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Stability of an inviscid point vortex pair near a boundary with sources and sinks ZACHARY PARVIN, PAUL KRUEGER, Southern Methodist University — The dynamical system representing the 2D movement of a point vortex pair in inviscid flow near a flat and curved body is investigated, with the proposed application of deflecting water particles in the atmosphere during flight to prevent icing. The specific boundary shapes considered are a flat surface perpendicular to the oncoming flow, a circle, and a circle with preceding fins aligned with the oncoming flow. The fixed points of the uncontrolled vortex system are found to be unstable, so steady sources and sinks are added on the boundary to stabilize the system. Certain strength and location combinations are screened for feasibility in the anticipated application and tested numerically in order to find and maximize the size of the stable region within the flow.

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