



## Real-time Seismic Cable System

E. Asakawa(1), Y. Kawai(2), H. Takahashi(3), Y. Ogasawara(4) and T. Saeki(5)

(1)JGI, Inc.(asakawa@jgi.co.jp), (2)Nippon Salvage Co., Ltd., (3)OCC Corporation,  
(4)Kokusai Cable Ship Co., Ltd., (5)Japan Oil, Gas and Metals National Corporation

A new real-time seafloor seismic observation system has been developed by NSC, OCC and KCS. It was initially intended for large scale terrestrial crustal structure survey, and has since been modified for oil/gas exploration with the support of the JOGMEC. The system is named "Real-time Seismic Cable System (RSCS)". It is a series of 3-component geophones and telemetry opto-electronics equipped into a high pressure resistant housing, which are connected by optical submarine cable. The seismic data is immediately transferred to observation ship through the cable during acquisition. This system enables us to monitor the sensor's data stream in real time. By changing the sensors spacing, it can be used for refraction seismic surveys with a large spacing of around 3km, for reflection seismic surveys with a short spacing of 50m, and for natural seismic observation with spacing up to 20km.

RSCS has great advantages over the conventional OBS system, such as (1) Real-time data acquisition, (2) Accurate positioning, (3) Precise timing with GPS link on board and (4) Superior sensor directivity. Moreover this system can be operated in ultra deep sea up to 8000m, whereas the current industrial OBC system has a maximum operation depth of 2000m.

A refraction seismic survey has already been carried out, and natural seismic activity is currently being monitored at the seabed. Further, a reflection seismic survey will be tested very soon. The data quality so far is very good compared to the conventional OBS systems. The RSCS has a great potential as a seabed observation system.