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**Collin Kofroth\*** (ckofroth@asu.edu) and **Don Jones**. *Global Existence of Solutions to Shallow Water Equations with Alternative Frictional Operators.*

The shallow water equations (SWE) model flow in a geostrophically-balanced fluid. These equations are of particular interest for atmospheric scientists and oceanographers. In order to help justify the schemes used in these models, one must consider when/if solutions exist to the SWE, and if they exist, the length of time that they exist. Mathematically, they are often equipped with the Laplace operator (diffusion). However, since damping and bi-harmonic operators also carry relevance in application, we will discuss the global existence of solutions to the SWE using these operators under initial data constraints by the use of energy estimates. (Received September 19, 2016)