

Observation system for ocean-bottom geodesy: Evaluation of accuracy in ship positioning using kinematic GPS analyses

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A dense GPS array covering Japanese islands operated by Geographical Survey Institute reveals nationwide crustal deformation with high. Northeastern Japan arc, however, is located at about 200km far from Japan Trench and the coupling region on the plate boundary is supposed to be exist beneath the seafloor between Japan Trench and Honshu Island. Thus ocean-bottom geodesy is the key for farther improvement in those studies. Scripps Institution of Oceanography, UCSD devised a new method of ocean-bottom geodesy using two survey technologies for positioning: acoustic ranging for beneath the water and kinematic GPS on the sea surface. We evaluate the accuracy in kinematic GPS analyses applied for two land-based continuous GPS stations which are not moved in a short time-period.