

Paper No. 54-4

Presentation Time: 8:00 AM-12:00 PM

METAMORPHISM OF GRAPHITIC SCHISTS IN SYROS, GREECE

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Graphitic schists found on the northern end of the island of Syros, in the Cyclades, underwent high pressure/low temperature metamorphism as evidenced by the presence of glaucophane-bearing mineral assemblages. Many samples contain clusters of minerals that weather in relief and appear to be pseudomorphs after one or more porphyroblasts. Most of the pseudomorphs are believed to be after lawsonite because of their shape and the association of lawsonite with HP/LT metamorphism, particularly in subduction zones, though pseudomorphs after other minerals are possible. The typical matrix assemblage for the graphitic schists is calcite + quartz + phengite + titanite + graphite ± epidote ± garnet ± chlorite ± pyrite ± albite ± glaucophane. The pseudomorphs contain assemblages of quartz + phengite ± calcite ± garnet ± titanite. They range in size (from 2 mm to 2 cm) and abundance but are present in most samples. Many pseudomorphs preserve an earlier foliation that is at an angle to the current foliation in the rocks. The mineralogic composition within the boundaries of the pseudomorphs is inconsistent with the composition of lawsonite as the micas are K-rich and lawsonite is a Ca-Al silicate. Detailed analysis of the pseudomorphs is underway to quantify the reactions leading up to the current pseudomorphs to determine the possible protocysts. Other petrologic textures include: garnets that contain numerous quartz inclusions, garnets engulfed by pseudomorphs, and white mica in the matrix that is "wrapped" around the boundaries of the pseudomorphs and garnets. These textures record a complex metamorphic history including metamorphic crystallization before and after the growth of the porphyroblasts that have been pseudomorphed.

[Northeastern Section - 44th Annual Meeting \(22–24 March 2009\)](#)
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Session No. 54--Booth# 24

[Igneous/Metamorphic Petrology, Geochemistry, Mineralogy \(Posters\)](#)

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