



The Hong Kong University of Science and Technology

Department of Mathematics

Seminar on Applied Mathematics

**Coastal upwelling by wind-driven forcing in Jervis Bay,
New South Wales: A numerical study for 2011**

by

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Abstract

The Princeton Ocean Model (POM) was used to investigate an upwelling event in Jervis Bay, New South Wales, with varying wind directions and strengths; the POM was adopted with a downscaling approach for the regional ocean model -one-way nested to a global ocean model. The upwelling event was detected from the observed wind data and satellite sea surface temperature images. The behavior of the bottom water that intruded into the bay varied with different wind directions and strengths. Upwelling-favorable wind directions for flushing efficiency within the bay were ranked in the following order: N (0°; northerly) > NNE (30°; northeasterly) > NW (315°; northwesterly) > NE (45°; northeasterly) > ENE (60°; northeasterly). It was determined that wind-driven downwelling within the bay played a key role in blocking the intrusion of the cold water upwelled through the bay entrance. The study also indicated that a northerly wind stress > 0.3 N m⁻² was required for the cold water to reach the northern innermost bay.

Date: Thursday, 20 December 2018
Time: 2:30p.m. – 4:00p.m.
**Venue: Room 5510, Academic Building,
(Lifts 25-26), HKUST**

All are welcome!