Re-Os isotope systematics of the Taklimakan Desert sands, moraines and river sediments around the Taklimakan Desert

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Reported here are the first (Os-187)/(Os-188) ratios and abundances of Os and Re for Taklimakan Desert sands and glacial moraines from the Kunlun Mountains. Osmium isotopic data are also reported for river sediments around the Taklimakan Desert, river sediments from the Kunlun and Tianshan Mountains, Tibetan soils and loesses from the Loess Plateau, as well as Sr and Nd isotopic data for these samples. The Taklimakan Desert sands from various regions show surprisingly homogeneous Os isotopic ratios ((Os-187)/(Os-188) = 1.29) and abundances (Os = 11 ppt) with some variations in Re abundances (Re = 130 - 260 ppt) and (Re-187)/(Os-188) ratios (60 - 140). The (Os-187)/(Os-188) ratios for the Taklimakan Desert sands are close to the average for Kunlun moraines, river sediments around the Taklimakan Desert sands and the Tibetan soils, supporting the idea that the Taklimakan Desert sands are derived from moraines and river sediments around the desert and/or from Tibetan soils and are homogenized by aeolian activity in the desert. Furthermore, our Os isotopic data for the sediments studied here are compared with those ((Os-187)/Os-188) = 1.04, Os = 32 ppt, Re = 206 ppt, (Re-187)/(Os-188) = 35) of loesses from the Loess Plateau reported by Peucker-Ehrenbrink and Jahn (2001), and it is concluded that the Re-Os data for the loess can be used as proxy for the upper continental crust.