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Tsunamis induced by round-shaped seabed deformations

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In this study, tsunamis which are induced by round-shaped seabed deformations and then propagate outwards in an axisymmetric form are analytically analyzed. The derivation of such an asymmetric wave is firstly reviewed, and followed by an introduction of a novel mathematical approach which is applied to decompose the Bessel function appearing in the wave solution. This approach not only provides an easier way to perform the calculation, but also addresses some physical understanding of axisymmetric tsunamis. A simplest scenario is simulated by the derived solution to observe the characteristics in the propagation phase. The major finding addresses that the first wave is not always the biggest one.

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