

Facies of late Pleistocene to Holocene marine sediment of Osaka Bay

Yoshio Inouchi[1]

[1] CMES, Ehime Univ.

Introduction

Reconsideration of the stratigraphy of late Pleistocene to Holocene marine sediment is under way. In this presentation, result of correlation between sedimentary facies of drilled core by Yoshikawa et al. (2005) and acoustic stratigraphy obtained through Uniboom acoustic survey is discussed.

Methods

Track line of acoustic survey lies along the axis of Osaka Bay from the southwest to the northeast, and its length is about 50km. Drilling site locates off Yumeshima of Osaka city which is shown in Yoshikawa et al.(2005).

Acoustic record

Brief description of acoustic records is shown in Inouchi(1990). Two remarkable continuous reflectors can be observed which are correlated to Kikai-Akahoya tephra layer of 7300yBP. and Ulleung-Oki tephra layer of 10,500yBP.

Detailed study of acoustic records enabled further discussion about stratigraphy of marine sediments. Transgressive systems tract which shows back-stepping toward inland can be observed just under c reflector underlain by basal sandy gravel sediment of late Pleistocene to Holocene sediment which does not show remarkable stratification.

High-stand systems tract which shows clinof orm of sedimentation toward offshore can be observed at depth of 30 to 45m. This systems tract intercalates remarkable reflector a of Kikai-Akahoya tephra layer. This systems tract is overlain by and underlain by flat-lying reflectors and well observed at the center of the bay excluding at the southwestern part of the bay.

Correlation to the drilled sediments

Depth correlation of sedimentary facies and systems tract shows that transgressive systems tract is correlated to Unit 2a and Unit 2b and underlying strata of non stratification can be correlated to Unit 1. High-stand systems tract can be correlated to Unit 3a and Unit 3b. Bed rich in fossil shell fragments is observed at one meter above the bottom of the Unit 3a, which is correlated to the Maximum flooding surface, that is the boundary of TST and HST. Kikai-Akahoya tephra layer is observed one meter above this bed.

Yoshikawa et al.(2005) regarded Unit 2 as the sediment of estuary environment formed at the beginning of transgression and Unit 3 as the sediment of bay bottom.

In conclusion, late Pleistocene to Holocene marine sediments can be divided into two facies of so called Nanagochi facies which shows sedimentation at estuary environment and so called Yurakucho facies which shows that at bay bottom based on sequence stratigraphy.