

**Transect variation and controlling factors
of redox sensitive element contents of
surface sediments in the South China Sea:
Implications for seafloor redox
environment**

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Selected major and trace elements (Al, Ti, Fe, Ca, Mn, V, Cr, U, Mo, Sr and Ba) of the 75 surface sediment samples collected from four typical transects in the South China Sea (SCS) are presented to investigate their transect distributions and variations, main controlling factors and environmental implications. The results suggest that the redox sensitive element (RSE; herein referred to V, Cr, U and Mo) of the surface sediments in the SCS may be sub-divided into two categories: (1) V, Cr and U, (2) Mo. The redox condition is not the key controlling factor of the RSE distribution in the SCS. Similar variation trends of V, Cr and U in each transect can be attributed to their substantial terrigenous source, namely, a large amount of them store in detrital particulates rather than redox-related enrichment. Mo is enriched with respect to the upper continental crust but a smaller enrichment magnitude relative to that under anoxic or euxinic environment, and a greater proportion of Mo enrichment is caused by the adsorption of Mn-oxyhydroxides. The authigenic biogenic carbonate dilutes the content of RSE for its low RSE abundances. The low authigenic enrichment of RSE in the surface sediments suggests current well-ventilated and oxic environment in the SCS on the whole.