Revisiting the Kinetic Energy Spectrum from QuikSCAT Winds: *Why is it not quite a power law?*

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The kinetic energy (KE) *vs.* spatial wavenumber (k) spectral properties of QuikSCAT surface wind components distinguish these data from surface winds obtained from weather-center analyses and forecasts (i.e. the weather-center winds are considered to be KE deficient at sub-synoptic and mesoscales). Zonal wind KE spectra from QuikSCAT have been described as exhibiting "power-law" behavior; i.e. constant spectral slope over large ranges of k. The power-law property invokes references to turbulence theories and inertial sub-ranges. Given almost 10 years of QuikSCAT data, our estimates of KE *vs.* k spectra from QuikSCAT can be more precise, and our interpretations of these spectra can be refined. We will examine departures from constant spectral slopes in the k ranges that correspond to synotpic scales and mesoscales in the surface wind for tropical and mid-latitude regions of the Pacific Ocean. Comparisons with high-resolution Monte Carlo spectral simulations will diagnose artifacts in the QuikSCAT spectra that can be attributed to aliasing and red-noise contamination. We will compare spectral properties in the $25\,km$ and $12.5\,km$ QuikSCAT R2 data. Pacific basin-wide S-Transforms of QuikSCAT zonal wind spatial series will be used to confirm spectral slopes that emerge in regional analyses.