

## A helicopter-borne gravimetry in the Iyo-nada Sea, Northwest Shikoku

# Naoki Nishizaka[1]; Yuki Ohno[2]; Akihiro Asano[1]; Michiharu Ikeda[3]; Shuji Kobayashi[4]; Atsushi Muraoka[5]; Jiro Segawa[6]

[1] Shikoku Electric Power Co. Inc.; [2] Shikoku Electric Power; [3] Dep. Civil Eng., SRI Inc.; [4] SRI; [5] SOGO Geophys. Explo. Co., Ltd.; [6] Tokyo Univ. Mar. Sci. Tech.

The Median Tectonic Line (MTL), with a length of about 1,000 km, is the representative geological tectonic line separating the outer zone from the inner zone in the Southwestern Japan. The MTL is also one of the longest active faults in Japan being elongated from the Kii Peninsula to northwest Shikoku. This active fault system runs parallel to the coastline in the Iyo-nada Sea, northwest Shikoku.

There is a boundary between the Sambagawa metamorphic rocks (high density) on the south side and the Ryoke granitic rocks (middle density) on the north side along the MTL active fault system in the Iyo-nada Sea, and a long trench and a thick accumulative sedimentary layer (low density) have been formed on these base rocks along the MTL. Therefore, a belt of remarkable negative gravity anomaly runs parallel to the coastline in the Iyo-nada Sea.

Existing gravity data in the Iyo-nada Sea were obtained by surface ship gravimeters along tracks mostly parallel to the coastline. Gravimetry should be desirably made perpendicularly to the coastline from the inland to the offshore with the case of the gravity structure running parallel to the coastline as in this region. So, we made a helicopter-borne gravimetry using a gravimeter as reported in Segawa et al.(2005). The helicopter-borne gravimetry enables us to measure gravity across the coastline and we can obtain data as accurate as or more accurate than the surface ship gravimetry. The airborne gravimeter used has just been brought to practical use through lots of proof examinations, and the measurement in the mountainous regions where gravity changes remarkably, in particular, was the first attempt.

The result of the airborne measurement resembles the land and sea gravity data generally though the high frequency components are cut by the influence of filtering and altitude of measurements. However, we can recognize a systematic discrepancy of about 10 mGal between the airborne gravity data and the marine gravity data obtained by surface ship gravimeters if compared with the case of the belt of negative gravity anomaly in the Iyo-nada Sea. Since the similar problem was pointed out with the marine gravity data in the Kashima-nada Sea in Segawa et al.(2005), it is highly suspected that the past marine gravity data in the Iyo-nada Sea might be subjected to systematic errors as well.