

SEA GRAVITY MEASUREMENTS DURING
THE 27TH JAPANESE ANTARCTIC RESEARCH
EXPEDITION (ABSTRACT)

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Sea gravity measurements on board the icebreaker SHIRASE were continuously conducted during the 27th Japanese Antarctic Research Expedition. The NIPR-ORI sea gravity meter which was improved to get the on-line navigation data was employed in this cruise. Using those navigation data, we could successfully obtain free-air and Bouguer anomalies on board.

Although we have confirmed the advantages of on-line data processing, we cannot avoid the off-line data processing after the cruise to correct the uncertain positioning of navigation system and to calibrate the gravity sensor. The main parts of the off-line data processing were as follows:

- (1) Determine the scale constants and drift rate of the gravity sensor.
- (2) Redetermine the measuring positions using updated satellite positions.
- (3) Recalculate the values of Eötvös, free-air and Bouguer corrections.

By these processings, we have obtained gravity anomalies within an accuracy of a few mgals in most cases throughout the cruise.

One of the interesting features of gravity anomalies was obtained on the Gunnerus ridge located off the Riiser-Larsen peninsula. The complete gravity data across the ridge has been obtained in this cruise for the first time. Therefore, we intend to study the detail structure of this area from the geophysical points of view.

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