

多点型 CT センサケーブル

—測定システムの開発と汽水域での塩分・温度観測実験—

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Abstract

We have developed a multi-sensor, salinity/temperature measurement system based on the XCTD (Expendable Conductivity, Temperature & Depth Profiling System). The system utilizes five modified XCTD probe as its CT sensors. Each CT sensor is connected with a 500m long multi-wire cable at intervals of 50 m, and the cable is connected at its end to a measurement control and data logging system consisting of a notebook computer and peripheral components on land. The CT sensors are installed on the bottom of brackish water lakes and tidal rivers. The CT sensors are switched on in turn by computer control, and the measurement of conductivity and temperature is carried out. Salinity is calculated using measured conductivity and temperature data recorded inside the computer.

The system has following features.

- (1) On-line system. The system allows to get measurement data in real time.
- (2) Digital system. Digital output data of the CT sensor can transmit on the cable of maximum 10 km length.
- (3) The sensors have high sensitivity and accuracy.
- (4) Low cost sensors are used.

As the results of observation experiment carried out for two months in River Gonokawa and Lake Nakaumi located in western part of Honshu, Japan, salinity and temperature data were successfully obtained. The system could detect the movement of the salt water in a tidal river and a brackish lake.