

## The study of solving underground structure using ocean bottom seismometer and artificial source

# Hiroaki Tanaka[1]; Hitoshi Mikada[2]; Yoshinori Sanada[3]; Yuzuru Ashida[4]; Azusa Nishizawa[5]; Kentaro Kaneda[6]; Shigeharu Mizohata[7]; Eiichi Asakawa[8]; Yoshinari Nakajima[7]

[1] Civil and Earth Resources Engineering, Kyoto Univ.; [2] Kyoto Univ.; [3] JAMSTEC; [4] Dept. Civil & Earth Res. Eng. Kyoto Univ.; [5] Hydrogr. & Oceanogr. Dep., JCG; [6] HODJ; [7] JGI; [8] JGI, Inc.

Ocean bottom seismometer (OBS) and artificial source are often used in large-scale researches into submarine underground structure. I consider some efficient analysis techniques of OBS's data and tried to image a velocity map of submarine underground structure. In the present, first, I applied refraction travel time tomographic inversion using synthetic OBS's data and I estimated influences of a low velocity sediment layer by including near-correct sediment velocity in the initial velocity model and found it possible to improve the result of inversion by using each travel time data set limited within a different offset. Finally, joint refraction and reflection inversion and Kirchhoff prestack depth migration was applied in order to reconstruct velocity discontinuous layer. As a result, velocity discontinuity by using migration was imaged. Application of refraction and reflection wave information provided near-correct velocity underground structure.