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Timing of tectonic events in the Central Zone and the case for subduction in the of the Damara Belt, Namibia

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The recognition of two tectonometamorphic events in the Central Zone of the Damara Belt, Namibia [1], at 560-540 Ma and 520-510 Ma has led to new theories around the evolution of the Damara Belt. Whilst different tectonic effects were previously attributed to the effects of crustal rheology in a single compressional event [2], there are various views regarding the significance of separate events.

Although it has been suggested that the 560-540 Ma event is the result of subduction, followed by slab delamination and possibility of ridge subduction [3], the lack of conclusive evidence for calc-alkaline magmatism has raised questions about whether subduction actually occurred in the Damara Belt, and the two distinct tectonometamorphic events may represent collision and crustal thickening at 560-540 Ma, followed by orogenic collapse and crustal thinning at 520-510 Ma [4]. These various models and their implications for the wider evolution of the Damara Belt are discussed.

References:

[1] Longridge L et al. (2011) Spec. Pub. Geol. Soc. London 357: 107-135.

[2] Kisters A et al. (2004) Precamb. Res. 133: 283-303.

[3] Meneghini F et al. (2014) Geology 42: 903-906

[4] Longridge L et al. (2014) S. Afr. J. Geol. 117: 67-86.

