



Impacts of sea-level change on human activity at the early Neolithic forager/cultivator site, Kuahuqiao on the east coast of China

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The date and location of the adoption of rice cultivation by foraging cultures in China is of considerable current interest but its understanding is hampered by a lack of information regarding its palaeoenvironmental context. We present detailed multi-proxy palaeoecological research at the earliest-dated site of rice cultivation in the coastal area of east China which has revealed the precise environmental setting of this early Neolithic settlement and its incipient cultivation at c. 7750 cal. BP. Regional and local environmental changes governed the character of the site and the duration of human activity. The rise in relative sea level up to 8000 cal. BP prompted the development of coastal wetland environments at the head of the Hangzhou Bay. A short period of stable sea level allowed natural hydrological succession and terrestrialisation of the site changing from a brackish/freshwater lake to a freshwater marsh/alder carr, which attracted Neolithic foragers to settle and take advantage of the plentiful food resources present in the wetland, wild rice in particular. After a fire clearance of an alder scrub that prepared the ground for settlement, the Kuahuqiao people maintained a reedswamp-type wet grassland in which rice was grown. As relative sea level rose again around 7600-7500 cal. BP, artificial bunding was used to retain nutrient rich water and prevent tidal flooding to provide rice with the consistent water regime it requires. Such bunding resulted in blockage of water which promoted the growth of aquatic plants such as Cattail. Cropping of Cattail stands may have formed part of the subsistence base. The site was overwhelmed by marine inundation around 7400-7200 cal. BP as relative sea level rose rapidly for a couple of meters, after which rice cultivation spread to Neolithic sites of Hemudu type elsewhere in the coastal lowlands.