

## A method to construct subsurface structure model using microtremor, gravity and magnetic data in the Tottori plain.

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In this study, we propose a method to construct a subsurface structure model using microtremor, gravity and magnetic data in the Tottori plain. Recently, different types of physical exploration data are analyzed simultaneously to improve uniqueness and accuracy of subsurface structure model (e.g. Sakai and Morikawa, 2005).

In the target area, granite or sedimentary rock is found for seismic basement (Geological survey of Japan, 2003). The difference of densities is about 0.2t/m<sup>3</sup> between the two rocks. Therefore we cannot perform gravity analysis with simple homogeneous two layers model, sediment layer 2.0t/m<sup>3</sup> and seismic basement 2.4t/m<sup>3</sup> (Noguchi et al., 2003). To overcome this problem, we employed magnetic data with the gravity data, and performed gravity analysis assuming several types of basement rocks with different densities. We applied the MWP (moving window Poisson analysis) method (Chandler et al., 1951) to get boundaries where densities change, and estimated depth distribution of seismic basement from gravity anomaly data. Based on the result, we estimated S-wave velocity structure model through inversion analysis of phase velocities of microtremor array observation data (Noguchi et al., 2003). As the result, we constructed a 3D subsurface structure model with three sedimentary layers and bedrock layer in the target area.

### References

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