

Summary of HMT R2O Workshop

May 20-21, 2008
Sacramento, CA

R2O Workshop

Attendees

OAR

1. T. Schneider - PSD
2. A. White - PSD
3. D. Kingsmill - PSD
4. P. Neiman - PSD
5. D. Gottas - PSD
6. C. Williams - PSD (notetaker)
7. P. Schultz - GSD (phone)
8. W. Roberts - GSD
9. K. Howard - NSSL

NWS

1. R. Hartman - RFC
2. E. Strem - RFC
3. A. Henkel - RFC
4. A. Haynes - RFC
5. Mike Ekern - RFC
6. D. Kozlowski - RFC
7. E. Morse - SAC
8. J. Juskie - SAC
9. M. Smith - OHD
10. J. Schaaake - OHD
11. W. Junker - NCEP
12. Don Cline - NOHRSC

Workshop Overview

- We are seeking to provide better forcings for hydrologic models
 - Using observations and models
 - On a spectrum of time and space scales
 - QPF tends to drive the RFC process
- Initially seeking low-hanging fruit: HMT needs to demonstrate R2O successes in the near future
 - What can be implemented by December 1st, 2008? [We are building a foundation.]
 - This is being driven primarily by two factors:
 - i. It is time to begin transitioning the early successes - the “low hanging fruit”
 - ii. The RFC (& WFOs) will begin significant transformations this fall: AWIPS→AWIPS2 and NWS-RFS → CHPS that will divert energy and attention at the RFC and WFOs over the next 1-2 years
 - There was insufficient discussion of long-term R2O objectives suggesting the need for periodic R2O discussions
- Operational considerations strongly influenced our thinking
 - The notion of the RFC having “4.5 seconds per forecast point” was often cited
 - As well as the need for tools to deal with conflicting model guidance

Workshop Overview, cont.

- A dichotomy emerged:
 - Horizontally gridded data vs. point/profile verification
- Next Steps:
 - Draft a report that documents the four subjects selected for transition on 1 Dec 08.
 - The report should include a matrix that includes deliverables; responsible parties; platforms; etc.
 - Brief the HMT Advisory Panel at the annual meeting on 22-23 May 08 [*Completed*].

Overview of Initial Transition Projects by December 1, 2008

- High-resolution (3km) ensemble QPFs
 - calibrate, validate
 - Ensemble means at 66 forecast points
 - Grids (including probabilistic info)
- Moisture Tools
 - GPSMet grids
 - Moisture flux verification tool
- Snow Information Tools
 - Gridded snow level from Q2;
 - point verification; and model bias correction:
- Atmospheric River Tools
 - Provide vapor flux anomaly tool; reforecasting product and atmospheric river intensity (observations-based);
 - Training needed
 - Working towards a unified product: PARTI = Pacific Atmospheric River Threat Indicator

Product I: High Resolution, Ensemble Modeling

- Develop QPF Verification Tool (1st step)
 - Reconfigure “HMT-WRF” for broader domain
 - Rerun for past three years and calibrate ensemble calculations (calibrate to CNRFC derived QPE)
 - Produce QPF from ensemble models
 - Leverages DWR-EFREP Tier I proposal
- Operational Ensemble Means from “WRF-HMT” and Reforecast Technique
 - Extract data at 66 RFC forecast sites to support RFC-QPF grids
 - Provide visualization of ensemble means and ensemble properties

Product II: Moisture Tools

- Generate Gridded Map of Atmospheric Moisture (water vapor) over land
 - From GPSMet Sensors
 - Grid to be defined... (HRAP? GFE?)
 - Leverages DWR-EFREP Tier I proposal
- Moisture Flux Verification Tool for Models
 - From atmospheric river observatory observations

Product III: Snow Level Information

- Map of freezing level from Q2
 - Gridded file
 - Same domain as ALPS system for GFE
 - NSSL needs resolution, frequency, projection info (GFE Grids; RFC HRAP Grids)
- Feed snow level radar data into ALPS
 - From HMT and EFREP networks
 - (Long-term: merge these two products)
 - Radar/profiler obs
- !!! Basic model snow level verification tool
 - For GFS and “HMT-WRF” models
 - Bias-corrected GFS-based snow level (freezing level) forecasts to RFC (short term and long term)
 - Juskie/Nordquist: Q2 bias-corrected forecast field for baseline of model correction and “validation” in real-time. “Boise Verify Tool” to generate bias correction of GFS (short term)

Product IV: Atmospheric River Tools

- Diagnostic “heads-up” tool
 - Relate atmospheric river moisture content (obs + model) to historic floods
 - Goal is 7-day lead time; like an “Atmospheric River Early Warning System”
- Initially built on:
 - Junker moisture flux anomaly products (currently web-based)
 - Hamill and Whitaker Reforecast guidance
 - Satellite-derived atmospheric river intensity guidance (histograms)
 - These will be synthesized into a single index or indicator in future iterations

Goal: “Pacific Atmospheric River Threat Indicator (PARTI)”