

Soil/Bedrock Characterization, NEHRP Site Classes and Engineering Parameters Calculations in the Kanto Region, Central Japan

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Abstract. Data from K-NET and KiK-net are used to evaluate regional site effects in the Kanto region. In this study the average velocity to 30 m [$V_s(30)$] is calculated for classifying sites to predict their potential to amplify seismic shaking depending on NEHRP Site Classes System. In many cases, however, logging data for K-NET of shallow shear-wave velocities, from which $V_s(30)$ can be computed, do not extend to 30 m depth. If the data for these cases are to be used, the method of extrapolating the velocities should be devised. Also, during this study, some of the shallow soil/bedrock engineering characteristics for construction purposes are delineated. A number of engineering parameters such as Concentration Index C_i , Material Index, Density Gradient D_i , and Stress Ratio S_i are estimated using K- and KiK-NETS data together with shallow/deep borehole recordings obtain in the pre-Tertiary basement. Estimated parameters, which include the seismic velocity values, engineering, consolidation, and strength parameters, show that these parameters has a strong and good correlation with the structure of the sedimentary layer-bedrock system in the Kanto region. Also, this study proposes the usefulness of the K-NET and KiK-net data now available on the internet site.