

Development of hydraulic low frequency marine seismic vibrator

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A towed marine seismic vibrator using hydraulic servo system has been developed. We have fabricated a mock-up source with a slightly, say 60-70 %, scaled size to the real design and conducted several evaluation tests in the sea. The vibrator was towed approximately at a depth of 250m in water. The performance such as maximum sound level, frequency characteristic, horizontal directivity, and vertical directivity of the sound field generated from the source mock-up was examined as a field experiment. The sound source level and the frequency characteristic were equal to or higher than the estimated specification between 3Hz and 300Hz. The comparizon of horizontal with the vertical intensity of the generated sound fields indicate that the generated sound field could be regarded nearly omnidirectional. Seismic survey trial using a short streamer was also conducted following the source characteristic examination. A shot gather was acquired by several emission patterns with different frequency bands in the trial. The results showed the performance of the mock-up to be usable as seismic source in shallow water as a vibrator source that uses mechanical oscillation structure.

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