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Alexey Cheskidov and **Mimi Dai*** (mdai@uic.edu). *Determining modes for the surface quasi-geostrophic equation.*

We introduce a determining wavenumber for the surface quasi-geostrophic (SQG) equation defined for each individual trajectory and then study its dependence on the force. While in the subcritical and critical cases this wavenumber has a uniform upper bound, it may blow up when the equation is supercritical. A bound on the determining wavenumber provides determining modes, which in some sense measure the number of degrees of freedom of the flow, or resolution needed to describe a solution to the SQG equation. (Received August 03, 2015)