

## Construction of integrated velocity model of shallow and deep structure in the high strain rate zone

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In this study, the microtremor investigation was carried out in the Yamagata whole region and Shallow and deep integrated model (initial geological model) were created. Moreover, in the Niigata whole region, an initial geological model and S wave velocity structure were improved, and shallow and a deep integrated structure model were developed. In order to overcome the above problem, we executed a lot of microtremor measurements in and around the sedimentary basins. About the Niigata area, the initial structure model (shallow structure model J-SHIS model) which was being created until now deviated greatly with the phase velocity obtained by microtremor observation. The theoretical phase velocity by the added speed structural model is as harmonic as observation phase velocity, and the convergency of the joint inversion calculation which unites the periodic characteristic became very good. Moreover, results, such as the periodic characteristic calculated from a model, have checked that a harmonic result was obtained as compared with results, such as the periodic characteristic by seismic observation record.

Keywords: Integrated structure model, strong-motion, microtremor measurements, Geology stratigraphy, S-wave velocity