



## The Coastal Wave Response to Terrain and Nonlinear Factor

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The wave response to the effect of terrain over the coastal region is explored in the linear context using an idealized linear model and associated diagnostic computations. The calculation discusses three effects of the terrain on the disturbance flow, i.e., the additional interior wave generation due to the elevated heating gradients along the terrain slopes; boundary wave generation due to the disturbance flow passing over the sloped boundary; and wave-wave interactions between the linear sea-breeze response and the background mountain wave. These results are then extended to the nonlinear problem using idealized nonlinear model runs. The nonlinear results show that fronts appear with increasing heating amplitude. The character of the land-sea breeze front is examined by varying the heating amplitude and the plateau height.