Textures of epithermal quartz veins from theTapajós Gold Province, Amazonian region, Brazil.

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The study of quartz textures in veins from gold prospects of the Tapajós Province led to the recognition of typical epithermal features in many occurrences. Proterozoic granitoids, subaerial volcanics and mafic dykes constitute the hosts to the studied vein samples. Veins that crosscut volcanic rocks display chalcedonic, crustiform, plumose or fine crystalline textures. The first three vein types contain quartz that preserves the fibrous habit of precursor chalcedony. The fine crystalline veins, in turn, are made up of primary, mostly comb-textured quartz. Associated hydrothermal breccias show cockade textures commonly overprinted by silicification and hematitization. Veins hosted by granitic and mafic rocks have crystalline, fine to medium-grained comb or saccharoidal quartz. Vugs, superimposed brecciation and multiple replacements by quartz are common. Related breccias are infilled with aggregates of well-formed primary quartz occasionally intergrown with adularia. From vertical zoning models it can be inferred that textures in volcanic-hosted veins are comparable to those of intermediate depth levels of epithermal systems, also considered as the precious metal interval of such deposits. The coarser-grained, crystalline textures of veins from granitic and mafic rocks are, instead, more typical of deeper zones of epithermal systems where gold gives way to base metal mineralization. Given that the existing gold veins of the Tapajós Province are mostly crystalline, granitoid-hosted types and that gold has historically been recovered from alluvial deposits, it is suggested that the metal may have been largely derived from the erosion of primitive epithermal edifices contained within the volcanic cover.