NWS Hydrology Forecast Verification Team: Kick-off Meeting

11/29/2007 – 12pm EST

Outline

- Context and Vision

- Team Charter

  - Mission

  - Members

  - Deliverables

  - Agenda

- Getting started

  - Archiving survey

  - Selection of case studies

- Next Meetings

Hydrologic Verification: Context

- Limited verification of river forecasts

- Verification results not communicated to most user groups

- Newly developed verification tools with great potential:
  - IVP for deterministic forecasts
  - EVS for ensemble forecasts

- 2 Verification Teams to work on verification case studies:
  - WR Team w/ 3 RFCs and 1 WFO; Summer 07 - Spring 08
  - NWS Team w/ 13 RFCs; Nov. 07 - Jan. 09

Hydrologic Verification: Vision

- **Verification helps us answer these questions:**
  - How good are the forecasts?
  - What are the strengths and weaknesses in the forecasts?
  - What are the sources of uncertainty?
  - How is new science improving the forecasts?
  - What should be done to improve the forecasts?

Hydrologic Verification: Vision

- **Verification supports:**
  - Research by identifying needs to improve forecasting system and measuring value of results
  - Operational agencies by defining acceptable methods and satisfying user demands
  - Users by quantifying forecast skill and uncertainty for better decision making

Hydrologic Verification System: Vision

- **Target Capabilities:**

  1. Data archiving (forecasts, observations, attributes)
  2. Computing metrics (forecast aggregation/stratification) } IVP
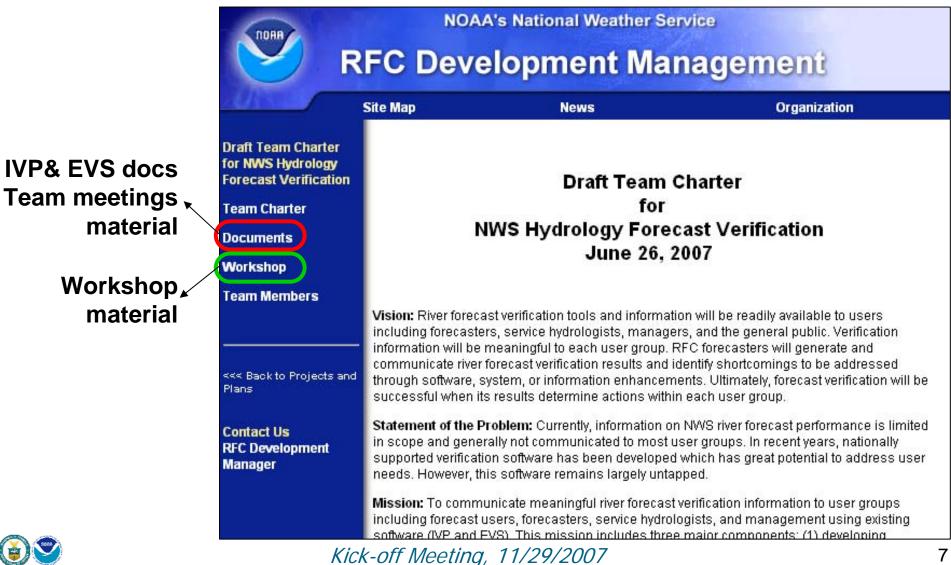 3. Displaying data and metrics (data mining) } EVS

  4. Disseminating data and metrics (to understand quality & usefulness of forecasts)

  5. Near real-time access to metrics (to understand uncertainties in recent forecasts and over long term)

  6. Uncertainty analysis (including hindcast experiments)

  7. Performance measure tracking (level of success)

NWS Verification Team: Website

http://www.nws.noaa.gov/oh/rfcdev/projects/rfcHVT_chart.html

IVP& EVS docs
Team meetings
material

Workshop
material

NWS Verification Team: Mission

- **3 goals:**
  - Develop understanding of verification concepts and metrics
  - Develop expertise with IVP and EVS software
  - Develop standardized verification strategies to effectively communicate verification results to identified end users

NWS Verification Team: Members

- Julie Demargne (OHD/HSMB) - lead

- Mary Mullusky (OCWWS/HSD)

- Kevin Werner (WRH/SSD)

- 13 RFC Verification Focal Points: Tom Adams, Brenda Alcorn, James Coe, Mike DeWeese, Joe Intermill, Larry Lowe, Bill Marosi, Christine McGehee, Julie Meyer, Kai Roth, Rob Shedd, Alan Takamoto, and Greg Waller

- Technical advisors: James Brown (OHD/HSMB) and Hank Herr (OHD/HSEB)

NWS Verification Team: Deliverables

- **RFC Verification Workshop** in Aug. 07 to gain verification expertise on concepts and metrics

- **Survey results on archiving practices and issues** to be integrated in the archiving requirements report

- **Exercises for IVP and EVS** for the RFC focal points to gain expertise on software and verification metrics

- **Report on required enhancements for IVP and EVS** to meet all the RFC needs

- **Interim report** on RFC verification case studies

- **2nd RFC Verification Workshop**

- **Final report** to propose verification strategies with standardized metrics and graphics for identified customers, and performance tracking measures

NWS Verification Team: Agenda

- 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

Getting Started: Archiving Survey

- **RFC archiving practice and issues:**
  - Data type (forecasts/re-forecasts, observations, MODs, rating curves…)
  - Forecast locations (number, up/down-stream)
  - Forecast lead time, time step, single-valued/probabilistic, frequency of issuance
  - Period of record
  - Format
  - Software/Hardware (frequency, QC, back up, interactions w/ IVP or EVS…)

- **Survey results:**
  - to be integrated in the archiving requirements report (Julie D. & James B.)
  - to support the RFC Archive Database Team led by Julie Meyer

Getting Started: Selection of Case Studies

- 1 case study for each RFC

- Selection of verification case studies:
  – Key users for specific forecast products
  – Verification questions to address
  – Forecasts to be verified (input & output, lead time, time period, pooling basins/events)

- Examples of questions:
  – How good are my forecasts (peak & volume) when flooding occurs?
  – How good are my forecasts for 30-day minimum flow? Any seasonality?
  – Do QPF forecasts improve flow forecasts? for which lead time? for which type of flows?
  – Do the MODs improve flow forecasts?

Next Meetings

- 2nd Meeting on 12/18/07 at 11am EST
  - Fill out the archiving survey by Thu. 12/13
  - Meeting agenda:
    - Review results from archiving survey
    - Discuss and coordinate verification case studies: examples from WR team, other RFCs

- 3rd Meeting in January 08:
  - Potential dates: Jan. 22-24
  - Ready to install and use IVP ob8.2 for exercises

Thank you!

Questions?