Subsurface structure in the northern part of Nara basin estimated with a seismic vertical array

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Spectral analysis was made for seismic data from a vertical array(GL 0m,-20m,-42m,-100m) modeling S-wave velocities and Q structure of soil sediments in the northernmost part of Nara basin, where depth to bedrock reaches 600m. Spectral ratios of surface components to subsurface ones and horizontal-to-vertical ratios were examined. As for Q of S-waves, a functional form of Qs=Qo * Vs**m * f**n (m=1,2,3; n=0,0.5,1; f=frequency) was assumed. As a result, it was revealed that, Vs ranges from 350 to 800m/s for surface to bottom soil layers comparable to velocities of corresponding strata of the same geologic time in Osaka basin, and the most appropriate model for Qs is (Qo,m,n)=(2**-8,3,1; Vs in m/s).