1086-35-186 **Katelyn J Grayshan*** (kgraysha@nd.edu), 255 Hurley Hall, Notre Dame, IN 46556. *Continuity Properties of Camassa–Holm Type Equations.*

We examine the well-posedness in Sobolev spaces of a class of weakly dispersive nonlinear evolution equations including the Camassa–Holm, Degasperis–Procesi, and Novikov equations. In particular, we consider the continuity properties of the data-to-solution map corresponding to each shallow water equation.

In Sobolev spaces H^s with $s > 3/2$, we show that each data-to-solution map is continuous from H^s to $C([0,T];H^s)$. We refine this by proving that each map is not uniformly continuous on bounded subsets of H^s; however, with a weaker choice of topology, the map is Hölder continuous. The proof of non-uniform continuity is based on approximate solutions and delicate commutator and multiplier estimates. For $s < 3/2$, we prove that each data-to-solution map is not (globally) uniformly continuous by constructing a sequence of peakon solutions whose distance initially goes to zero but later becomes large. (Received August 05, 2012)