

Special PHYSICAL MATHEMATICS SEMINAR

WAVE-DRIVEN VORTEX DYNAMICS IN THE NEAR-SHORE REGION

ANDREA BARREIRO

Courant Institute of Mathematical Sciences
New York University

ABSTRACT:

A longstanding problem in coastal oceanography is the prediction of the alongshore currents that are forced by breaking waves in the surf zone. Traditional models based on a 1D momentum balance for the surf zone predict that current should be strongest in regions of the strongest wave breaking. However, current on a beach with a sandbar is sometimes observed to have a maximum in the "trough" of the bar, far from the region of maximum wave breaking.

We propose a mechanism for the development of this current based on vortex dynamics and show, based on idealized studies, that it can explain the broad features of the observed current.

TUESDAY, FEBRUARY 21, 2006
2:30 PM
Building 1, Room 277

Refreshments at 3:30 PM outside Room 1-277.



Massachusetts Institute of Technology
Department of Mathematics
Cambridge, MA 02139