



## Abstract View

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## A Diagnostic Calculation of the General Circulation in the South Atlantic Bight

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### ABSTRACT

A diagnostic calculation that involves integration of the geostrophic equations for total transport along contours of constant planetary potential vorticity ( $f/H$ ) is described and applied to the South Atlantic Bight. The total transport in the entire region is determined by specifying transport or bottom velocity on one transect intersecting the  $f/H$  contours. A new method of computing the joint effect of baroclinicity and bottom topography (JeBar) in the vorticity equation permits the application of the model to oceanic regions with large bottom-topographic variations. Local wind-stress curl and bottom frictional torque have been ignored in the current version of the model; their effect is estimated to be small seaward of the shelf break. JeBar terms are the dominant factor in the vorticity balance. The results indicate realistic climatological Gulf Stream behavior in the Bight and are not overly sensitive to the conditions prescribed on the southern transect east of the Bahamas. The southward flow from the, Middle Atlantic Bight is a substantial contribution to the Gulf Stream transport off Cape Hatteras.

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