

## 南西諸島周辺海域の三次元速度構造

### 3D velocity model in the region of Nansei-Shoto

\*勝山 美奈子<sup>1</sup>、清水 祥四郎<sup>1</sup>、新井 麗<sup>1</sup>、佐藤 伸明<sup>1</sup>、田中 恵介<sup>1</sup>、高橋 成実<sup>1,2</sup>、金田 義行<sup>1,3</sup>

\*Minako Katsuyama<sup>1</sup>, Shoshiro Shimizu<sup>1</sup>, Rei Arai<sup>1</sup>, Nobuaki Sato<sup>1</sup>, Shigeyoshi Tanaka<sup>1</sup>, Narumi Takahashi<sup>1,2</sup>, Yoshiyuki Kaneda<sup>1,3</sup>

1. 国立研究開発法人海洋研究開発機構、2. 防災科学技術研究所、3. 香川大学

1. Japan Agency for Marine-Earth Science and Technology, 2. National Research Institute for Earth Science and Disaster Resilience, 3. Kagawa University

#### Introduction

This is a part of the project “Comprehensive evaluation of faults information on offshore Japan”, by the Ministry of Education, Culture, Sports, Science and Technology (MEXT). The project consists of three themes, 1) Collecting seismic survey data and building a database of offshore faults, 2) Interpreting distribution of active faults using seismic data collected, and conducting the seismic re-processing by leading-edge seismic technology for the seismic data obtained in previous decades, 3) Building the fault models for a simulation of strong motion and tsunami disaster, based on the interpreted faults.

Our purpose of this study is make a 3D velocity model in the Nansei-Shoto to provide with the support we needs to interpret faults.

The Nansei-Shoto is one of the islands arcs along the West Pacific continental margins (Philippine Sea Plate subducts Eurasian Plate) and has typical topographic features as an islands arc, where marginal seas, volcanic fronts, islands arcs, sedimentary basins and trenches are regularly and zonally aligned toward the Pacific Ocean.

#### Methods and data

3D velocity model was constructed by seismic data, well data (ex. T-D curve), and ocean bottom seismometer(OBS) refraction survey data which were obtained by a various agencies and private companies. Horizons such as acoustic basement and unconformity were interpreted using reflection seismic sections. Conrad discontinuity and Mohorovicic discontinuity were interpreted on refraction surveys and consulted previous study. Layer structure and velocity model were created on these horizons by calculation using “Decision Space Geoscience”. The bin size of model creation is 1,000m horizontally (in the case of crust, 500m is applied) and 100m vertically, respectively.

#### Result

We obtain a result that understands geological structure in Nansei-Shoto. So in this session, we will take a discussion concerning structural characteristic based on the 3D velocity model.

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