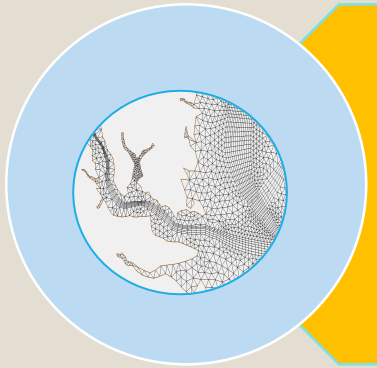
PROGRESS REPORT OF RAPPAHANNOCK RIVER MODELING

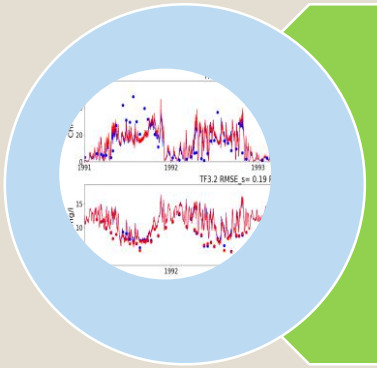
Quarterly meeting: October 8, 2025

PIs: Jian Shen, Qubin Qin, Zhengui Wang, and Pierre St-Laurent
Advisory team: Joseph Zhang and Marjorie Friedrichs

Outline



Summary of Current Work

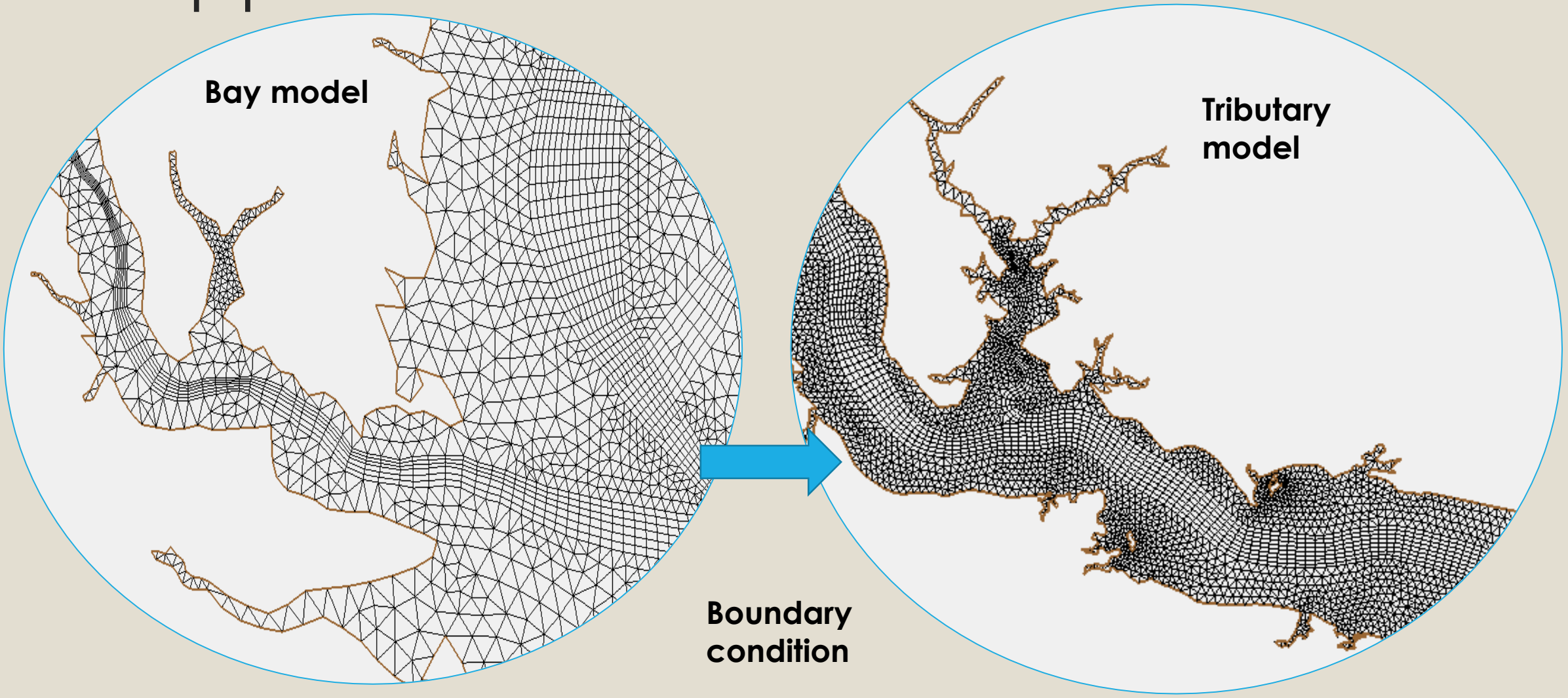


Hydrodynamic Model Results

Summary

- Tested new workflow tools to test the model setup
  - Zhengui revised the workflow, which simplifies the model setup
- Set up a new model and conducted hydrodynamic model simulations

New Approach for the Rappahannock River Model



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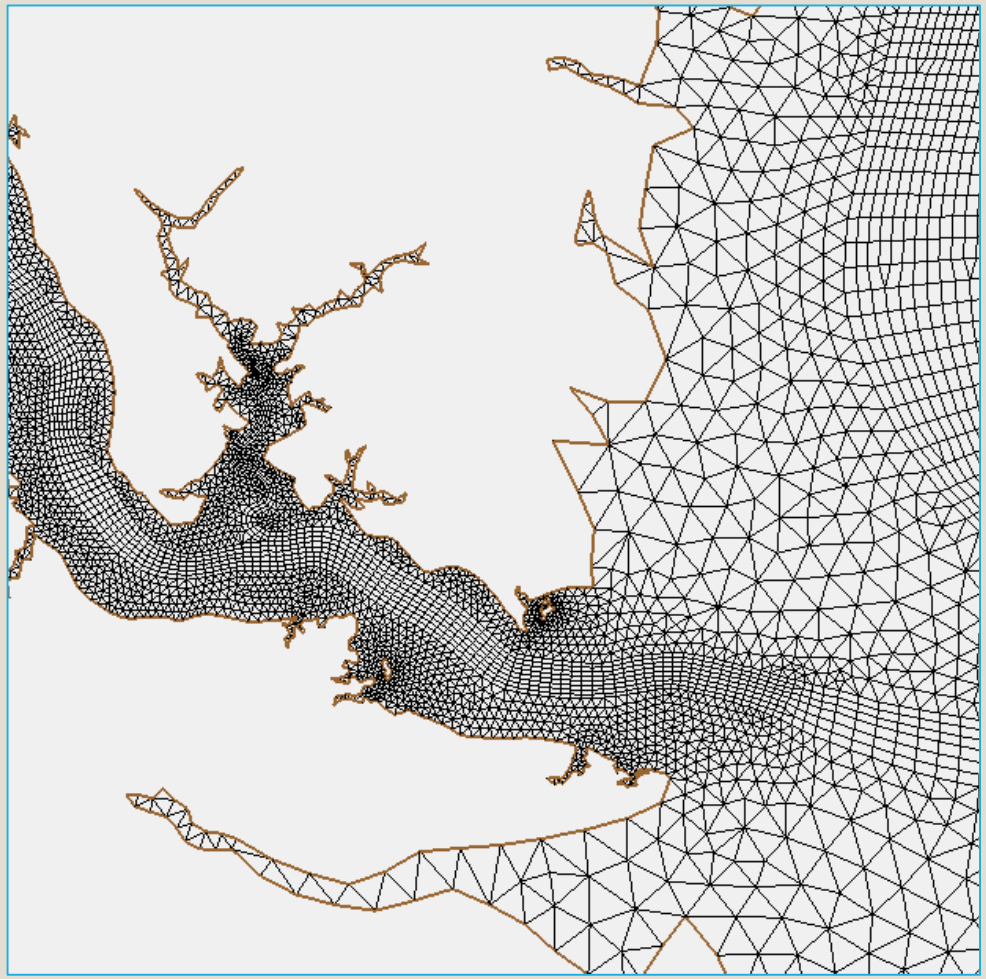
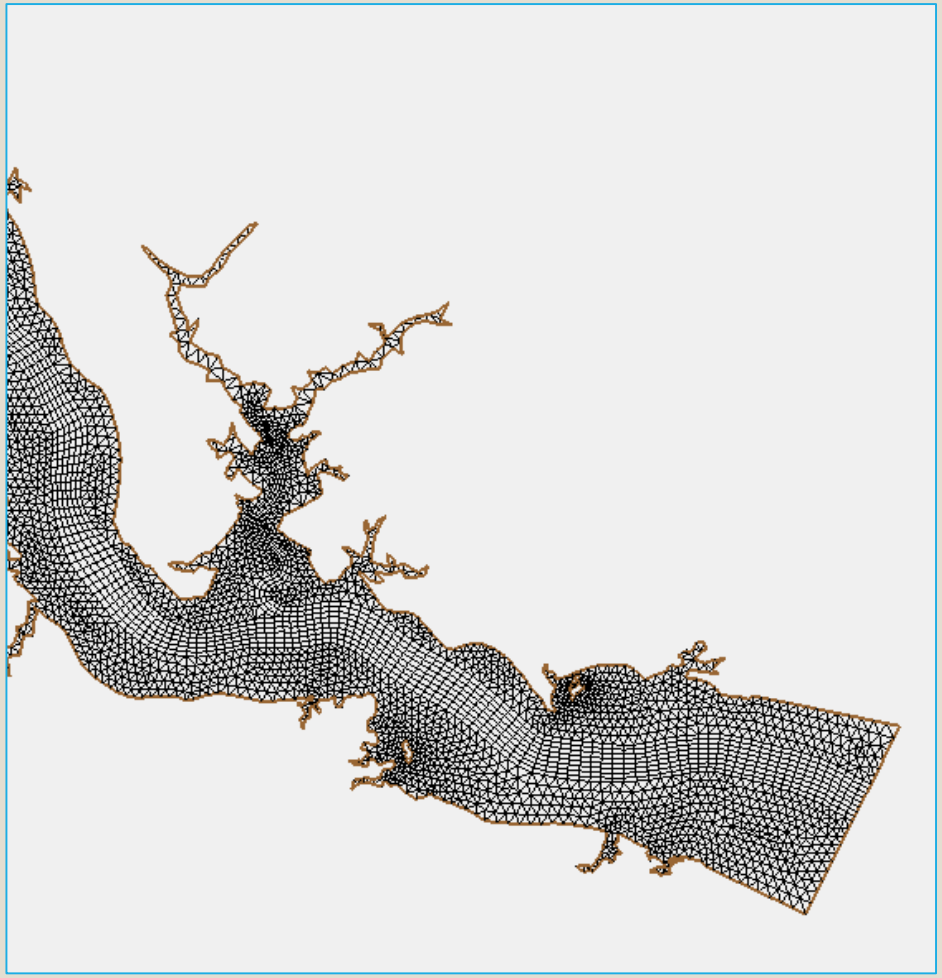


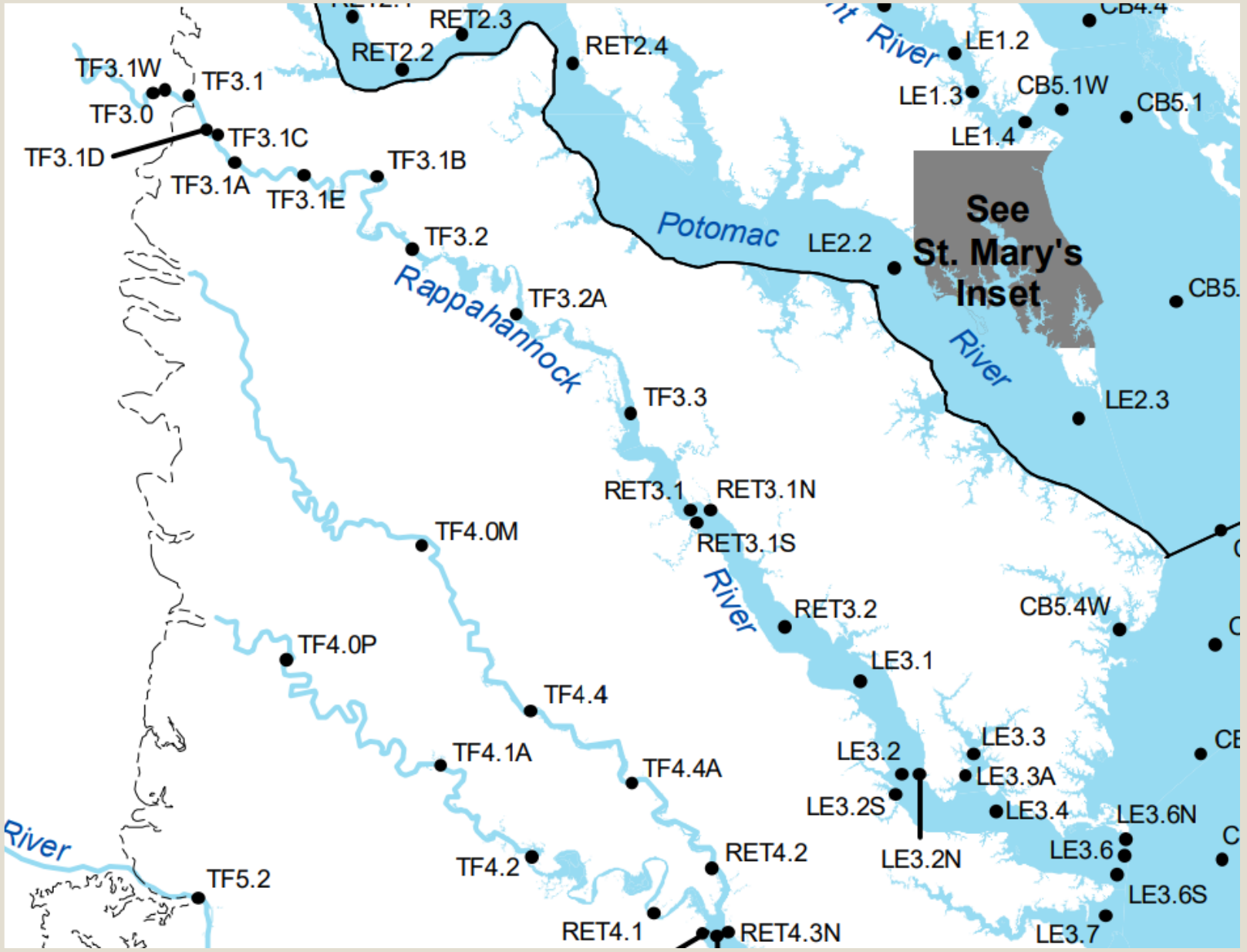
Marge final resolution grid to the Bay model



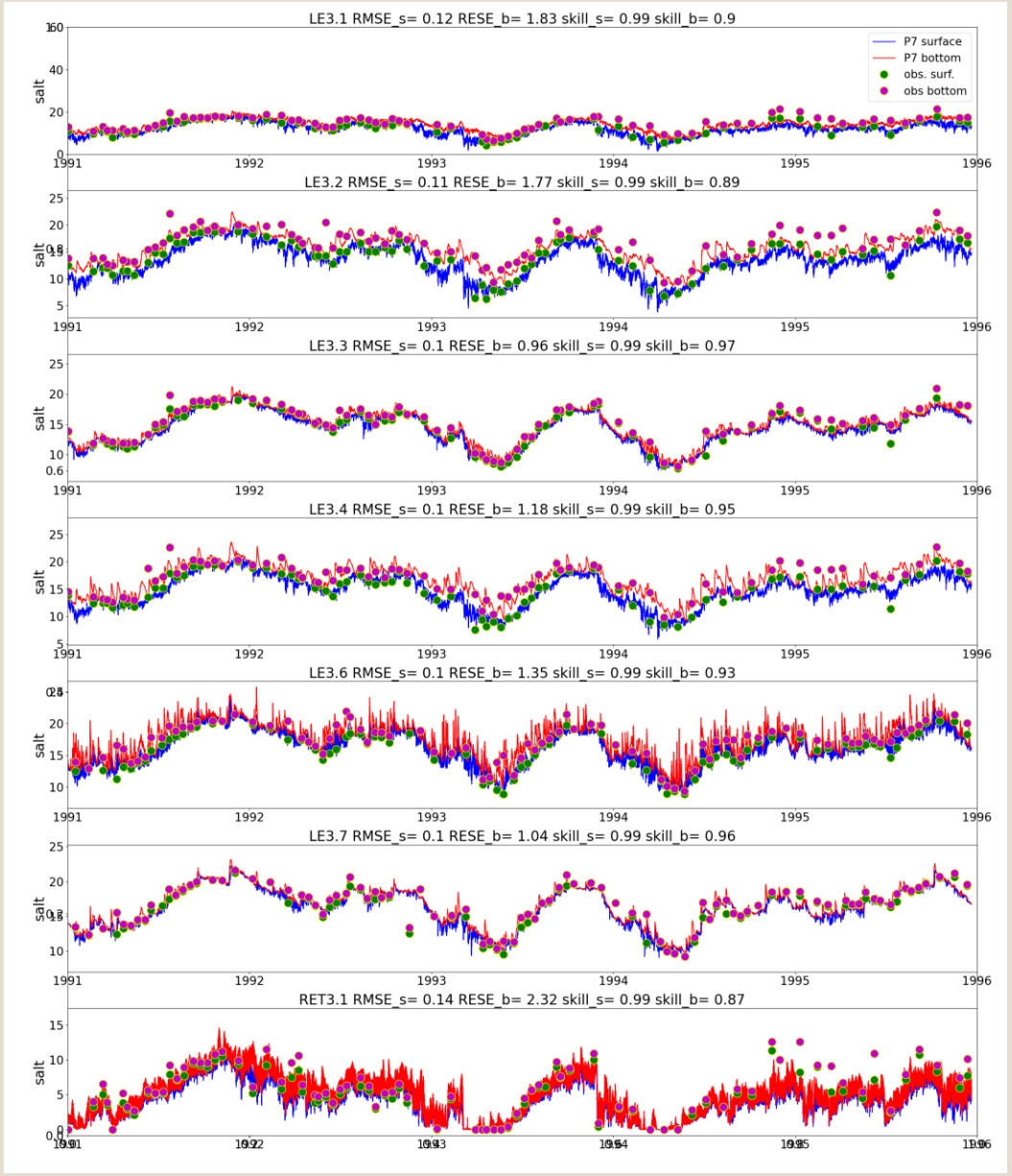
Advantage

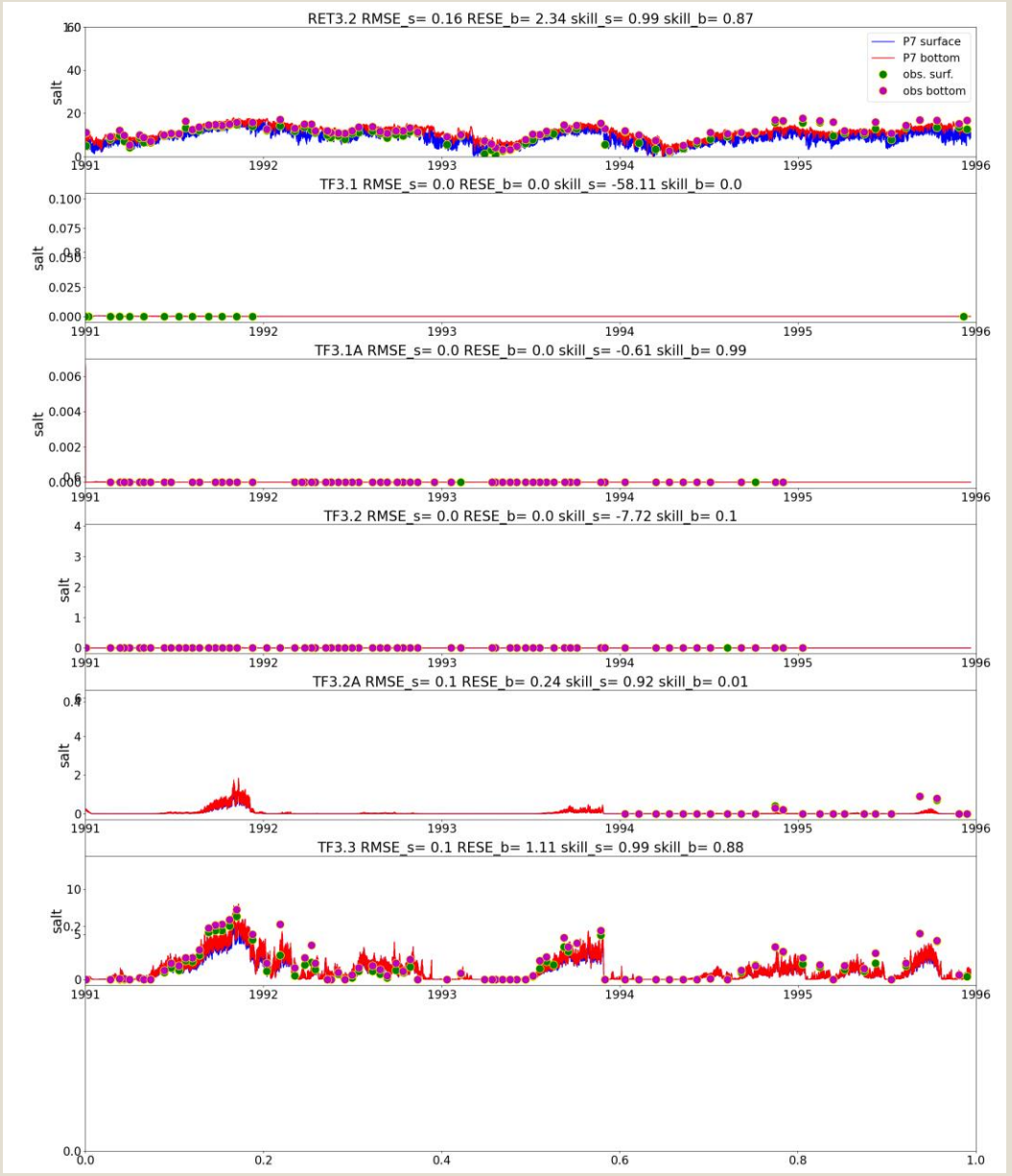
- Account for bidirectional fluxing between the bay and tributary
- Convenient to pass updated MBM parameters to Rappahannock River
- Consistency of model setup and loading discharge

Station Location

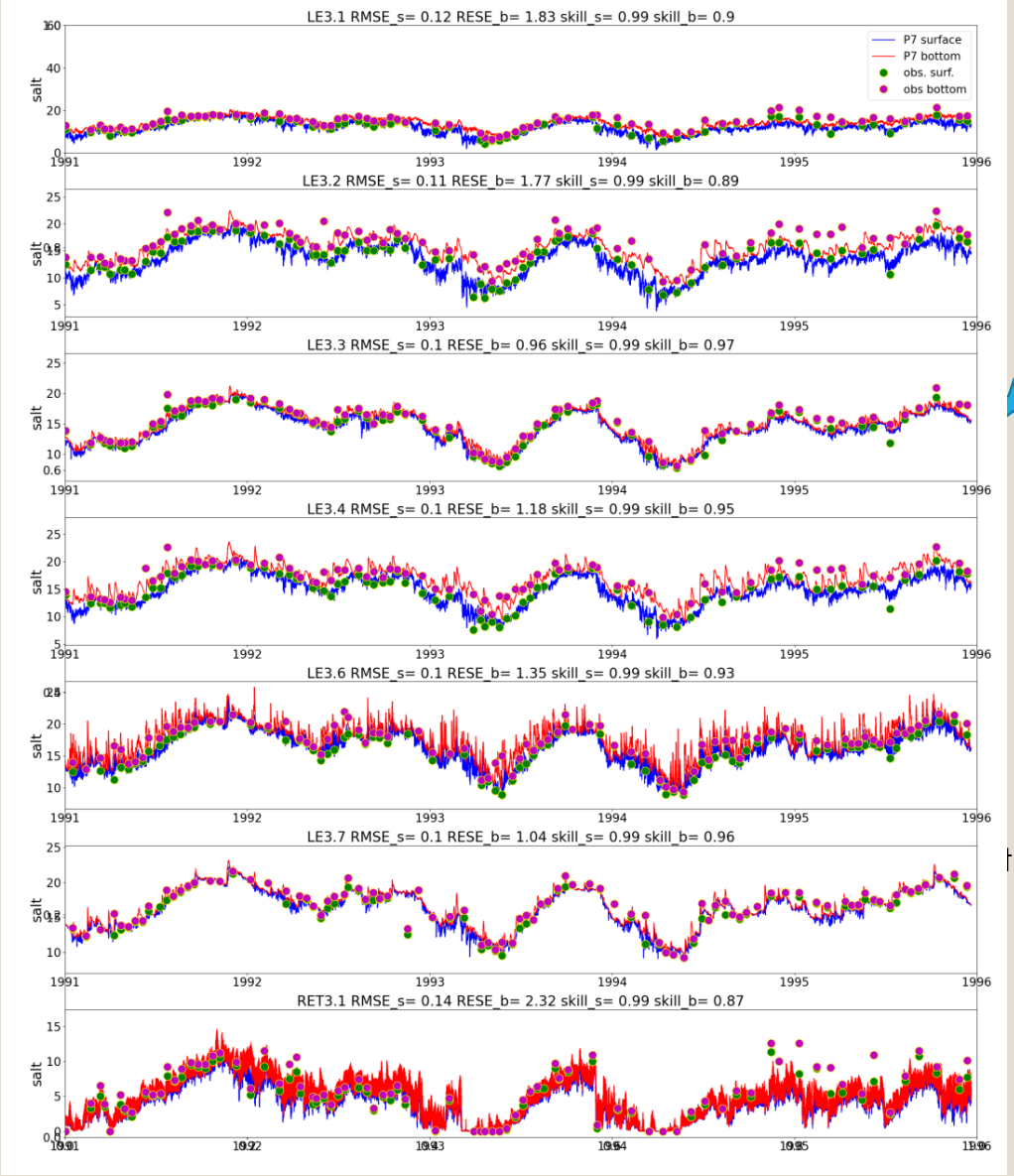


Results of Merged Bay and Rappahannock River Grid



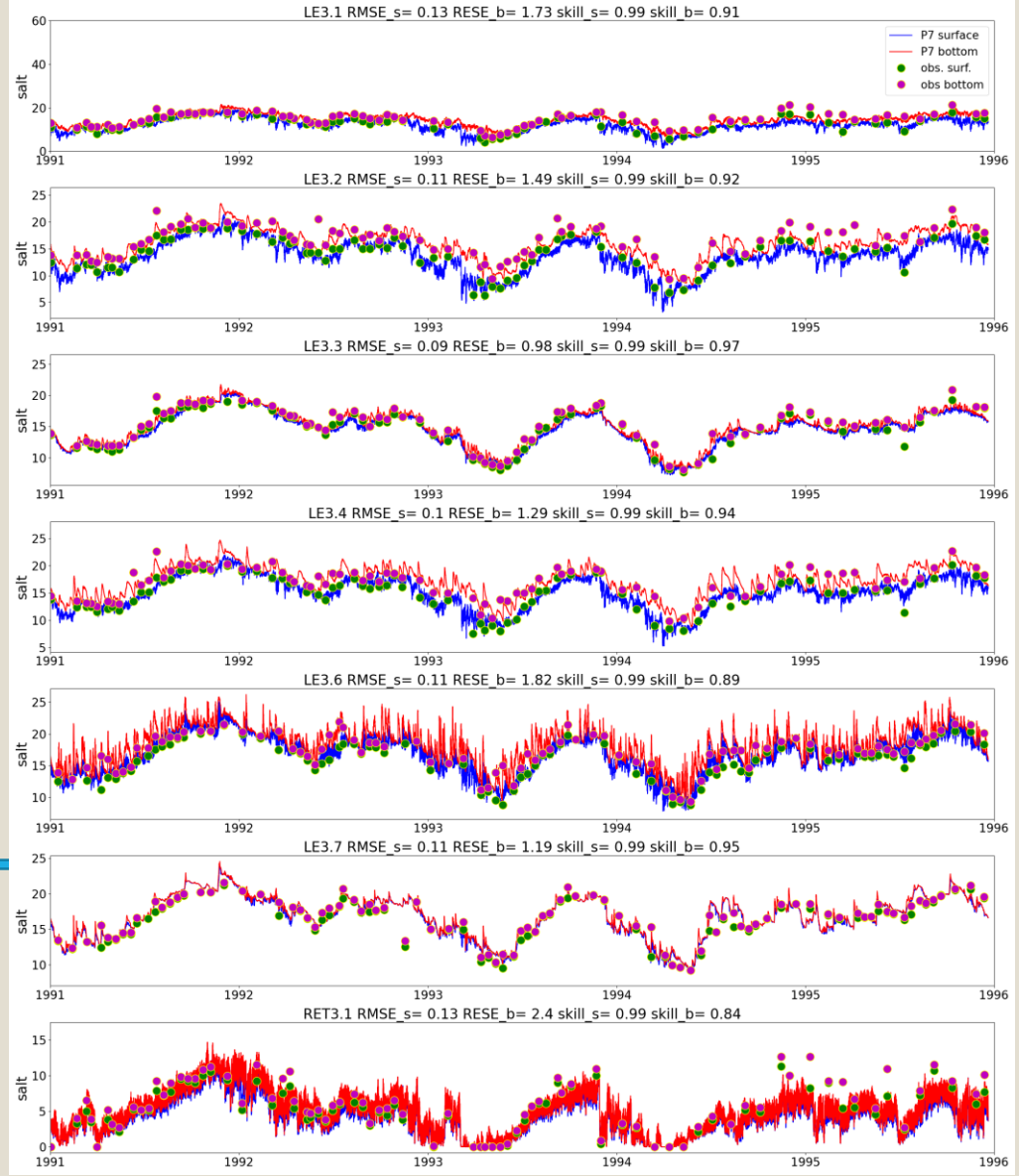


New Merged grid

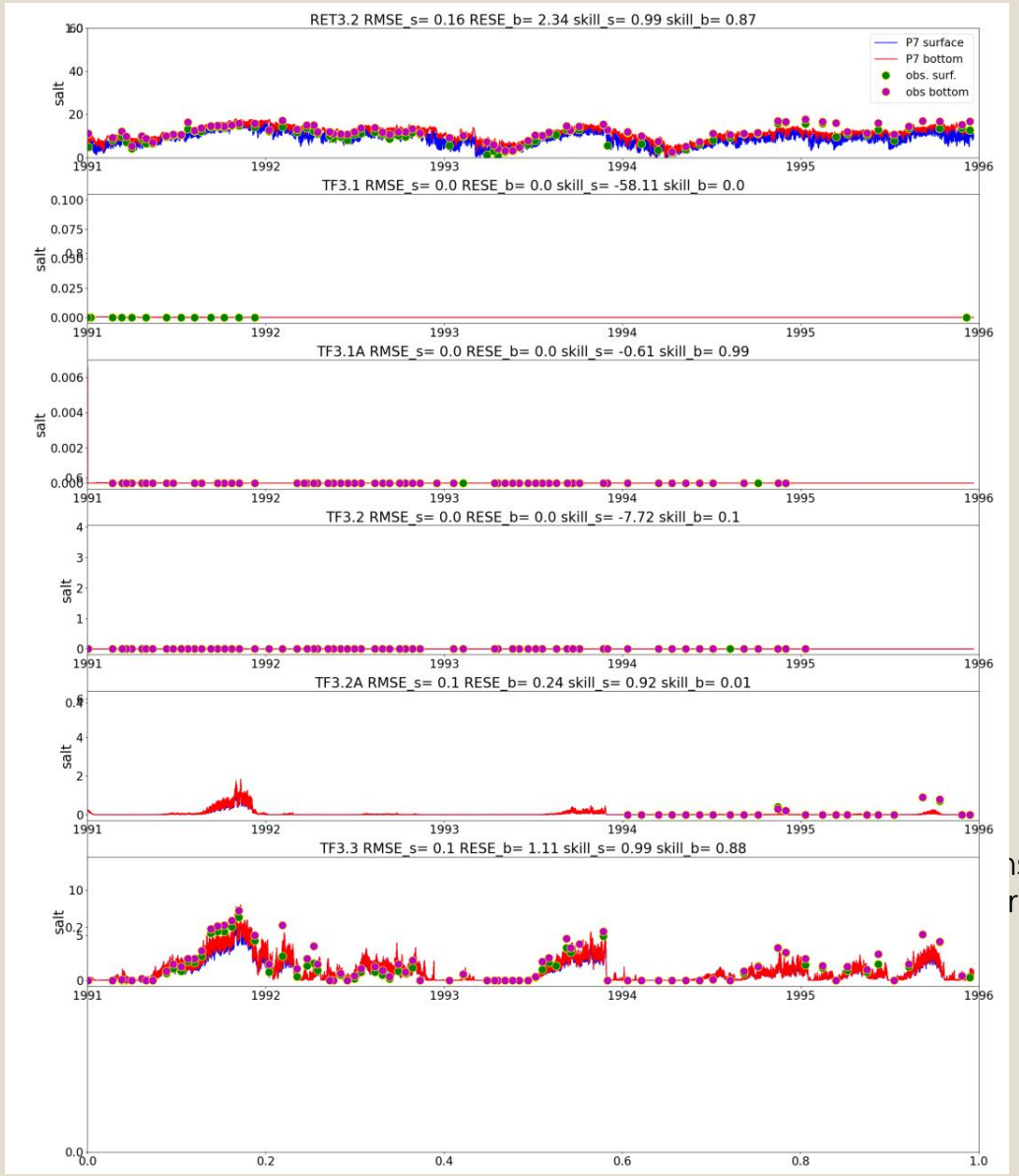


inside
grid

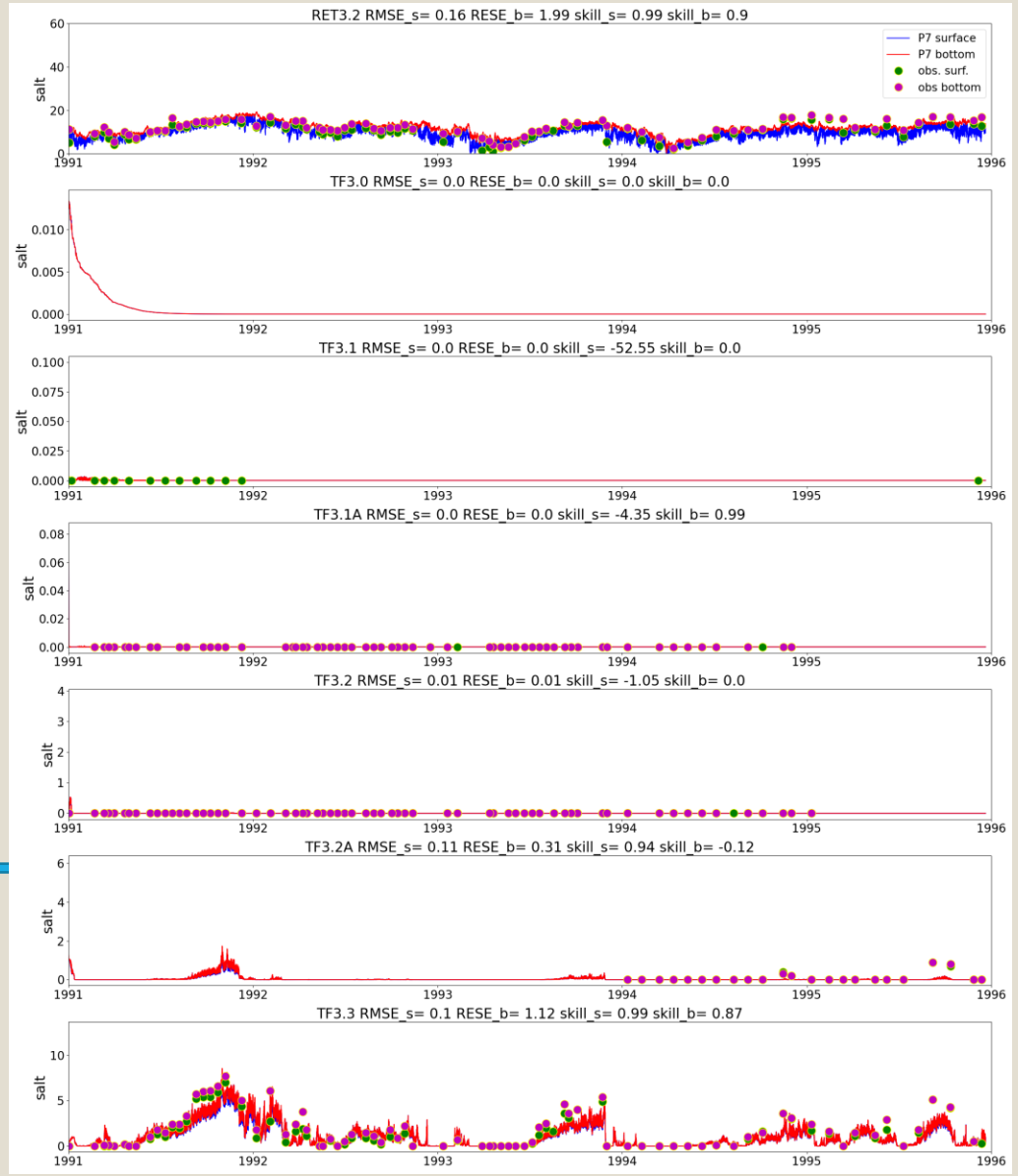
Merged grid



New Merged grid



Merged grid



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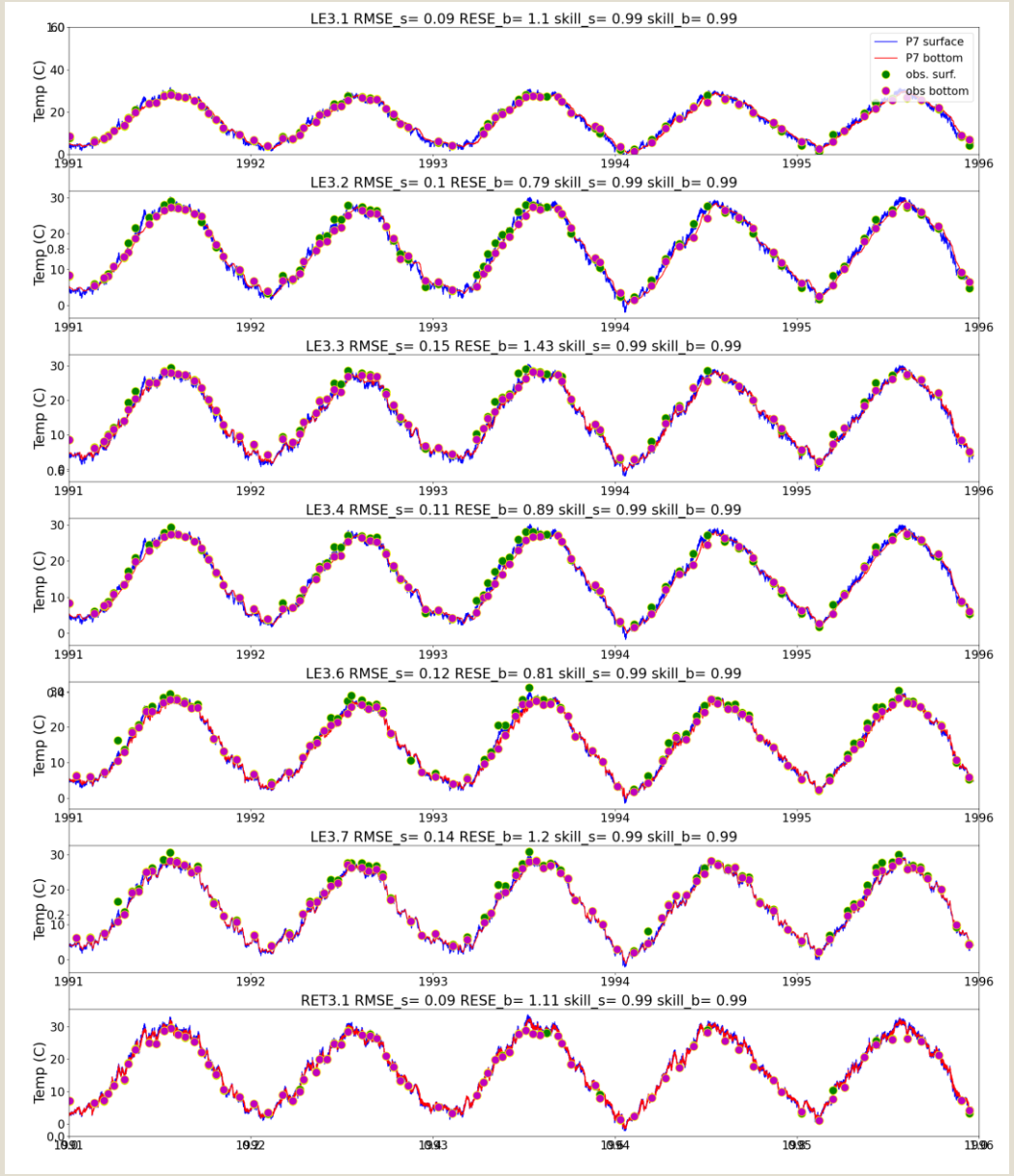

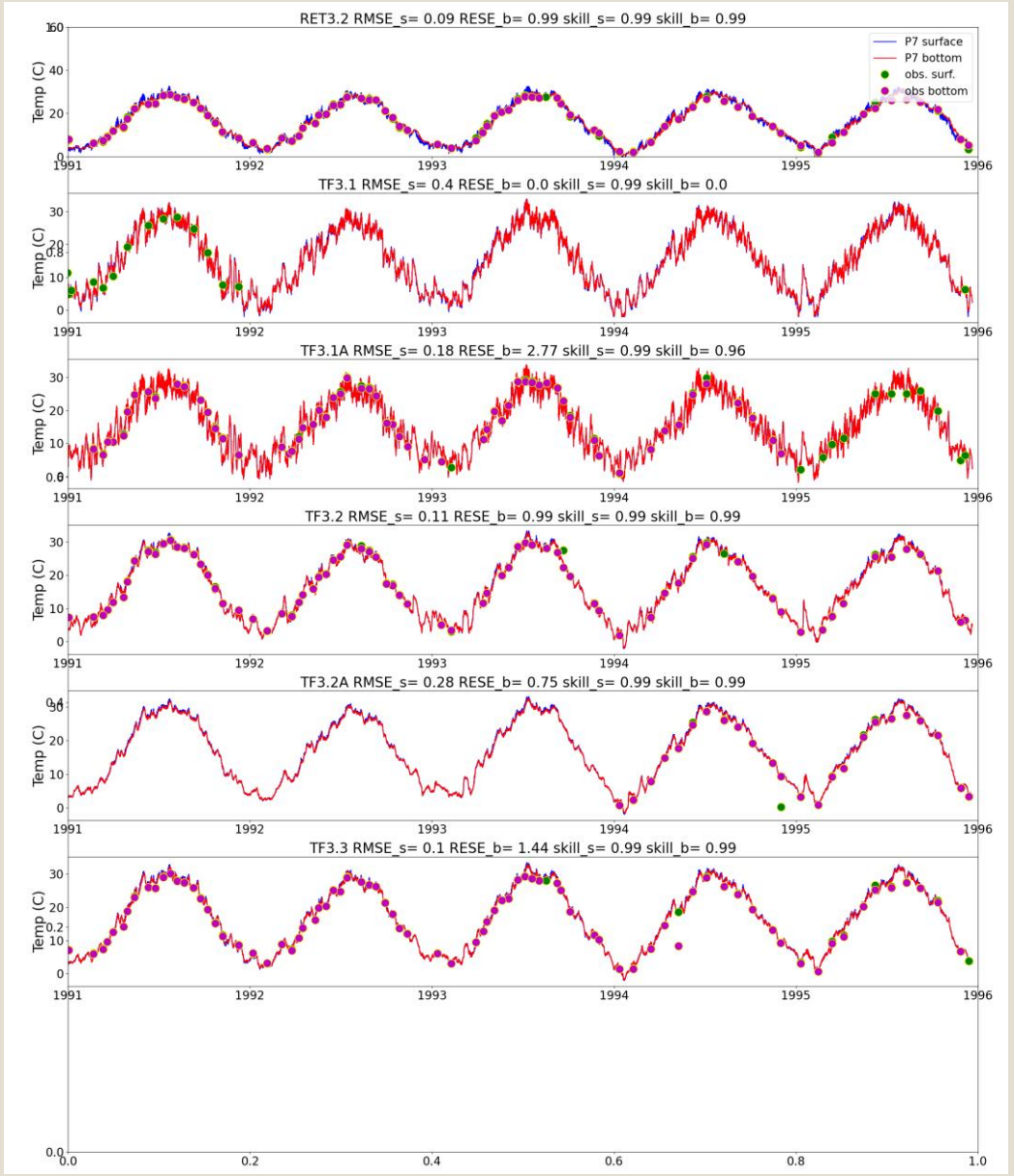

Thank You