CLINOPYROXENE CRYSTAL CHEMISTRY OF SPINEL PERIDOTITE MANTLE XENOLITHS FROM NJI LAKE (CAMEROON VOLCANIC LINE): PETROLOGICAL IMPLICATIONS AND UPPER MANTLE HETEROGENEITY.

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The spinel-peridotite xenoliths from the continental sector of the Cameroon Volcanic Line are important to probe the mantle heterogeneity in terms of mineral-chemistry and compositional variations (Princivalle et al., 1995; Lee et al., 1996). The investigated spinel-peridotite xenoliths (Nji maar; Oku region) are characterised by clinopyroxene content distinctly higher than that reported by Lee et al. (1996) for spinel-peridotite xenoliths of the same region (19-11 and 15-8%, respectively), and by high clinopyroxene/orthopyroxene: 1.0-2.7 (present study) and about 0.4 (Lee et al., 1996). The clinopyroxene crystal chemistry indicates that the investigated Cameroon xenoliths have compositional features of basalt depleted mantle source later contaminated by small-volume melts, responsible for the high clinopyroxene content. The protogranular texture of the studied Cameroon xenoliths testifies that the residual spinel peridotite and the associated small-volume melts completely re-equilibrated at the spinel peridotite facies. This is also supported by the petrological and geochemical data of Lee et al. (1996) on the Etinde-Biu Plateau spinel-peridotite xenoliths, which underwent Late Proterozoic-Early Paleozoic enrichment on incompatible-trace elements. Clinopyroxene crystal chemistry and bulk-rock compositions of the continental Cameroon mantle xenoliths testify important upper mantle lithospheric heterogeneity.