



A STUDY ON STOCHASTIC PROPERTIES OF AUTO-CORRELATION COEFFICIENTS FOR MICROTREMOR DATA SIMULTANEOUSLY OBSERVED AT TWO SITES

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ABSTRACT: We discussed stochastic properties of the spatial auto-correlation (SPAC) coefficients for microtremor data which are observed simultaneously at two sites. Usually, the SPAC method can provide the phase velocities using the data observed simultaneously on circular array with four or seven sites. The method, however, suggests analytically the possibility that we can estimate the phase velocities using only the data observed simultaneously at two sites. To clarify the limitation of this idea, some mathematical analyses are performed and stochastic properties of the SPAC coefficients are derived. Furthermore, some real data of microtremors are applied to the above analytical results and the validity is discussed.

Key Words: Spatial Auto-Correlation (SPAC) method, Phase Velocity, Microtremors, Probability Density Function, Observation