Maps of relative variations in the upper mantle attenuation parameter $t^*$ are estimated by inversion of inter-station spectral ratios from teleseismic deep earthquakes recorded by USArray. High $t^*$ areas include much of the western Cordillera and eastern passive margin, and low $t^*$ dominates across the central U.S. Smoothed $t^*$ variations (Figure A) are moderately correlated with long-period surface wave attenuation tomography (0.6 Spearman rank) and anti-correlated with velocity tomography (-0.4). However, the two standard deviation magnitude of $t^*$ variations is a factor of ~3-10 greater than predicted by prior surface wave attenuation tomography or an anelastic olivine model. Similarly high $t^*$ in parts of the passive margin and western Cordillera suggest that the effect of thermally activated intrinsic attenuation can be overwhelmed by non-dissipative effects such as elastic scattering. Transverse component spectra are used to investigate the importance of scattering because they would receive negligible P wave energy in the absence of 3-D heterogeneity or anisotropy. Transverse-to-vertical spectral ratios ($T/Z$) show greater partitioning of P energy onto the transverse component and increasing $T/Z$ with frequency for stations with high $t^*$ (Figure B). Our results indicate that scattering strongly influences spectral ratio $t^*$ estimates. Broadly similar geographic patterns of teleseismic $t^*$, surface wave Q tomography, and velocity tomography may primarily reflect spatial covariance between intrinsic attenuation and scattering intensity.