

## **Rare metal elements in surface sediment from five bays on the northeastern coast of the South China Sea**

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We studied the distribution of rare metal elements (Zr, Sn, Ti, Y, Nb, Ta, Ce, La, Nd, and Th) in surface sediments from five bays along the northeastern coast of the South China Sea. The results of the study elucidated the main controlling factors and the mineralization potential of these bays as metals placers. The rare metal elements contents of surface sediments are highly variable but show clear geographic regularities. The content of all studied elements in this area decreases from east to west, with the maximum average content in Shantou bay, which also contains the overall maximum element content. The minimum overall contents were found in Daya bay. The weak correlation between the fine sediment fraction and these elements suggests that they occur mainly in the form of metallic minerals. The relative abundance of these elements in the two easternmost bays (Shantou and Zhelin bays) is attributed to the large amounts of terrigenous material input by the Hanjiang River, and other small rivers. Shantou and Zhelin bays sediments are rich in zircon, cassiterite, ilmenite (or rutile), xenotime, monazite, niobium tantalite, and other rare metal minerals. Thus these bays are good prospects as rare metal placer resources. Shanwei and Dapeng bays show mineralization potential mostly for zircon and ilmenite (or rutile), respectively.