

Geochemical characterization of the Choshui River derived terrigenous material and deposition on fluvial and coastal environments

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Abstract

Mountainous rivers are indeed most important for global sediment flux to the ocean. Rivers in Taiwan are characterized by huge amounts of suspended particle exporting to the ocean. A detailed examination of chemical composition in suspended particles and sediments can provide valuable information concerning suspended sediment source, weathering, deposition and transportation. Despite the growing interest in the study of the subtropical mountainous river in Taiwan, little information is available regarding the sedimentation in this region.

Choshui River, the largest river in Taiwan, transports approximately 63 million tons/year of suspended sediment to the ocean. We examined the temporal variations of suspended particles and sediments in the Choshui River and coastal area. The primary goal of this study was to understand geological environments and processes as well as transportation in suspended sediments of the Choshui River. The study showed that large temporal variations of total suspended matter, bottom sediments and particulate metals were observed in the Choshui River and coastal area. Typhoon event is a dominating factor controlling the variations of suspended matter export. Huge amounts of total suspended matter and aluminosilicate mineral content are two of the most important factors modifying temporal variations of particulate metals in the Choshui River and coastal sediments