ARCHEEN CONTAMINATION INDEX AND IMPLICATION OF AN EARLY BIRIMIAN CRUST IN THE COMOE BASIN (Alépé-South-East of Côte d'Ivoire)

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The southeastern part of the Comoé basin in contact with the Sefwi belt is the subject of this study. This region shows various geological formations including amphibolites, granitoids, orthogneiss and metasediments. The geochemical evolution of these formations highlighted some typical arc magmas signatures. The isotopic geochemistry datas using the Nd/Sm-Rb/Sr method on amphibolites give the following values: $\varepsilon_{Nd\ (2,1)} = 5.11$ and $\varepsilon_{Nd\ (2,1)} = -0.29$. These values reveal the divergence of evolution in these amphibolites. The negative $\varepsilon_{Nd\ (2,1)}$ value obtained is typical of Archean formations and the transition zone, indicating Archean crustal contamination in this region. Geochronology data using the U/Pb zircon method of two micas bearing granite yields three different age populations: 2071 ± 5 Ma (MSWD = 0), 2148 ± 21 Ma (MSWD = 9.3) and 2107 ± 8 Ma (MSWD = 0). The presence of zircon with different age in the same granite adds to the peraluminous character of it, suggest that the generator magma is derived from sediment melting. 4 zircons give $^{207}Pb/^{206}Pb$ ages between 2252 ± 15Ma and 2276 ± 27Ma indicating the presence of an early Birimian in this zone.

Keywords: Comoé Basin, Geochemistry, Geochronology, Archean contamination, Early Birimian