



Velocity statistics inferred from the TOPEX/POSEIDON-JASON Tandem Mission Data

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Using a parallel-track approach to estimate geostrophic surface velocities, an estimate of the statistics of ocean geostrophic surface currents and momentum stresses is provided on a 10 km along-track resolution from the first 49 repeat cycles (16 months) of the JASON-TOPEX/POSEIDON tandem altimetric sea surface height (SSH) data. Results are compared with estimates obtained in a traditional way from along-track SSH data at cross-over points and with in situ ADCP measurements obtained on board the VOS Oleander along a nominal path connecting Bermuda with the US mainland. Agreements with the Oleander data are reasonable when simultaneous (in space and time) sampling is available. However, amplitudes of parallel-track geostrophic velocity variances are about 25% lower as compared to Oleander measurements which represent geostrophic and ageostrophic flow components. Estimates of velocity variances show clear signs of an anisotropic eddy field in the vicinity of all major current systems. At the same time estimates of Reynolds stresses and eddy momentum fluxes show a convergence of eddy momentum in all those regions, suggesting a forcing of the mean flow by the eddy field there.