IBM, incipient island arcs, boninites and the Oman Ophiolite

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Generation of island arcs such as the Izu-Bonin-Mariana (IBM) arc is characterized by the presence of boninites and associated activities of calc-alkalic and tholeiitic magmas. However, previous models of boninite petrogenesis depend largely on the igneous stratigraphy and tectonic reconstruction models. This led us to diverse models and left controversies and confusions remained unsolved on the initiation of the IBM system and incipient island-arc magmatism. In the Oman ophiolite, 3 types of magmatism - boninitic, calc-alkalic and tholeiitic - took place at the same time as the beginning of obduction. We suggest that the co-generation of 3 magmatic series is the key to solve the incipient IBM magmatism.