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On the Computation of the Ekman Currents from Global Datasets and Application to the Study of the Near-Surface Circulation of the South China Sea During the Winter Monsoon

L. Centurioni

Scripps Institution of Oceanography, La Jolla, CA, USA (lcenturioni@ucsd.edu)

We describe a method to compute the ageostrophic Ekman currents from combined satellite altimetry, drifters and wind datasets. The Ekman currents are then subtracted from the drifter's velocity to calculate the residual circulation. As an example of applications we discuss original velocity measurements at 15 m depth gathered by the authors from Surface Velocity Program drifters which are used to calculate the circulation in the South China Sea during the Winter Monsoon. The residual circulation is approximately in geostrophic balance. The geostrophic flow is cyclonic and extends into the southern Luzon Strait. The Ekman flow is nearly zonal and comparable to the zonal geostrophic flow in the northern South China Sea basin.