

Abstract Submitted
for the DFD15 Meeting of
The American Physical Society

Wakes from submerged obstacles in an open channel flow GEORFFREY B. SMITH, GEORGE MARMORINO, Naval Research Laboratory, CHARLES DONG, UCLA, W. D. MILLER, RICHARD MIED, Naval Research Laboratory — Wakes from several submerged obstacles are examined via airborne remote sensing. The primary focus will be bathymetric features in the tidal Potomac river south of Washington, DC, but others may be included as well. In the Potomac the water depth is nominally 10 m with an obstacle height of 8 m, or 80% of the depth. Infrared imagery of the water surface reveals thermal structure suitable both for interpretation of the coherent structures and for estimating surface currents. A novel image processing technique is used to generate two independent scenes with a known time offset from a single overpass from the infrared imagery, suitable for velocity estimation. Color imagery of the suspended sediment also shows suitable texture. Both the 'mountain wave' regime and a traditional turbulent wake are observed, depending on flow conditions. Results are validated with *in-situ* ADCP transects. A computational model is used to further interpret the results.

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Date submitted: 31 Jul 2015

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