1051-35-138 **Alexander Kiselev*** (kiselev@math.wisc.edu), Department of Mathematics, 480 Lincoln dr., UW-Madison, Madison, WI 53706, and **Fedor Nazarov**. *A variation on a theme of Caffarelli and Vasseur.*

Recently, using DiGiorgi-type techniques, Caffarelli and Vasseur showed that a certain class of weak solutions to the drift diffusion equation with initial data in L^2 gain Hölder continuity provided that the BMO norm of the drift velocity is bounded uniformly in time. We show a related result: a uniform bound on BMO norm of a smooth velocity implies uniform bound on the C^β norm of the solution for some $\beta > 0$. We use elementary tools involving control of Hölder norms using test functions. In particular, our approach offers a third proof of the global regularity for the critical surface quasi-geostrophic equation. (Received August 22, 2009)