Supporting Information for "Surface kinetic energy distributions in the global oceans from a high-resolution numerical model and surface drifter observations"

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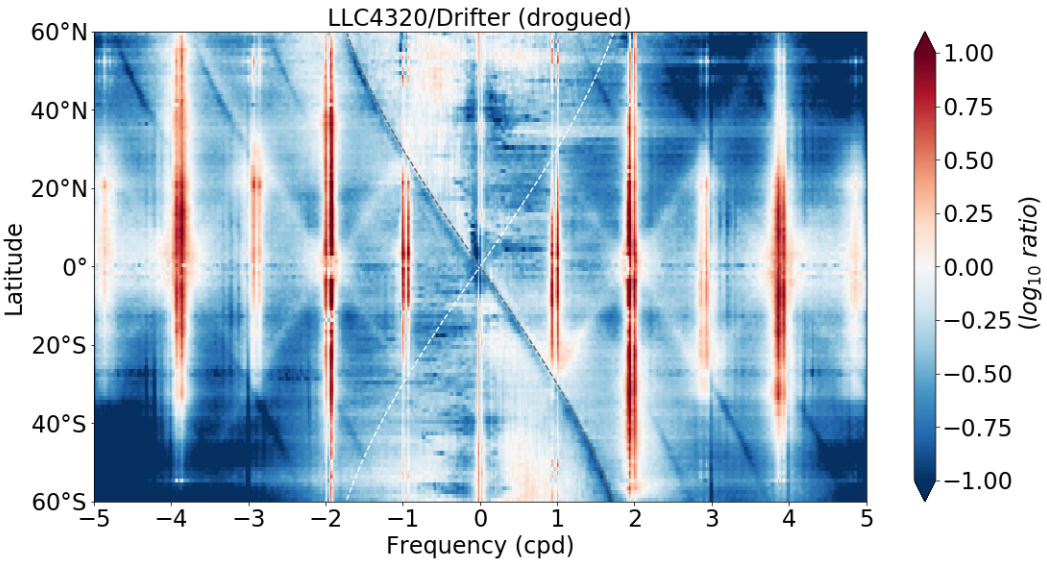

Figure S1: The ratio of zonally averaged rotary frequency spectra from surface velocity fields of the LLC4320 simulation (Figure 2a) and drogued drifter data (Figure 2b) in 1° latitude bins. The inertial frequency ($-f/2\pi$ cpd) is indicated by the grey dashed line and the Coriolis frequency ($f/2\pi$ cpd) is indicated by the white dashed line.

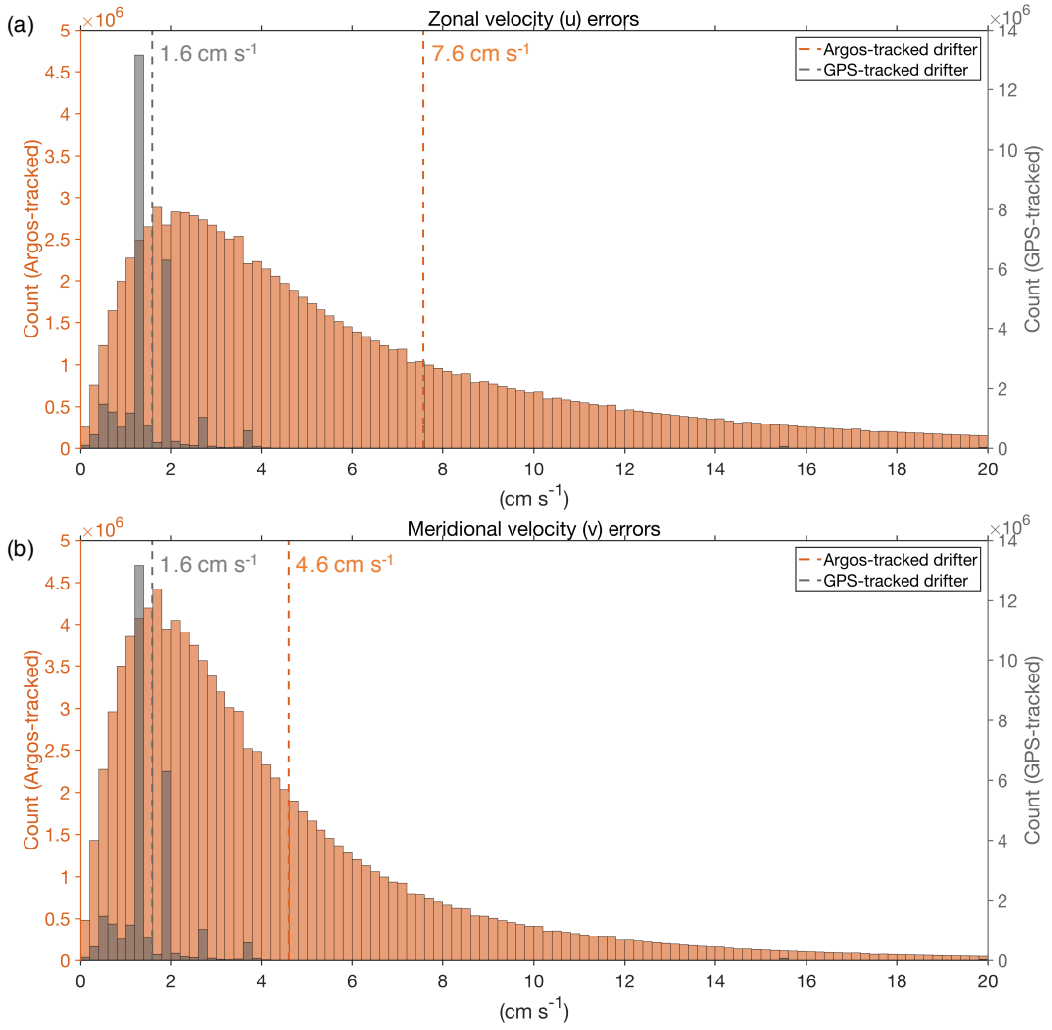

Figure S2: Histograms of (a) zonal and (b) meridional velocity errors for drifters tracked by Argos (orange) and GPS (grey), with respective mean values displayed. Errors larger than 4 m/s are considered as outliers and not considered in the calculation.

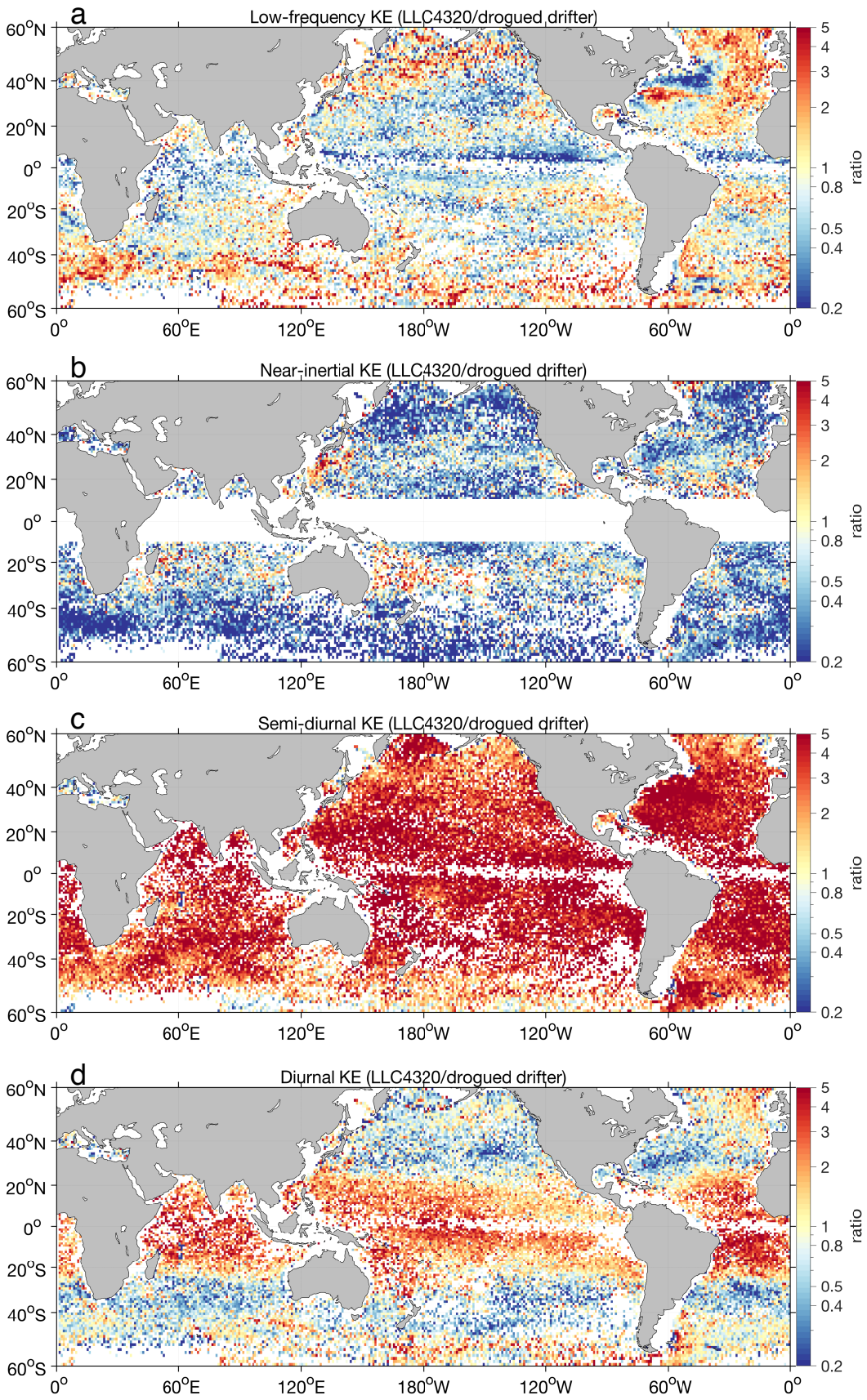

Figure S3: Global maps of the ratio of model- and drifter-derived (a) low-frequency, (b) near-inertial, (c) semi-diurnal and (d) diurnal KE in 1°× 1° bins. Note that near-inertial KE at latitude range 10°S-10°N is not included because inertial motions blend with low-frequency variability there.

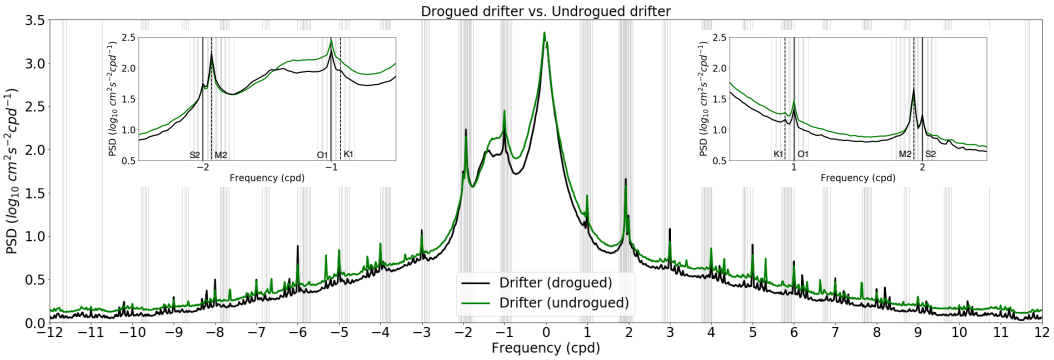

Figure S4: Globally averaged anticyclonic (at negative frequencies) and cyclonic (at positive frequencies) spectra of the drogued (black) and undrogued (green) drifter horizontal velocity. Vertical light grey lines correspond to astronomical tidal frequencies. The insets are a zoom for frequencies from -2.5 to -0.5 cpd (top left) and from 0.5 to 2.5 cpd (top right), respectively.

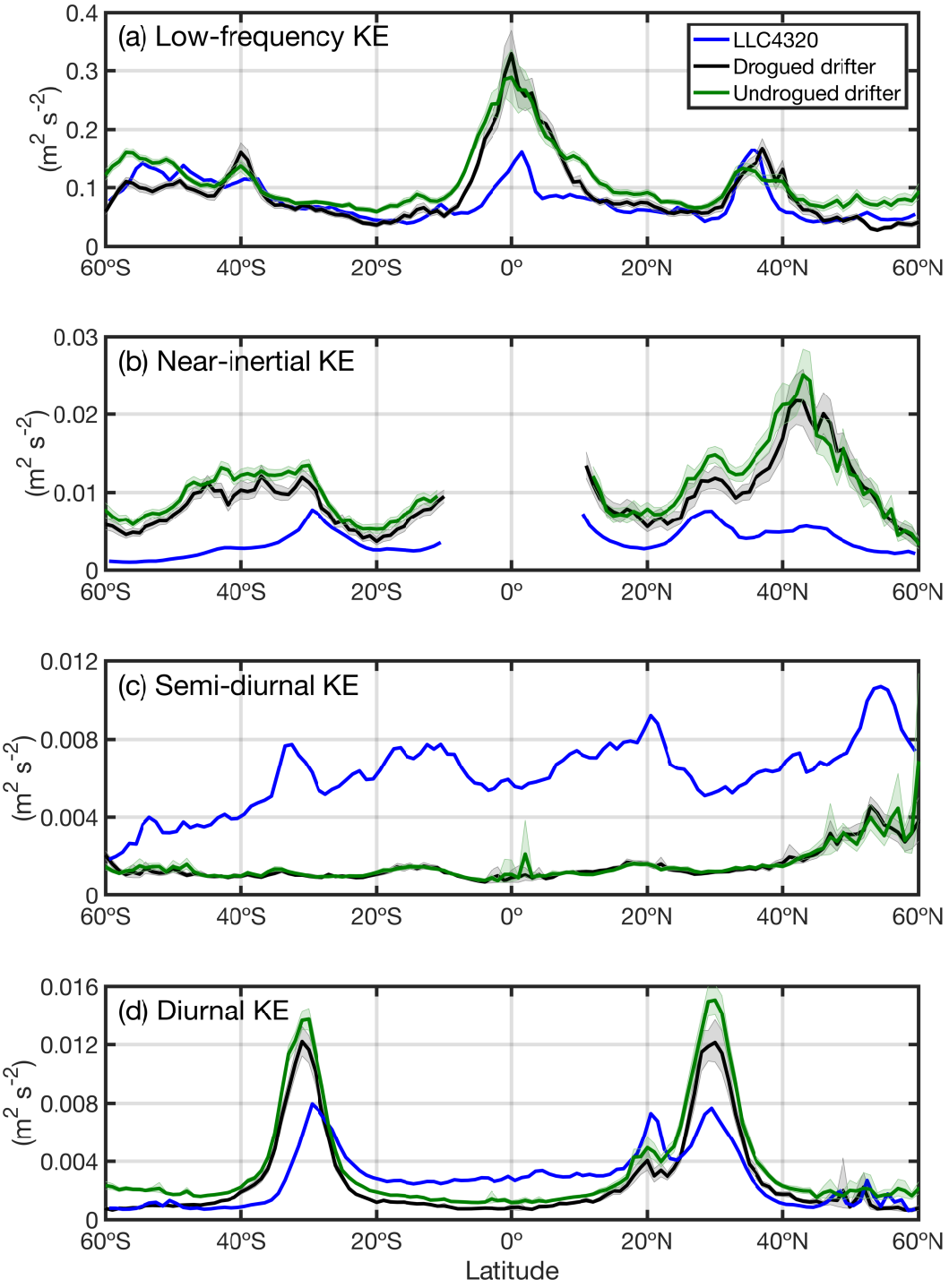

Figure S5: Zonally averaged (a) low-frequency, (b) near-inertial, (c) semi-diurnal and (d) diurnal KE in 1° latitude bins estimated from the model (blue), drogued (black) and undrogued (green) drifter data. The colored shading shows the 95% confidence interval determined using a boostrapping re-sampling approach. Note that near-inertial KE at latitude range 10°S-10°N is not included because inertial motions blend with low-frequency variability there.