1079-35-84 **Kazuo Yamazaki*** (kyamazaki@math.okstate.edu), Department of Mathematics, Oklahoma State University, 401 Mathematical Sciences, Stillwater, OK 74078. *Recent results on global regularity issues of Navier-Stokes type models: a review.*

Global regularity issue of the Navier-Stokes system remains one of the most challenging outstanding open problems in analysis and partial differential equations. In the past decade, we have seen great progress in related models, in particular the classical Leray-alpha type and active scalars such as quasi-geostrophic equation. We will review some recent results on these equations: dissipation term replaced via fractional Laplacian, global regularity with smoothed velocity, well-posedness in Besov space, dissipation term only partially in different directions, anisotropic regularity criteria. We will also discuss new result concerning the global regularity of Navier-Stokes system with velocity filteration. (Received December 20, 2011)