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Study of tsunami deposits along west coastal area of Kagoshima Prefecture, Japan

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In the west coast of the Kyushu district, there is no plate boundary in the front, and there is few record of an earthquake and tsunami. There are little investigations and researches of tsunami deposits in this area compared with East Coast facing the Pacific Ocean. However, reexamination of the disaster prevention planning in a coastal area is advanced by the occurrence of the 2011 off the Pacific coast of Tohoku Earthquake, and it is necessary to expand the data about the past tsunami history.

We have investigated the literature about records of the disasters of tsunami, and observed drilling core. We read aerial photos and topographical maps, and classified topography such as beach ridge, sand dune, backswamp. Based on the geographical classifications, we confirmed geographical features and existence of reclaimed land, and determined the survey sites. Drilling cores were taken in ten sites along the west coastal areas of Kagoshima Prefecture. In order to clarify lateral continuity of sediments, several cores were taken at each site. In consideration of sea level change, we collected sediments after about 6,000-7,000 years ago.

We acquired X-rays CT images to visualize internal structure of sediment three-dimensionally without destroying core. After having photographed X-rays CT image, we divided the core into half in lengthwise direction and observed the surface. Sediments are dated using radiocarbon dating and tephrochronology.

Some event deposits are identified in the drilling core taken from Gumizaki site, Nakayama site and Hashima site. Ages of these event deposits are around 7,000 cal BP and 9,500 cal BP (Gumizaki site), 3,500-2,500 cal BP (Nakayama site). However, these event deposits are not defined in other sites. These event deposits were possibly made by local event.

We found the layer including volcanic glass derived from the Kikai-Akahoya tephra in drilling core which were taken from Gumizaki site. The layer was possibly carried by the event accompanied with explosion of Kikai caldera.

In this presentation, we discuss the depositional environmental changes and the origin of event deposits by analysis of microfossil and detail observation of cores.

Keywords: tsunami deposits, event deposits, Kagoshima Prefecture