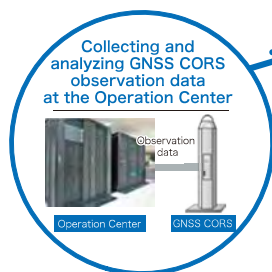


mission 02

A new society that materializes digital infrastructure

Precise orthometric

height determination by satellite positioning



The control station compiles and sends augmentation information

Transmitting augmentation information

QZSS "MICHIBIKI" Source: qzss.go.jp

Physical Distribution Using UAV

Crustal deformation transformation

Smart Agriculture

Smart Agriculture

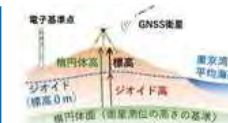
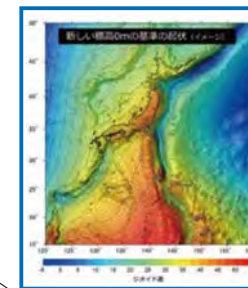
Source: Brochure of the Geospatial Information Project, Secretariat of the National Spatial Data Infrastructure (NSDI) Committee

ICT Construction

ICT Construction

Automatized Driving

We maintain detailed topographic data to support highly accurate simulations.



To realize rapid and accurate orthometric height determination by satellite positioning, GSI conducted airborne gravity surveys for developing a new precise gravimetric geoid model which are required for height determination. Ellipsoidal height is obtained from satellite positioning, but it is not equal to orthogonal height. By using precise geoid models, we can convert the ellipsoidal height to orthogonal height.

GNSS CORS Network supports

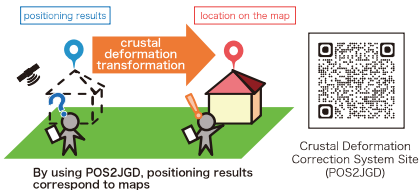
a High-precision Positioning Society

GNSS CORS data also serve as the basis for location in fields other than surveying, such as ICT construction and Smart Agriculture.

Augmentation information calculated from observation data from GNSS CORS is distributed by location-based service providers and 'MICHIBIKI' also known as 'Japanese GPS,' and is used to determine the real-time and highly accurate positioning of construction machinery, etc. Such systems help to improve work efficiency and resolve labor shortages in various fields such as construction and agriculture, and are more important than ever.

Positioning results

can be instantly aligned with maps



The Earth's surface is constantly moving due to crustal movements. However, since maps are created based on positions at a certain point in the past, there are differences between the "positioning results" and the "location on the map" that accumulates and expands over time.

In order to correct the differences caused by these crustal movements, GSI provide correction information from 'Crustal Deformation Correction System Site (POS2JGD)' to provide correction information.

This allows anyone to determine the "location on the map" from the "positioning results" and use location information in a variety of fields without having to be aware of discrepancies due to crustal movements.

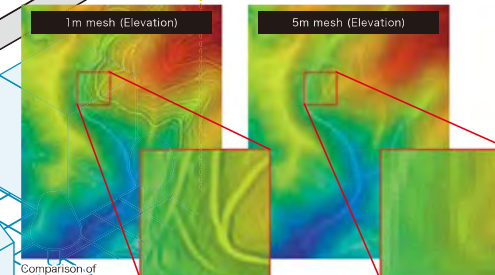
We are creating a 3D map of the entire country

as the basis of the digital twin



Digital Japan Basic Map transformed into 3D

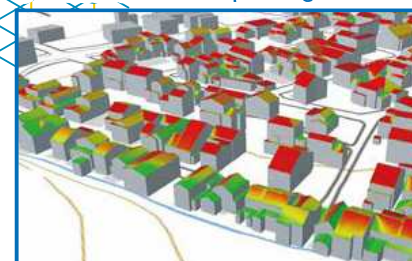
We are creating a 3D map of Japan by adding heights to the Digital Japan Basic Map using aerial photographs and highly precise elevation data. This is expected to build a digital twin for the entire country and contribute to DX in a variety of fields.



Comparison of different topographic data resolutions

Since 2008, GSI has been preparing and providing topographic data at 5m intervals. Since November 2023, we have been preparing and providing even higher resolution topographical data at 1m intervals. The ability to express detailed topographic features such as small streams that could not be expressed at 5m intervals has been increased, making it possible to perform more accurate simulations.

Simulation of solar power generation



Source: PLATEAU Usecase

Simulation of flooding

