# Halloysite Characterization in the Soil-Saprolite Zone of the Alabama Piedmont. (S09-shaw134412-Poster)

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## Abstract:

Halloysite has seldom been identified in soil-saprolite sequences of the Southeastern U.S Piedmont because it is easily overlooked by XRD due to its curvature and structural disorder. The chemical and physical properties of halloysite differ significantly from kaolinite. To develop a more thorough understanding of halloysite in these environments, we evaluated it's occurrence, morphology, depth-distribution, and weathering relationships in two Alabama pedons known to contain halloysite. The soils were developed from gneiss and amphibolite, and classified as fine, kaolinitic, thermic Typic Kanhapludults. Samples were analyzed using XRD, TGA, and TEM. Halloysite was concentrated in veins contained within BC and C horizons, and was also present in the soil matrix. Halloysite was concentrated in fine clay fractions, with less present in the coarse clay and none in the fine silt as indicated by XRD. Fine clays had higher concentrations of tubular particles compared to coarse clays. Halloysite tube aspect ratios (length/diameter) for the pedon developed from gneiss were low, typically less than 5. Halloysite quantities increased with depth into C horizons. Beneath the solum of the pedon developed from gneiss, halloysite constituted the majority of the fine clay, and a large portion of the coarse clay. Kaolinite and hydroxy-interlayered vermiculite were relatively more abundant than halloysite in the solum.

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