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Sediment accumulation and budget in the east China seas

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Sediment accumulation and budget in the continental margins provides abundant information of source-sink processes from the land to the sea, including weathering, human activities and sedimentary environment. Here we show the distribution of mud areas, modern sedimentation rates and sediment budget in the Bohai Sea, Yellow Sea and East China Sea. Using grain size data of more than 18 000 surface sediment samples and 210Pb data from 413 sites, we identify five areas with sediments mainly composed of fine-grained fractions (mean grain size more than 6 φ) and find a relatively high sedimentation rates of >1.5 mm/yr in the mud areas. Near the Yellow and Yangtze River deltas sedimentation reaches >95 mm/yr. Approximately 1185$\times$106 tons of fine-grained sediment accumulate annually in the mud areas of the east China seas. Atmospheric deposition contributes <2% (18.37 $\times$106 tons/yr), while the riverine sediment inputs account for >75% (917$\times$106 tons/yr). The remainder comes from all other sources including coastal erosion and resuspension of bottom sediments. In addition, $\sim$45% of the fluvial sediment supply deposits on the subaerial delta, $\sim$40–50% is trapped on the subaqueous delta and shelf, and the remainder less than 5% escapes the shelf edge. The results will be a strong foundation for understanding of the transport, deposit and preservation of sediment and other relevant material [U+FF08]e.g. carbon and nutrient etc. [U+FF09]of terrestrial materials in the sea.