

INFLUENCE OF INTEGRATION SCHEMES OF SURFACE MOVEMENT IN NUMERICAL SIMULATION OF FREE SURFACE PROBLEMS

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Abstract. In this work, we analyze the influence of different time integration schemes for surface movement tracking inside an Arbitrary Lagrangian Eulerian approach to free surface problems. Based in a known unconditional instability present in the classical explicit scheme, we propose a little bit more sophisticated one based in Runge - Kutta method that's provide a conditional stable behavior and low diffusivity compared with a full implicit algorithm, for a pure transport problem. Also, we show that for a Navier Stokes fluid model under gravity waves condition; the influence of the free surface integration rule could be hidden by the numerical treatment of bulk fluid.