The role of eupashid faecal pellets in the carbon flux along the eastern South Pacific and Antarctica.

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Latitudinal variations in the vertical flux of euphausiid fecal carbon (EFC) exported to the deep ocean regions were analyzed in three-time series from different systems, the oceanic Humboldt Current (HCS; 20°S-30°S and 36.5° S), the sub-Antarctic (SAS, 54°S) and the Antarctic coastal environment (ANTS, 64°S), using automatic sediment traps located at 200m (SAS and ANTS), 1000 and 2300m depth (HCS).

The average EFC flux ranged between 0.2 and 1.7 mgC m^2 d^{-1} in the HCS (5-10% of the total particulate organic carbon, POC) and between 12.6 and 17.3 mgC m^2 d^{-1} (6-46% of the POC) in the SA and ANT systems. The highest EFC fluxes were collected during the summer representing 12% of the HCS POC average and 24% of the POC average in the SA and ANT systems. The lowest fluxes occurred in spring and autumn (SCH) corresponding to 4% and 7% of the average SA and ANT POC, respectively; while for the SAS and ANTS the lowest fluxes occurred during winter, representing ~3% of the POC. The general trend of the average EFC fluxes for each time series shows a north to south latitudinal increase along the 5 studied sites, with minimum fluxes in the southernmost region of the HCS (36.5°S), while in the SAS and ANTS regions the EFC fluxes were significantly higher by up to an order of magnitude, compared to HCS values.

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