

Holocene Record of Typhoons in the Vicinity of the Pearl River Estuary, Southern China

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Inner shelf Holocene coastal deposits, historical documentation and instrumental record in the vicinity of the Pearl River Estuary, southern China have been studied to provide information on the frequency of typhoons. Shell-rich layers with a high diversity of foraminifera species including both estuarine and open shelf varieties found in inner shelf cores have been interpreted to be caused by typhoons. However, the sea-floor sediments down to a depth of about 3 m below seabed representing approximately the last quarter millennium based on the level of heavy metal contamination is problematic. It is difficult to distinguish between typhoon activity and bioturbation, the latter particularly through shipping activities and trawling to obscure the signature of typhoons. Out of the five cores investigated, 17 storm beds are the largest identified in the Holocene succession. The record of historical documentation in southern China dates back at least to the 10th century. Five severe typhoons based on reported damage and death toll occurred in 1245, 1422, 1874 and 1862. In the 1862 event, the largest death toll of 80,000 lives was reported. Between 1422 and 1790, the period before the Little Ice Age in Europe was relatively free from disastrous typhoons. Since the Second World War, the record of the Hong Kong Observatory, shows a peak period of typhoon activity between 1955 and 1969 indicated by a 5-year running mean of over 30 typhoons/annum in the northwestern Pacific. From 1970 onwards, there was a sharp decline in the number of typhoons entering the South China Sea during the years influenced by strong ENSO activity.