

**Appendix to “Interaction between two quasi-geostrophic vortices
of unequal potential vorticity.”**

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This appendix provides figures for the marginal stability distance between the centroids of two vortices $\delta_{3D} = |\mathbf{X}_1 - \mathbf{X}_2|$. A subset of these stability results are described in §3.2 of the published paper.

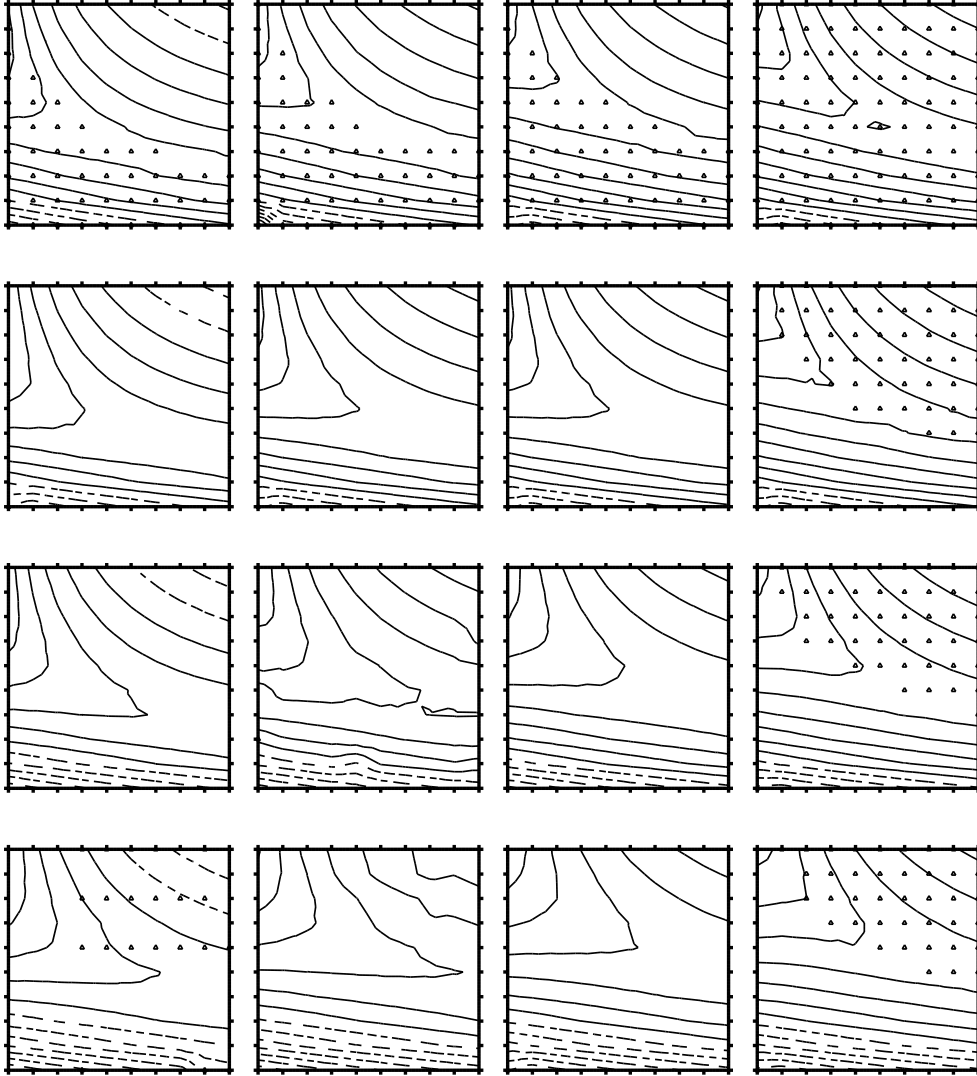


Figure 1: Iso-levels of the vortex separation δ_{3D} at the margin of stability for $\Delta z = 0.005(h_1 + h_2)$. The x -axis of each graph corresponds to the vortex volume ratio for $0.1 < V_1/V_2 < 1.0$, while the y -axis corresponds to the potential vorticity ratio for $0.4 < q_1/q_2 < 2.2$. Graphs along the same row correspond to cases with a fixed aspect ratio h_1/r_1 , with $h_1/r_1 = 1.2$ at the top and $h_1/r_1 = 0.6$ at the bottom. Each column of graphs corresponds to a fixed aspect ratio h_2/r_2 , with $h_2/r_2 = 0.6$ at the left and $h_2/r_2 = 1.2$ at the right. The aspect ratios differ by 0.2 between two adjacent columns. The first solid contour is for $\delta_{3D} = 2.605$. The contour interval is 0.01. The small triangle marks point where data had to be interpolated.

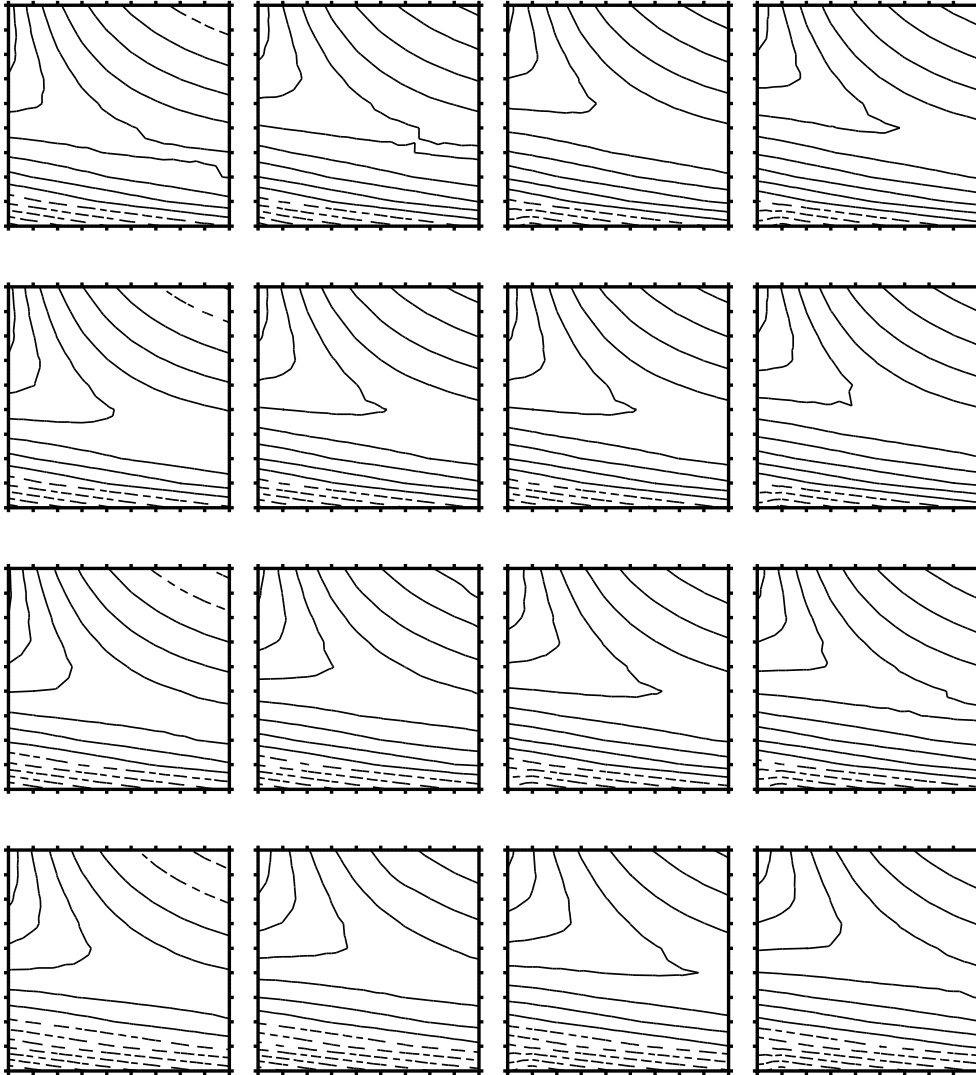


Figure 2: Same as in previous figure for $\Delta z = 0.25(h_1 + h_2)$. The first solid contour is for $\delta_{3D} = 2.645$.

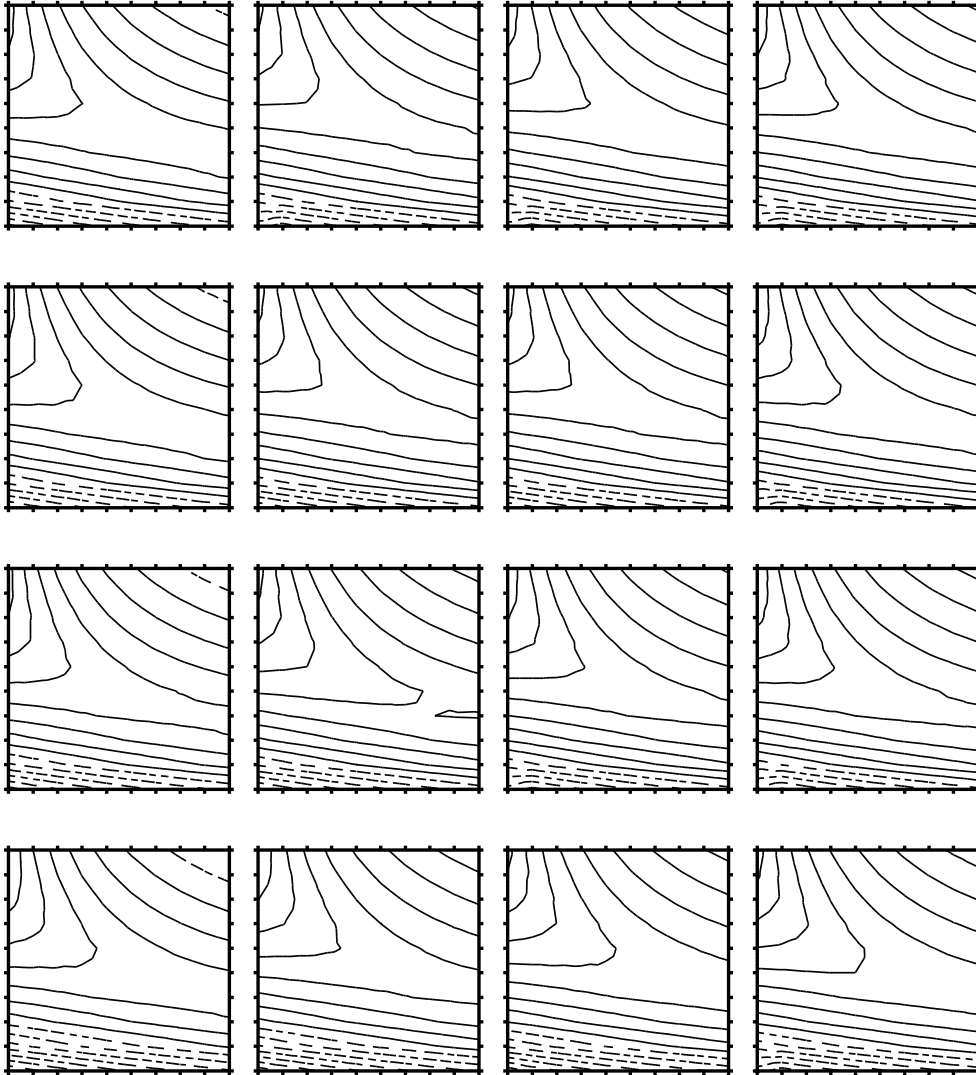


Figure 3: Same as in previous figure for $\Delta z = 0.5(h_1 + h_2)$. The first solid contour is for $\delta_{3D} = 2.695$.

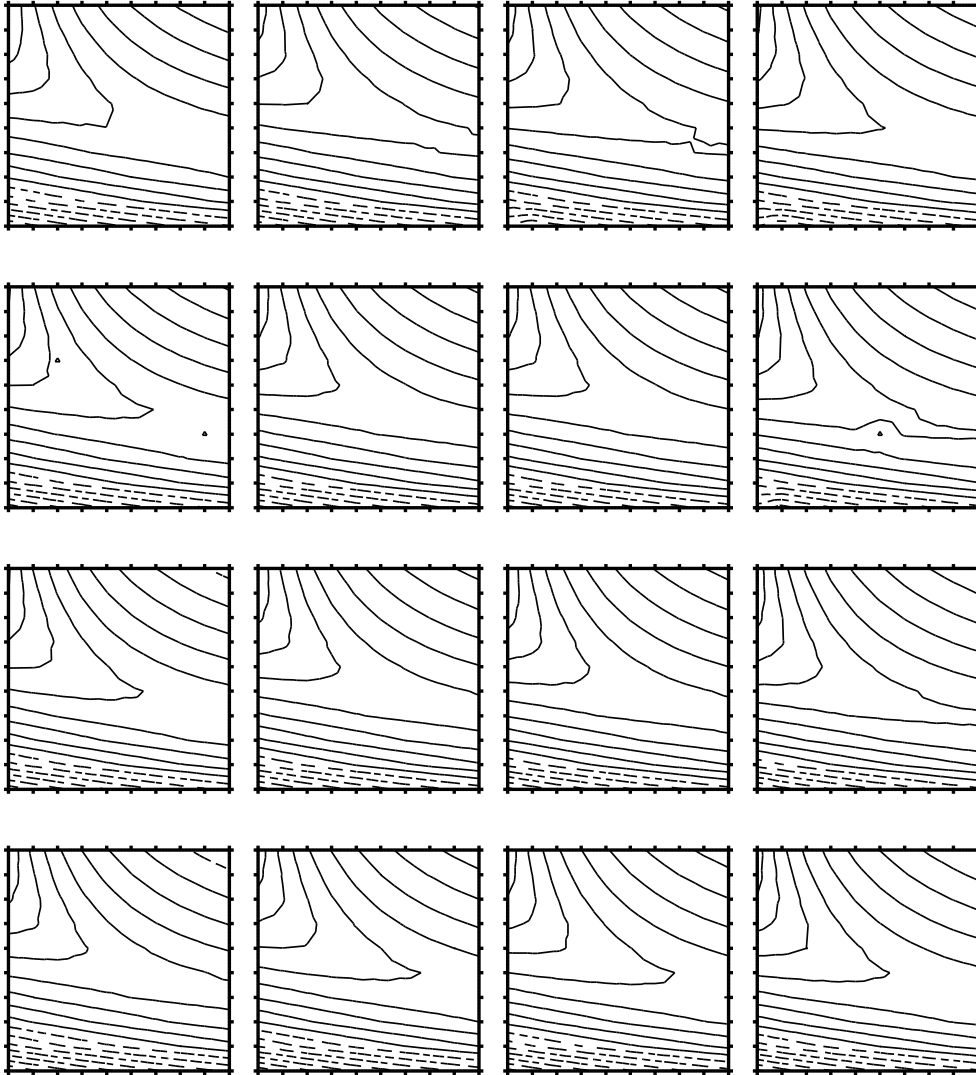


Figure 4: Same as in previous figure for $\Delta z = 0.5(h_1 + h_2)$. The first solid contour is for $\delta_{3D} = 2.685$.