

Ocean & land, positioning & surveying

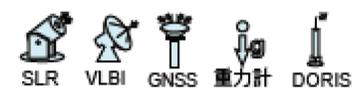
[Standardization of ocean & earth information]

Satellite observation technology has enabled precise positioning and surveying of land areas. And, with the advent of AUV, it became possible to obtain another dimensional precise survey result even on the seabed.

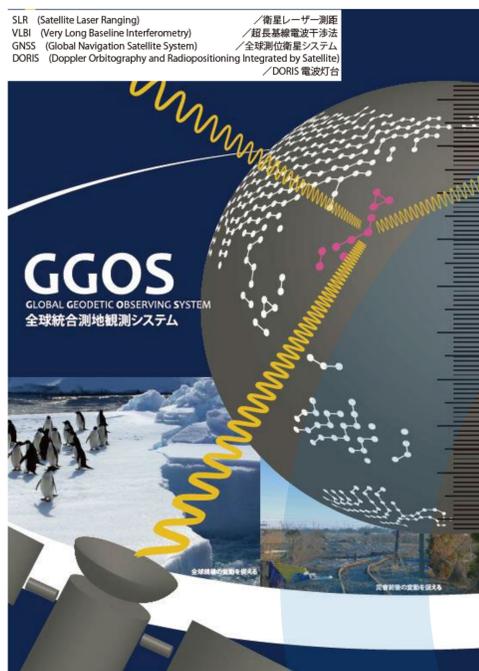
However, does it seem that seafloor surveying that looks high accuracy has enough error and accuracy? At Yokota Lab, along with land-based positioning and surveying information, we will proceed with evaluation and standardization of information and develop next-generation positioning information engineering.

Various positioning and surveying techniques on land

Earth geodetic system construction by space geodesy

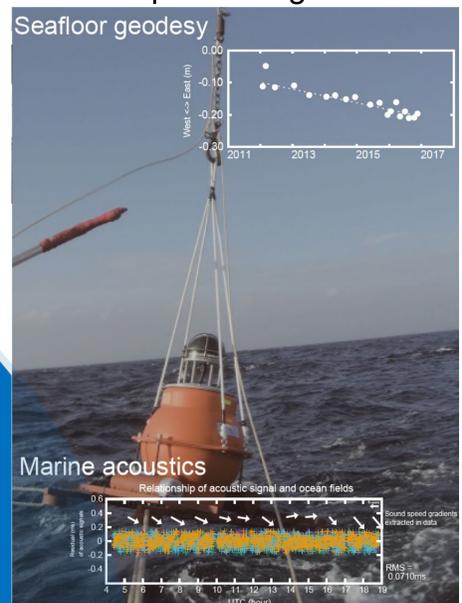


SLR (Satellite Laser Ranging) / 衛星レーザー測距
 VLBI (Very Long Baseline Interferometry) / 超長基線電波干渉法
 GNSS (Global Navigation Satellite System) / 全球測位衛星システム
 DORIS (Doppler Orbitography and Radiopositioning Integrated by Satellite) / DORIS 電波灯台



Evolution of seafloor positioning and surveying technology

GNSS-A positioning



$$\text{Error information } E = \sum_n \sigma_n^+ + \sum_n \beta_n$$

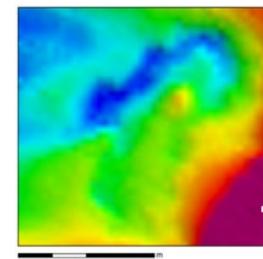
Standard construction of technology and data

Revolutionary AUV surveying

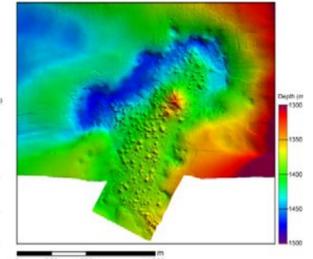


測量船による調査
水深が深いところでは、微細な海底地形は検出することができない

AUVによる調査
海底に近づくことで、水深が深いところでも微細な海底地形を検出することができる



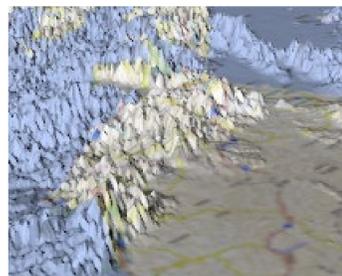
測量船で得た海底地形図



AUV「こんどう」により今回の調査で得た海底地形図

Tanaka, Suiro (176)

Land area survey by space geodetic technology @GSI



Satellite @JAXA



Daichi

Michibiki