Weekly CEAFM Seminar: Fall 2014

JOHNS HOPKINS
Center for Environmental
& Applied Fluid Mechanics

Date: **Friday, November 21, 2014**

Time: 11:00 AM

Location: Gilman Hall # 132

Speaker: **Prof. Anand Gnanadesikan** (Earth and Planetary Sciences at JHU)

Title: ***"Diffusion, Dispersion and Confusion: Lateral Mixing in the Ocean"***

Abstract

Because the ocean is highly stratified and weakly forced, the dominant direction of mixing is along density surfaces. The rate at which this stirring occurs, as parameterized by a turbulent lateral mixing coefficient A_h is poorly constrained. Many theories and numerical models assume A_h is large in strongly unstable boundary currents and smaller in the interior of tropical gyres, but observations in the gyres show much larger values. This talk will review recent work that shows that the observational methods may be biased high, but the theoretical methods are likely biased low. It then evaluates the importance of A_h for global climate and biogeochemical cycling, examining the impact of using values more in line with observations for the gyre interiors.

Bio

Anand Gnanadesikan is an Associate Professor in the Department of Earth and Planetary Sciences at Johns Hopkins University. His research centers on using comprehensive Earth System Models to understand how the ocean interacts with the atmosphere, biosphere and cryosphere. Before joining Johns Hopkins in 2011, he spent 15 years working at the NOAA Geophysical Fluid Dynamics Laboratory and Atmospheric and Oceanic Sciences Program at Princeton.