

## Spatial distribution of faults and folds in the offshore extension of the Sarobetsu fault zone, Hokkaido, Japan

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We carried out a marine geological investigation on an offshore extension of the Sarobetsu fault zone, Hokkaido, Japan. The main purpose of this study is to clarify the total length of the fault zone and characterization of recent faulting.

On the land, the Sarobetsu fault zone is fault related folds deformed by east dipping blind reverse fault, and the total length of this fault zone is 44 km.

We conducted 12 lines of high-resolution multichannel seismic reflection survey and 7 lines of Single-channel 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 eastern margin of the Rebun trough. The shape of the fold is asymmetric, and suggesting fault related folds that has been deformed by east dipping blind reverse fault as with land. Although the top of the anticline has been eroded significantly, height difference with tilting is confirmed on the seafloor and surface erosion during the last glacial period (about 18 000 years ago) respectively. So the deformation was recognized in the Holocene layer, thus this fold belt is inferred to be active.

The length of the fold belt is estimated to be about 60 km based on our results of the survey. However, the latest activity age of the blind reverse fault forming the fold belt is uncertain.

Keywords: Sarobetsu fault zone, offshore, fault, fold, active structure, high-resolution seismic reflection survey