

Interactive comment on “A standardized database of MIS 5e sea-level proxies in southern Africa (Angola, Namibia and South Africa)” by J. Andrew G. Cooper and Andrew N. Green

Barbara Mauz

mauz@liverpool.ac.uk

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This paper is part of an organised data-collection effort which is as much needed as it is appreciated. Part of the organised effort should be to make sure that we all follow the nomenclature of sea-level science. I believe this is important not only to stop current confusion on a number of shoreline-related facies terms, but also to standardise model-independent approaches and to identify non-uniqueness of proxy data. Here, I am commenting on the term ‘beachrock’. Beachrock (one word) is a coastal deposit that is lithified almost instantaneously when chemical characteristics (e.g. pH, CO₂ partial pressure, dissolved mineral content) of the fluids percolating the sediment are

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appropriate. Such fluids typically occur in the intertidal zone where meteoric water mix with marine water (see Plummer 1975, Geol. Soc. Am. Mem. vol 142 for details). Beachrock is different to a coastal sedimentary rock that was lithified through diagenetic processes. The diagnostic feature of a beachrock is microcrystalline high-Mg calcite and fibrous or bladed aragonite, both minerals are meta- stable in nature. During subaerial exposure subsequent to the highstand, the minerals are subject to ordinary diagenetic processes with the end-point being chemical stability through formation of low-Mg calcite cement. Thus, two sets of controlling factors can plausibly explain the formation of the rock. I think it is important to discriminate between an intertidal beachrock and a sedimentary rock of shoreface, foreshore or beach facies, each forming in different water depth and being associated with different indicative ranges.

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