

## Alluvial deposit in Ooita Plain : Sedimentary facies and its change caused by fault - displacement

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Sedimentological and palaeoecological studies using full-recovered drilling-cores and seismic reflection survey, ordered for the research of buried active faults, revealed faults-controlled sedimentary features of so-called alluvial deposits in Ooita Plain.

Mainly two parallel-oriented faults are presumed beneath Ooita Plain by drilling-core data analysis and confirmed by the seismic reflection survey.

In the south of the southern fault (landward side), the strata directly covering the basement rocks are Holocene deposits or thin last glacial-post glacial terrestrial deposits. In the north of the fault (seaward side, in the area between two faults), last interglacial deposits including pollen fossils, which indicate warm environments, thickly cover the basements and in the north of the northern fault (more seaward side), the last interglacial deposits are considerably thicker than that of the southern side.

In the Holocene deposits, K-Ah(Kikai-Akahoya) tephra ,erupted at 7,300 year BP, is broadly distributed and 05-1m in thickness. The tephra is a good key-horizon and divides the deposits into two units, the lower unit and the upper one. The lower unit shows an upper-finning and -deepening faies change, on the other hand, the upper unit shows an upper-coarsening and -shallowing one. Thickness of the Holocene deposits is increased from south to north, 40-60m at the western side of the Ooita River, about 90m at the mouth the Oono River, and more than 100m in the past offshore and now reclaimed area.

Fossil shell assemblages of the horizons closely below and above the K-Ah tephra show most deepened marine environments and the sedimentation rates of strata directly below the tephra are greatly lower(0.02-0.06cm/year) than the rates of other horizons(0.4cm/year or more), they are condensed sections. So the horizon of K-Ah tephra is considered to be a maximum flooding surface(MFS), lower unit is TST and upper unit is HST. In seismic reflection profiles of HST, delta front deposits, showing seaward progradation, are clearly recognized.

Displacements of the K-Ah tephra by the buried faults are 10-30m. This great fault activity caused the difference of sedimentation rates and sedimentary facies between the both sides of the faults. Sedimentation rates of the strata on the downward side of the fault are 1.5-1.7 times greater than the rates of the upward side. The facies of the downward-side strata shows repeatedly rapid subsidence and burying of the basin, the amounts of subsidence per fault-activity are several meters or so.

