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3D isotropic/anisotropic crustal models of Taiwan using ambient seismic noises

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We construct the 3D isotropic/anisotropic crustal models of Taiwan using ambient seismic noises. Continuous data from island-wide broad-band and short-period networks are used. Taking advantage of the temporary arrays deployed by the TAiwan Integrated GEodynamics Research project, we have collected an unprecedented data amount for the noise tomography in Taiwan. We construct 2D phase velocity maps for Rayleigh and Love waves for the period range from 4 to 20 seconds using a wavelet-based multi-scale inversion technique, in which both the isotropic and anisotropic components are taken into account. In particular, we have applied a weighting scheme to prevent the resulting models from being biased by the irregular azimuthal path distribution. The resulting 2D maps are then used to invert for the 3D isotropic/anisotropic crustal models for the depth range from the surface to 40 km. Besides the above wavelet-based multi-scale inversion with great-circle path assumption, we also test the feasibility of the Eikonal tomography in our study. We present the stability of these results, compare our models with early studies, the 3D models from body wave tomography and seismic anisotropy from shear-wave splitting, and discuss their tectonic implications.