

# The NWS National QPF Verification Program

Brett E. McDonald

NOAA/NWS/OM & UCAR/COMET @ NOAA/NWS/NCEP/HPC

Thomas M. Graziano & Charles K. Kluepfel

NOAA/NWS/OM

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# Outline

- Introduction
- Overview
- QPF Assessment Team
- WR Follow-on Assessment
- HPC Verification
- Future Plans

# Introduction

- “Verification of direct NWP model, statistical, and forecaster value-added QPFs and PoPs is *necessary* to quantify and improve the skill of QPF/PQPF and PoP forecasts, and to assess the value-added to these forecasts at each step of the NWS [End-to-End] Forecast Process.” - Office of Meteorology (1999)
- “One of the most important components of an effective national QPF program is a comprehensive objective comparative verification system” - National Weather Service (1999)

# Overview

- The National Precipitation Verification Unit (NPVU)

Established & administered by the NWS Office of Meteorology

Located at & co-managed by the NCEP Hydrometeorological Prediction Center

Purpose is to provide timely QPF verification scores to HPC, RFC, & WFO forecasters, EMC & TDL modelers, and NWS management

# Overview (cont.)

- Uniform QPF Verification Program

## Data Ingest & Archival - Observations

Gridded gauge-only analysis (01-, 06-, & 24-hour amounts)

Gridded multi-sensor (gauge, radar, & satellite) analysis

## Data Ingest & Archival - Forecasts

EMC - NGM, Eta, AVN, MRF, RUC2

TDL - LAMP

HPC - 06-, 24-, 120-hr QPFs

12 CONUS RFCs - 06- & 24-hr QPFs

(participating) WFOs

# Overview (cont.)

Verification Statistics computed from QPFs for possible combinations of the following *as appropriate*:

Forecast Increments: 3-, 6-, 12-, & 24-hr, etc.

Forecast Projections

Spatial Domains: nation, region, RFC domain, etc.

Temporal Domains: forecast period, week, month, season, year, etc.

Spatial Resolutions of ~32km and multiples thereof

# Overview (cont.)

## Performance Measures:

Threat & Equitable Threat Score

Bias Score

Errors (Mean, Mean Absolute, Root-Mean-Squared)

Bias

Bayesian Informativeness Score

Correlation Coefficient

Nash-Sutcliffe Sufficiency Score

Brier Score

Ranked Probability Score

Etc.

# Overview (cont.)

## Display & Feedback

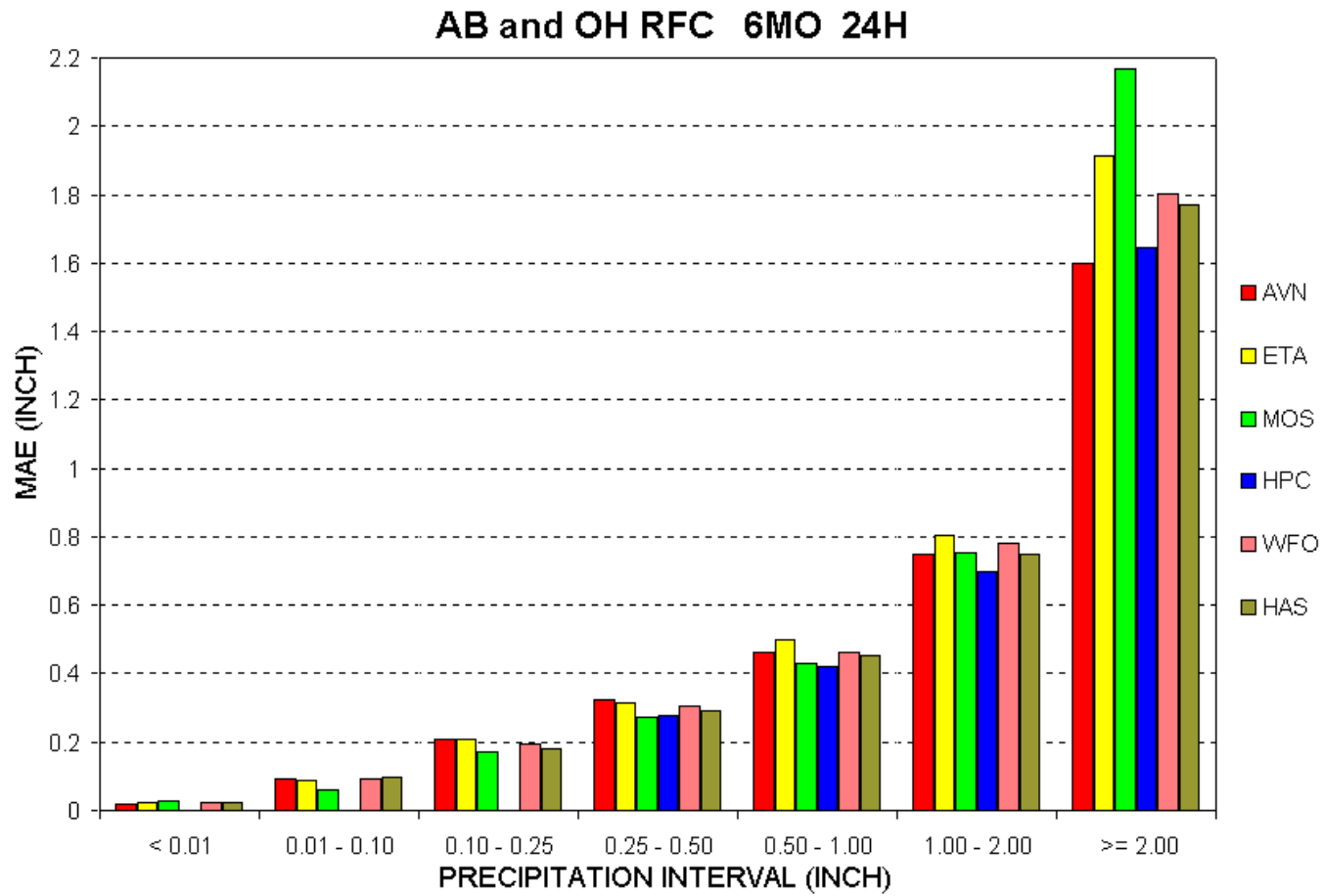
AWIPS?

WWW @

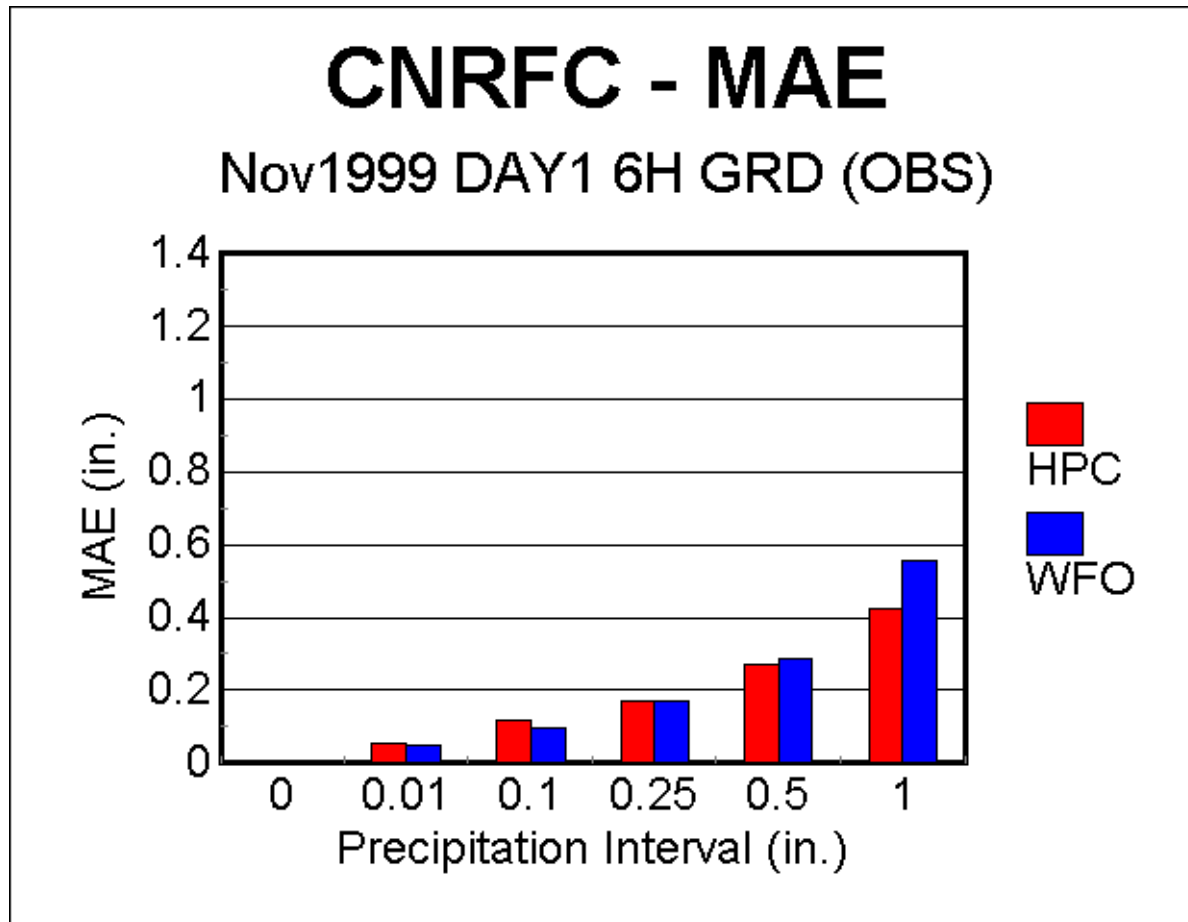
**<http://www.hpc.ncep.noaa.gov/npvu/>**



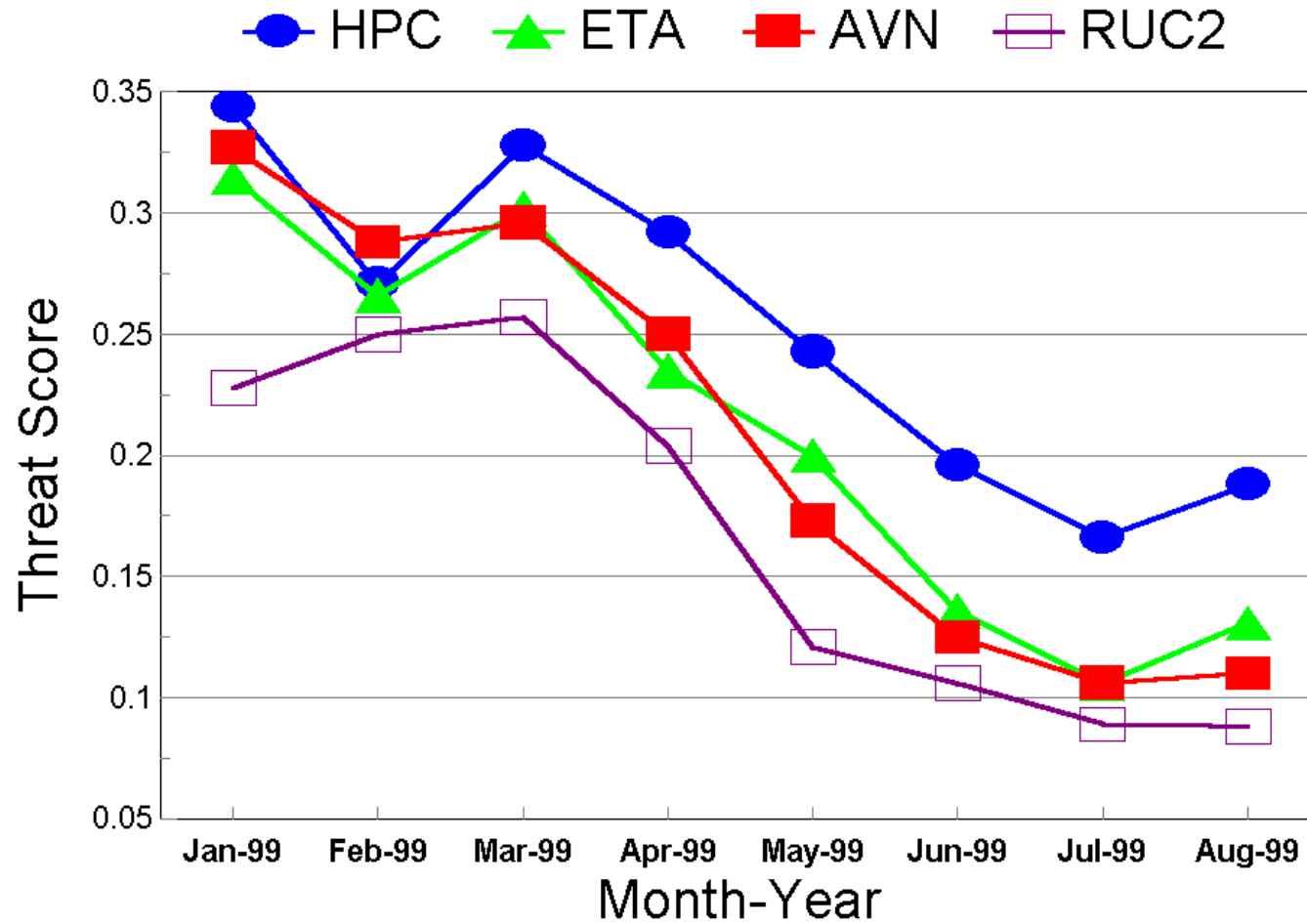
# QPF Assessment Team



# WR Follow-on Assessment



# HPC Verification



# Future Plans

- WR Follow-on Assessment
- Two Month OT&E from 15 June to 15 August 2000
- Operational Implementation of the NPVU on 29 September 2000
- PQPF