

Basic experiment on precise acoustic ranging

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We have carried out basic experiments along a pier on precise acoustic ranging. Results of ranging with various acoustic signals at various baseline lengths show that propagation of a direct wave is considerably stable, if ambient acoustic noises are at low level. This result confirms the reliability of acoustic ranging. Although we have not examined the effects of large acoustic noises, which are usually the case for a experiment on board a vessel, numerical experiments have confirmed the effectiveness of the cross-correlation of an m-sequence signal. It seems that there are no serious problems against acoustic ranging, and it will be a realistic tool for monitoring seafloor crustal movement.