

**Insights on mantle lithologic  
variability in the source of Plio-  
Pleistocene intraplate EMORB  
magmatism in Palawan, Philippines**

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Variabilities in primitive mantle melt compositions from different tectonic settings have been used to support the presence of chemically and isotopically distinct lithologic heterogeneities within the mantle. In recent years, the presence of such heterogeneities (e.g., enriched mantle components) in mid-ocean ridge mantle have been postulated to play an important role in the formation of EMORB melts. In northern Palawan (Philippines), an extensive intraplate EMORB lava field in a continental terrane has riddled petrologists as to how and why such magmatism occurred in an area with currently no active subduction system and spreading centers nearby. Further, such extensive on land exposures of EMORB lava offer a unique opportunity to understand lithologic variations in the source intraplate EMORBs. Here, we present whole-rock major and trace element compositions and mineral major element compositions of fresh EMORB samples to investigate the origin and lithologic variability in the source of intraplate EMORB magmas. Our melting models show that Palawan EMORB taps a relatively more fertile mantle source compared to DMM which is consistent with melting of peridotites enriched with pyroxenite components. We argue that the presence of pyroxenitic domains beneath Palawan, probably as part of its subcontinental lithospheric mantle, can play an important role in the generation of intraplate EMORB melts. Finally, we discuss implications of this finding on the length-scales of mantle variability in the source of lavas found within and around the South China Sea region.