

Abstract Submitted  
for the DFD10 Meeting of  
The American Physical Society

**Laboratory experiments on internal wave reflection and absorption at a simulated oceanic pycnocline**<sup>1</sup> SCOTT WUNSCH, ALAN BRANDT, The Johns Hopkins University — Laboratory experiments have been performed to investigate the reflection of an internal wave beam with a “pycnocline” layer situated below an unstratified layer in order to simulate observed oceanic processes. An oscillating cylinder was used to generate wave beams in the well-known “St. Andrew’s Cross” pattern that interacted with the pycnocline. The internal waves were observed and the incident and reflected amplitudes measured using the synthetic schlieren technique. In virtually all instances, near-perfect reflection or near-complete absorption at the pycnocline was observed, depending on the value of the pycnocline density gradient. The data indicate the existence of a transition from reflection to absorption that is a function of the ratio of the maximum BV frequency in the pycnocline to the BV frequency of the stratified layer.

<sup>1</sup>Supported by the Office of Naval Research (N00014-08-1-0290), Dr. Ron Joslin.

Scott Wunsch  
The Johns Hopkins University

Date submitted: 03 Aug 2010

Electronic form version 1.4