PRESSURE-TEMPERATURE EVOLUTION OF LOW-GRADE ALKALI-AMPHIBOLE-BEARING ASSEMBLAGES OF THE MT. HIBERNIA SCHISTS, BLUE MOUNTAINS, JAMAICA

Willner, G.[1], Willner, A.P.[1], **Maresch, W.V.**[2] and Schreyer, W.[1]
[1]Institut für Mineralogie, Ruhr-Universität Bochum, Postfach 102148,
44721 Bochum, Germany
[2]Institut für Mineraloge, Universität Münster, Correnssstr. 24, 48149 Münster, Germany

ABSTRACT

A suite of akali-amphibole-bearing samples collected from a hurricane-induced alluvial outwash fan of the Morant River near the villge of Hillside (Blue Mountains, SE Jamaica) originate from the presumably Cretaceous Mt. Hibernia Schists exposed to the north and northwest. This unit is interpreted in the literature to have formed in the accretionary prism of a subduction zone complex of the Jamaica-Nicaragua Rise island-arc system. The samples of our suite represent metamorphosed basalts of enriched, mid-ocean-ridge type (P-MORB), subvolcanic trondhjemitic intrusions, tuffs and tuffaceous clastic sediments, as well as quartz-rich veins within these rocks. Eight characteristic mineral assemblages can be defined involving the critical minerals glaucophane, crossite, rarely riebeckite/magnesioriebeckite, winchite, actinolite, pumpellyite, lawsonite, epidote, chlorite, albite, and quartz. Augite and anorthite-rich plagioclase are important relicts of the magmatic source rocks. Although four metamorphic facies (pumpellyite-actinolite, greenschist, lawsonite-blueschist, epidote-blueschist) and their transitional, superimposed combinations are represented, peak metamorphic conditions of all rocks can be shown to correspond to a fairly restricted pressure-temperature region of approximately 5.5-7 kbar and 270-320^0 C. Fabric development and the calcic-to-sodic compositional zonation of amphibole are prograde in these samples. A calculated, model pressure-temperature path based on continuous metamorphic reactions with evolving amphibole solid-solutions yields 7^0 C/km with earliest definable conditions at 200^0 C/3kbar. Such gradients are typical for subduction-related metamorphism, assuming prior near-surface, ocean-floor metamorphism.