Implication for variability of the coastal water in the northern to middle Okinawa Trough during the last glacial period

*Keita Saito[1], Tomo Aoki[1]

1. Japan Coast Guard

The variability of water masses in the Okinawa Trough since the last glacial period has been reconstructed by using proxies such as assemblages of foraminifera and diatom and oxygen isotope ratios of foraminifera. In Danjo Basin, which is located in the northernmost part of the Okinawa Trough, it is indicated that the coastal water had affected between MIS 3 to deglaciation, while its magnitude became stronger during the last deglaciation (Xu and Oda, 1999; Ujiie et al., 2003; Ijiri et al., 2005). On the contrary, in the middle part of the Okinawa Trough, the coastal water had affected continuously between MIS 3 to the last deglaciation (Chang et al., 2008; 2009).
In this study, we show a preliminary result of the variability of the coastal water around the western part to western slope of Okinawa Trough since the last glacial period, mainly using assemblages of the planktic foraminifera in the sedimentary cores.
As a result, both of cores recovered in the northern and middle part of the Okinawa Trough show similar results; namely (1) a decrease of the coastal water species simultaneously occurring with an increase of the Kuroshio water species, (2) so called "Pulleniatina Minimum Event" around 4ka, which are consistent with previous studies. As to before LGM around the boundary of the northern and middle Okinawa Trough, a strong and continuous influence of the coastal water is suggested around the western slope of the Okinawa Trough, based on the high frequency of the coastal water species. This trend seems to resemble to the trend around the middle part of the Okinawa Trough rather than that around the Danjo Basin.
In this presentation, it is difficult to discuss the variability of the coastal water in detail due to the low temporal resolution and absence of other proxies such as oxygen isotope ratios. However, the increase of the temporal resolution, combined with assemblage of foraminifera in the surface sediments around the cores and other proxies, might enable to reconstruct the variability of the coastal water in the western vicinity of the main axis of the Kuroshio Current or the boundary of the northern and middle part of the Okinawa Trough since the last glacial period in detail.

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