



Sedimentation and paleoenvironmental evolution in the China seas since the late Pleistocene

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Chinese seas include the Bohai Sea, Yellow Sea, East China Sea and South China Sea. Systematic investigations on the sedimentary geology of the above-mentioned seas have been carried out during 2004-2011 through the project of "Synthetic Investigation and Research on the Chinese Marginal Seas". Around 21700 surface sediment samples and 1250 sediment cores have been collected for the detailed study. Around 75300 km of seismic profiles and 15220 sites of suspended matter investigation have been completed. Major advances of our study are as follows.

1. Sedimentary distribution map of 1:25 0000 of Chinese shallow seas has been compiled, with the special emphasis on the harbor, bay and delta regions at 1:50000 scale. Meanwhile, an atlas of the marine sediments has been published. Several issues related to the sediments partition and variations in suspended matters and their controlling factors have been discussed. The sedimentary classification, provenance, characteristics of mineralogy, geochemistry, microfossils, physical and mechanical characteristics, content and turbidity of suspended matter have also been addressed.
2. We also compiled images of seismic profiles and its interpreted pictures, depth of representative strata boundary for Chinese seas. We have attempted to clarify the characteristics of sequence stratigraphy in these four seas since the Last Deglacial Period. Disaster geological bodies, such as sea-bottom sand waves, shallow gas and buried channel/exposed rock have been delineated.
3. High-resolution Holocene stratigraphy and time series of estuary, subaqueous delta and mud deposits in the inner shelf regions of Chinese seas have been established by using sedimentology, mineralogy, geochemistry and sequence stratigraphy. The possible responses of sea-level variations to environmental changes have also been clarified tentatively.
4. Based on the investigation of sedimentary cores, we have constructed the lithostratigraphy and magnetostratigraphy of the Bohai Sea for the last 1 Ma, and recognized nine transgression-regression cycles in this region. Likewise, based on the core from south Yellow Sea, we reconstructed the lithostratigraphy and magnetostratigraphy of the south Yellow Sea since 1.9 Ma and discussed the sedimentary environmental change and its relation with past climatic conditions and sea-level changes.