

For Favour of posting



**Amendment**

**The Hong Kong University of Science and Technology**

**Department of Mathematics**

**Seminar on Applied Mathematics**

**A peculiar lens-shaped structure observed in the South  
China Sea**

*by*

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**Abstract**

Lens-shaped structures within thermocline potentially play a significant role in subsurface transport of mass, heat, and salt in the global ocean. Whilst such structures have been documented in many oceanic regions, none has been observed in the China Seas. This study reports on observations of a lens-shaped structure within thermocline in the southwestern South China Sea in September 2007. This structure had a maximum thickness of approximately 60 m and a horizontal extent exceeding 220 km. This lens was peculiar in that its size is larger than most similar structures documented in the literature. The lens core was characterized by well-mixed water with higher temperature ( $\sim 28.8^\circ\text{C}$ ), lower salinity ( $\sim 33.3$ ) and lower potential vorticity (PV) compared to the surrounding waters. Based on an ocean reanalysis, possible generation mechanism of the lens is explored by examining the evolution of surface and subsurface thermohaline properties, and an analysis of vertical PV flux. The lens was likely generated by a mixture of the local mixed-layer water and the water from the coastal jet separation site.

***Date: Wednesday, 13 Sept 2017***

***Time: 11:00a.m. – 12:00noon (revised)***

***Venue: Room 3494, Academic Building  
(near Lifts 25 & 26), HKUST***

***All are welcome!***