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# Mercury enrichments during the Carnian Pluvial Event (Late Triassic) in South China

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The Carnian Pluvial Event (CPE) was an interval marked by global climatic and environmental change, along with biotic turnover, which occurred during the early Late Triassic. Although the causes and consequences of this event remain unclear, one possible scenario is enhanced volcanism injecting greenhouse gases into the atmosphere, perturbing the global carbon cycle, and negatively impacting the global environment. However, there is an underlying challenge in showing a true cause and-effect relationship between volcanism and the CPE, as both the sedimentary and volcanic records are difficult to date accurately enough to demonstrate temporal correspondence. However, mercury (Hg) can be used to fingerprint catastrophic volcanism in the sedimentary record. We examined two sections that record the CPE at Laishike and Wayao in Guizhou Province, southwest China, which display high Hg contents along with spikes of Hg/total organic content (TOC), Hg/Al, Hg/total sulfur (TS), and Hg/(Mo/Al) during the CPE that indicate a shift to excess Hg loading. These Hg anomalies are correlative with the global negative excursion in $\delta^{13}C_{carb}$ values at the CPE, which suggests that increased volcanism injected both massive amounts of Hg and isotopically light carbon into the atmosphere, and these were ultimately recorded in marine sediments. This interpretation is supported by slightly negative or near-zero $\delta^{199}Hg$ values that are consistent with a volcanic Hg source. Our study supports the hypothesis that enhanced volcanism played a major role in the evolution of biota and the environment during the CPE.