

Archean to Permian zircons in Cretaceous mantle-hosted ophiolitic chromitites from eastern Cuba

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We have recovered occasional zircon grains from massive chromitite bodies hosted in the mantle section of the SSZ-type Mayarí-Baracoa Ophiolitic Belt (MBOB, eastern Cuba). LA-ICPMS and SHRIMP U-Pb ages yield a significant range in age, scattering from Cretaceous (99 ± 21 Ma) to Neo-Archean (2750 ± 60 Ma) and $\epsilon_{\text{Hf}(t)}$ ranging from -26 to $+13.5$. Most of analyzed zircons are older than the early Cretaceous and, hence, are considered inherited. Most of the inherited grains ($n=20$) show negative $\epsilon_{\text{Hf}(t)}$ (-26 to -0.6), rounded shape and occasional inclusions of quartz, K-feldspar, biotite and apatite that together indicate derivation from granitic continental crust. We interpreted these zircons as subducted detrital material incorporated into the mantle wedge beneath the Greater Antilles volcanic arc by metasomatic fluids/melts.

On the other hand, 4 inherited zircon grains show positive $\epsilon_{\text{Hf}(t)}$ (up to $+13.5$), common rounded shapes and rare apatite inclusions. This population crystallized from juvenile (mantle) magmas, and were incorporated into the mantle wedge either after subduction of detrital sediments or from remnants of ancient subcontinental lithosphere mantle (SCLM, Gondwana-derived) left behind during the fragmentation of Pangea at the oceanic Proto-Caribbean lithospheric mantle.