

MHPC Thesis: Shyfer Parallelization: An innovative task approach for coastal environment FEM software

Friday, February 26, 2016 11:55 AM (20 minutes)

SHYFEM is a finite element hydrodynamic code written by Georg Umgiesser in the 80s to model Venice lagoon for his master thesis; its development has been continued by CNR-ISMAR group. It is one of the few opensource codes for coastal areas that use a finite element approach. SHYFEM is a very important resource because it is focused on coastal areas and can be coupled it with other software in order to increase the simulation accuracy in such areas. Coastal areas are strategic because many human activities are here concentrated. This means that a software that produces an accurate representation in coastal areas may also advantage socio-economical activities. SHYFEM has been already and successfully applied to several coastal and lagoon environments; for example, it is used to produce tidal forecasts in the Venice lagoon and other lagoons in Mediterranean sea. It is also used in the Danube Delta and to estimate its effects on the Black Sea, and in Malta to produce coastal forecasts. The main goal of this work is to obtain a new version of SHYFEM that may be faster, parallel, capable to use efficiently modern hardware, and easily coupled with other software.

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