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Daniel Ferguson* (fergus23@seattleu.edu), **Katie Oliveras** (oliveras@seattleu.edu) and **Vishal Vasan** (vishal.vasan@icts.res.in). *A New Perspective of Steady Flow over Bathymetry.*

By modifying the work done in [1] we derive a relationship between the bathymetry, free-surface, and pressure at the bottom of a steady fluid flow. For example, given the shape of the bathymetry we recover both the pressure along the bathymetry as well as the shape of the free surface. We also derive an asymptotic relationship between the Fourier coefficients of the free surface and the Fourier coefficients of bathymetry. Recent work has been done to consider the effect of a corrective term to the ratio of the height to the period of the free surface. The models generated via this technique are contrasted with other models of steady flow over bathymetry namely the hydrostatic approximation model.

References

[1] K. L. Oliveras, V. Vasan, B. Deconinck, and D. Henderson, Recovering the Water-Wave Profile from Pressure Measurements, *SIAM Journal on Applied Mathematics*, **72:3** (2012), 897-918.

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