



# OIST SEMINAR

Date: February 3rd, 2016 (Wed)

Time: 2:00 pm – 3:00 pm

Venue: C016 (Lab1, Level C)

**Speaker: Prof. Bruce R. Sutherland**

Director, Institute for Geophysical Research

Depts. Physics / Earth & Atmospheric Sciences

University of Alberta

## Sedimentation and Resuspension from River Plumes



Image courtesy of the Open University

### Abstract

Through laboratory experiments, the transport, settling and resuspension of sediments in the ocean are examined. Salt water is shown to enhance flocculation of clay and hence their settling rate. In studies modelling river plumes, the transport down a slope of particles from hyperpycnal currents (also known as turbidity currents or, more commonly, as underwater avalanches) is shown to separate from the bottom in a stratified fluid, whose density increases with depth. Even for hypopycnal currents (whose particle density is so small that they ride over the surface), experiments show that the particles that eventually settle through uniform-density fluid toward a sloping bottom form a turbidity current. Some of the particles from this current eventually rise again. After settling, shoaling internal solitary wave can resuspend particles and carry them back up upslope. These results suggest that the dynamics of internal waves and density currents play an important role in the ultimate deposition of particles.

**Contact information: Fluid Mechanics Unit**

Kaori Egashira: (Tel) 098-966-8683 (e-mail) e-kaori@oist.jp