# Experiment on GPS/Acoustic precise seafloor positioning

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We carried out a basic experiment in Sagami Bay on precise seafloor positioning with kinematic GPS and precise acoustic positioning. A GPS antenna was fixed on the top of a pole and an acoustic transducer on the bottom. We corrected pole's motion on the GPS/acoustic positioning by a motion sensor. An acoustic ranging system developed under Ocean Hemisphere Project was used, but it worked only in a mode of 10-cm resolution. It was confirmed that GPS can accurately measure ship's motion of short period. However, the pole's motion could not be corrected, and root mean square of the discrepancies between the GPS and acoustic positionings was about 20 cm. We have to solve the problems in the acoustic system and time synchronization among GPS, motion sensor, and acoustic system.