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Peter Constantin and **Vlad Vicol*** (vvicol@math.princeton.edu), Fine Hall, Washington Road, Princeton, NJ 08544, and **Jiahong Wu**. *Analyticity of Lagrangian trajectories for well-posed inviscid incompressible fluid models.*

We discuss general incompressible inviscid models, including the Euler equations, the surface quasi-geostrophic equation, incompressible porous medium equation, and Boussinesq equations. All these models have classical unique solutions, at least for short time. We show that they have real analytic Lagrangian paths. More precisely, we show that as long as a solution of any of these equations is in a class of regularity that assures Holder continuous gradients of velocity, the corresponding Lagrangian paths are real analytic functions of time. The method of proof is conceptually straightforward and general, and we address the combinatorial issues head-on. (Received January 17, 2015)