



Biogeochemical Properties of Eddies in the California Current System

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The California Current System (CCS) is a coastal upwelling system characterized by intense mesoscale activity. This mesoscale activity plays a critical role in modulating biological production and exporting coastal biogeochemical materials offshore. To characterize and quantify the ability of mesoscale eddies to affect local and regional planktonic ecosystems in the CCS, we analyzed a 10-year-long physical-biological model simulation - with 5km horizontal resolution - using eddy detection and tracking to isolate the dynamics in cyclonic and anticyclonic eddies. At any given time, $\sim 8\%$ of the model domain was covered by eddies, and this small area belies $\sim 50\%$ of the cross-shelf biological transport. As they propagate westward across the shelf, cyclonic eddies efficiently transport coastal planktonic organisms, and maintain locally elevated production, Anticyclones, on the other hand, have a limited impact on local production.