The shoreline problem for the nonlinear shallow water and Green-Naghdi equations

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The nonlinear shallow water equations and the Green-Naghdi equations are the most commonly used models to describe coastal flows. A natural question is therefore to investigate their behavior at the shoreline, i.e. when the water depth vanishes. For the nonlinear shallow water equations, this problem is closely related to the vacuum problem for compressible Euler equations, recently solved by Jang-Masmoudi and Coutand-Shkoller. For the Green-Naghdi equation, the analysis is of a different nature due to the presence of linear and nonlinear dispersive terms. We will show in this talk how to address this problem.