Japan Geoscience Union Meeting 2010
(May 23-28 2010 at Makuhari, Chiba, Japan)

HQR011-12 Room: Exibition hall 7 subroom 3 Time: May 28 12:00-12:15

Sedimentary environment of Holocene deposit in the Osaka Plain -On the point of the pore water chemistries-

Naoko Kitada[1*], Hiroko ITO[1], Keiji Takemura[2], Muneki Mitamura[3]

[1]Geo-research Institute, [2]Dept. Sci. Kyoto Univ., [3]Dept. Sci. Osaka City Univ.

In Osaka Plain, Pliocene to Quaternary sediment 'Osaka Group' and terrace sediment are deposited. These are covered with Holocene deposit at the lower plain and around Osaka bay area. These deposits include fifteenth layers of marine clay; refer to Ma-1, Ma0, and Ma1 to Ma13. Geological study indicates that these alternating clay layers are deposited due to glacial and interglacial cycle. Ma12 and Ma13 are Late Pleistocene and Holocene sediment respectively and are distributed near surface. Geo-database Information Committee of Kansai Area has developed the geotechnical database around Kansai Area. For the development of the geo-database, urban area has been focused because of its social and economical importance. The section across the river (N-S section) indicates that transgressions start in the riverbed and this riverbed corresponds to the distribution of the old natural river. Estuary deposit is expected to be distributed in the riverbed around the lower plain. These distributions correspond well with the alaeogeographic map and indicate that to extract information on the sedimental environment, it is worthwhile to take into account the information of the geotechnical soil properties.
At the point of maximum water depth (about 5000 cal yBP), the coastline is distributed right by Uemachi Uphill. These environments form a sand bar along the west side of Uemachi uphill and a brackish environment in Kawachi plain. These environments give rise to a distinctive trend known as 'quick clay.' The 'quick clay' is distributed in the Kawachi plain, especially along the river. Because these rivers confluence at the north point of Uemach uphill, stream water will stagnate around the confluence point. Alluvial sand layer also indicates the characteristic of each sedimental environment. In this study, we try to study the chemical properties using the pore water. The pore water not indicates the sedimental environment perfectly, but it might be indicate the general tendency of its initial sedimental environment. Samples are provided both of east and west Osaka Plain and Kansai Airport. The results of these areas indicate west Osaka alluvial clay is exactly marine clay. However, east Osaka alluvial clay is almost brackish clay. In general, quick clay is caused by 'leaching' that is marine clay became altered, but the result of this study indicate the east alluvial clay is not caused by leaching.

Keywords: alluvium, borehole, database, pore water, sedimentary environment