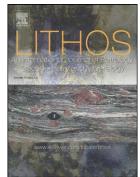
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Cr-rich clinopyroxene megacrysts from the Grib kimberlite, Arkhangelsk province, Russia: Relation to clinopyroxene–phlogopite xenoliths and evidence for mantle metasomatism by kimberlite melts

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Cr-rich clinopyroxene megacrysts from the Grib kimberlite, Arkhangelsk province, Russia:

relation to clinopyroxene-phlogopite xenoliths and evidence for mantle metasomatism by

kimberlite melts

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Abstract

To provide new insights into the origin of megacrysts and metasomatism of the subcontinental lithospheric mantle (SCLM), we present a detailed petrographic and geochemical investigation of clinopyroxene-phlogopite xenoliths and clinopyroxene megacrysts from the Grib kimberlite (Arkhangelsk diamond province, Russia).Clinopyroxene megacrysts and clinopyroxene from clinopyroxene-phlogopite xenoliths have similar petrography, major and trace element compositions, and are therefore classified as Cr-rich megacrysts. Geothermobarometry suggests that Cr-rich clinopyroxenes originate from within the SCLM (3.6 - 4.7 GPa and $764 - 922^{\circ}$ C).

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