

Abstract Submitted  
for the DFD12 Meeting of  
The American Physical Society

**Effect of approach flow on the bluff body wake behind a ship superstructure**<sup>1</sup> CODY BROWNELL, LUKSA LUZNIK, HYUNG SUK KANG, MURRAY SNYDER, United States Naval Academy — Air velocity measurements are obtained in situ aboard a 108 ft naval training vessel operating in the Chesapeake Bay. Three-component sonic anemometers are placed on a vertical mast at the bow of the ship, for approach flow measurement, and at numerous locations above a flight deck at the stern of the ship. The mean flow structure resembles that of a 3D backward-facing step, with a recirculation region covering much of the flight deck. The flow at the bow, mostly undisturbed by the presence of the ship, is characterized in the region up to 11-m above the sea surface. The effects of approach angle and atmospheric stability on the wake turbulence is discussed.

<sup>1</sup>Supported by ONR

Cody Brownell  
United States Naval Academy

Date submitted: 02 Aug 2012

Electronic form version 1.4