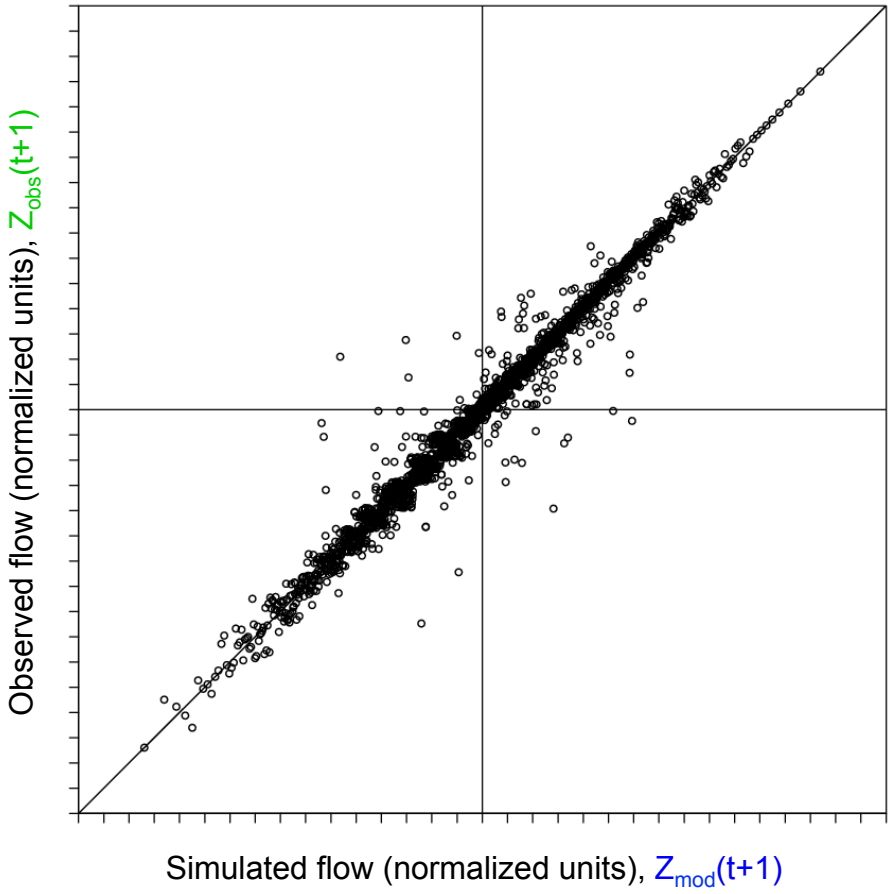
Post Adjusting Ensemble Streamflow Forecasts

- Evaluating two methods
  - Ensemble Post-processor (EnsPost)
    - daily time step
    - can have different parameters for different times of year
  - John Schaake method
    - monthly time step
    - each month has a separate adjustment factor
- Objective
  - adjust ensemble stream flows to remove bias from calibration in a repeatable way

EnsPost

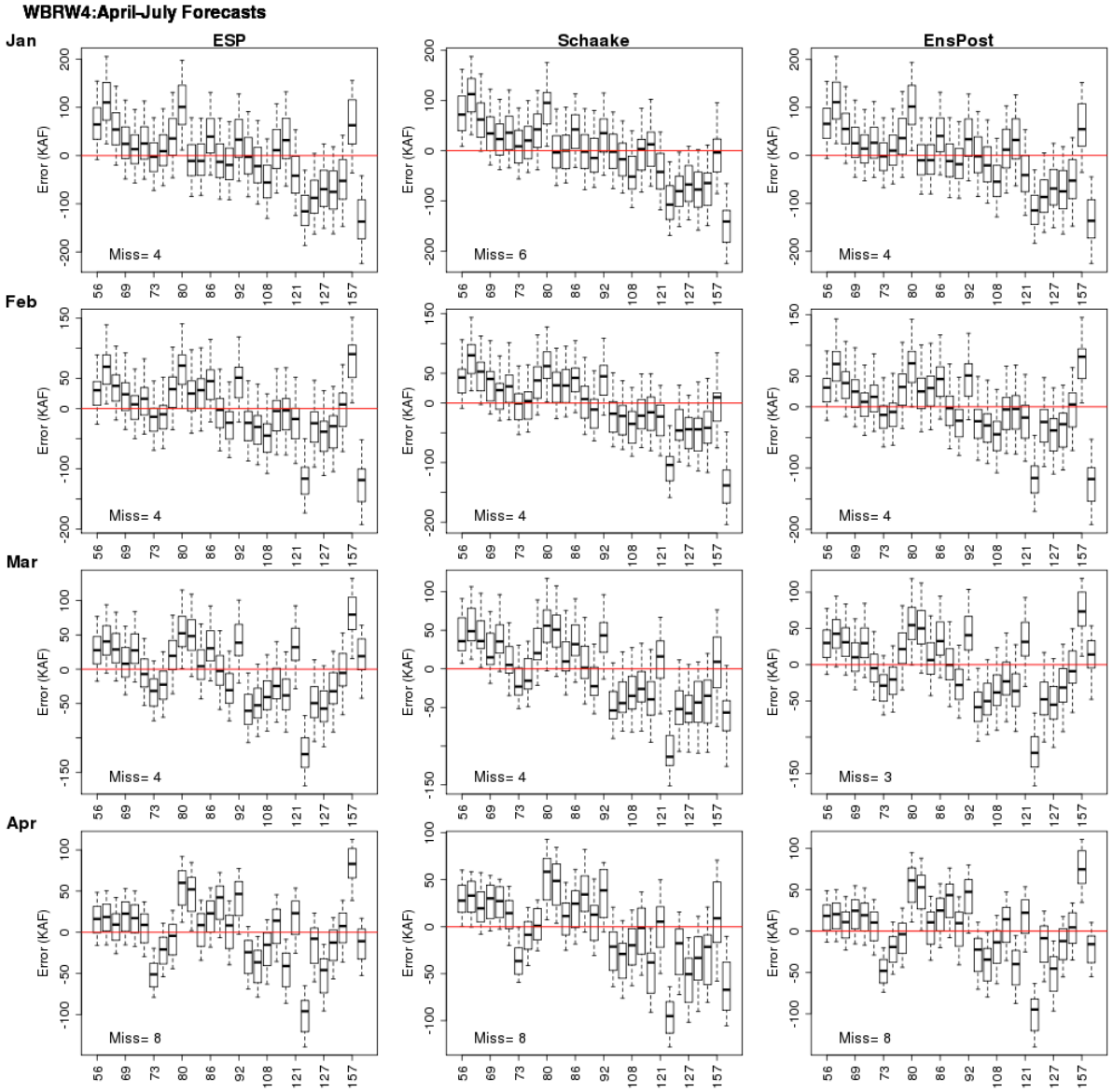
EnsPost ("flow processor")

- Does two things to flow forecast
  1. Adds spread to account for hydrologic model errors
  2. Corrects systematic biases
- Uses linear regression between observed flow and historical simulated flow (observed forcing)
- Scatter around line of best fit represents the hydrologic error (i.e. no forcing uncertainty)
- Prior observation ("persistence") also included in regression (not shown here)

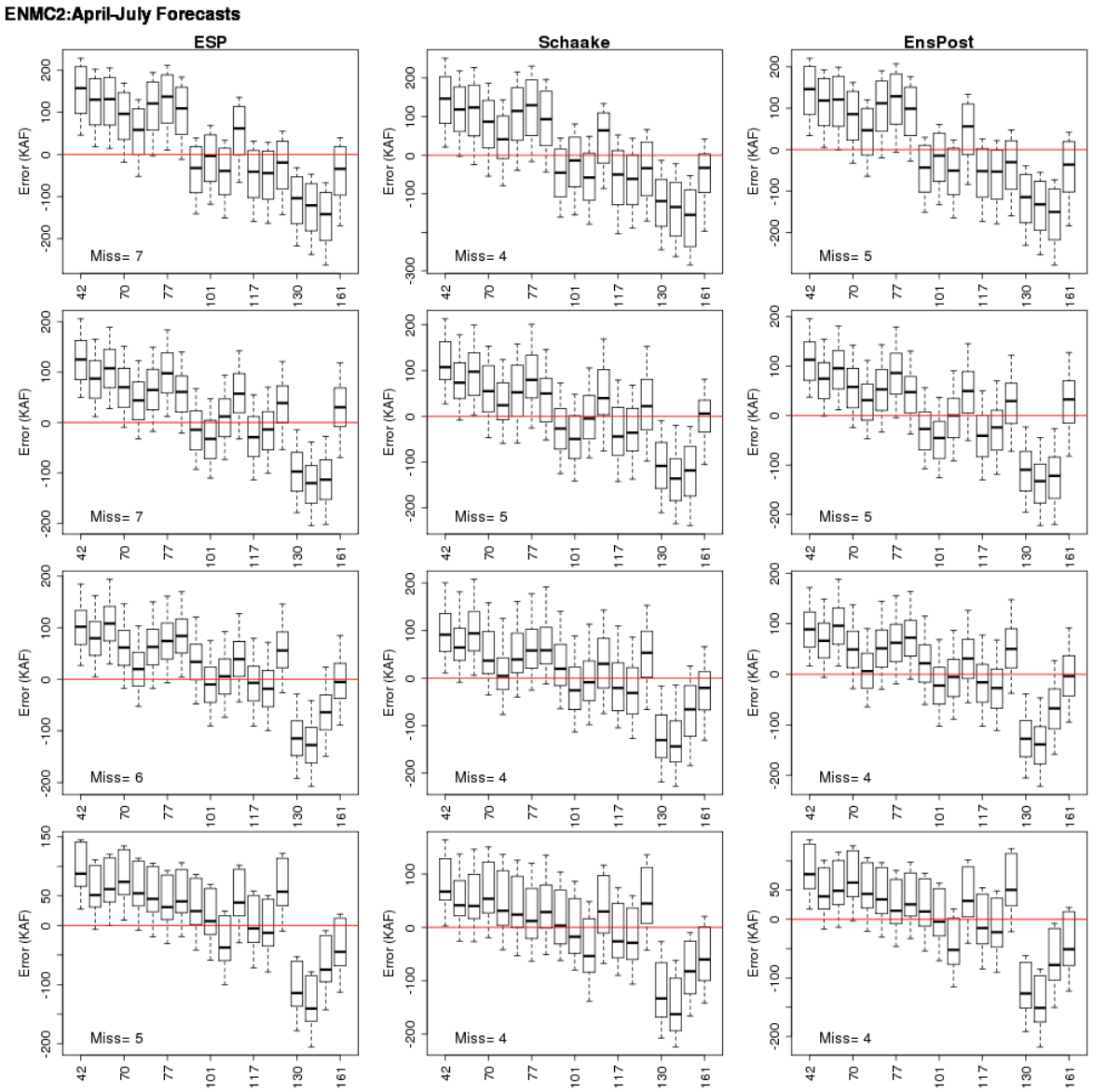


$$\hat{Z}_{obs}(t+1) = bZ_{mod}(t+1) + E(t+1)$$

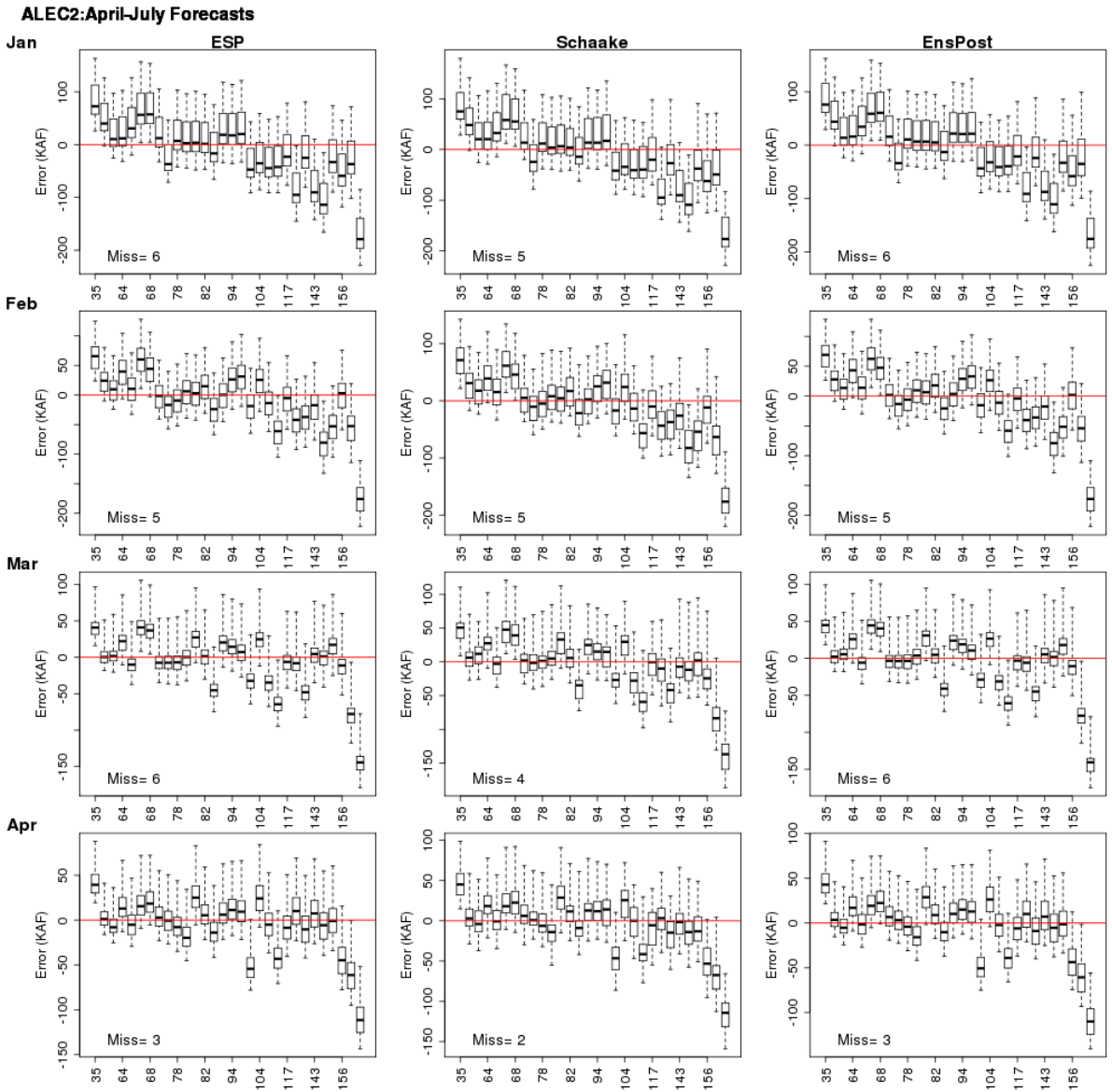
April - July Volume Post Adjustment



April - July Volume Post Adjustment



April - July Volume Post Adjustment



April - July Volume Post Adjustment