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## Early Palaeozoic Deep Subduction of Continental Crust in the Kyrgyz North Tianshan: Evidence from Field Relationships and Geochronology

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High- and ultrahigh-pressure (UHP) eclogite-bearing metamorphic assemblages in the North Tianshan of Kyrgyzstan contain eclogite-bearing garnet amphibolites interlayered with phengite-bearing granitoid gneisses. The mafic rocks were previously interpreted as remnants of a Precambrian ophiolite, but field relationships clearly show them to be derived from mafic (gabbroic) dykes intruding the granitoid rocks. We present U-Pb zircon, Ar-Ar mica and Lu-Hf isotope garnet ages for granitic gneisses and an eclogite lens within amphibolite from the Aktyuz terrane which, combined with petrological data, tightly constrain the age of high-pressure metamorphism in the Kyrgyz North Tianshan. Two compositionally

different strongly foliated, locally mylonitic, granite-gneiss varieties have U-Pb SHRIMP zircon ages of  $834\pm 8$  and  $562\pm 7$  Ma, and phengites from the older gneiss yielded Ar-Ar ages of  $469\pm 1$  and  $471\pm 1$ , respectively. A five point isochron for the eclogite sample provides a Lu-Hf age of  $474.3 \pm 2.2$  Ma. A prograde, subduction-related path is inferred with peak P-T conditions ranging from 1.4 to 1.6 GPa and 610–620°C. These rocks likely experienced UHP metamorphism contemporaneously. Our results support an Early Ordovician collision belt in the North Tianshan and suggest a tectonic model involving subduction of thinned continental crust to considerable depth along the margin of a small microcontinent.

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