1077-35-2719 **Edriss S. Titi*** (etiti@math.uci.edu), Department of Mathematics, The University of California, Rowland Hall, Irvine, CA 92697-3875. *Navier-Stokes, Euler, and other relevant equations.*

In this talk I will survey the status of, and the most recent advances concerning, the questions of global regularity of solutions to the three-dimensional Navier-Stokes and Euler equations of incompressible fluids. Furthermore, I will also present recent global regularity results concerning certain three-dimensional geophysical flows, including the three-dimensional viscous "primitive equations" of oceanic and atmospheric dynamics. (Received September 22, 2011)