

## Depositional environment of the recent Yangtze Delta sediment deduced from the natural gamma-ray spectroscopy of YD13-G2

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The Yangtze River has transported approximately 500 mt/yr of sediments which formed a well-developed tide-dominated delta on its mouth during the Holocene high-stand. Sediment transport is dominant in rainy summer season or during flooding events, and the 40% is deposited in the estuary and the remaining sediments are transported offshore by tide forming a submerged delta or re-transported southward during stormy winter season. Due to these seasonally contrasted and event driven feature of sedimentation, spatial distribution of the accretion and erosion of the delta body is highly heterogeneous.

The Holocene subaqueous delta sediment has been also used as good sediment archives of the history of the Yangtze discharge and flooding due to its high sedimentation rate and good coverage of the Late Holocene. We also performed drilling of the delta sediment and collected two ~30 m drilling cores and four gravity cores in order to reconstruct the flooding history and the associated change in the detrital provenance. The drilled site (YD-13) is located on clayey bottom with the water depth of 40 m. The top 10 m of the sediment core consists of homogeneous clay with rare sand patches, which could be formed during the Holocene high stand. One of the gravity core (YD13-G2) recovers the 140 cm of surface sediments, and we decided to examine the natural gamma-ray spectrum and stacking pattern of this gravity core at 1 cm resolution in order to stationarity of sedimentation.

Since Cs-137 was not detected from the YD13-G2 sediment, even the surface material was judged to be older than 1950. Pb-210 is detected from the top 50 cm interval, which suggests the near-surface sediments were deposited during these ~100 yrs. However, the vertical profile of Pb-210 shows highly variable from zero to 25 Bq/kg with zigzag shape, which suggests repeated intercalation of old materials. Th-234 / K-40 and Ac-228 / K-40 ratios varies consistently suggesting some varieties in the provenance or grain size. Further examination is necessary to resolve potential event sedimentation and the apparent age of the related sediments.

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