Tracing Continental Sediment Input Into Philippine Volcanoes: Implications for slab melting and mantle flow

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The Philippine archipelago is a diffuse tectonic boundary with a double subduction system comprising accreted seafloor material and continental fragments undergoing deformation. Volcanic magmas generated in this collage of terranes reflect source characteristics and delineate continental (sediment?) enrichments versus typical oceanic island arc sources. Normalized major element, trace element and isotope data for several volcanoes allow a spatial comparison of enrichments: (Th, Sr,Nd, etc.) which can be attributed to the continental sediment input proximate to continent-derived slivers and their relative absence in terranes without continental fragments. Additionally, in the Macolod Corridor, where several arc volcanoes are not underlain by slabs, the presence of typical arc signatures and enrichments suggest their delivery to the volcanic sources through mantle flow. Even if some enrichments (e.g., Sr/Y) have been attributed to slab melting, this is impossible given the physical arrangement of the slabs vis-à-vis the volcanoes.