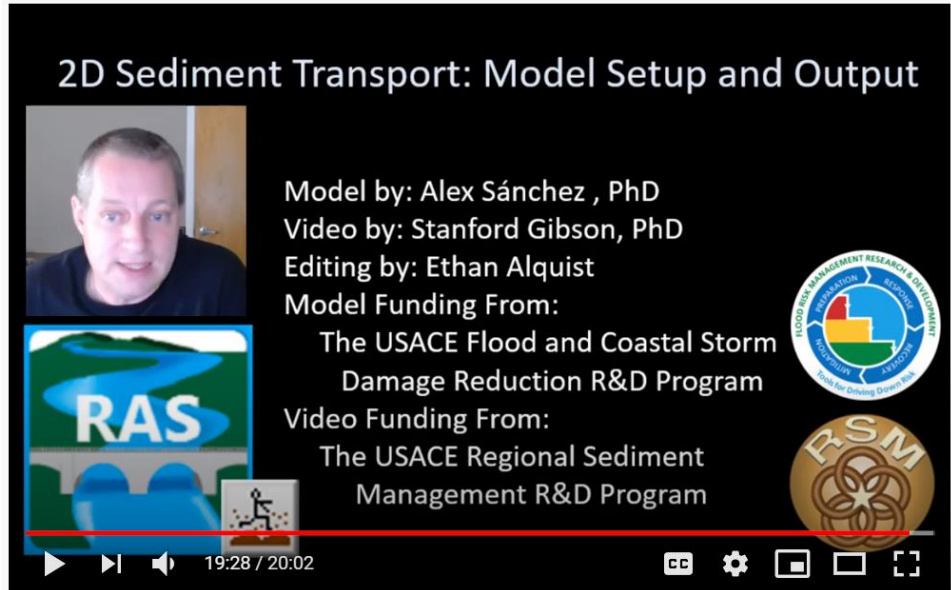




Description

Well-constructed sediment models can inform Regional Sediment Management alternatives but they are also vulnerable to several, common errors. Best practices have emerged to guide sediment modelers through these potential difficulties and common errors. However, the HEC-RAS user manual is over 1,000 pages and younger engineers (who increasingly populate our districts) tend to learn software from web videos. Formalizing best practices in a series of web videos will add disproportionate value to our technology transfer and will get best practices in the hands of a new generation of engineers.



HEC-RAS 2D Sediment Modeling

111 views • Dec 23, 2020

12 0 SHARE SAVE ...

Figure 1: Video Introducing the new 2D sediment capabilities in HEC-RAS.
(Stats are from 26 December, ~72 hours after publication).

Issue/Challenge To Address

Sediment modeling is hard. It is vulnerable to common failure modes. These common errors are well documented in user manuals, but user manuals are no longer the standard way to learn new software tools. Emerging generation of USACE sediment modelers turn to web videos to learn new modeling tools and best practices. This initiative will develop at least four sediment modeling videos to help establish best-practices for common RSM modeling applications.

Additionally, in the COVID environment, classical training approaches are difficult-to-impossible. This initiative invests training capacity in asynchronous training tools that can continue tech transfer during the mandatory/maximum telework orders, and continue to provide value for years to come.

Successes Lessons Learned

Analytics on sediment training videos HEC published in FY19 were very strong, including over 12,000 views. YouTube analytics reported that about 2/3rds of those views translated to 550 hours (~23 complete days) of actual viewing time.



Projected Benefits Cost Savings Value Added

One of RSM’s objectives is: “adding value to the nation with transferable products, shared knowledge and new or enhanced tools.” This work amplifies previous RSM benefits by delivering them in contextually appropriate forms that recognize the formats that our current customers actually prefer. Videos diversify our tech transfer portfolio.

Sediment modeling adds value *to projects* by “identifying and avoiding failure modes” and optimizing alternatives. Benefits associated with identifying and avoiding failure modes can be difficult to quantify, but are real (and significant). Many USACE projects from the 1970s and 80s failed to perform as expected because of sediment failure modes. We now model sediment to avoid those failure modes. However, if we do not develop best practices in an emerging generation of analysts, we may find our models do not actually avoid these failure modes.

Expected Products

This initiative will generate at least four RSM-themed, sediment modeling training videos:

1. Simulating Dredging in a HEC-RAS Sediment Model
2. Advanced Dredging Simulations with HEC-RAS
3. Using Operational Rules to Simulate Reservoir Sediment Management
4. A 4th topic selected based on user survey

Stakeholders/Users

We will survey USACE sediment modelers, both new and experienced as well as modelers at Universities and in the private sector. We will also solicit feedback (and receive plenty of unsolicited feedback) through direct stakeholder response (i.e. YouTube comments).

Leveraging Opportunities

This work leverages online training initiatives at HEC and HEC’s plans to integrate video throughout the online version of the [HEC-RAS sediment manual](#).

Points of Contact

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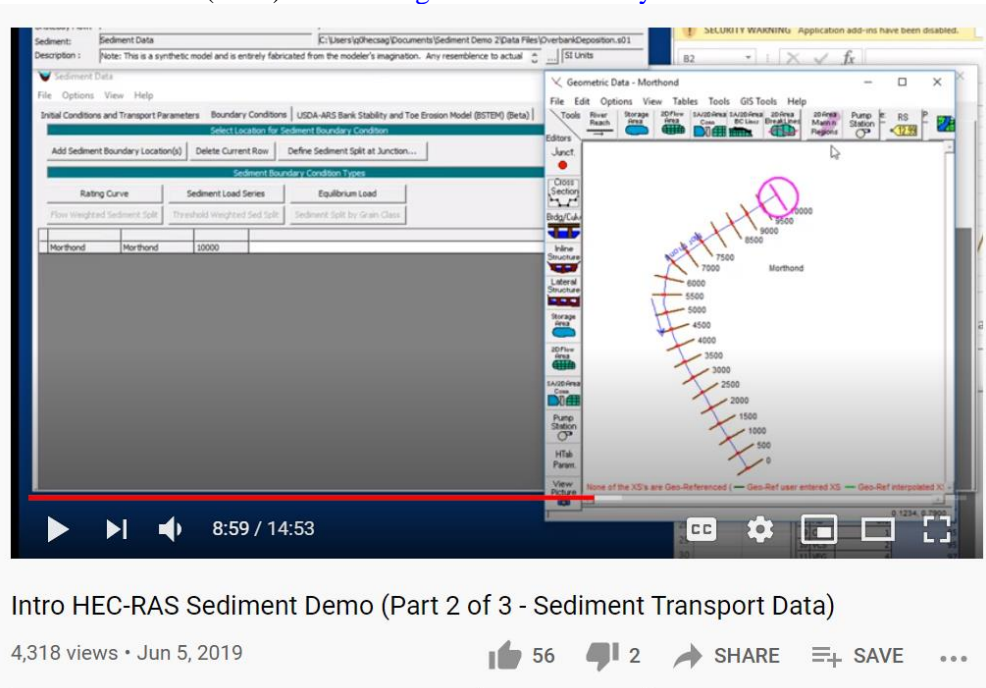


Figure 2: HEC-RAS sediment modeling training video with 18 months of engagement statistics.