

Oceanography Department Seminar

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Elliptical near-inertial surface currents and modification of their temporal decays

We interpret seasonal and cross-shore variability of near-inertial variances in the coastal radar-derived surface currents off Oregon with a fully extended slab layer model, allowing all non-linear terms of horizontal shear and strain components and anisotropic frictional terms, by investigating the roles of vorticity and divergence on the coastal near-inertial currents.

Dominant clockwise variance and non-negligible counter-clockwise variance in the near-inertial frequency band appear as elliptical near-inertial motions. The ellipticity of the near-inertial currents, which appears as a regionally dominant clockwise polarization up to -0.5 offshore and -0.2 near the coast, is associated with vorticity, modifying the effective Coriolis frequency by up to half of the local Coriolis frequency. The temporal decay scales of near-inertial currents are enhanced by a factor of 2 near the coast and 1.5 offshore.