ADVANCES AND ISSUES IN UNCERTAINTY QUANTIFICATION FOR COASTAL FLOOD HAZARDS

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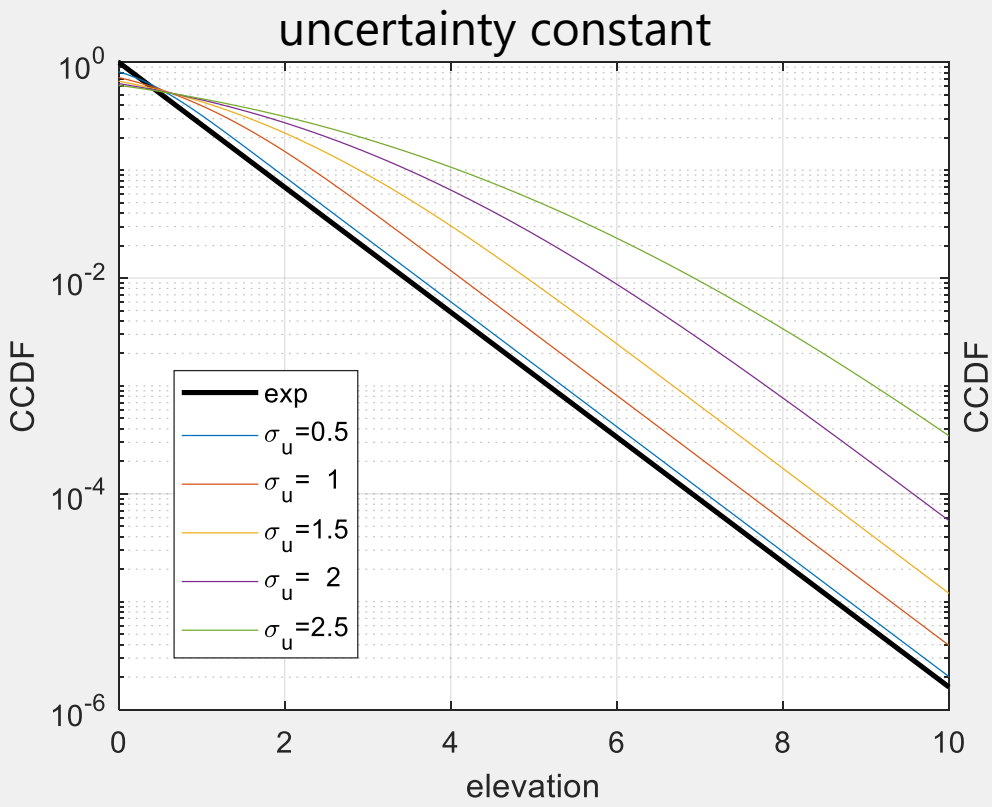
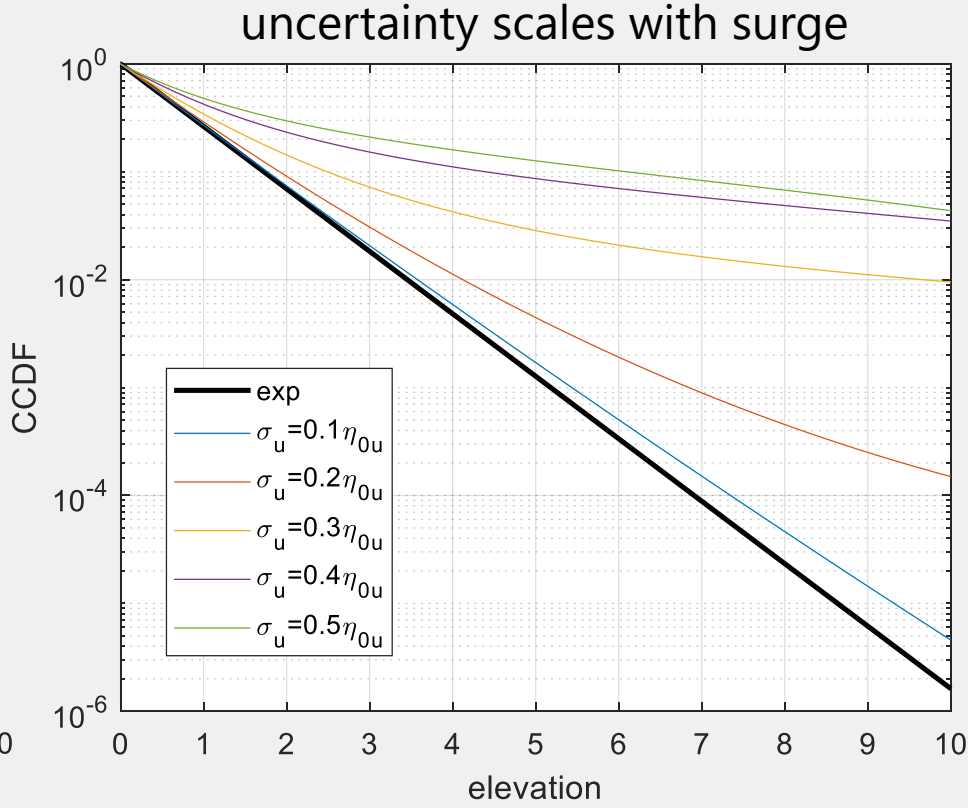
Effects on Surge Hazard

- Uncertainty affects hazard estimates
- Even unbiased errors change mean hazard
  - Often, substantially for "extreme" hazards

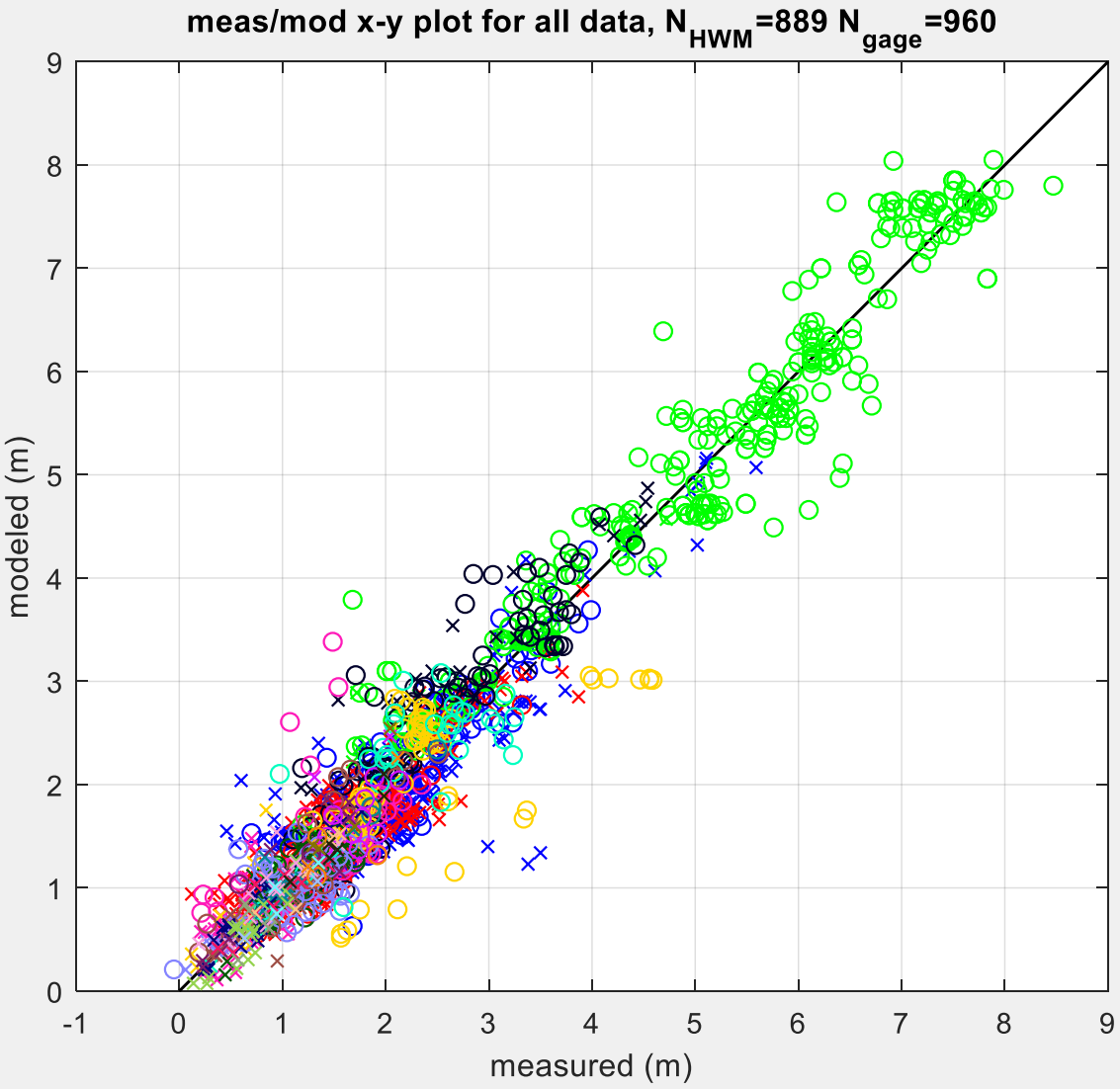




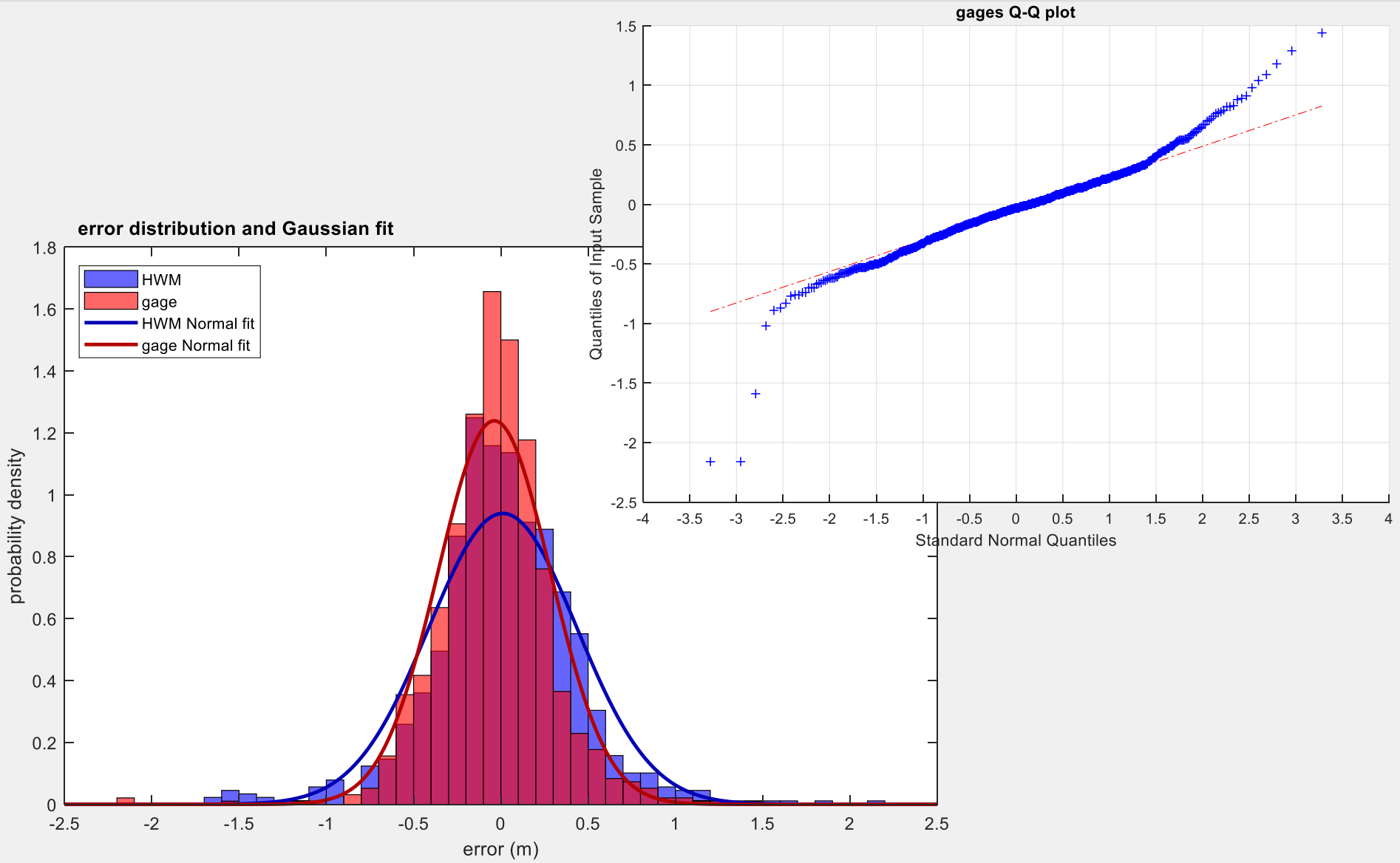
Surge Model Skill

- 24 storms
- 7 studies
- 1849 obs.
- All ADCIRC

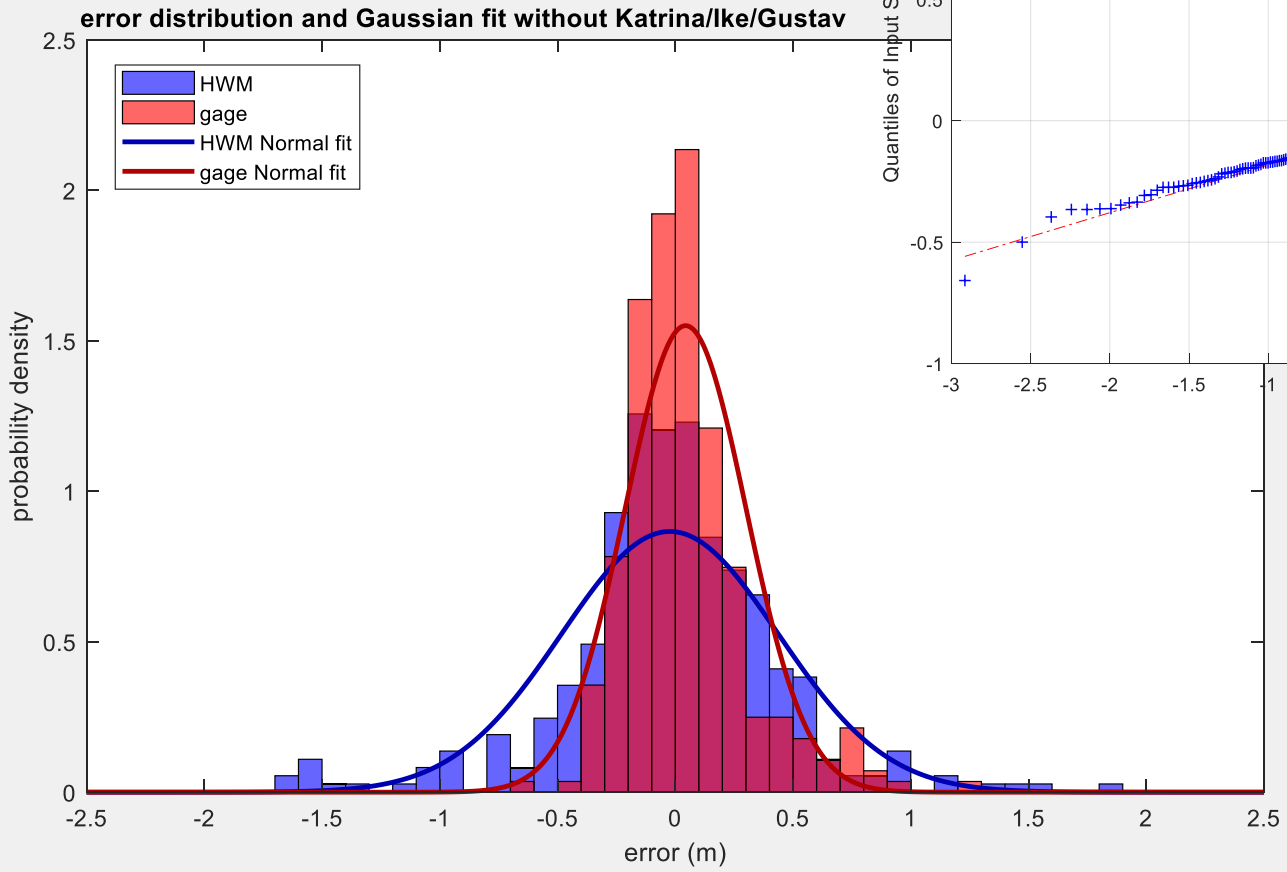
- 0.37 m RMSE
- 0.27 m MAE
- -0.014 m bias

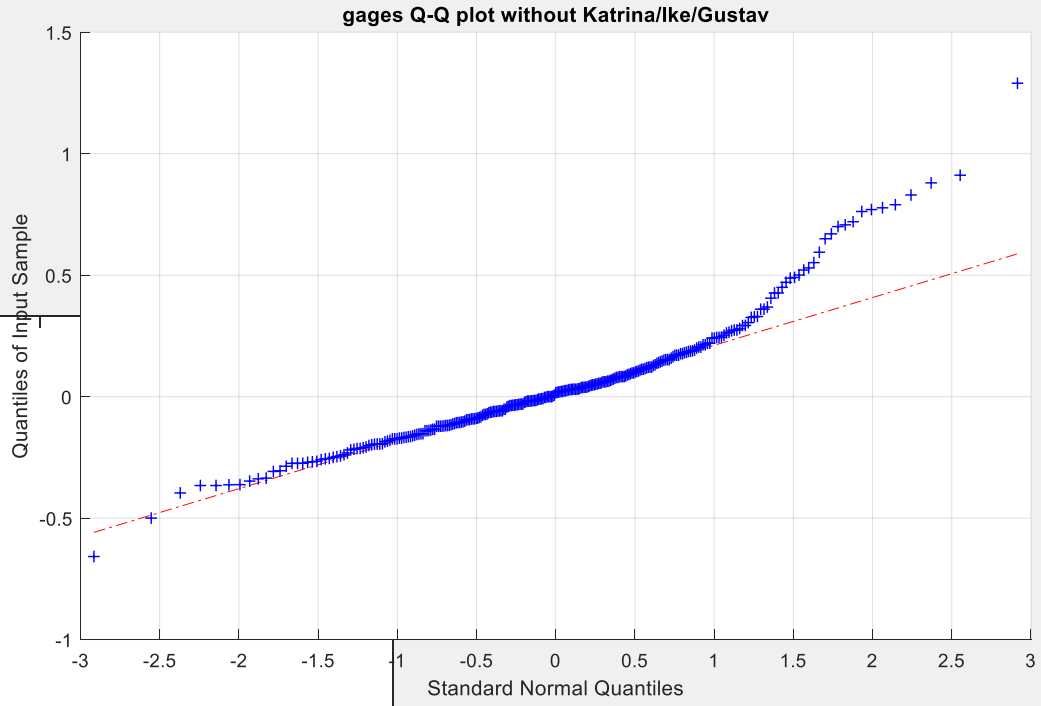


Surge Model Skill

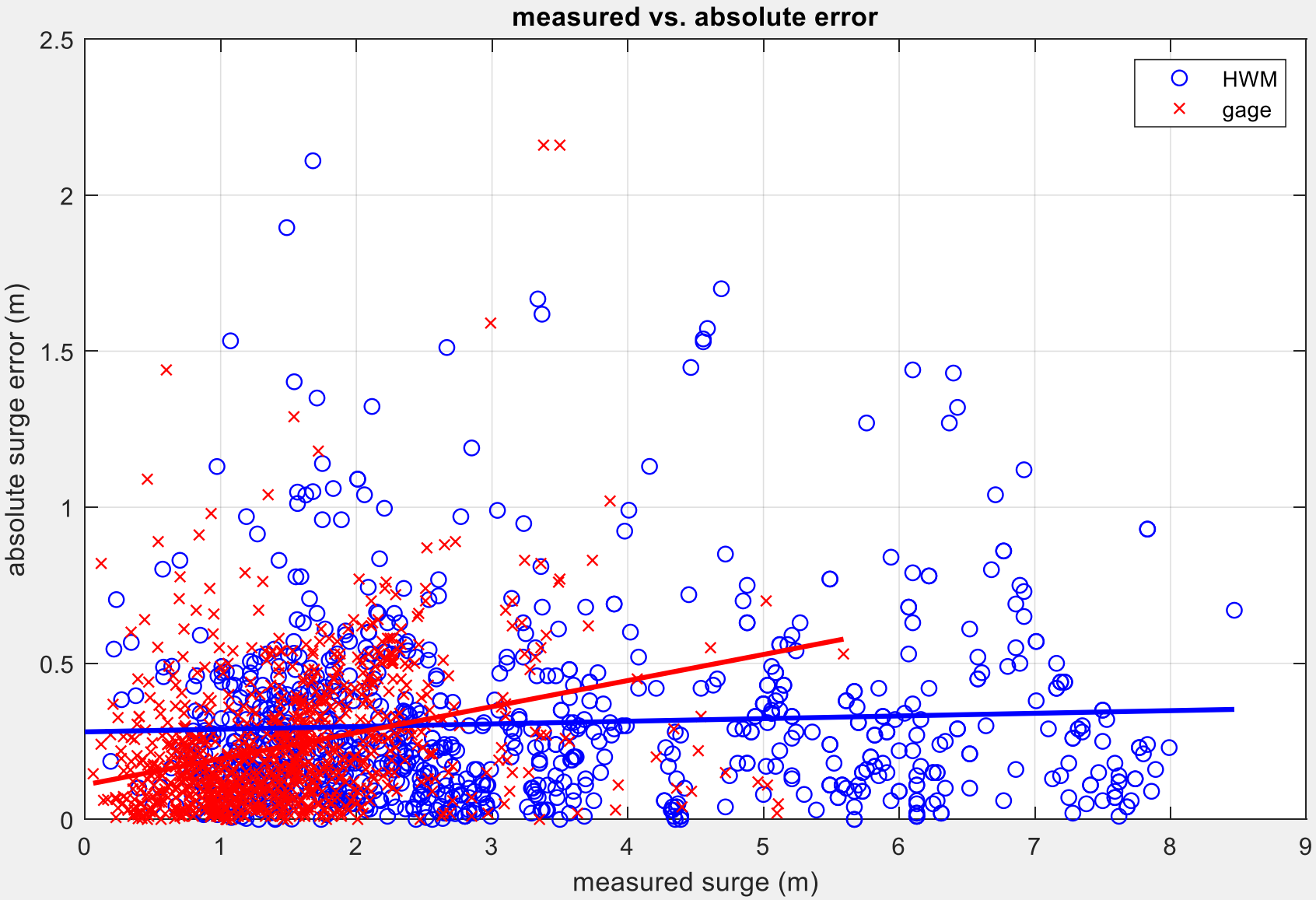


Surge Model Skill





Surge Error Scaling



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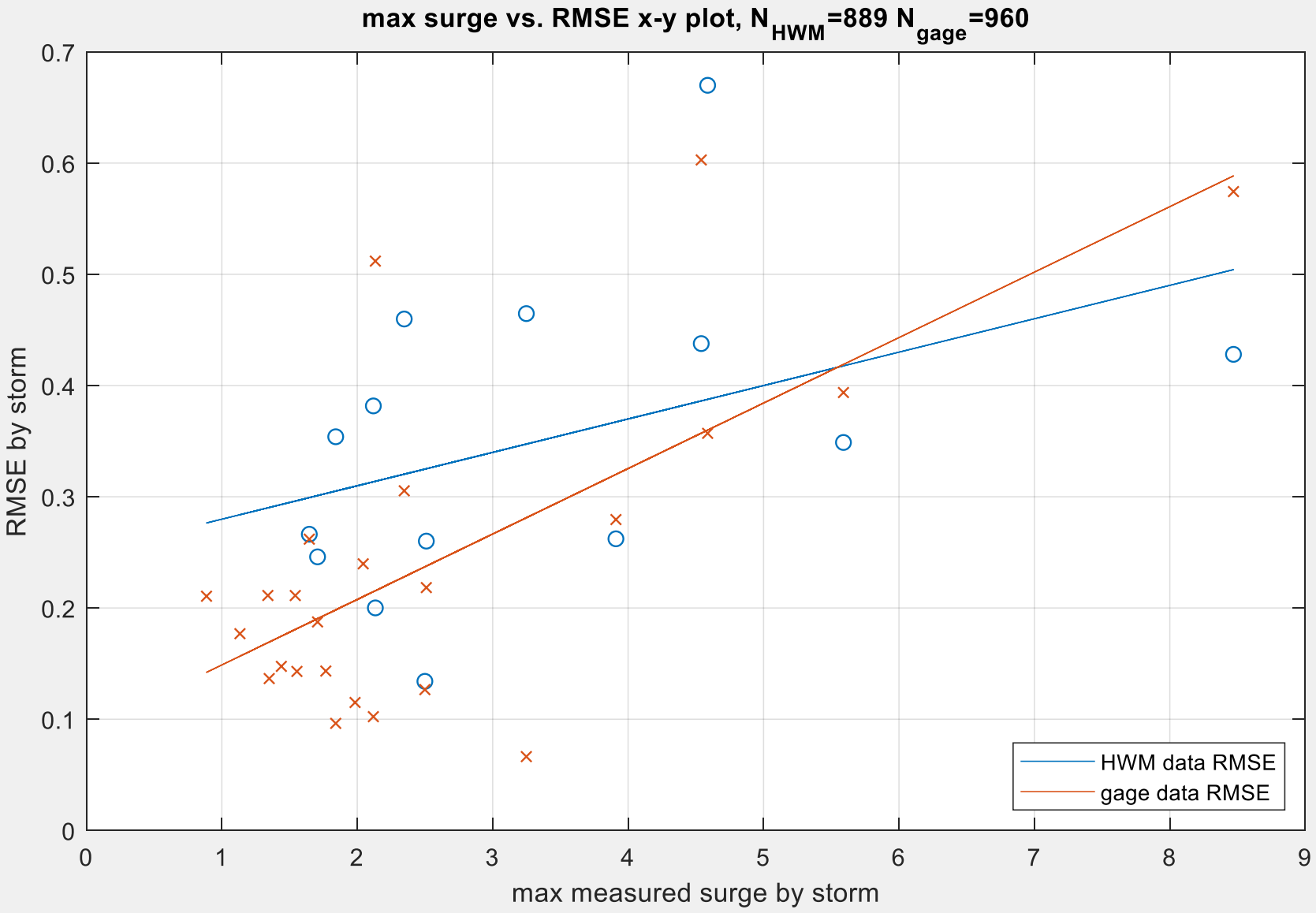

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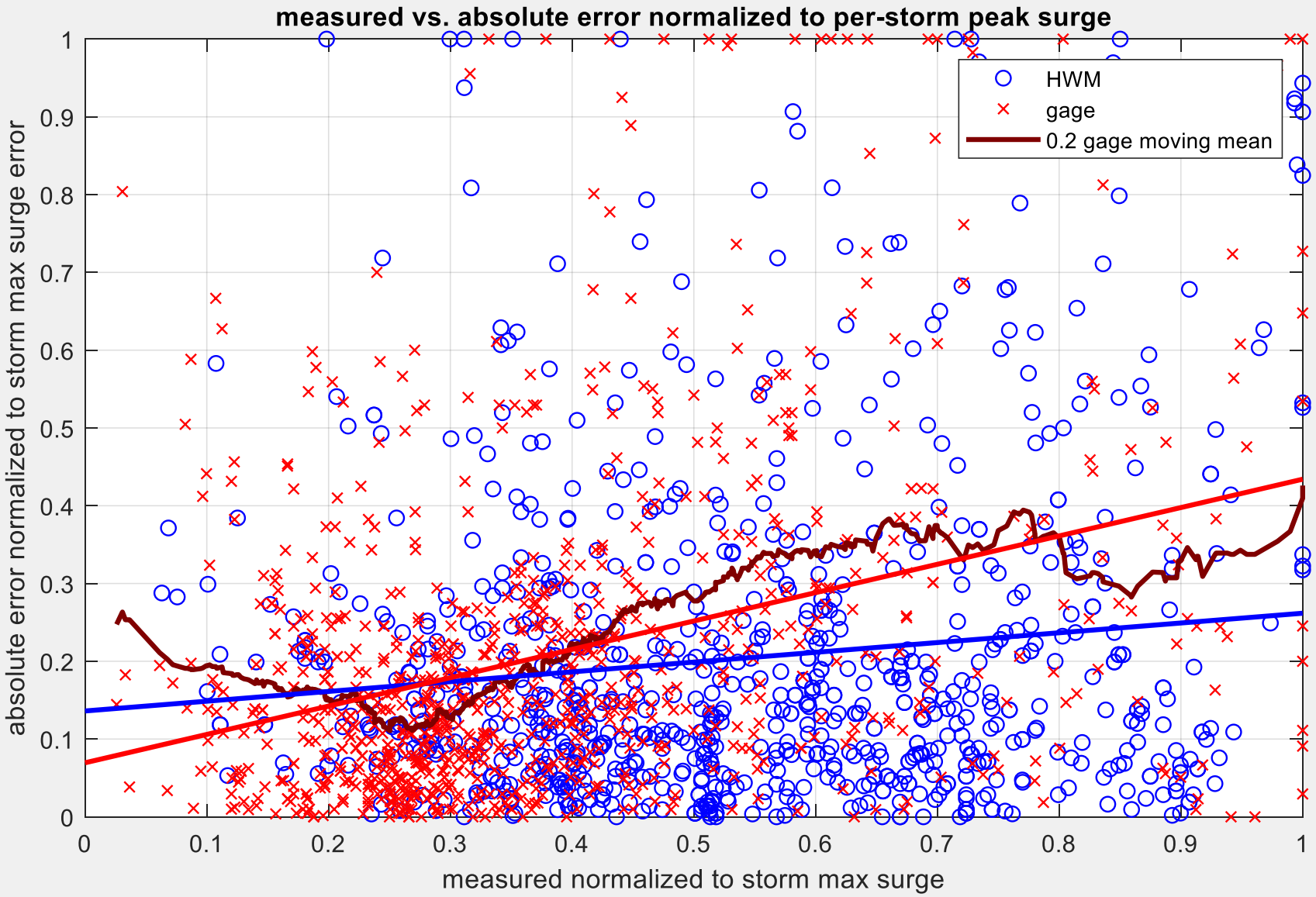
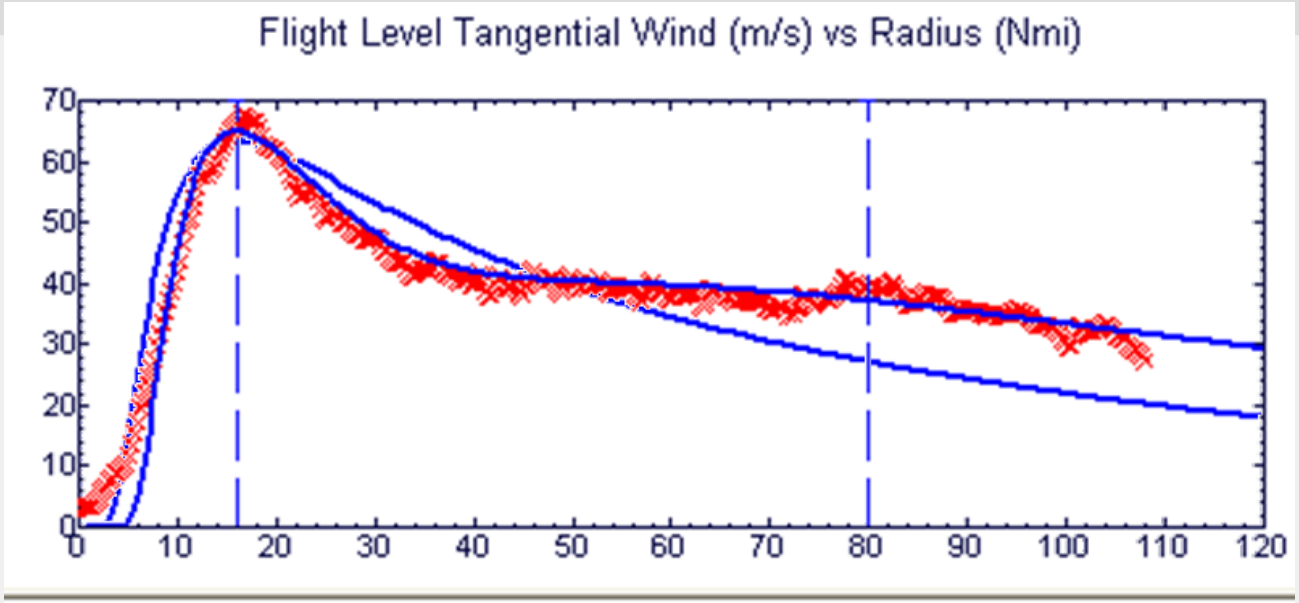
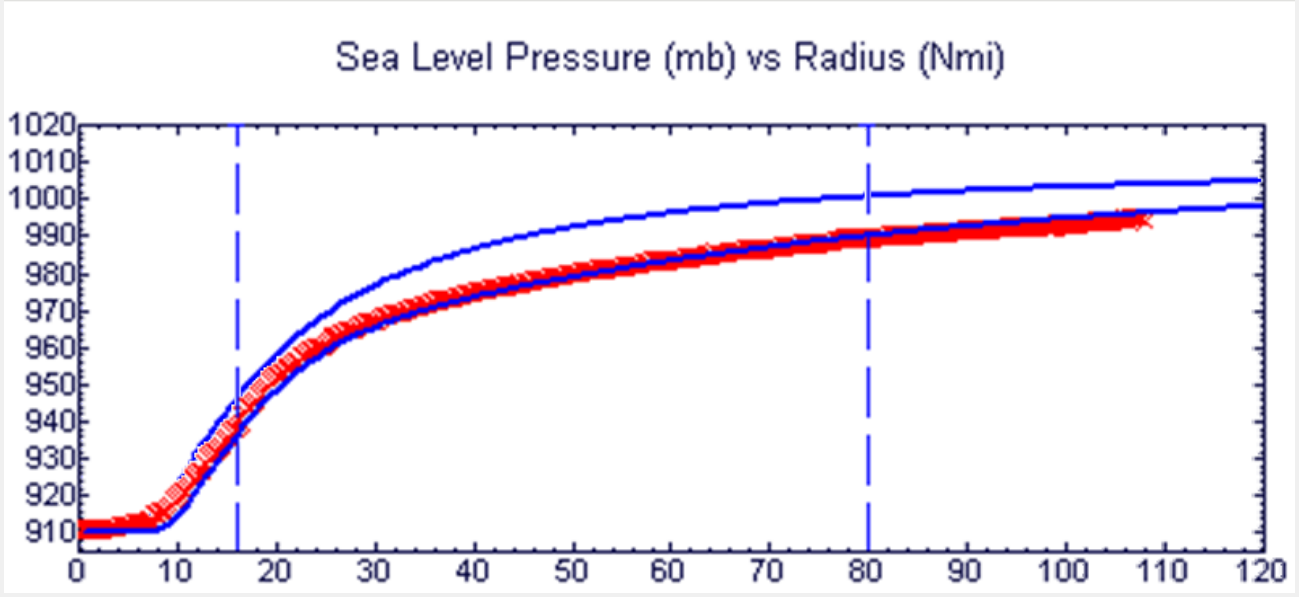


Uncertainty in Meteorology





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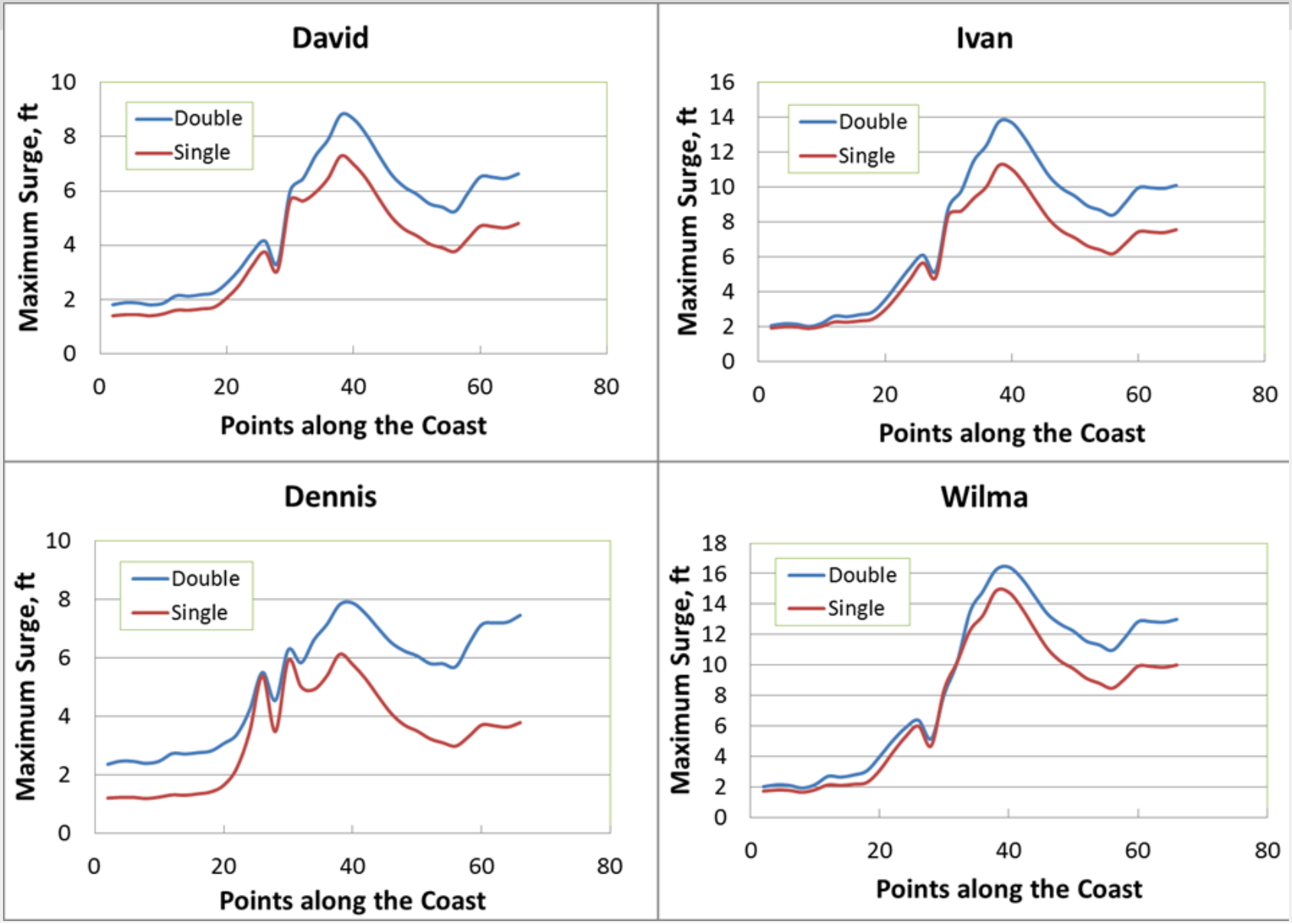
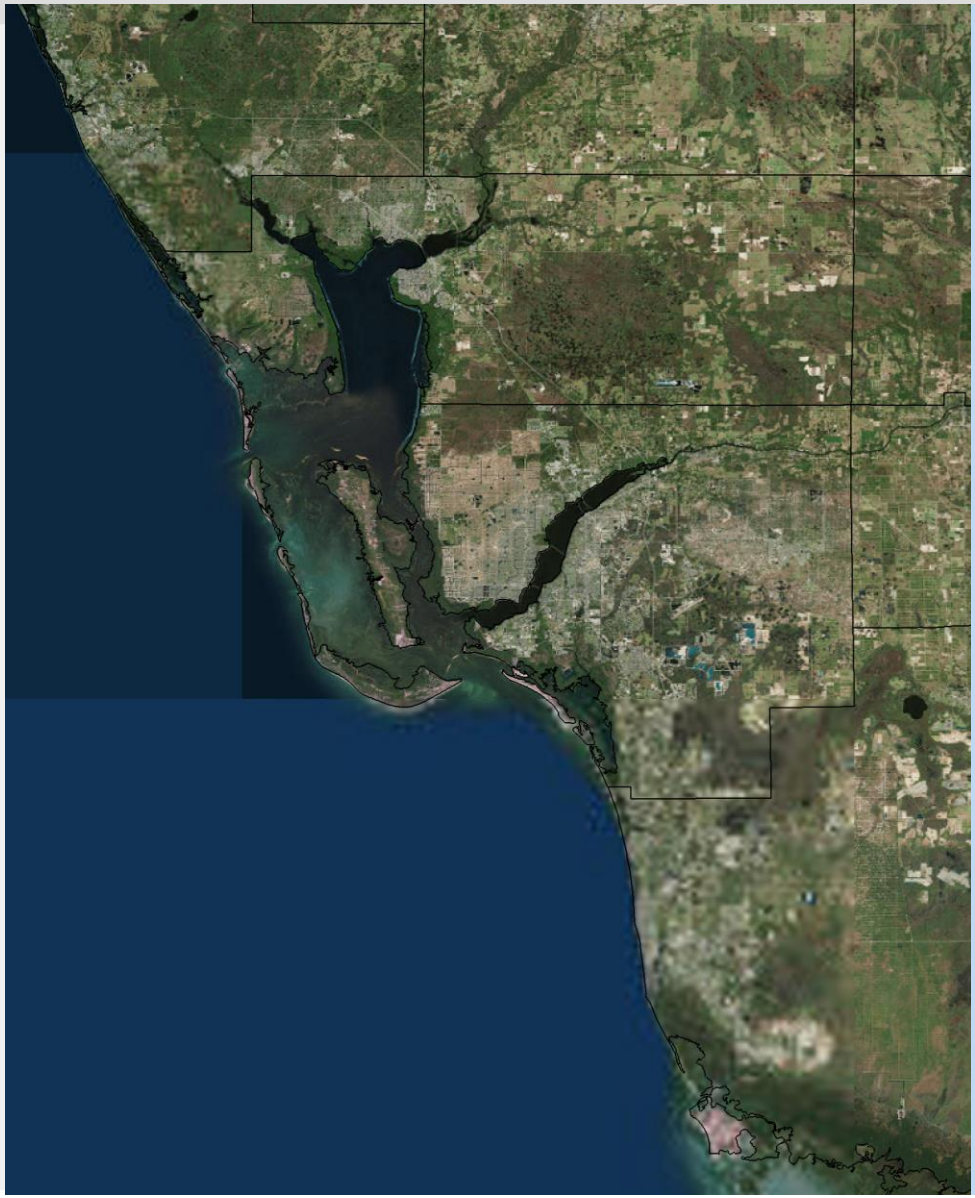
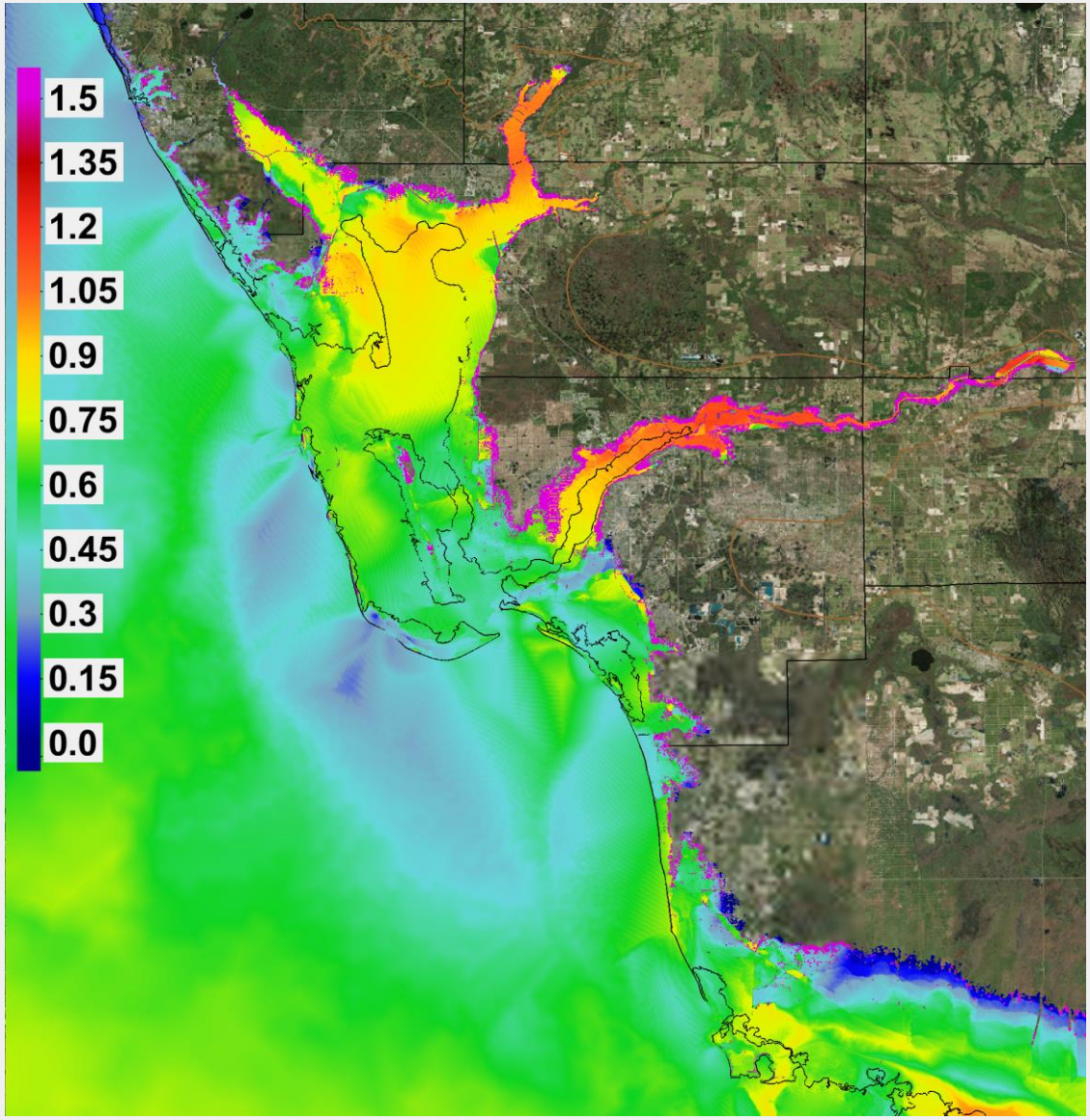


Single-Double Uncertainty Effects



Single-Double Uncertainty Effects

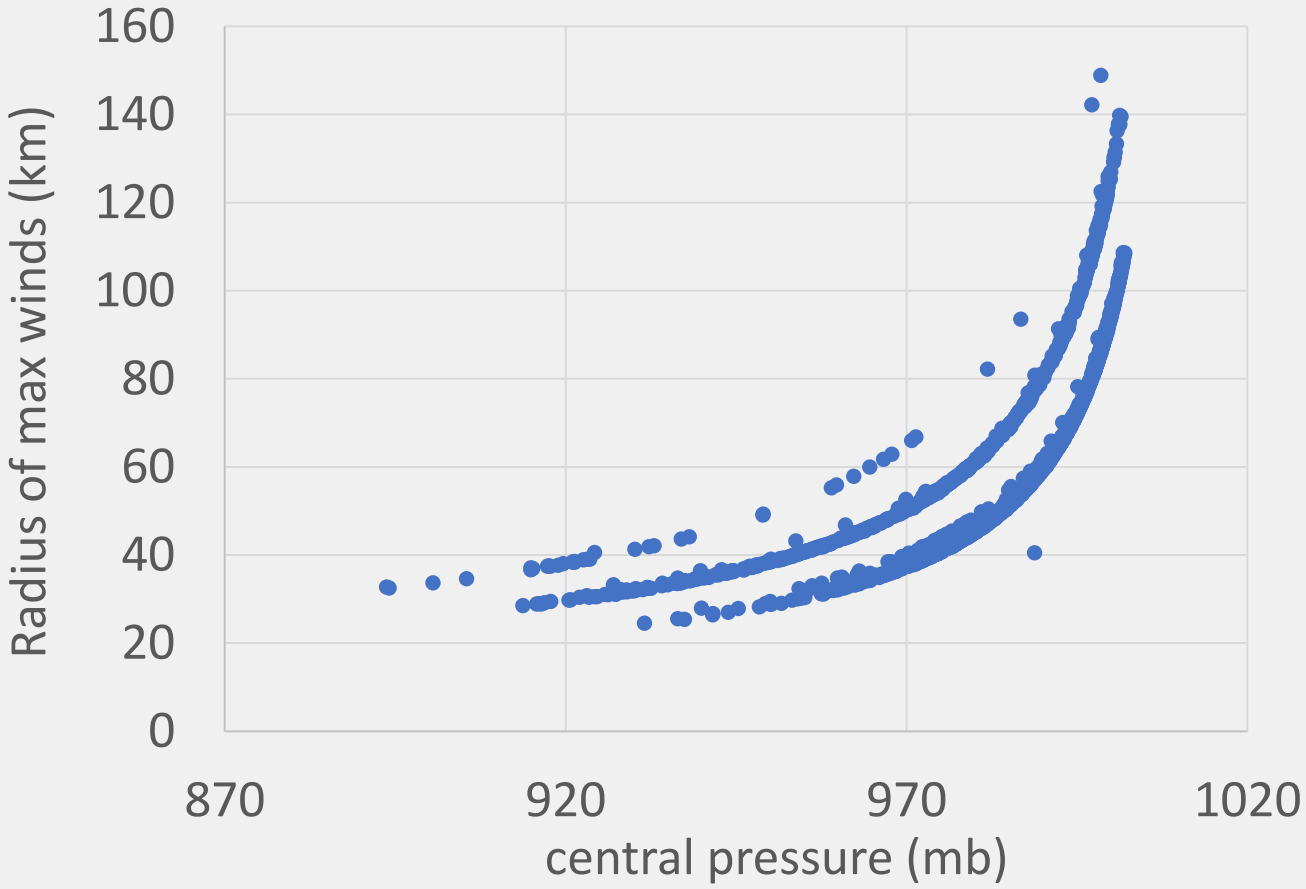


Increase in 500-year mean surge hazard (meters) due to uncertainty

→10%-40% increase in hazard

Uncertainty in Meteorology

- There's no such thing as a free lunch



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Questions?