

# Weekly CEA FM Seminar: Spring 2016



JOHNS HOPKINS  
Center for Environmental  
& Applied Fluid Mechanics

Date: **Friday, April 8, 2016**  
Time: 11:00 AM  
Location: Gilman Hall # 50  
Speaker: **Prof. Grae Worster** (University of Cambridge - DAMPT)  
Title: ***"Collapsing Ice Sheets"***

## Abstract

Most of the West Antarctic Ice Sheet (WAIS) sits on bedrock that is one to two kilometres below sea level. Its weight causes the ice sheet to flow outwards towards the ocean, thinning as it goes until it is thin enough to float on the ocean as an ice shelf before it ultimately breaks up into ice bergs. Some areas of the WAIS have been accelerating in recent years, as the point at which the sheet begins to float recedes, and this contributes to the rise in global sea level. I shall describe some recent analogue laboratory experiments and associated theoretical models that describe and quantify the fundamental dynamical controls on ice sheets that terminate in the ocean, focusing particularly on the role that floating ice shelves play in buttressing the ice sheet against collapse.

## Bio

Grae Worster completed his PhD at the University of Cambridge, UK in 1983, has been an Instructor in Applied Mathematics at MIT and an Assistant Professor in Applied Mathematics and Chemical Engineering at Northwestern University. He is currently Professor of Fluid Dynamics in the Department of Applied Mathematics and Theoretical Physics, University of Cambridge, and is Editor of the Journal of Fluid Mechanics. His research focuses on buoyancy-driven flows and phase change, particularly in situations where these two phenomena interact. In the context of climate change, he has combined mathematical modelling and laboratory experiments to understand and quantify the mechanisms affecting brine drainage from sea ice, the flow and stability of marine ice sheets and fundamentals of frost heave.