

Subsurface structure of the MTL active fault system of the northwestern Shikoku, in Japan

Michiharu Ikeda[1], Yuki Ohno[2], Shuji Kobayashi[3], Naoki Nishizaka[4], Atsumasa Okada[5]

[1] Geology Div., SRI Inc., [2] Yonden, [3] SRI, [4] Shikoku Electric Power Co. Inc., [5] Earth and Planetary Sci., Kyoto Univ.

There are some discontinuity structures, bends and steps, in the MTL active fault system of the northwestern Shikoku. These discontinuity structures are important features in fault geometry to consider the rational segmentation model of a long active fault system. However, there are few researches about 3-D geometry of the discontinuity structures in previous study. We, therefore, conducted seismic reflection survey at three survey lines to consider relation 3-D fault geometry to geological structure in Matsuyama area.

The Iyo fault, Shigenobu fault and Kawakami fault in Matsuyama plain contribute around the low gravity anomaly area in the southeastern parts of Matsuyama Plain, where an upper plane of basement rock, Izumi group, constructs a half graben structure based on the seismic reflection survey result. In addition, the northeastern parts of the Iyo fault form a few reverse faults with south dipping from seismic reflection survey result. We don't obtain, presently, obvious data that connect activity of these active faults with formation process of the low gravity anomaly area. But these active faults arrange in such as extensional right-overstep structure inserting the low gravity anomaly. Besides, faulting styles of the Iyo fault and the Shigenobu fault are obviously different, indicating that there is structural boundary between these two active faults. These facts show that these active faults have occurred faulting and constructed extensional right overstep structure depended on the basement structure that has been constructed in before Quaternary. Therefore, the Iyo fault and the Kawakami fault are recognized as the Iyo segment and the Kawakami segment on the basis of the fault geometry and style, in respectively.