So called Marine Alluvium in the Seto Inland Sea

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1.Introduction:Earlier theories of Alluvium stratigraphy in Japan are as follows. 1. Alluvium is subdivided into two parts, namely, upper and lower Alluvium based on faces of strata. For example, they are called Yurakucho formation - Nanagochi formation, Ariake clay formation -Shimabarakaiwan formation and Alluvium A -Alluvium B. In these relationships, the former overlies the latter. 2. Boundaries between the two formations show sometimes undulations and sometimes intercalations of sand or gravel layer which mean the existence of unconformity. 3. Another evidence of unconformity is the data of antecedent loading which means the existence of deposition and erosion of the strata. 4. In some part of the Alluvium, the bottom is two fold which means existence of two cycled sedimentation in Alluvium. 5. Distribution areas of Ariake clay formation - Shimabarakaiwan formation and Alluvium A -Alluvium B well correlate with those of surface sediments in each bay. This means that the latter formation is related to the sandy sediment near bay mouth and the former formation is related to the muddy sediment of inner bay. 6. Division of Alluvium A and Alluvium B is based on the visual difference of acoustic record not on the depth of reflectors.

2.On the subdivision of Alluvium based on acoustic record -related to items 5 and 6 :

Huzita and Kamada (1964) subdivided Alluvium in the Osaka bay based on visual difference of acoustic layers. Light gray pattern is dominant in Alluvium A distribution area. On the ther hand, Alluvium B shows grizzled pattern. They argued that distribution of Alluvium A and Alluvium B well correlates with those of muddy sediments in the inner part of the bay and sandy sediments near the bay mouth.. Ariakekai Research Group (1965) also argued that Shimabarakaiwan formation not only underlies Ariake clay formation but also outcrops at -40m flat surface near the bay mouth as sandy sediment. Inouchi (1990) showed that the depths of clear reflectors in the record coincide well with those of wide spread tephras, namely, Kikai -Akahoya and Ullung - Oki tephras. He also showed that the distribution of bottom surface sediment does not agree with the sedimentary map of Oceanographic Observatory (1936) that is cited in Nakaseko (1953) etc. and argued that there is no evidence that shows the coincidence of the boundary of acoustic record pattern with that of surface sediments.. He showed that the muddy sediments in the bay and the sandy sediments near the bay mouth are in the relation of a contemporaneous heterotopic facies because they belong to the same layer in acoustic record and grain size of sediments changes gradually from bay mouth to inner bay area.

3.On the unconformity between the Yurakucho formation and Nanagochi formation - related to items 2 and 4

Endo (1983) described that there are undulations and sand and/or gravel layers (HBG) that show the existence of unconformity between Yurakucho formation and Nanagochi formation and that the depth distribution of HBG ranges from 10m to 50m below sea level. The age of the unconformity is considered as Younger Dryas time. Sedimentation of Alluvium has been performed during the postglacial transgression. Consequently, unconformity which is found in the Kanto Plain will also be found in the Seto Inland Sea and other sea areas, if it exists. But, there is no evidence of such transgression nor regression of more than 40m during the short interval of Younger Dryas time. In addition, there is no evidence of erosion of lower strata that means regression. Two fold sedimentary sequence which is reported in the Tokyo bay do not distribute widely in the Seto Inland Sea.