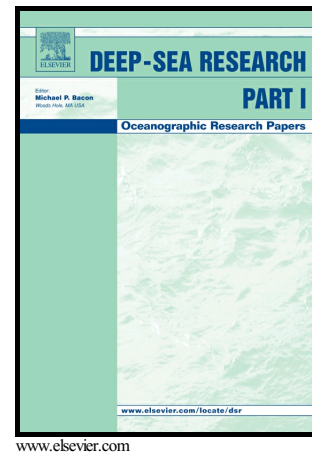


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**Long-term Variation of Mesopelagic Biogenic Flux in the Central South China Sea:****Impact of Monsoonal Seasonality and Mesoscale Eddy**

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**Abstract:**

The East Asian Monsoon and mesoscale eddies are known to regulate primary production in South China Sea (SCS), the largest tropical marginal sea; however, their contribution to the deep biogenic flux are yet to be quantified. Based on 7-year time series sediment trap observations at the depth of 1200 m in the central SCS, we used the monthly average sinking biogenic fluxes to evaluate the impact of the monsoon and mesoscale cyclonic eddies on biogenic fluxes in combination with remote sensing physical parameters. The monthly average particulate organic carbon (POC) and opal fluxes, ranging from 3.0–5.2 and 14.8–34.9 mg m<sup>-2</sup> d<sup>-1</sup>, respectively, were higher during the northeastern monsoon period. This corresponded to the deeper mixed layer depth and higher net primary production in this area, due to nutrient replenishment from the subsurface induced by monsoon transition and surface cooling. In contrast, lower POC and opal fluxes occurred

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