Two different sources of turbidity currents along the southern Ryukyu forearc

*Ken Ikehara[1], Toshiya Kanamatsu[2], Kazuko Usami[1], KanHsi Hsiung[2], Taku Ajioka[1]

1. Institute of Geology and Geoinformation, National Institute of Advanced Industrial Science and Technology, 2. Japan Agency of Marine Science and Technology

There is a series of forearc basins deepening eastward along the southern Ryukyu islands to East of Taiwan. To understand the depositional processes of the southern Ryukyu forearc area and to obtain more precise recurrence interval of turbidite deposition, we collected sediment cores from the forearc basins. A core collected from a terminal forearc basin at SW of Iriomote Island contained thick and massive muddy turbidites with sharp erosional basal contact and thin sandy layer composed of lithic fragments. Similar but thin-bedded muddy turbidites occurred in the cores from the Ryukyu Trench floor. Two cores from a further east forearc basin also intercalates with the similar muddy turbidites but also with thick calcareous sandy beds with chaotic structures. On the other hand, many turbidite beds composed of bioclastic carbonate grains were intercalated in calcareous silt in the cores obtained from a small submarine fan at the mouth of a submarine canyon at SW of Ishigaki Island, further east of the terminal forearc basin. Comparison of lithology of four cores from the fan indicated the temporal shift of depocenter of turbidites. This suggests that at least some cores need to reconstruct the depositional history of the turbidites on the submarine fan. Bathymetric characteristics of the southern Ryukyu forearc suggests that most probable origin of the clastic muddy turbidite is Taiwan, and that of the coarse bioclastic sandy turbidite is coastal area of the southern Ryukyu islands. High rate of uplift of central Taiwan might contribute frequent generation of turbidity currents, which supply large amount of fine-grained sediments toward East to the southern Ryukyu forearc and Ryukyu Trench.

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