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*Short-time existence of smooth solutions for semigeostrophic system with variable Coriolis coefficient.*

The semigeostrophic (SG) system is a model of large scale atmosphere/ocean flows. Previous results were obtained for the SG system with constant Coriolis parameter, by rewriting the problem in the "dual variables" and using Monge-Kantorovich mass transport techniques. A more physically realistic SG model has variable Coriolis parameter. Dual space cannot be defined in this case. We work directly in the original "physical" coordinates, and show existence of smooth solutions for short time. (Received July 30, 2015)