

The basalt weathering effect to the climate and environmental during the Paleozoic-Mesozoic transition

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Massive volcanism, particularly from Large Igneous Provinces (LIPs), is generally thought to have triggered significant earth habitability perturbations, such as disruptions in surface climate, environmental conditions and biological evolution and extinction throughout Earth's history. While the effects of volcanic volatiles have been extensively studied, the impact of subsequent weathering of large amount of volcanic rocks (e.g., basalt) on surface elemental cycling, climate fluctuations, and biological evolution remains less understood, particularly also regarding the timescales involved in these processes. This study, I will present the geochemical data of the sediments to track the basalt weathering effect to the climate as well as environmental variations for the low latitude Emeishan (ELIP) and high latitude Siberia Trap large igneous province (STLIP). Our results show that beside the tropical basalt (ELIP), the high-latitude basalt (STLIP) weathering under extremely higher temperature intervals could also play significant role to the earth habitability up to tens of millions years after the eruptions in the Early Triassic.