

Fig. S1. Variations in water column integrated primary production (a,  $\text{mg C m}^{-2} \text{d}^{-1}$ ) and Chl *a* (b,  $\text{mg m}^{-2}$ ) in the upper 200 m at four stations and regions in the transect. WE: warm eddy; BR: background region; CE: cold eddy; KPR: Kyushu-Palau Ridge.

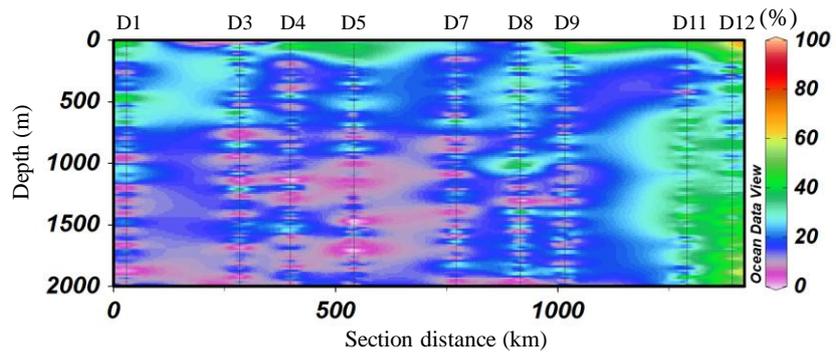


Fig. S2. Percentage contributions of large particles ( $ESD \geq 500 \mu\text{m}$ ) to total PVC along the transect in the tropical Northwestern Pacific.

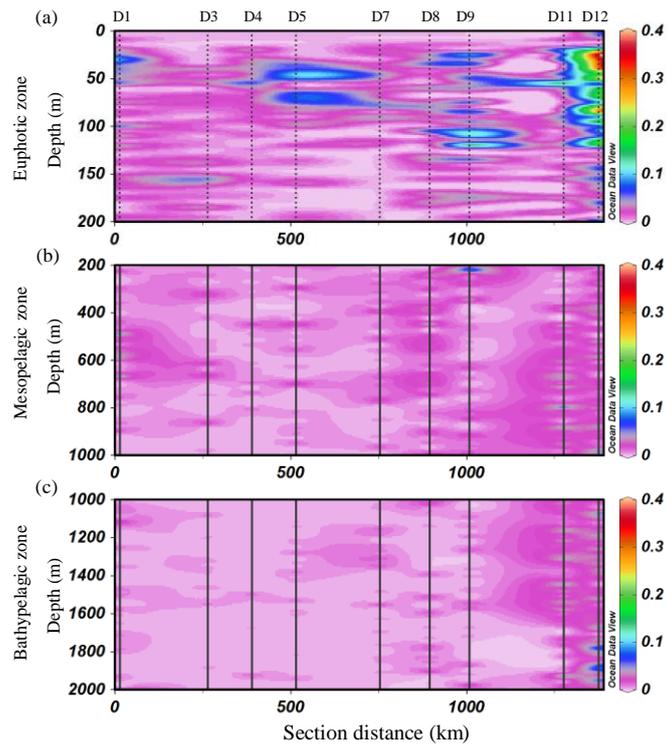


Fig. S3. Distribution of zooplankton abundance ( $\text{ind } L^{-1}$ ) along the transect in the (a) euphotic zone, (b) mesopelagic zone, and (c) bathypelagic zone.