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KINETIC ENERGY DISTRIBUTION IN THE SOUTHERN OCEAN FROM DRIFTING BUOYS.

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Observations from 1140 satellite-tracked WOCE-SVP drifters drogued at 15 m, collected between 1987 and 2005, were used to plot the kinetic distribution in the Southern Ocean (30˚S – 60˚S). Only drogued data points were grouped into 1° x 1° grids and the mean and eddy kinetic energy per unit mass calculated. The resulting distributions were compared with previous work done by Wyrtki et al. (1976), using ship-drift data, and Patterson (1985), Daniault and Ménard (1985) and Piola et al. (1987), using FGGE data. High kinetic energy (MKE greater than 1000 cm^2s^{-2} and EKE greater than 500 cm^2s^{-2}) is observed in the western boundary currents, the Agulhas Return Current and within the Antarctic Circumpolar Current at major topographic features, while low kinetic energy (~100 cm^2s^{-2}) is associated with the subtropical gyres. This, qualitatively, is consistent with previous studies. The mean circulation of the South Pacific subtropical gyre, extending down to about 50°S, appears to be more complex than in the South Atlantic and South Indian. The importance of only considering drogued data points has been illustrated. The FGGE-derived EKE values for the ACC are on average 1.5 times greater than what is seen here. The drogued-only dataset was then used to preliminary investigate any possible temporal and seasonal variation in kinetic energy with a 2° x 2° grid spatial resolution. However, favourable statistics were not obtained, leaving room for future work.