

ORIGIN OF BLUESCHIST BRECCIA, SYROS, GREECE

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Syros is a small island located in the Aegean Sea and is part of the Cyclades archipelago. The Cyclades are located in the central portion of the Attic-Cycladic metamorphic complex, a crystalline metamorphic belt that extends from Attica, Greece to the Menderes Massif in Turkey. The Cycladic islands have undergone several periods of Alpine-Himalayan-type metamorphism. The first and second episodes, late Cretaceous and Eocene high-pressure blueschist facies metamorphisms, are associated with subduction zone metamorphism. A Miocene greenschist overprint is associated with extensional exhumation of these rocks. The greenschist overprint completely effaced the blueschist metamorphic events on all but two of the Cycladic islands, Syros and Sifnos.

On Syros there is a continuous alternating sequence of N to NE dipping pelitic schists, marbles and metamorphosed mafic igneous rocks. Protolith textures and assemblages have been obscured by overprinting during the two deformation and metamorphic events. We focus on a breccia that is found along the NNE coast of the island and contains a variety of clast types (including mica-quartz schist and metagabbro clasts). The matrix of the breccia is strongly metamorphosed at the blueschist grade and contains glaucophane + garnet + epidote +/- chlorite +/- omphacite. The breccia is in contact with a coarse-grained metagabbro to the south and pelitic schist and marble to the north. The breccia shows intense foliation and lineation parallel to these contacts.

Various workers have understood the protolith of this breccia as sedimentary, tectonic, or igneous. We are exploring the origin of the breccia itself and its structural and tectonic relationships to the metagabbro, schist and marble units. In a combined petrographic, structural, and geochemical study, we are comparing the clasts and matrix of the breccia to other meta-igneous rocks in the region in order to understand the protolith of the breccia.