

Thermohaline conditions and circulation in the gulf of Thailand

during the northeast monsoon

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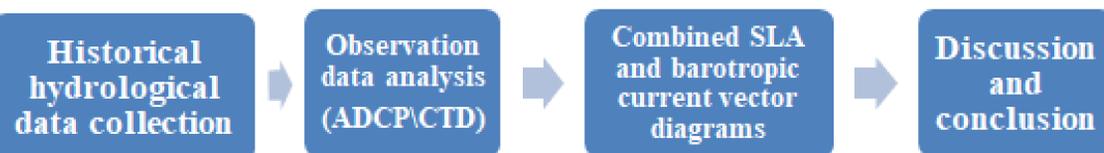
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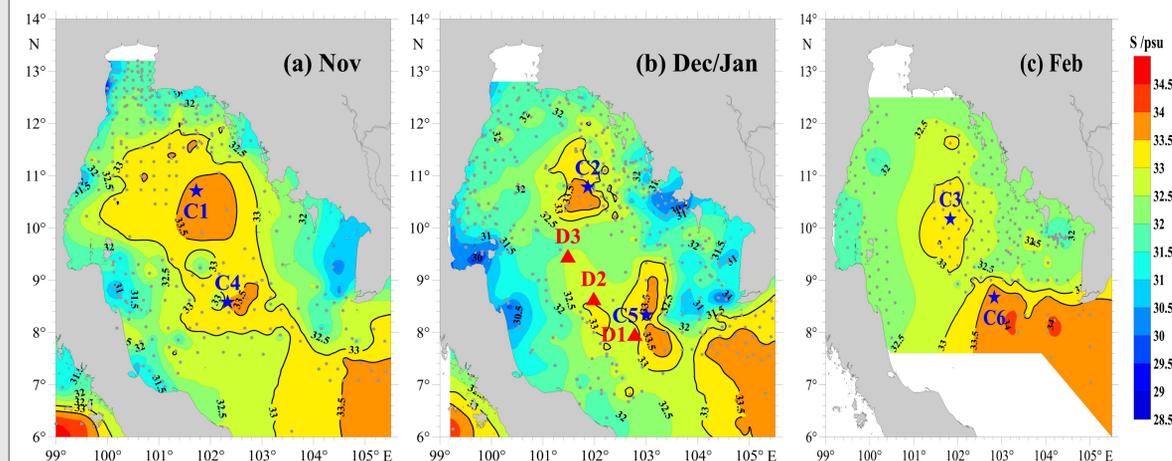
Introduction

- During the northeast monsoon (NEM) period, whether the water column stratification exists in the GoT, and if so, under what conditions?
- Previous understandings are different for the seasonal circulation patterns in the winter GoT, and so far, there is no current profile data from a long-term mooring station to verify the numerical simulation results.
- By means of two field surveys including a long-term ADCP mooring station and three transects of CTD profiles in December 2018, present study analyzes the monthly mean conditions of thermohaline structures and circulation in the GoT during the NEM period.

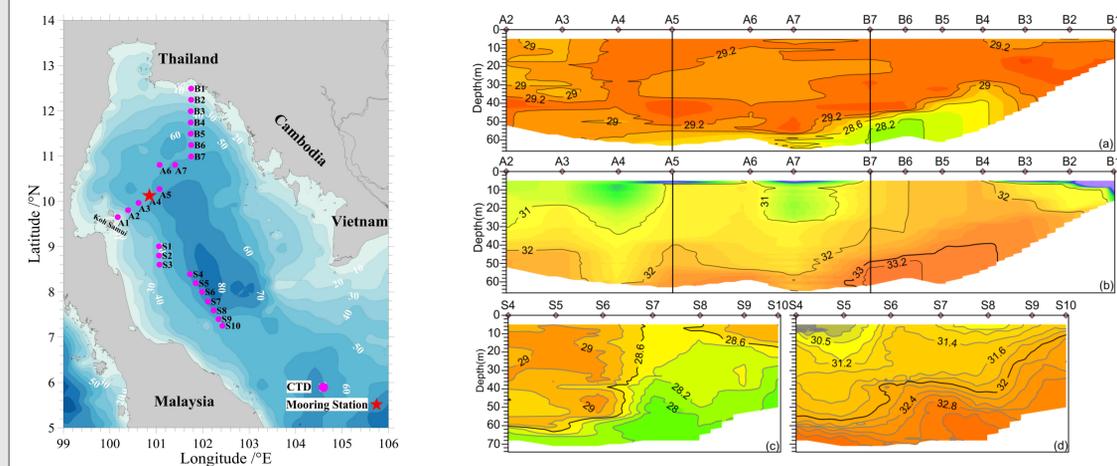
Data and Methods



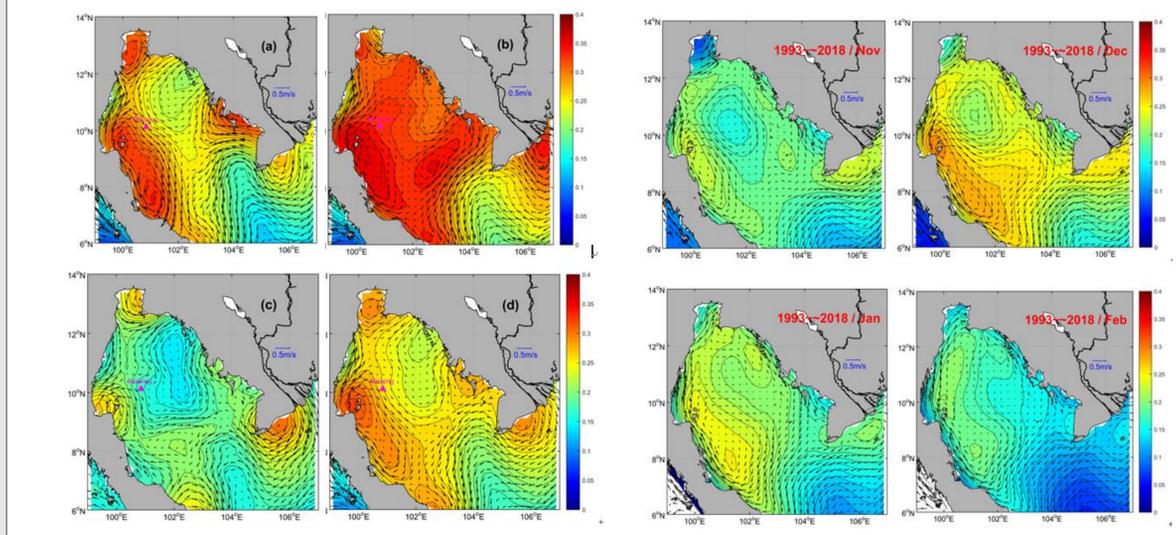
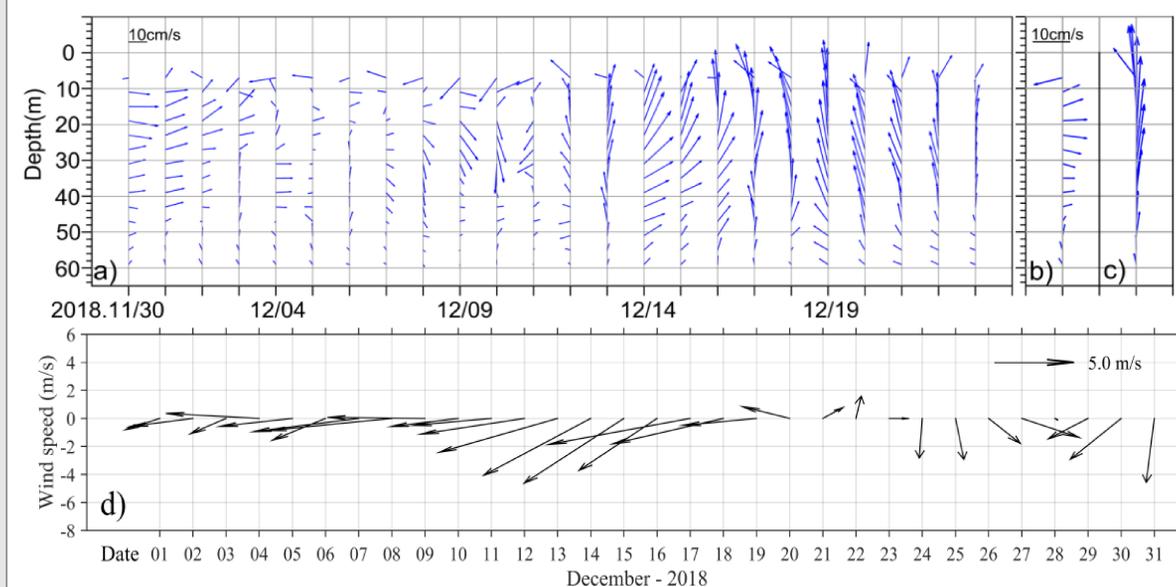
JODC Data Analysis: Bottom salinity distributions



Field Observation Analysis: Stratification exists in specific period



Mooring ADCP Current Vector combined with wind field and SLA



Conclusion

- There remain the BSWAs with $S \geq 33.0$ psu and water columns of highly stratified located at the BSWAs in the GoT during the NEM. BSWA occupies central region of the GoT and has two high-salinity cores with $S \geq 33.5$ psu in Nov. The BSWA contracts toward the two high-salinity cores and then separates into two parts in Dec–Jan, and a small part is remained until February.
- During the moderate-breeze period, Ekman current is westward and dominant in the upper layer of $< 10m$, but the BTGC orients eastward and predominant in the middle layer between $10m$ and $40m$ depth, respectively.
- In the strong-breeze period, Ekman current is northward and dominating in the layer from surface to $52m$ depth. SLA field indicates that the water body carries by the northward Ekman current moves along the lower sea level zone from the gulf mouth to the northern GoT, which leads to a significant weakening of the BTGC, even reverses the BTGC direction in the northern region.