

A statistical view of the secular evolution of mantle-derived magmas

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As the direct record of mantle melting, the secular compositional evolution of mantle-derived magmas such as basalts and komatiites provides one of our most direct records of the operation of the solid earth system over Gyr timescales. Statistical analysis of the mantle-derived mafic magmas preserved in the continental crust has revealed a remarkable constancy in geochemical tracers of subduction since at least 3.85 Ga. Here we will consider such records and their implication for the operation of the Earth system