Absolute gravimeter

Contact person: Shuhei OKUBO

Outline of the instrument: FG5 absolute gravimeter manufactured by Microg-LaCoste Corp. The FG5 absolute gravimeter is a high precision, high accuracy, transportable instrument that measures the vertical acceleration of gravity. The operation of the FG5 is simple in concept: A test mass is dropped vertically by a mechanical device inside a vacuum chamber, and then allowed to fall a distance of about 20 cm. A laser interferometer is used to determine the position of the test mass as a function of time during its freefall (right figure). The acceleration of the test mass is calculated directly from the measured trajectory. Nominal accuracy is 1-2 microgal.

Condition for rent: Consultation with the contact person required. An ERI personnel assigned by the contact person should attend the observation campaign.

Deadline for application: None

Maximum number for rent: 1

Examples of rent:

Tohoku University, Hybrid gravity monitoring of Zao volcano

Kyoto University, Continuous monitoring of absolute gravity on Sakurajima volcano.

Hokkaido University, Absolute gravity monitoring of Usu volcano.

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FG5 absolute gravimeter

The FG5 absolute gravimeter is a high precision, high accuracy, transportable instrument that measures the vertical acceleration of gravity. The operation of the FG5 is simple in concept: A test mass is dropped vertically by a mechanical device inside a vacuum chamber, and then allowed to fall a distance of about 20 cm. A laser interferometer is used to determine the position of the test mass as a function of time during its freefall. The acceleration of the test mass is calculated directly from the measured trajectory.

Weight and dimensions: 200Kg in total when assembled for operation. Packed in 7 FRP containers when disassembled for transportation in a VAN car.
Required space for operation: 150 cm × 150 cm
Operation condition: Operation is only possible in a house with commercial AC power supply (500 VA). Room temperature should be within 15-25 degrees Celsius.

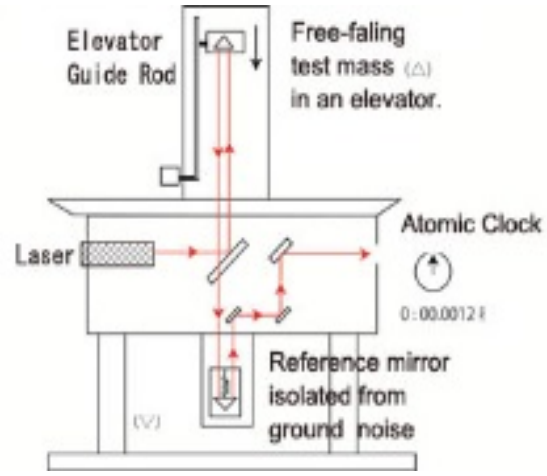

Photo taken during an observation campaign (Left) and the principle of absolute gravity measurement (Right).