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## Epithermal Au-Ag Mineralization at Galim-Legalgorou, Cameroon Volcanic Line (CVL): Constraints from Ore Mineralogy, Mineral Chemistry of Electrum and Fluid Inclusion Data

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The Au-Ag mineralization at Galim-Legalgorou (North Cameroon) is spatially associated with tertiary volcanic rocks of the Cameroon volcanic line (CVL), and likely to represent an epithermal system in a region where all previously studied gold occurrences have been classified as orogenic. Despite many years of artisanal mining operations and limited exploration, the origin of this mineralization remains unknown. In this contribution we present ore mineral and alteration associations, mineral microchemistry of electrum and fluid inclusion data to constrain the origin and evolution of the mineralization. Electrum contains high Ag (53.1 wt%) with fineness values that vary from 379 and 721 with an average of 455. A cumulative percentile plot of Ag concentrations in the cores of all electrum particles, and the observed step-change from Au-rich cores to more Ag-rich mantles in zoned electrum particles, suggest that the mineralization was deposited from two distinct hydrothermal fluid influxes of variable Au/Ag ratios. Fluid inclusions associated with sealed fractures in amethysts yielded homogenization temperatures between 215.6 $^{0}$C and 308.5 $^{0}$C (average 284.9 $^{0}$C), with low salinities (0 to 5 wt% NaCl equivalence) and coexisting vapor-rich and liquid-rich inclusions suggesting that the mineralization experienced transient periods of hydrostatic fluid pressure, and that boiling may have accompanied ore deposition. These data, in combination with observed ore mineral association (electrum, Se/Tl-acanthite, pyrite, Fe-rich sphalerite, ± galena) and the presence of colloform banded chalcedony and hydrothermal breccia, are consistent with features of low sulfidation epithermal deposits. This study, therefore, demonstrates for the first time, the presence of significant low sulfidation epithermal Ag-Au mineralization on the CVL, an intracontinental rift region only previously known for orogenic gold mineralization.