



Internal Solitary Wave Generation: Effects of a Mean Background Current

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Tide-topography interactions are the source of most of the worlds internal solitary waves. Here we use two-dimensional numerical simulations to investigate the generation of these waves by tide-topography interactions with a symmetric sill in the presence of a surface trapped background current. This introduces asymmetries in the upstream and downstream energy fluxes and in the form of the solitary waves, with broader waves forming in the downstream direction. In extreme cases internal solitary waves in the downstream direction can be waves of elevation while internal solitary waves in the upstream direction are waves of depression.