

Formulation and Implementation of the 3D Shallow Water Adaptive Hydraulics (AdH) Software

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The Adaptive Hydraulics (AdH) software suite is a state-of-the-art modeling system developed by the Coastal and Hydraulics and Information Technology Laboratories within the ERDC, USACE. AdH is an adaptive and implicit finite element suite containing models for 2D and 3D shallow water dynamics and salt, sediment and general transport. This presentation will focus on the formulation and implementation of the shallow water 3D baroclinic model within AdH. Formulations for the 3D shallow water linkage to SEDLIB, an ERDC sediment transport library will also be given. Recent hydrodynamic, salt and sediment validation results for Galveston and New York Harbor estuaries will be shown.