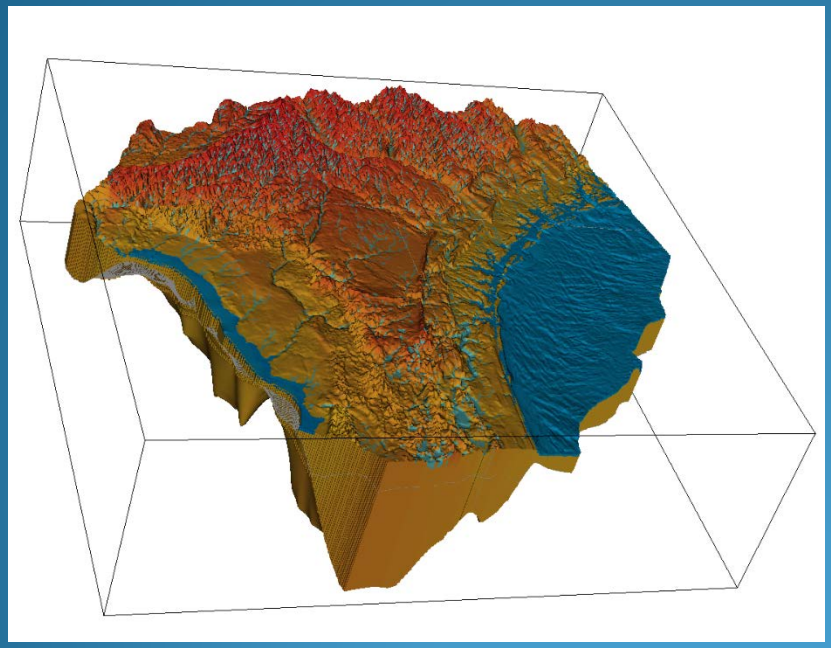


Brian Bicknell

Task D1 Meeting

4/18/2018

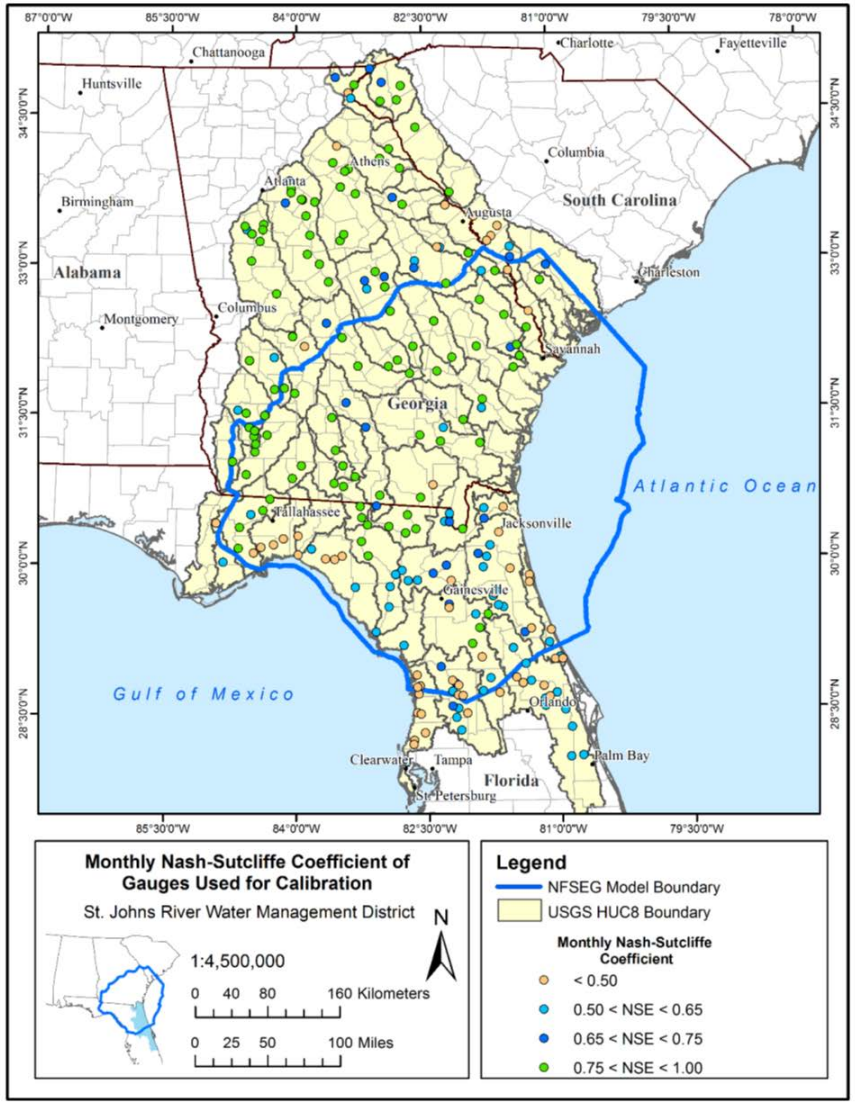
Summary of Model

- HSPF model approach is appropriate

- New HSPF document appendices provide:
  - HUC8 model maps (subwatersheds, gages, etc)
  - calibration statistics
  - key calibration graphics (daily, monthly flows, CDFs)

- Calibration quality varies over the region and within each HUC8 model.
  - Florida areas have a larger fraction of poorly calibrated gages than Georgia. (Figure 26 in HSPF Report)
  - This matches the 2009 Observed Flow Data Quality map shown in Figure 25.
  - The correlation between calibration quality and observed data quality is also demonstrated in Figures 27 and 28.

Model Calibration Quality (Figure 26)



Recommendations for Document

- Include **brief** discussion of calibration quality for each gage including likely/possible reasons for poor agreement with observed flows.
  - Bad observed flow data quality
  - Known deficiencies in input data (rainfall, PET, water use, irrigation)
  - Manmade/artificial changes to hydrology and streamflows (diversions, interbasin transfers)
  - Tidal effects

- HSPF parameter summaries and their geographical (regional and land cover) variation should be included in the documentation and discussed. These have been requested in previous comments.

- Water balance summaries should be included in the documentation and discussed. These have been requested in previous comments.

Recommendations for Document

- Use of automated calibration for gages that are strongly affected by artificial changes to flow and/or tidal effects has obvious pitfalls. These include parameter sets that are outside “normal” ranges, and predicted recharge that is not in a valid range. Please address this issue in the document. Does the existing calibration procedure include means to mitigate the effects on predicted recharge?

- Calibration of total simulated ET to expected ET is an important aspect of the automated calibration of HSPF using PEST. I recommend providing some summarization of this calibration agreement along with the water balance summaries.

Minor Problem

- The calibration plots in the HSPF model files database have the simulated and observed data lines reversed, i.e., the observed data are shown with simulated line type and the simulated data are shown with the observed line color/type. The same plots in the HSPF document appendices are shown correctly.