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Arc and backarc geochemical signatures of the proto-Philippine Sea Plate: Insights from the petrography and geochemistry of the Samar Ophiolite volcanic section

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Abstract

Remnants of a Cretaceous lithosphere are found at the peripheries of the West Philippine Basin. These Mesozoic fragments preserve arc affinity and include the Amami Plateau, the East Halmahera Ophiolite and the ophiolites along the eastern margin of the Philippine archipelago. The eastern margin of the Philippines is composed of Early to Late Cretaceous ophiolites and ophiolitic complexes that exhibit strong subduction imprints. The early Late Cretaceous Samar Ophiolite in the central Philippines forms part of this eastern belt. Recent surveys in southern Samar revealed the presence of peridotites, gabbros, and massive and pillowed flows of the Samar Ophiolite. Major, trace and rare earth element signatures of the volcanic rock samples indicate moderate to strong subduction-related influences and formation in an island arc setting. In contrast to other similarly-aged ophiolites along the eastern margin of the archipelago, those to the north of Samar Island exhibit weak to almost mid-oceanic ridge characteristics. These differences in the

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