

FY20 RSM IPR

Coastal and Hydraulics Laboratory

Geomorphic Analysis Package

Casey Mayne

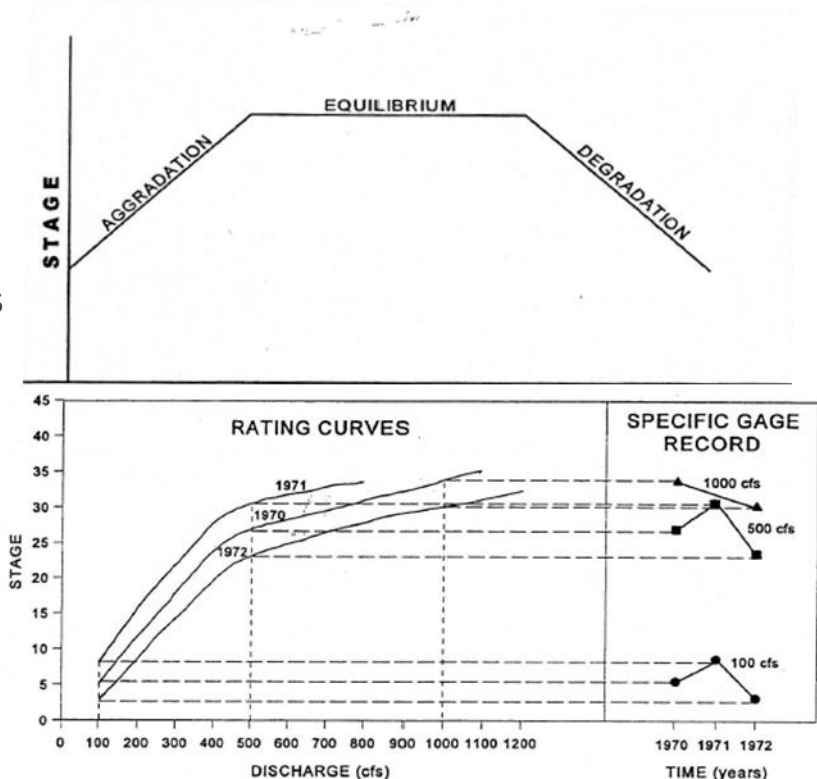


BLUF: The effort focused on the development of a tool suite for automating tasks often used to assess the historical stability of a river system. The first component of the GAP established a general framework for the tool suite as well as an initial beta tool for performing specific gage analysis.

Challenge/Objectives

- Automate common tasks and analyses
- Provide flexibility and user interaction
- Offer access to readily available databases
- Supply statistical outputs and support for users

Approach: Establish a framework for the tool suite within R programming language and develop an initial beta tool for performing specific gage analysis using stage-discharge rating curves.



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ERDC-CHL: Geomorphic Analysis Package



District/Other USACE PDT Members

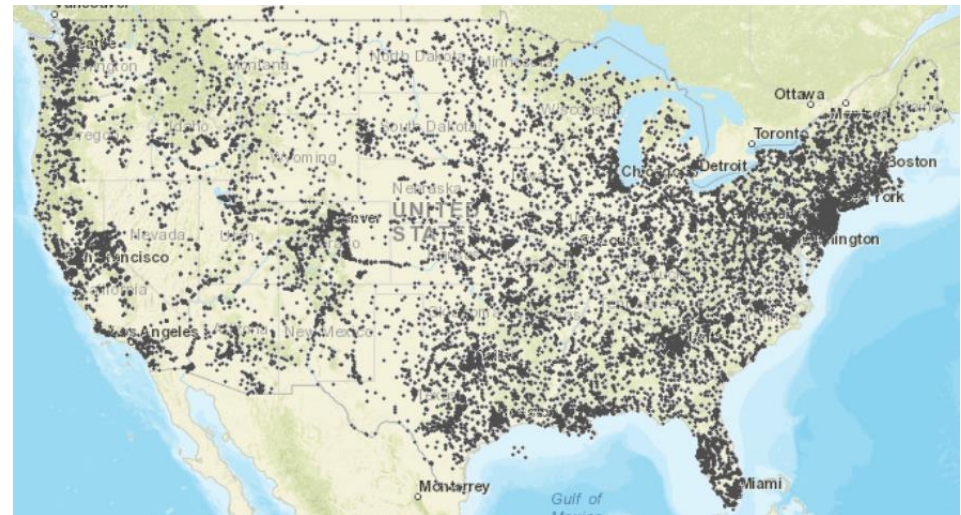
Mr. Casey Mayne (CHL)

Stakeholders/Partners

Name, agency, email address

Leveraging/Collaborative Opportunities

- The primary leveraging for this project will be through the use of publicly available data sets
- The opportunities for collaboration have been through tool application and testing during on-going research efforts
- Potential for future collaboration with other RSM efforts



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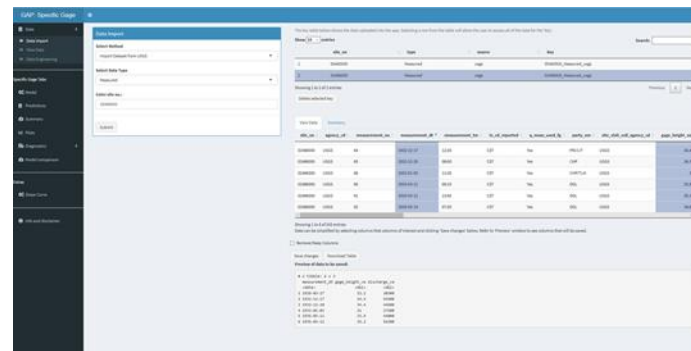
ERDC-CHL: Geomorphic Analysis Package



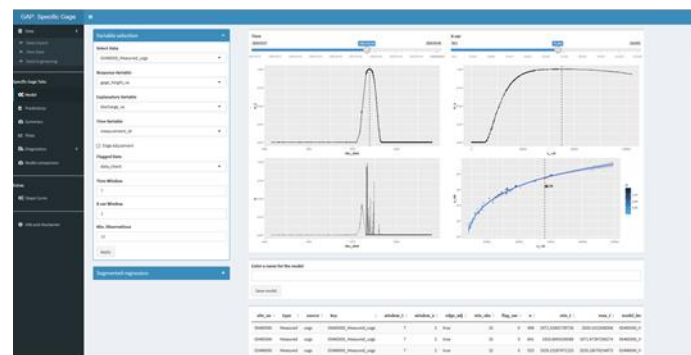
Accomplishments/Deliverables

Lessons Learned

- Established the methodology and framework for the tool suite
- Developed the initial beta tool for conducting specific gage analysis
- Conducted beta testing and demonstrated utility through on-going research efforts
- Provided direct access to water-resources data offered by NWIS database through the USGS, in addition to local data imports
- Modified traditional methodologies to improve the capabilities and flexibility of the specific gage tool



IMPORT



MODEL



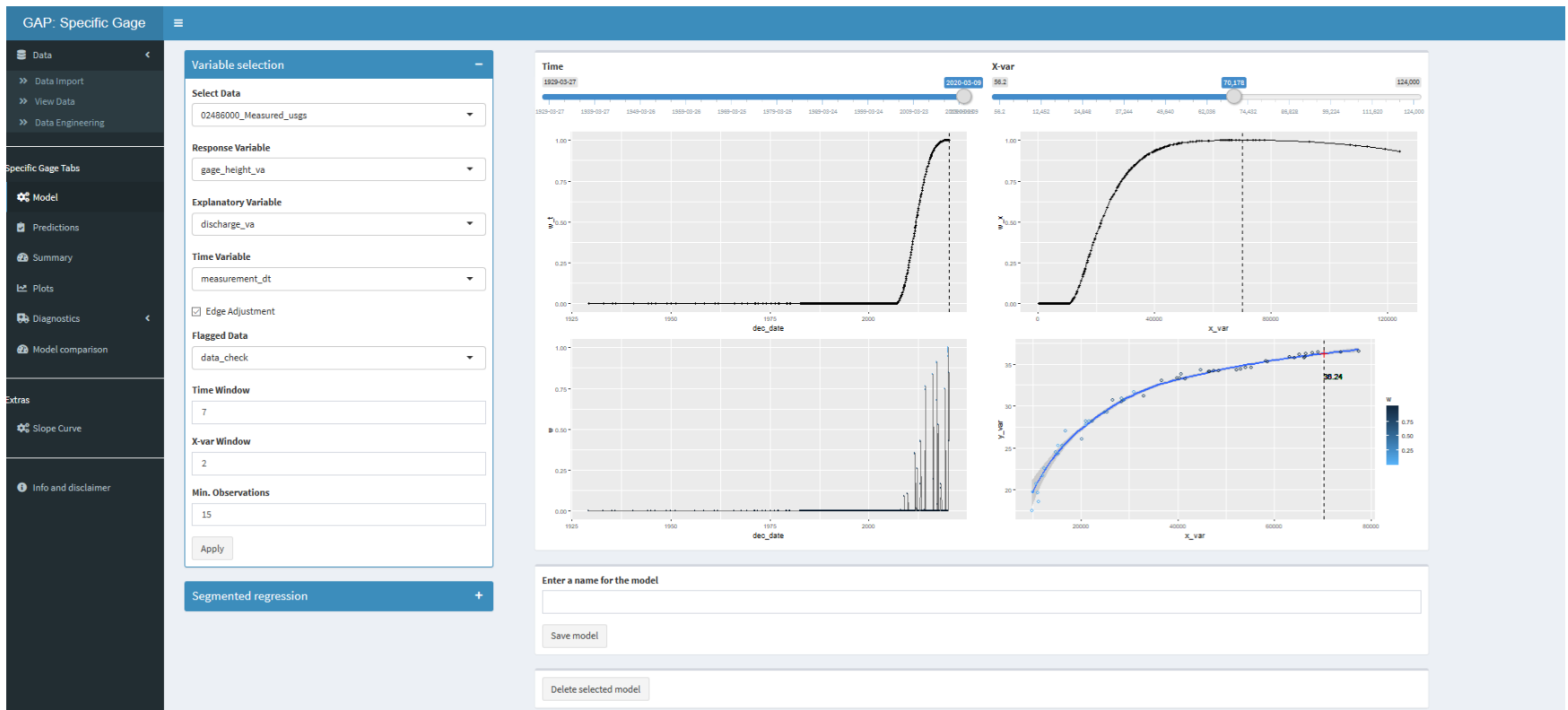
OUTPUT



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- Balancing automation and user interaction (control)
- Creating a more universal approach
- Addressing data issues and/or limitations
- Scalability and distribution of the beta tool



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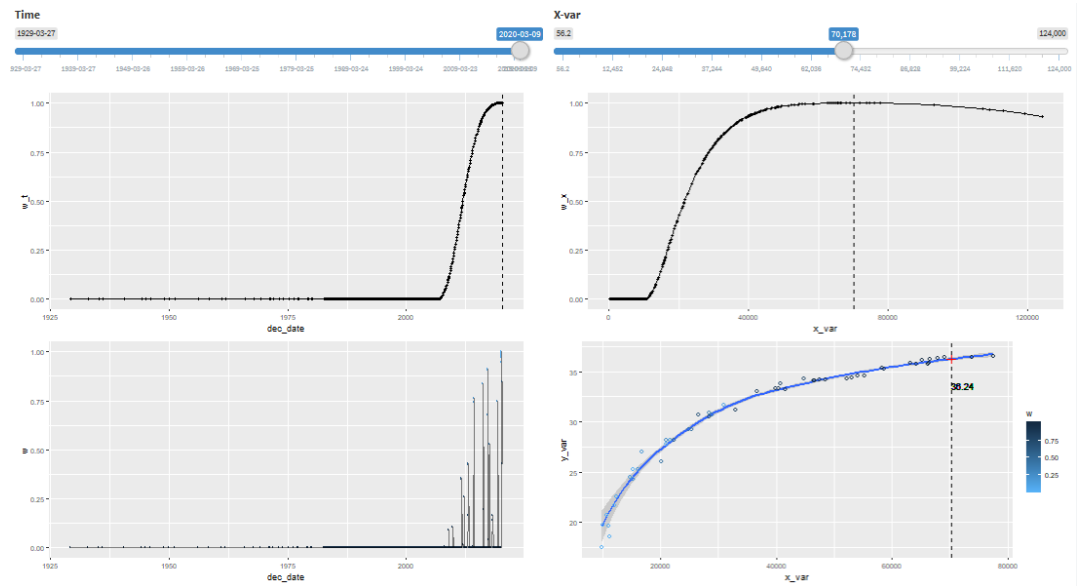


Benefits:

- Established framework which could serve as a foundation to future work or tool development
- Compiled on a free, publicly available software environment for statistical computing. The tool is shareable and works on ACE-IT machines.
- Improved the efficiency and extended the technical capabilities of traditional methodologies through automated processes
- Utilized readily available water-resources data offered by the USGS, and potential to connect to other data sources in the future
- Advanced techniques for developing rating curves, specifically in situations where data limitations exist

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Questions?

