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The Effects of a Variable Coriolis Parameter, Coastline Curvature and Variable Bottom Topography on Continental Shelf Waves

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ABSTRACT

The effects of a variable Coriolis parameter, coastline curvature and variable bottom topography on continental shelf waves are examined for the case when the variations occur on a length scale much greater than the shelf width, which is assumed to be an appropriate length scale for the waves. Explicit formulas are derived for the change in amplitude and phase speed. Particularly simple formulas are derived for Kelvin waves and long, nondivergent shelf waves.

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