

Determine phase velocity and wave field azimuth of surface wave from joint analysis of seismograph and ground rotation

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Over the past years, combining seismograph with ground rotation was proved to be able to deduce structure underneath the station. Specifically, the benefit of collocated seismograph and ground rotation is to determine apparent phase velocity and wave field azimuth. However, this approach is not yet systematically compare with traditional array method. In a unique instrument setting in Southern California, a dense PFO seismic array is close to ANZA array. This allows us to compare joint analysis result with traditional FK array method. PFO array is used to derive ground rotation and thus for joint analysis, while ANZA array is used for FK analysis. We found both results of phase velocity and wavefield azimuth are consistent in normal condition. However, for those wave propagates along anisotropy structure where Rayleigh-Love wave coupling takes place both results are deviated. We discuss how this affects joint analysis.