

FY20 RSM IPR



Sediment Yield for Catchments of the Mississippi River Basin

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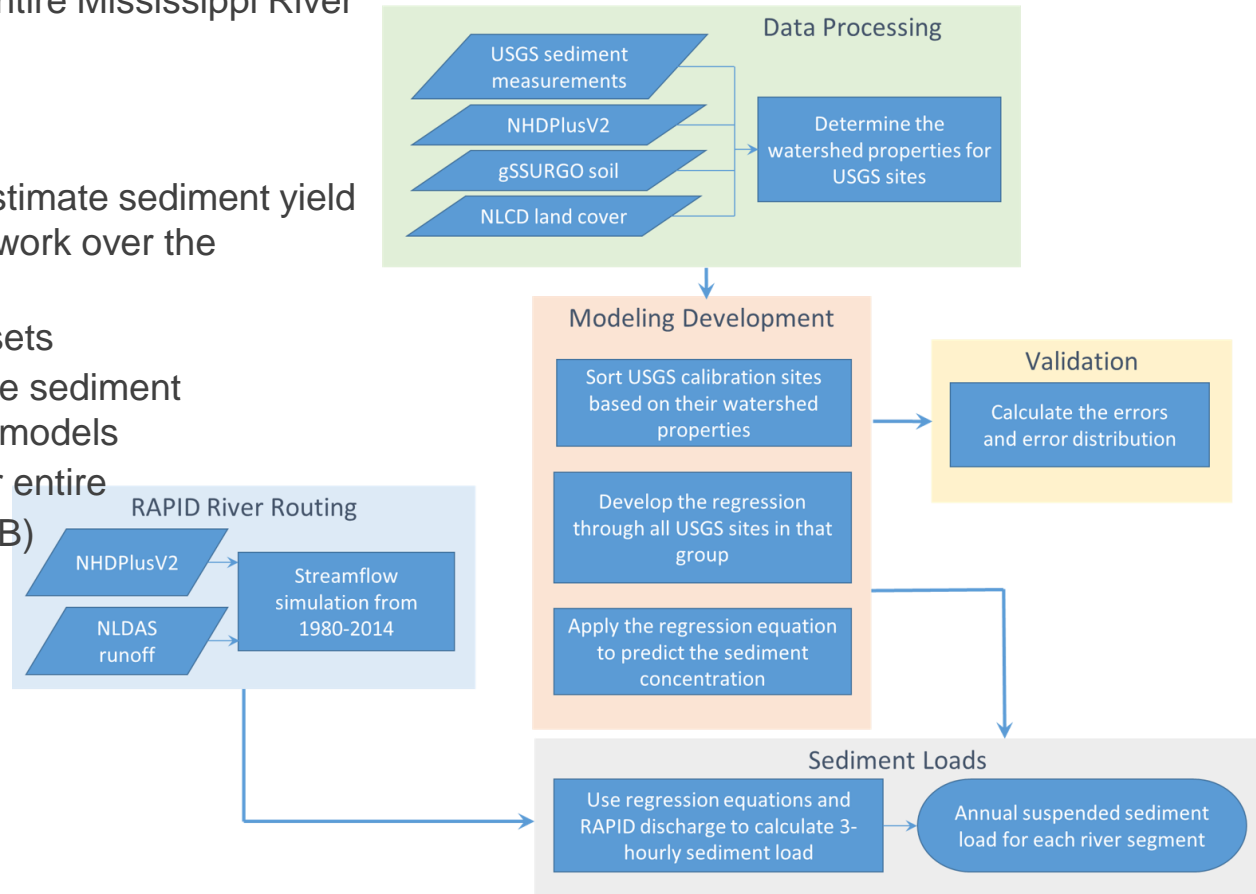
BLUF: 1-2 sentence purpose/summary

To simulate sediment yield for entire Mississippi River Basin (MRB)

Challenge/Objectives

- Develop the framework to estimate sediment yield in a high-resolution river network over the continental scale
- Apply publicly national datasets
- Validate results with available sediment measurements and existing models
- To publish sediment yield for entire Mississippi River Basin (MRB)
- To develop online tool for RSM program

Approach



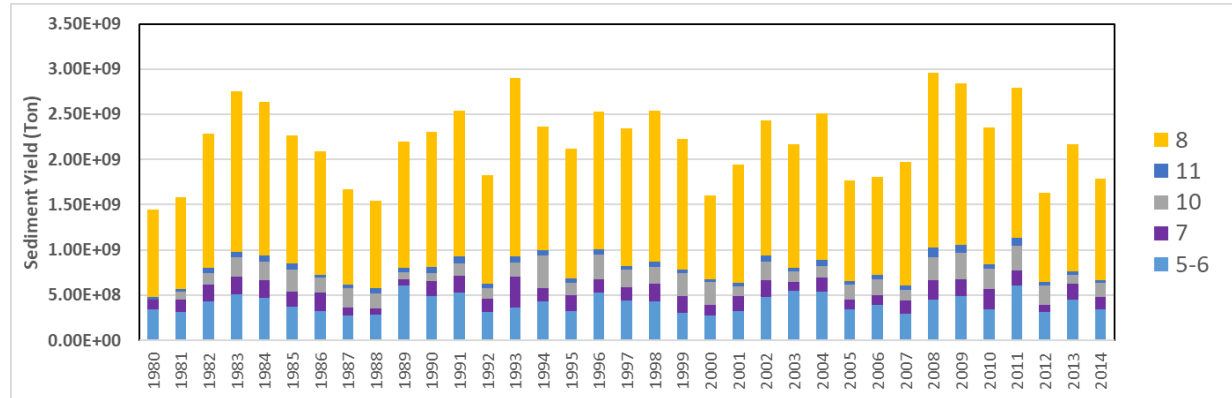


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District/Other USACE PDT Members

- USACE Districts : Louisville, Huntington, Nashville, Pittsburgh, Detroit
- MVD, LRD

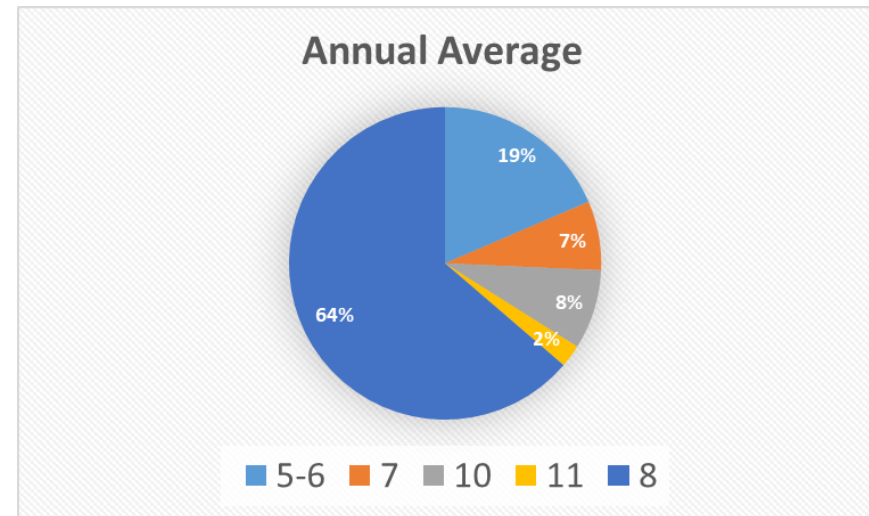


Stakeholders/Partners

USACE partners (EPA, USGS, Ohio River Valley Water Sanitation Commission (ORSANCO)), USACE divisions

Leveraging/Collaborative Opportunities

- Primary leveraging: Develop modeling framework based on the open source hydrologic model, Python scripts, and national-based publicly available datasets for estimation of sediment yields at the continental scale
- Collaborative opportunities: Results of this project can be shared/used by USACE districts





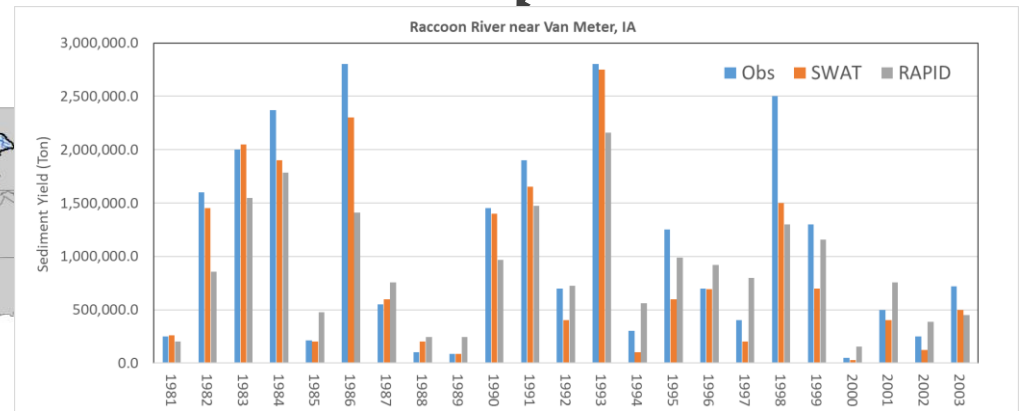
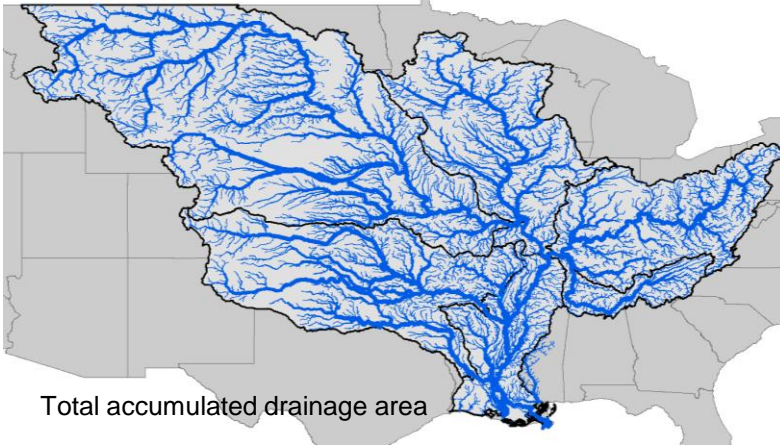
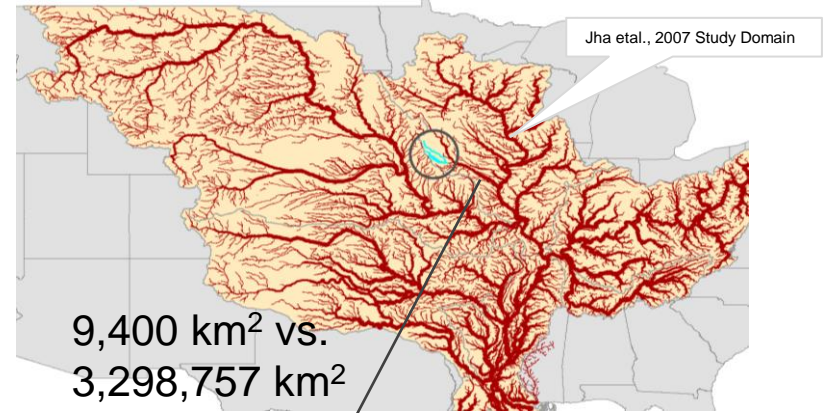
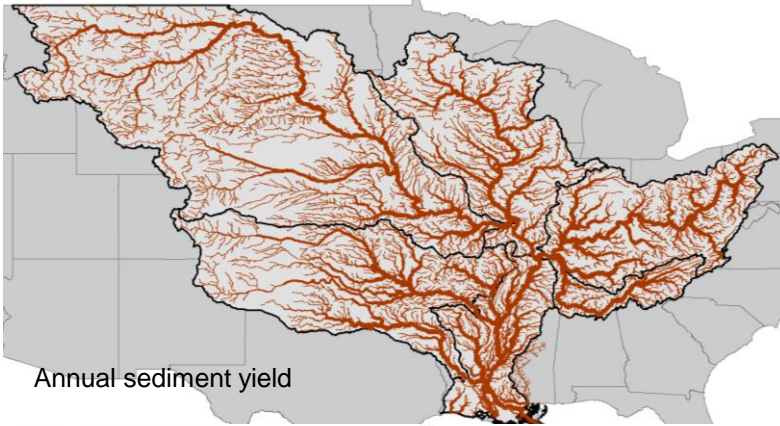
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Accomplishments/Deliverables

Final sediment results has been sent to Mobile District to build an online tool

- Data have be loaded into the Elastic environment, have not yet incorporated into the web tool at this point



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What challenges did you face to get your project to implementation and how did you move past them? If not yet implemented, what is your path forward to construction? (Give us your lessons learned that you think might benefit other Districts)

What is the best way to present results in such a large scale in the online web portal?

US Army Corps of Engineers, Spatial Data Branch Mobile District

Is there any correlations between soil type, land cover, drainage area and sediment yield estimation in different parts of the MRB?

Ongoing master's thesis, Natalie Memarsadeghi at UMD

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How is this project benefiting the USACE and Nation?

In Several areas

Technically:

- Develop framework to model sediment transport over continental scale river network
- To obtain quick answers in early phases of projects where a lower degree of accuracy is acceptable
- Implement and develop National Sediment Load dataset
- Estimate sediment load transport to reservoir storage
- Study the effect of climate change on the inland sediment load

Monetary:

- Save hundreds of thousands dollars to estimate sediment load for large river basin

Relationship building:

- Share data with USACE districts, Collaborate with academia, Collaborate with National Water Center (NWC)

Efficiency:

- Provide total sediment yield for management purposes