

Derivation and justification of shallow water models for surface gravity waves and stratified flows (session 1)

Monday, October 24, 2022 4:00 PM (1h 30m)

We shall discuss how standard models in oceanography can be rigorously justified as asymptotic models, here in the shallow water regime, focusing on the general strategy and mathematical tools which are involved. Most of the discussion will be devoted to the justification of the Saint-Venant system for homogeneous potential flows with a free surface. Yet going through this somewhat standard procedure will allow us to unveil, by contrast, how much is yet to be understood when we venture into non-hydrostatic models or heterogeneous flows.

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