1067-Z1-2401 **Adam Larios*** (adam.larios@gmail.com), 6502 Adobe Cir, Irvine, CA 92617, and **Edriss S Titi** (etiti@math.uci.edu), Dept. od Mathematics, University of California, Irvine, Irvine, CA 92697. *A Turbulence Model for Ideal Fluids: Analytical and Numerical Results.*

The equations which govern the motions of fluids are notoriously difficult to handle both mathematically and computationally. Recently, a new approach to these equations, known as the Voigt-regularization, has been investigated as both a numerical and analytical regularization for the 3D Navier-Stokes equations, the Euler equations, and related fluid models. This inviscid regularization is related to the alpha-models of turbulent flow; however, it overcomes many of the problems present in those models. I will discuss recent work on the Voigt-regularization, as well as a new criterion for the finite-time blow-up of the Euler equations based on their Voigt-regularization. Time permitting, I will discuss some numerical results, as well as applications of this technique to the Magnetohydrodynamic (MHD) equations and various equations of ocean dynamics. (Received September 23, 2010)