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Fronts for the SQG Equation.

Temperature discontinuities in the Surface Quasi-Geostrophic (SQG) equations support surface waves. For weakly nonlinear surface waves on SQG fronts that are described as a graph, we derive a nonlocal and nonlinear equation with logarithmic dispersion. With the help of Weyl quantization, dispersive decay, and modified scattering, we prove global-in-time well-posedness of the initial value problem for the SQG front equation with sufficiently small and smooth initial data. (Received August 06, 2018)