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Comparison of Finite-Element and Finite-Difference Schemes. Part I: One-Dimensional Gravity Wave Motion

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ABSTRACT

The finite-element scheme requires more computational expense because it is time-implicit and because it requires a smaller time step than the finite-difference scheme. Simulations of normal mode oscillations reveal that for cases where the basin depth and the numerical grid are uniform, the finite-difference scheme is more accurate, but for cases where the depth or the grid varies, the finite-element scheme is more accurate.

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