

汽水域・沿岸域調査のための
ローコスト・コンパクトな音響調査機器
—サイドスキャンソナーのシステム化—

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Abstract

When geological surveys or environmental studies are carried out in brackish water lakes like Lake Nakaumi and Lake Shinji out, a sub-bottom profiler (SBP) which images the geological structure of the lake sediment and sidescan sonar (SSS) which reveals the microtopography of the lake bottom are essential survey equipment. However, conventional survey equipment was designed for marine operations, and as a result, it is big and difficult to use in lakes. A system was developed to introduce low-cost and compact sidescan sonar and sub-bottom profiler which can be deployed from a small boat, and easily used in the survey of the brackish water. The trade name of the digital sidescan sonar is SportScan (Imagenex Technology Corp., Canada) and the trade name of the sub-bottom profiler is StrataBox (SyQwest Inc., USA). In this paper, it focuses on the sidescan sonar. The low-cost sidescan sonar is composed of towfish and towing cable, and is connected to power (10-16VDC) and notebook PC directly with the shipboard towing cable. The operating frequency of the sidescan sonar is 330 kHz, available operating range is 15 m-120 m, and the best towing speed is 2-3 knots. Surveys of Lake Nakaumi and Miho Bay were carried out by combining sidescan sonar/sub-bottom profiler and a DGPS receiver, and navigation used map software "KASHMIR 3D". The sidescan sonar survey has produced a mosaic map of the sediment surface.