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Adam Larios*, 6502 Adobe Cir., Irvine, CA 92617, and **Edriss S Titi**, Dept. of Mathematics, UC Irvine - 340 Rowland Hall, Irvine, CA 92697. *A New Hydrodynamic Alpha-Model With Applications To Ocean Modeling.*

The equations which govern the motions of fluids are notoriously difficult to handle both mathematically and computationally. Understanding their solutions is widely considered to be one of the most challenging problems in all of mathematics and physics. Over the last decade, a class of equations called alpha-models have been developed to hopefully alleviate this situation; however, they introduced difficulties of their own. We will discuss a new alpha-model which overcomes some of the problems present in other alpha-models, and discuss its possible application to ocean modeling. (Received August 24, 2009)