

**Date:** December 3, 2004

**Time:** 10:30 AM

**Location:** Olin 305

**Speaker:** Dr. Fabrice Veron  
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**Title:** "Wind Generated Mixing and Turbulence at the Surface of Natural Water Bodies"

### **Abstract**

The upper layers of the ocean and other large natural water bodies play a key role in the surface fluxes of momentum, gas, heat and mass. Wind generates waves, currents and turbulence, and with the globally averaged wind speed in the range of 6-8 m/s, much of the time the air-sea interface is in a low-wind regime. It is then clear that the stability, transition and subsequent mixing at the surface of the ocean and other natural water bodies are of great importance for many processes, from local to global, and play key roles in the multiple surface fluxes.

We present the results from laboratory and field experiments on the stability of wind-driven water surfaces, turbulence and the effects on the heat and gas fluxes. The problem is rendered all the more difficult and interesting, as there are couplings between turbulence, currents and surface waves. It consequently appears that the heat flux, for example, is modulated by the surface wave field. The results are discussed in the context of ocean-atmosphere interactions and compared with available theoretical results.