

## Vp/Vs ratio in the southernmost Japan Basin and its transition area, Japan Sea deduced from the seismic survey

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The Japan Sea is one of very well studied back-arc basins in the northwestern Pacific. To clarify the formation process of the back-arc basin in the Japan Sea, many seismic surveys using ocean bottom seismographs (OBSs) and control sources have been conducted in the sea. The Japan Basin, which located in the northern to eastern Japan Sea, has an oceanic crust formed by seafloor spreading (Hirata et al., 1992; No et al., submitted). On the other hand, the ocean-continent transition area between the Japan Basin and the continental shelf in the eastern margin of this sea may have a thick oceanic crust (No et al., submitted). However, it is unknown the origin and the nature of this thick oceanic crust, due to the lack of the information about lithology in the transition area. To understand the origin and the nature of this thick oceanic crust, it is necessary to obtain the information lithology in the crust of the transition and the basin areas. For this study, we will present the Vp/Vs ratio of the crust from the southernmost Japan Basin to its transition area.

From the southernmost Japan Basin to the continental shelf off the west of Aomori and the northern Oga Peninsula, seismic surveys using OBSs and an air-gun array were undertaken. In vertical record sections of several OBSs, not only the first arrived phases but also later phases reflected from interfaces in the crust and uppermost mantle are visible. Moreover, in horizontal record sections of several OBSs, converted phases from P- to S-waves are apparent. In this study, we have obtained the S-wave velocity structure using travel times of these converted phases. Then, we have obtained the Vp/Vs ratio in the crust from the southernmost Japan Basin to its transition area using the obtained P- and S-wave velocity structures.

In the southernmost Japan Basin off west of Aomori, the Vp/Vs ratio in the sedimentary layer of shows 4 to 8 and has a lateral variation. The Vp/Vs ratios in the crustal upper and lower parts show around 1.85 and 1.8, respectively. On the other hand, in the transition area, the Vp/Vs ratio in the crustal upper part is similar to that in the southernmost Japan basin. This Vp/Vs ratio may show that the nature of the whole crust in the basin area and of the crustal upper part in the marginal area has an oceanic origin. Therefore, the crusts in southernmost Japan Basin and in its transition area are suggested as an oceanic crust and a thick oceanic crust, respectively. The oceanic crust formed by the opening of the Japan Sea may extend to the transition area of the southernmost Japan Basin.