Figure S1: Time evolution of the difference of EKE due to CFB (in %) in CTRL simulation.

\[
\frac{(EKE_{CFB} - EKE_{NOCFB})}{EKE_{NOCFB}} \times 100
\]
Figure S2: Same as Figure 1, but with mesoscale fields defined using a 90-days temporal filter.
Figure S3: Same as Figure 2 but with mesoscale fields defined using a 90-days temporal filter.
Figure S4: Same as Figure 4, but with mesoscale fields defined using a 90-days temporal filter.
Figure S5 : 5-year average of eddy wind work (EWWK, W.m^{-2}) in CTRL_NOCFB simulation (a) with mesoscale fields defined using a spatial filter, (b) with mesoscale fields defined using a 90-days temporal filter. Side plots represent EWWK zonal average for HIGH_CFB (red), CTRL_CFB (blue), LOW_CFB (green), CTRL_NOCFB (dashed blue) simulations, and observations (black).
Figure S6: 5-year average of the difference of eddy wind work (EWWK, W.m⁻²) between CTRL_CFB and CTRL_NOCFB simulation (a) with mesoscale fields defined using a spatial filter, (b) with mesoscale fields defined using a 90-days temporal filter. Side plots represent EWWK zonal average for HIGH_CFB (red), CTRL_CFB (blue), LOW_CFB (green), CTRL_NOCFB (dashed blue) simulations, and observations (black).
Figure S7: 5-year averaged barotropic oceanic eddy kinetic energy (a) in CTRL_CFB simulation, (b) difference between CTRL_CFB and CTRL_NOCFB simulations. Side plots are zonal means of the corresponding map.