



Annual and seasonal variations of particle fluxes in the northwestern Pacific

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A moored time-series sediment trap was deployed at station FM 1 (130°31'N 136°03'E) of the northwestern Pacific from October 2007 to May 2011. Total mass fluxes varied from 2.35 to 31.1 mg m⁻² day⁻¹, showing a distinct seasonal variation with high fluxes in winter and low in summer. During the El Niño period, however, total mass fluxes were significantly reduced in winter, indicating that particle fluxes in the northwestern Pacific were considerably influenced by the El Niño. Organic carbon fluxes ranged from 0.13 to 4.61 mg m⁻² day⁻¹, comprising about 9.7% of total mass fluxes. Organic carbon fluxes showed a large annual variation, with higher fluxes in 2008. CaCO₃ fluxes varied from 1.47 to 23.4 mg m⁻² day⁻¹, comprising 65.7% of total mass fluxes. CaCO₃ fluxes displayed little annual and seasonal variations. Biogenic Si fluxes ranged from 0.04 to 2.07 mg m⁻² day⁻¹, comprising about 5.3% of total mass fluxes. Biogenic Si fluxes exhibited a large annual variation, with higher fluxes in 2008. Temporal variations of organic carbon fluxes were rather similar to those of biogenic Si fluxes, implying that the source of organic carbon is siliceous organisms.