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三畳紀-ジュラ紀境界絶滅における深海酸性化と火山活動
Deep-ocean acidification and volcanism across the Triassic-Jurassic extinction event

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Triassic-Jurassic (T-J) extinction event marks one of the “big five” mass extinction events of the Phanerozoic. The emerging consensus points to volcanic activity at the Central Atlantic Magmatic Province (CAMP) as the ultimate cause of the extinction, yet the underlying nature of global environmental changes that accompanied the biotic turnover remain elusive. We present chemical and mineralogical studies across the T-J transition of the deep-sea chert sequence (Inuyama, Japan). Depleted hematite content normalized by terrigenous material occurred just before the T-J extinction with significant change in color from brick red to purple. This suggests the loss of authigenic hematite due to the deep-ocean acidification, which is consistent with the rock magnetic records of Abrajevitch et al. (2013). This timing is consistent with the CAMP volcanism, implying a catastrophic release of greenhouse gases as causes of deep-ocean acidification. Across the T-J transition, MgO/Al2O3, Fe2O3/Al2O3, and Al2O3/SiO2 increased with change in color from brick red to dusty red. These geochemical trends are consistent with those of weathered CAMP basalts in arid area (Dal Corso et al., 2014), implying that weathered CAMP basalts became the considerable source of aeolian dust in pelagic Panthalassa after the T-J extinction event.

キーワード: 三畳紀/ジュラ紀境界, 海洋酸性化, 火成活動, 大量絶滅
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