# River-Sea Interaction and the Eastern China Plain Evolution

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## Abstract

River-sea interaction has impacted greatly on the formation of the eastern plains of North China. In particular, the Yellow River and its tributaries have transferred vast volumes of sediments from the Loess Plateau to the sea. From the Pleistocene to the present, great volumes of sedimentary materials have been deposited on the North China Plain. The North Jiangsu Plain located on the northern side of the Changjiang River is another example formed by river-sea interaction. The plain is 200 km wide as measured from a series of lakes in the west located at the foot of small hills and low mountains arranged in arc-shaped bay patterns towards the Yellow Sea. The Grand Canal was dredged through these lakes and depressions in the 7 century some 1400 years ago. On the east side of the plain, an artificial dike was constructed along a band of coastal chenier ridges during the Song Dynasty ( 1127 AD). But at present that dike system is 40 km inland to the west of the present shoreline. There is a sandy ridge field off the North Jiangsu Plain in the southern Yellow Sea. Geomorphological research indicates that this sand field was deposited around 30,000 a B.P., at which time the Changjiang River had migrated north to enter the Yellow

Sea in the Qianggong area of the present North Jiangsu Plain. The river deposits were reworked by strong tidal currents driven by > 9 m tidal ranges during the post-glacial transgression and a period of higher sea level. At present the sandy ridge field occupies an area some 200 km long from north to south, and 150 km wide from land to sea in a radiative pattern. The total area is ～ 20000 $km^2$ consisting of 70 ridges with deep channels between them. Water depth of the offshore sandy ridges is ～10-20 m, but with 1/10 of their area above sea level. With the protection offered by the offshore sandy ridge field, tidal flats developed along the coastline behind these ridges, even though the Changjiang River had shifted back to the East China Sea, and the Yellow River returned to the Bohai Sea. This formation mechanism may indicate the way that the North Jiangsu Plain formed in the past.

This present study was carried out on the inner plain to trace more evidence of an original west boundary of the Yellow Sea, and has been stimulated by the discovery of several salt mines which were discovered buried in the inner part of the plain.