

Toward the construction of a common 3D multi-scale and multi-parameter model by integrating various seismic velocity structure model

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There are currently various seismic structure models for various purpose in Japan. For example, we have seismic models for calculating strong ground motion prediction, earthquake cycle simulation, evaluation of active faults, hypocenter determination, and so on. However, all these models are not consistent each other and have not been summarized or integrated base on a certain policy. Most of the models have different format and resolution, even if they have same parameters. Therefore the results obtained based on each model, such as the calculated strong ground motion, coseismic slip, hypocenter, etc. cannot be compared directly. There is also the problem that onshore and offshore part of models are basically estimated separately. Although the need for precise and realistic onshore-offshore model is increasing, there was no cooperation to construct the integrated onshore-offshore model based on common consideration among modelers of various seismic structure models.

We are now trying to construct 3D multi-parameter model for hypocenter determination and monitoring/forecasting interplate coupling in ' Research Project for Disaster Prevention on the great Earthquakes along the Nankai Trough' started from 2020. We also aim to contribute to updates of seismic velocity model released by Headquarters for Earthquake Research Promotion through our result of the project. Therefore we have been discussed how to construct our model to be useful for updates, for example, beyond the framework of the project. In conclusion, we believe that it is necessary to construct a common 3D multi-scale and multi-parameter model by integrating various seismic velocity structure model.

In this presentation, we report our discussion and draft plan for construction of a common 3D model. This study is part of ' Research Project for Disaster Prevention on the great Earthquakes along the Nankai Trough' funded by Ministry of Education, Culture, Sports, Science and Technology, Japan.

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