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Grace Ann Kennedy* (grace.kennedy@asu.edu) and **Mohamed Moustouai**. *A numerical split-explicit method for integration of the Linear Shallow Water Equations.*

I will provide an analysis of a new split-explicit method that combines leapfrog with a fourth-order implicit time filter. The method uses a two time-step technique, where slow propagating modes are treated with the time filter, and fast modes are numerically solved by an implicit method. The slow modes are not updated within the small time-step loop to allow for faster integrations. A comparison to prior schemes and a stability analysis will be given along with an application to numerical weather forecast models. The implementation and application of this scheme will be compared to a case where an exact solution can be derived, the linear shallow water equations. (Received September 08, 2014)