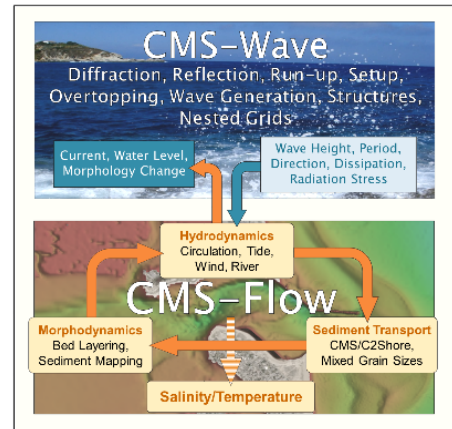




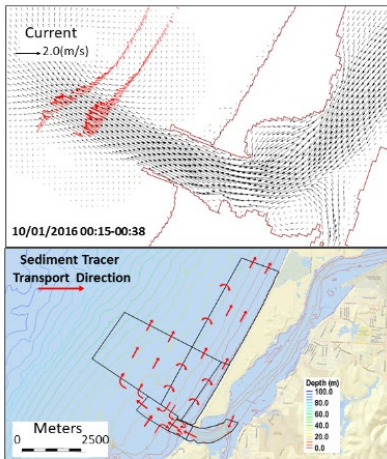
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CMS Development, Verification/Validation, Technology Transfer and User Support (FY21)

Background: The Coastal Modeling System (CMS) is the premier coastal numerical model and flagship product of the Coastal Inlets Research Program (CIRP). The CMS has been widely used by U.S. Army Engineer Districts as well as in academic and industrial fields for coastal engineering applications and research. As the model development continues, new processes and features are added both to the CMS models and the Surface-water Modeling System (SMS) graphical interface (GUI), testing and evaluation, and further verification and validation (V&V) of the CMS are required. A quality assurance and quality control process needs to be developed for the CMS tech transfer and user support.



CMS Framework



Model validation and sediment tracer simulation

Approach:

- Test and evaluate the CMS through the model verification and validation against analytical, laboratory, and field cases.
- Examine the explicit portion of the merged CMS-Flow code and modify where needed.
- Maintain the CIRP/CMS Wiki pages, which includes the update of the CMS verification and validation cases, documentation portal, glossary, user guides, and SMS GUI.
- Conduct CMS/SMS Webinars, training events, and CMS Workshops, present new development of the CMS/SMS features, and introduce CMS basics, theories, applications, and new versions of the SMS GUI.
- Maintain, update, and publish the CMS User Manual.

Technical Advancements: The verification and validation effort will provide a scientifically reliable and defensible technology and set an example for USACE-wide technology transfer and user support. Publication of the User Manual will ensure end-users to obtain the information on the latest CMS development and updating SMS GUI allows them to access new features without the hand-editing of input files.

Payoff: Apply and advance the state-of-the-art modeling technology for coastal inlets and engineering processes and reduce the cost of navigation, planning, design, and maintenance projects.

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