Double Trouble: Internal Tide Attractors in Double Ridge Systems[1] PAULA ECHEVERRI, MIT, TITE YOKOSSI, Ecole des Mines, NEIL BALMFORTH, UBC, THOMAS PEACOCK, MIT — A theoretical and experimental study is presented of the generation of internal tides by barotropic tidal flow over topography in the shape of a double ridge. A one-dimensional map is constructed that allows one to track the ray paths of waves reflecting between the ocean surface and topography, and this device is used to expedite the search for internal tide attractors between the ridges, these being attracting, closed ray paths. Calculations are then presented for the steady state scattering of internal tides from the barotropic tide. When attractors are present, these computations break down unless dissipation is also incorporated into the problem, in which case there is significantly enhanced energy conversion in the presence of attractors. We conclude with a direct comparison between theoretical predictions and the results of a laboratory experiment, as well as possible applications to geophysical locations.

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