

Calibration on scale factor of Burris gravimeter (B-019)

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We report that calibration on scale factor of Burris gravimeter made by Zero Length Spring Corporation (B-019).

There may be a problem with the scale factor given by a production company of a gravimeter. When we set out to measure a gravity change with crustal activity, it is desirable to do calibration on scale factor. There are several ways to do calibration on scale factor of gravimeter. This time, we innovated a way to do calibration of scale factor by comparison of absolute gravity measurement with relative gravity measurement value.

Gravity measurements were carried out in Yamanashi environmental laboratory (altitude: 1030m), Asagiri Fuji education and training center (902m) and Mt. Fuji museum (890m) where absolute gravity values were measured by The Geographical Survey Institute, Earthquake Research Institute, University of Tokyo, Tohoku University and Shizuoka University. Measurement took about twelve hours. We judged whether relations of gravity difference of absolute value and a gravity difference of a relative value at each measurement point became a straight line of an inclination of 1. We obtained correction factor if inclination did not become 1. As a result, the correction factor was estimated with 1.02174.

An estimated correction factor of a LaCoste & Romberg gravimeter affects measurement value from the fourth digits(For example, correction factor of G-822 is 1.00051). In contrast, an estimated correction factor of B-019 affects it from the second digits. As above, we understood that very big correction was necessary for measurement value.