

## Geological structure of offshore area of the Shimane Peninsula since the Early to Middle Miocene based on seismic profiles

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We conducted multi-channel seismic reflection survey by using some different acoustic sources to grasp geological structure between sea floor and deep underground in 2014. The investigated area is within 20km off the coast of the Shimane Peninsula.

As a result of analyzing the seismic profiles, some strong reflectors (hereinafter referred to as "the acoustic basement") which form steep slope accompanied with gaps are recognized. We verified that the gaps correspond to some of the faults shown by Tamaki et al. (1982). These faults are low-angle reverse faults, dipping to the south. The displacement and deformation caused by the faults seem to reach up to the Lower Miocene. Possibly these faults were formed by the N-S compressional stress during the Middle to Late Miocene. According to Itoh and Arato (1999) and so on, the stress field during the Middle to Late Miocene off the coast of the Sanin region was N-S compression. Judging from the active period of the faults estimated by their extent of the displacement and deformation, the faults may have ended their activity by the Late Miocene, and may have been inactive since the Pliocene.

On the other hand, we compared the geological structure based on the above-mentioned seismic survey with the horizontal and first vertical derivative views calculated by using AIST's gravity dataset (2013). In consequence, we confirmed that the peaks of the horizontal derivative value and the distribution of the zero contours in the first vertical derivative views which indicate steep gradient zones of gravity anomaly nearly correspond to the gaps of the acoustic basement. We conclude that the steep gradient zones of gravity anomaly in this area reflect the gaps of the acoustic basement caused by the reverse faults during the Middle to Late Miocene in the N-S compressional stress field.

We wish to reveal the tectonic development around the Shimane Peninsula by examining the relation between these faults and the regional geological structure in further detail.

Keywords: offshore area of the Shimane Peninsula, seismic profile, gravity anomaly, Miocene, tectonic evolution

- 凡 例
- B 層：中期～後期更新世堆積層 — 第四紀
  - C 層：鮮新世～前期更新世堆積層
  - D<sub>1</sub>層：中新世堆積層 — 新第三紀
  - D<sub>2</sub>層
  - V 層：火山岩・貫入岩
  - マルチチャンネル測線により認められたB層分布域
  - 地層境界
  - 断層及び断層番号
  - 拗曲及び拗曲番号
  - 連続性のない断層及び拗曲
  - 後期更新世以降の活動が認められないもの
  - 後期更新世以降の活動が否定できないもの
  - 背斜 (破線は伏在)
  - 向斜 (破線は伏在)
- 中国電力超音波探査測線 (エアガン・マルチ)  
 No. 30-14BM, No. 30-27WG  
 中国電力超音波探査測線 (ジオパルス又はブーマー・マルチ)  
 No. 110BM, No. 110WG  
 中国電力超音波探査測線 (ウォーターガン・マルチ)  
 No. 108BM, No. 108WG
- (2014年調査の音速探査測線を表示)  
 \*この地質図はA層(完新世堆積層)を取除いた地質図である
- 0 5 10 15 20 km

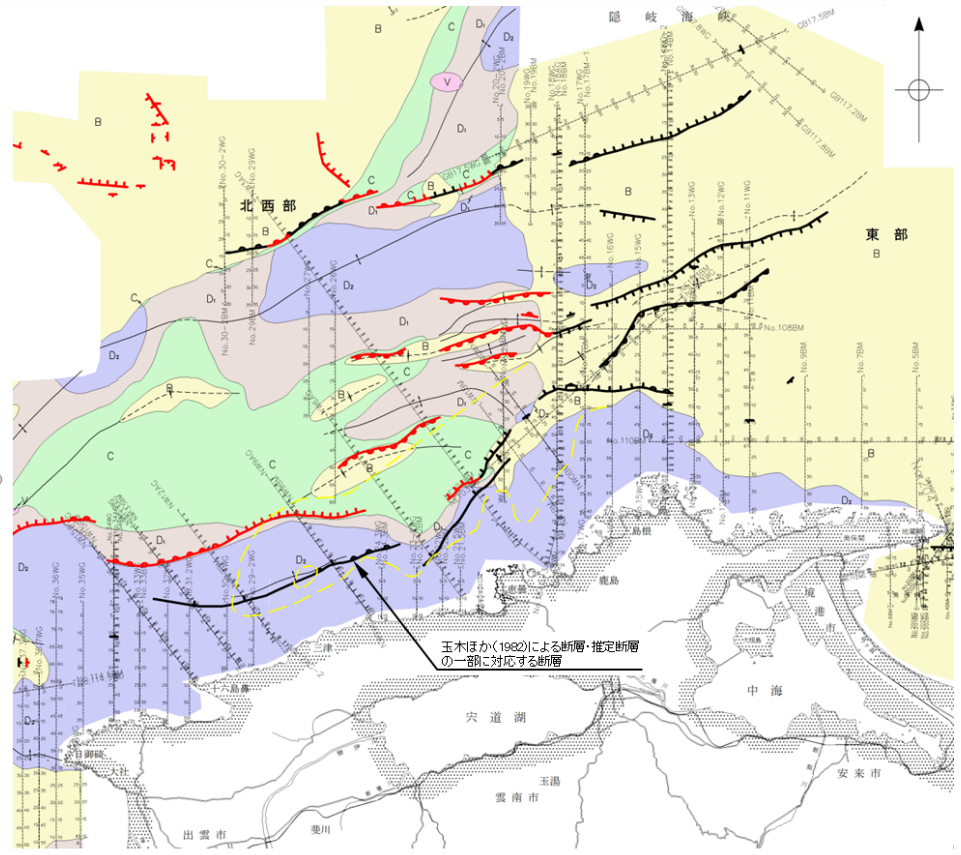


図 島根半島沖の断層分布図及び海底地質図