

## Hydrothermal plume survey at the Southern Okinawa Trough

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During the R/V Hakuho Maru KH02-01 leg-3 cruise (June 2002), we investigated geographical distribution of hydrothermal plumes in the southern Okinawa Trough. In this area, hot fluid venting up to 222 deg-C was discovered at 1,300 to 1,400 m depths by Shinkai 2000 and Shinkai 6500 dives in 2000. However, geographical distribution of the hydrothermal plumes has not been studied in detail yet. We mapped geographical distribution of hydrothermal plumes using 4 autonomous plume detectors, MAPRs (NOAA/PMEL).

MAPRs were attached to the side-scan sonar system WADATSUMI (ORI, Univ. Tokyo). They recorded nephelometric, temperature, and depth records every 10 seconds. WADATSUMI ran from 123deg.10'E, 24deg.55'N through 122deg.46'E, 24deg.55'N (EW survey line) to 122deg.40'E, 24deg.50'N (NE-SE survey line) several times. MAPR experiments were done at this survey line 6 times.

We have found followings:

(1) In the E-W survey lines, we have not found any nephelometric anomalies. It indicates that there is no active hydrothermal venting along these survey lines.

(2) In the NE-SE survey lines over the SPOT area, we found several nephelometric anomalies at a number of water depth. It strongly suggests existences of the active hydrothermal venting associated with volcanisms at the volcanic front in this area.

(2)-1 At the water depths of 1,200 and 1,070m, strong nephelometric anomalies were detected. The former was found slightly NE of the SPOT area. The latter corresponds almost to the SPOT area.

(2)-2 At the water depths of 970 and 800m, weak nephelometric anomalies were also detected. The former was found at the SW of the SPOT and the latter at the further SW-position of the SPOT.