



# 学术报告

ACADEMIC LECTURE

题目: **The generation of internal tides at a shelf edge**

时间: **2014年5月10日上午10:00-11:30**

地点: **玉泉校区信电楼215会议室**

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To quantify dynamical aspects of internal tide generation at the Middle Atlantic Bight shelf break and shelfbreak canyons, this study employs idealized ocean models forced by monochromatic barotropic tidal currents at the offshore boundary. A barotropic to baroclinic energy conversion rate near  $200 \text{ W m}^{-1}$  is found at an along-shelf uniform shelf break. The generation of superharmonic and subharmonic (evanescent) internal waves at the shelfbreak and the role of momentum advection in controlling the efficiency of barotropic to baroclinic energy conversion are investigated. Within idealized symmetrical transcritical canyons, modeled barotropic to baroclinic energy conversion rates are typically asymmetrical. The resulting onshore-propagating internal waves are strongest along beams in the horizontal plane, with the stronger beam lying on the side with higher energy conversion rate. Analysis suggests that they are caused by the phase variation in the spatially distributed internal-tide sources, governed by variations in the orientation of the bathymetry gradient vector.