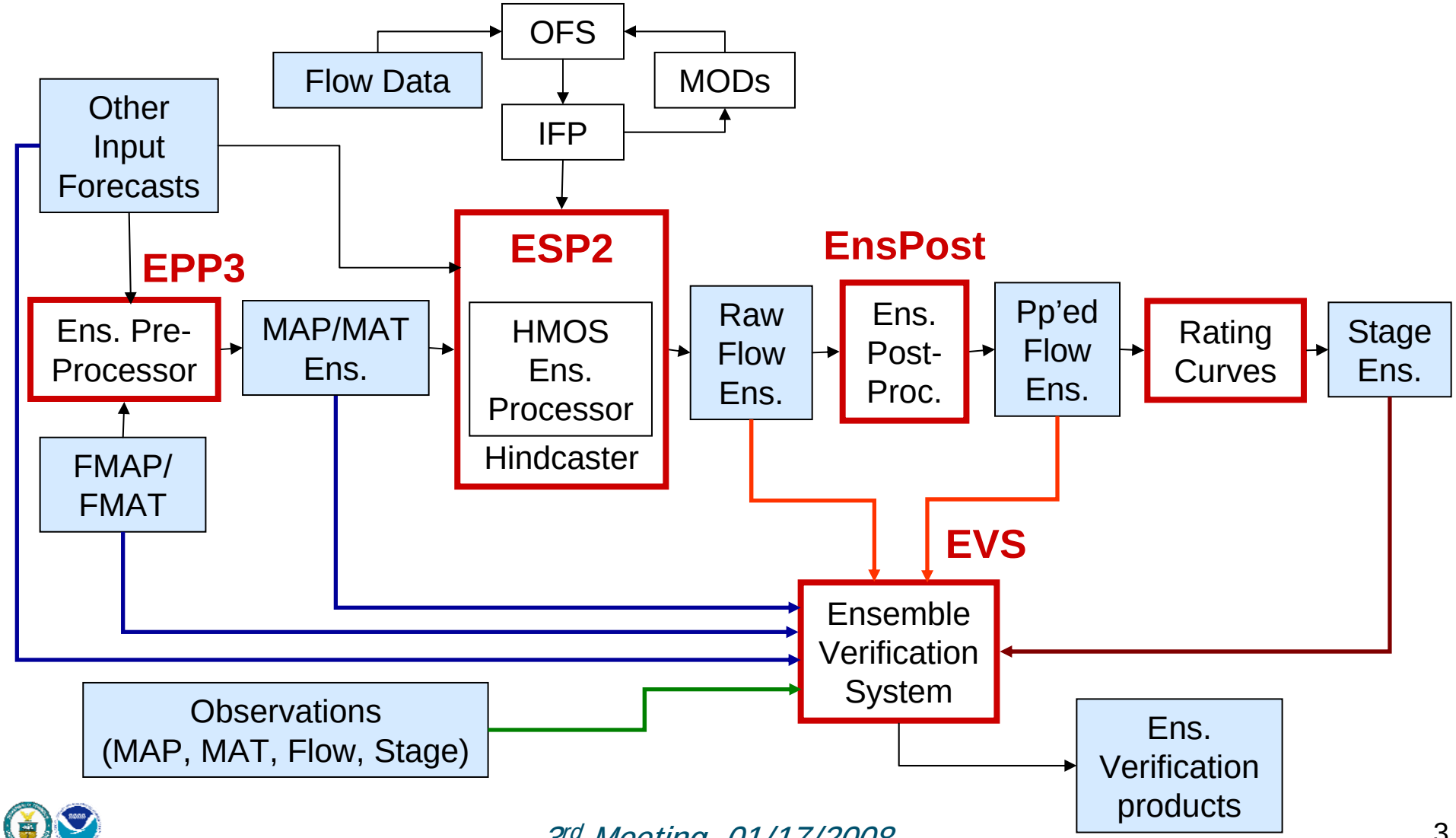
01/17/2008 – 12pm EST

Outline

- Archiving requirements
- Archiving survey
- Selection of case studies
- IVP: ob8.2 installation, exercises
- EVS: status, exercises
- Team agenda

Archiving Requirements

- Data for Experimental Ensemble Forecast System (XEFS)



Archiving Requirements: Ideally

- Observations and forecasts w/ metadata
  - Input (precipitation, temperature) & output (flow, stage)
  - Forecast type:
    - Single-valued, ensemble, statistical
    - Different sources/models (HPC/RFC/NCEP…)
    - Raw (wo/ MODs), w/ MODs (various combinations), w/ DA
  - Metadata: date and time, location, time step, scale (instantaneous or averaged over period), how product was generated
- Rating curves
- MODs
- Verification input and output information

Archiving Requirements: Issues

- Data management:
  - Archive database: lack of disk space, speed issues, inadequate back ups & recovery for RAX
- Data Quality Control:
  - better tools (GUI to display & edit data)
- Other issues:
  - Time system, file format, metadata storing

Archiving Requirements: High Priorities

- Observations w/ metadata
  - Input (precipitation, temperature) & output (flow, stage)
- Single-valued forecasts w/ metadata
  - Input (precipitation, temperature) & output (stage or flow)
  - Raw (wo/ MODs), w/ MODs
- Rating curves

- Need for hindcasting capabilities to generate retroactively forecasts using a fixed forecast scenario
  - Hindcaster will not include any MODs (w/ NWSRFS)
  - Sets of ensembles using various input forecasts and methodologies could be regenerated (wo/ any MODs)

Archiving Survey: Availability Info

	Observations	Deterministic Forecasts	Probabilistic Forecasts
Precip.	All RFCs	11 RFCs	1 RFC (EPP)
Temp.	10 RFCs	6 RFCs	1 RFC (EPP)
Flow	12 RFC	12 RFC	4 RFCs (ESP, EPP, Water Supply)
Stage	All RFCs	All RFCs	3 RFCs
Rating Curves	8 RFCs		
MODs	12 RFCs - Frequency: daily to monthly		
Verif. Stats	7 RFCs - mostly RVF		
OFS files	5 RFCs - Frequency: 4 times/day to weekly		

Selection of Case Studies

- Common ideas:
  - Forecast comparison: multiple basins, multiple runs (different inputs, different processes)
  - Verify input and output forecasts
  - Analyze according to lead time
  - Use reference forecasts (e.g. persistence) for comparisons
  - Pool data from similar basins/conditions to use larger sample size

Selection of Case Studies

- ABRFC: HMOS ensemble hindcasts verified w/ EVS
- APRFC: impact of calibration of upstream Canadian basins
- CBRFC: 2 basins w/ flood event, error sources (QPF, MODs,…)
- CNRFC: 3 basins for 1 heavy rain (rare) event; QPF impact
- LMRFC: hurricane Katrina (coastal points w/ storm surge)
- MARFC: error source for non-event; extend to other basins?
- MBRFC: WFO-TFX seasonal fcst (impact of Temp.); joint w/ NCRFC
- NCRFC: joint w/ MBRFC for short- & long-term ensembles (w/ EVS)
- NERFC: QPF quality (HPC/NDFD/RFC; GFS ensembles (w/ EVS)
- NWRFC: flood event; error source (QPF type, MODs); areal/point
- OHRFC: QPF impact (HPC/RFC); GFS ensembles (w/ EVS)
- SERFC: quality of forecast crest, w/ flood categories
- WGRFC: tropical storm Erin; or VAR/SSHP/DHMS test basins?

IVP: ob8.2 Installation

- ABRFC: done
- APRFC: 01/23
- CBRFC: done
- CNRFC: done
- LMRFC: 01/29
- MARFC: 02/20
- MBRFC: ~02/15
- NCRFC: done
- NERFC: done
- NWRFC: done
- OHRFC: done
- SERFC: 02/28
- WGRFC: done

Should be done by end of February

IVP: Exercises

- Test data: database used for IVP exercises in August 07
- Install database at the RFCs on a machine other than the ax box and operational IHFS db
- Setup the user environment to run off the new db when doing the exercises:
  - export rax_pghost=<db machine>
  - export PGHOST=<db machine>
  - export adb_name=<name of database>
- Generate and interpret IVP graphics for different hindcast scenarios

EVS: Status

- Ensemble Verification System: GUI to verify ensemble forecasts for precipitation, temperature, and flow

- Prototype Development and Release:
  - Alpha-version used at verification workshop (Aug. 07)
  - Beta-version released on 10/19/07 and being tested by HEP and AB-, MA-, NC-, and CN- RFCs
  - Non-beta release for end of February
  - Further enhancements for FY08 to expand functionalities (merging EVS & IVP) and be integrated in XEFS

- EVS Support: James Brown, Julie Demargne, and Yuqiong Liu

EVS: Exercises

- Test data: files for precipitation, temperature, and streamflow ensemble forecasts for a group of basins
- Install EVS Java application on workstation with data files
- Run EVS and interpret verification graphics for different scenarios

Team Agenda: Original

- Nov. 07: Kick-off meeting to review team charter and deliverables
- Dec. 07-Jan. 08: Archiving survey and selection of verification cases (users, questions, forecasts)
- Winter-Spring 08: Exercises with IVP ob8.2 and EVS prototype
- Mar.-Aug. 08: verification case studies presented by each RFC; list of required enhancements for IVP and EVS
- Sep. 08: Interim report on RFC verification case studies
- Oct.-Dec. 08: develop standardized verification strategies for chosen user groups
  - 2nd RFC Verification Workshop
- Jan. 09: Final report to propose verification strategies with standardized metrics and graphics for identified customers, and performance tracking measures

Team Agenda: Updated

- 11/29/07: Kick-off meeting
- 12/18/07-01/17/08: Archiving survey and selection of verification case studies
- Mar. 08: CBRFC and (potentially) CNRFC case studies
- Early April 08: Exercises with IVP ob8.2
- Late April 08: COMET verification training; exercises with EVS prototype
- May-Sep. 08: verification case studies presented by the other RFCs
- Sep. 08: Interim report on RFC verification case studies
- Nov. or Dec. 08: 2nd RFC Verification Workshop
- Jan. 09: Final team report

Next meetings

- 4th meeting in March 08:
  - Potential dates: 24-28
  - CBRFC and potentially CNRFC will present their verification case studies

- 5th meeting in early April 08:
  - Potential dates: 1-3, 7-8
  - Review results from IVP exercises

Thank you!

Questions?