Abstract Submitted
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A propagation model for internal waves generated by a localized source moving in an ocean thermocline JAMES ROTTMAN[1], Science Applications International Corporation, DAVE BROUTMAN, Computational Physics, Inc. — We develop a ray method for computing the propagation of internal waves generated by a localized source moving in an ocean thermocline. Previous work on this problem has involved an eigenfunction expansion. Eigenfunctions are often preferred over rays for regions such as the thermocline that have many ray reflections. Here we show that a ray method has some computational advantages over eigenfunctions, provided the rays are traced in Fourier space. The ray method does not require an eigenfunction solver and does not have the singularites that appear in the eigenfunction expansion. It does, however, require the correction of caustic singularities. For the thermocline problem, each ray has two caustics, one at each of the two the turning points that vertically trap the ray. Results for various buoyancy-frequency profiles will be presented and compared with previous computational techniques.

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