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Long-time solvability for the 2D dispersive SQG equation with borderline regularity.

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In this paper, we study the long-time existence and uniqueness (solvability) for the initial value problem of the 2D inviscid dispersive SQG equation. First we obtain the local solvability with existence-time independent of the amplitude parameter. Then, assuming more regularity and using a blow-up criterion of BKM type and a space-time estimate of Strichartz type, we prove long-time solvability of solutions in Besov spaces for large amplitude parameter and arbitrary initial data. In comparison with previous results, we are able to consider borderline cases of the regularity and larger initial data classes.

This is a joint work with Vladimir Angulo-Castillo¹ and Lucas C. F. Ferreira².

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