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Spatial distribution of faults and folds in the offshore extension of the western margin fault zone of the Takada plain

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We carried out a marine geological investigation on an offshore extension of the western margin fault zone of the Takada plain. The main purpose of this study is to clarify the total length of the fault zone and characterization of recent faulting. The western margin fault zone of the Takada plain is west dipping reverse fault, and the total length of this fault zone is 30 km from land to sea are based on the existing material.

We conducted 31 lines of high-resolution multichannel seismic reflection survey to recognize the detailed structure of the faults and folds. The reflection profiles depict the geological structure with extremely clear images.

The reflection profiles showed that the geological structure of the offshore area is characterized by the fold belt along the northern margin of the sedimentary basin that is formed in front of Takada plain. The shape of the fold is asymmetric weakly, and suggesting the fault related fold that has been deformed by west or north west dipping blind reverse fault as with land. This fault related fold zone is continuous to the Northern Kashiwazaki-oki Anticline from the Naoetsu-oki fault while changing asymmetry on the way. The North Kashiwazaki-oki Anticline is an active structure that has been pointed out the relevance of the source fault of the Chuetsu-oki earthquake.

Keywords: The western margin fault zone of the Takada plain, offshore, fault, fold, active structure, high-resolution seismic reflection survey