



Features of slope intrusion mesoscale eddies in the northern South China Sea

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Abstract:

Some mesoscale eddies intrude over the continental slope in the northern South China Sea (NSCS), supporting cross-shelf matter transport. We investigated the characteristics, the intruding tracks and formation mechanisms, of slope intrusion mesoscale eddies using satellite altimeter data and model outputs. In total, 36 and 22 slope intrusion anticyclonic and cyclonic eddies (SAEs/SCEs) are found, respectively. Slope intrusion eddies have longer lifetimes (~ 58 days), smaller size (~ 110 km), and greater eddy kinetic energy (EKE) and vorticity compared to ordinary eddies, but are more unstable and more easily deformed during their life cycles. The statistical results show that more slope intrusion eddies are generated during winter than other seasons. It is found that slope intrusion eddies mainly propagate west/northwestward, and southwestward along the continental slope and shelf. Eddy intrusions occur mainly near the Dongsha Islands, east of Hainan, and north of the Xisha Islands. SAEs continue to propagate onshore after arrival at the continental slope, while SCEs dissipate more quickly. Using mooring data, we found that eddy-ambient flow interaction could cause the differences between SAEs and SCEs around the Dongsha Islands. Energy conversion was analyzed in these three regions using numerical products. During intrusion, eddies lose eddy kinetic energy and ambient flows gain energy.

Biography:

Uriel Fernando Carreño Sayago is an engineer in biotechnology and holds Master's degree in environmental sciences and sustainability and doing his Ph.D. in environmental sciences and sustainability. His researched systems of alternative water treatment and been a professor in Colombia for 10 years in different universities. His research in this event is about an aquatic plant called "Eichhornia crassipes" and its benefits in phytoremediation.



Publication of speakers:

- Qiu Chunhua et al; Estimation of equilibrium times and maximum capacity of adsorption of heavy metals by *E. crassipes* (review), Jan 2018
- Qiu Chunhua et al; Design of a sustainable development process between phytoremediation and production of bioethanol with *Eichhornia crassipes*, Jan 2017
- Qiu Chunhua Sayago et al; Design and Implementation of a Sustainable Development Process Between Fitorremediation and Production of Bioethanol with *E. crassipes*, Dec 2016
- Qiu Chunhua et al; Design and construction of an integrated phytoremediation and bioethanol production system with the biomass of *eichhornia crassipes*, Dec 2016
- Qiu Chunhua et al; "Design, development, and evaluation of a laboratory-scale phytoremediation system using *eichhornia crassipes* for the treatment of chromium-contaminated waters", Dec 2016

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