

Recycling of UHP metamorphic minerals from subducted oceanic/continental crust
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Newly recognized occurrences of UHP minerals in exhumed felsic granulites of continental basements and in chromitites associated with ophiolitic complexes lead to speculation about supracrustal materials being recycled through deep subduction, mantle upwelling and return to the Earth's surface. This suggestion is supported by crust-derived mineral inclusions in zircon separates from collision-type orogens and in ultramafics of some Alpine-Himalayan-Ural ophiolites. Possible correlation of 'organic' light carbon isotopes of diamond and moissanite in ophiolitic chromitite and in kimberlite xenoliths further suggest that UHP and "Superdeep" diamonds and moissanite may have been crustal origin. These new findings together with the isotopic and inclusion characteristics of kimberlitic diamonds provide compelling evidence for deep subduction of oceanic/continental lithosphere, recycling of surface 'organic' carbon into the lower mantle, and exhumation to the Earth's surface through deep mantle plume and upwelling.

