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GEOCHEMICAL CHARACTERISTICS OF REDUCED INORGANIC SULFUR IN A COASTAL ENVIRONMENT, BOHAI BAY, CHINA

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Geochemical cycling of reduced inorganic sulfur in sediments may affect water quality. This study investigated the reduced inorganic sulfur distribution and environmental behaviour in superficial sediments in different watersheds and coastal zones in Bohai Bay, China. Acid volatile sulfur (AVS), chromium (II)-reducible sulfur (CRS) and elemental sulfur (ES) distributed in surface sediment were quantified. Total organic carbon and total nitrogen were presented in higher concentrations in the fluvial sediment than the coastal sediment, and were also higher in both types of site in the north compared to the south of Bohai Bay. The composition of reduced inorganic sulfur (RIS) in surface sediment was dominated by CRS and AVS (39% and 38% of the total RIS, respectively), with ES only accounting for 23% of the total. In marine sediments, sulphate reduction and formation of sulphides were controlled by TOC, and the high organic content stabilized a large proportion of the sulphide as AVS. Conversely, in fluvial sediments, sulphide formation was limited by the availability of sulphate.

Key words: coastal zone, inorganic sulfur, river, sediment, watershed

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