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Reflection of Internal Gravity Waves by small Density Variations

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ABSTRACT

The propagation of small-amplitude internal gravity waves through a finite layer of varying Brunt-Väisälä frequency is analyzed. A two-scale analysis is used and it is shown that the amount of reflection a wave undergoes is related to the correlation coefficient between the first harmonic of the wave and the variations of the medium. Therefore, with proper care one can extend the usual WKB technique to account for reflection.

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