

**Fig 1 :** Maps of **(a)** absolute dynamic topography at 1/4° and the LR current ( geostrophic and Ekman components) associated, **(b)** inferred HR current at 1/24°, **(c)** LR ocean pCO2 from Carbon Tracker at 1°, **(d)** inferred HR pCO2 at 1/32° .