

PARALLEL COMPUTATIONAL METHODS AND SIMULATION FOR COASTAL AND HYDRAULIC APPLICATIONS USING THE PROTEUS TOOLKIT

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The Proteus toolkit evolved to support research on new models for coastal and hydraulic processes and improvements in numerical methods. The models considered include multiphase flow in porous media, shallow water flow, turbulent free surface flow, and flow-driven processes such as sediment and species transport. Python was used for implementing highlevel class hierarchies and prototyping new algorithms, while performance critical sections were optimized using compiled languages. In this paper we present an overview of the toolkit design, some examples, and open issues.