

Coastal Upwelling Events along the Southern Coast of Java during the 2008 Positive Indian Ocean Dipole

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Using data by an Argo float, we investigated ocean temperature and salinity variation along the southern coast of Java. In 2008, a positive Indian Ocean Dipole (IOD) event started to develop in late April and negative SST anomalies appeared south of Java from May to September. In July-August 2008, an Argo float approached Java coast and successfully observed vertical structure of temperature and salinity within 100 km from the coast. Two intraseasonal-scale temperature cooling events with pronounced upward movements of thermocline were observed by the float. During the temperature cooling events, local SST cooling, local sea level lowering, upward expansion of high salinity water, and anomalous southeasterly alongshore winds were also observed. On the cooling event in August, vertical velocity estimated by the anomalous wind stress agreed well with the observed thermocline variation. These results suggest that the Argo float captured the vertical structure of intraseasonal coastal upwelling event south of Java, which was enhanced by the 2008 positive IOD.

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