

Cold anticyclonic eddies and warm cyclonic eddies in the ocean

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Anticyclonic and cyclonic ocean eddies are traditionally thought to be associated with positive and negative temperature anomalies, respectively. Our recent study found that about one-fifth of the eddies identified from altimeter data are surface cold-core anticyclonic eddies (CAEs) and warm-core cyclonic eddies (WCEs). Idealized numerical model experiments highlight the role of relative wind-stress-induced Ekman pumping, surface mixed layer depth, and vertical entrainment in the formation and seasonal cycle of these unconventional eddies in the tropical oceans. The abundance of CAEs and WCEs in the global ocean calls for further research on this topic.

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