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Structural setting, mineralogy and geochemistry of ore deposits along a strike-slip fault in the Central Honduras

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The geodynamic evolution of the Central America is the result of complex interactions between the North American and South American plates, the Cocos plate and the evolving Caribbean plates, including minor crustal fragments as the Chortis block. The plates are delimited by important suture zones with continental transform faults. The central part of the Chortis block, is crossed, for more than 300 km, by the right lateral strike-slip Guayape fault. This structure is orientated NE-SW and present a strong morphological evidence of neotectonic activity. In the Canaan and Juticalpa valleys in Central Honduras, several intermountain basins bounded by extensional faults, are located along the fault strand. The region is characterized by ore deposits related to the Cenozoic magmatic activity which produced the volcanic arc extending from Guatemala to Costa Rica. In the studied area the gold and sulphide mineralizations are hosted within quartz veins of few decimetres thick, occurring in low grade metamorphic rocks, mainly well foliated graphitic and sericitic schists and quartzites. The veins are arranged in extensional meshes oriented NNW interlinked with the main strike-slip semi-brittle shear zones. The mineralization were produced by hydrothermal fluids probably related to shallow granitoid to granodiorite intrusions. Moreover these fluids are responsible for the strong alteration of the quartz veins host rocks. Foliation, fracturing and shearing of the host rocks are connected to the strike-slip faults which are the main factors controlling both the vein-formation and alteration phenom-

ena, and providing favourable channel ways for fluid flows. The fluid inclusions of the quartz crystals are mainly constituted, at room temperature, by four types of acqueous and non-acqueous phases. The mineralizing fluids are constituted by H2O-NaCl-KCl-CO2 with small amount of CH4 (and S) and their temperatures are in the range of 300-400˚C. These data indicate an epigenetic gold deposits associated to an orogenic context where the strike slip faults, rooted in the crust, play an important role.