

Shear-wave Attenuation Structure of Central Anatolia Using Full Seismogram Envelope

A study of regional and local attenuation of earthquake seismic waves could contribute to the prediction of earthquake ground motion which contributes to the verification system by improving signal interpretation. Here we present the results of a PhD thesis. In this study, we have applied the Multiple Lapse Time Window Analysis (MLTWA) method to the local earthquake data from BRTR (PS-43) and Kandilli Observatory Regional Earthquake-Tsunami Monitoring Center (RETMC) stations in Central Anatolia to estimate the Shear-wave attenuation parameters. Carefully selected 177 events with $SNR > 3$ used in the process. Seismic Albedo(B_0), Scattering attenuation ($1/Q_s$) and Intrinsic absorption ($1/Q_i$) are measured separately for each station using a uniform and depth dependent velocity model using numerical simulations (Monte Carlo) based on multiple isotropic scattering. Results show us that scattering attenuation is effective at frequencies 3 Hz and lower, whereas intrinsic absorption becomes dominant at higher frequencies. We have compared our results to other regions that were studied previously using the similar methods. The total attenuation is lower in Central Anatolia when compared to western and Eastern Turkey.

Primary author: ŞEMİN, Korhan Umut (Belbasi Nuclear Test Monitoring Center)

Presenter: ŞEMİN, Korhan Umut (Belbasi Nuclear Test Monitoring Center)

Track Classification: 1. The Earth as a complex system