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Radioactivity and heavy metal concentrations and assessment of hazard indices in sediments from Zhushan bay at Taihu Lake, China

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Surface sediment cores from the Zhushan bay of Taihu lake in China were collected. In this study, the concentration of eleven heavy mentals(Al, Co, Cr, Cu, Mn, Ni, Ti, V, Zn, Pb, Cs) and the radioactivity of two radionuclides (210Pb and 137Cs) were investigated. The mean concentration of Cr, Cu, Ti, Pb indicated is slightly higher than the background values, and the rest doesn't exceed the background value. Compared with the levels in the Environment Quanlity Standard for soils of China (EQSS), the mean values of main heavy metals, such as Pb, Zn and Cr, is located level 1 of soil quanlity, which showed the concentration of these elements is ordinary in the sediment. while the concentration for Cu is located level 2 which indicated there is minor enrichment for Cu. The situation was confirmed by the enrichment factor (EF) of heavy metals showing the samilar result. In terms of radioactivity concentration for 210Pb and 137Cs, the mean 139.9 Bq/kg for 210Pb and 21.3Bq/kg for 137Cs were more lower than the limited value 260 Bq/kg and 120 Bq/kg according to the Standard soil of quality assessment for Exibition site (SSQAE) of China. The study result implied that the lacustrine sediment can be retired to the farmland or used to be construction materials in the ecological enginnering of dredging process.

Primary author: Mr ZHANG, Mingli (School of Geography Science, Nanjing Normal University; Center for Nuclear Technology, Technical university of Denmark, Risø Campus)

Co-authors: Mr YANG, Hao (School of Geography Science, Nanjing Normal University); Ms QIAO, Jixin (Center for Nuclear Technology, Technical university of Denmark, Risø Campus, DK 4000 Roskilde, Denmark); Mr HOU, xiaolin (Center for Nuclear Technology, Technical university of Denmark, Risø Campus)

Presenter: Mr ZHANG, Mingli (School of Geography Science, Nanjing Normal University; Center for Nuclear Technology, Technical university of Denmark, Risø Campus)

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