

## **New insights into the evolution of the Belingwe greenstone belt, Zimbabwe: sedimentology and structural history of the Cheshire Formation**

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Fundamental tectonic models for Archean crustal evolution have been based on the Belingwe belt. There is an ongoing debate regarding the existence of a detachment zone separating shallow-water clastics (Manjeri Formation) from overlying c.2.7 Ga ultramafic and mafic lavas (Reliance and Zeederbergs Formations) representing either rift-related lavas or an obducted oceanic plateau.

The 1.3 km thick Cheshire Formation overlies the Zeederbergs Formation and comprises a sedimentary succession of low metamorphic grade. It mainly consists of conglomerate, shale and minor sandstone representing high- to low-density turbidity current deposits. Shoaling-upward, metre-scale carbonate cycles locally form the base of the formation. The contact between shallow-water carbonates and deep-water (submarine fan) siliciclastics is formed by a tectonic limestone breccia and melange-type rocks. Sediment was mainly derived from erosion of the Zeederbergs Formation. Minor granitic detritus increases upsection, indicating unroofing of continental crust as part of the source terrain.

Bedding-parallel, thrusts are the earliest deformation structures. Thrusting gave rise to local duplication of the stratigraphy and juxtaposition of Zeederbergs basalts onto Cheshire sediments. Thrusting occurred early in the basin history affecting only partially consolidated sediment. Subsequent deformation events include tight folding forming a synclinal structure, gentle cross-folding, and strike-slip faulting.

Deposition of the Cheshire Formation clastics took place syntectonically with thrusting, possibly in a foreland basin, or on top of moving thrust sheets. The development of such basins may be related to terrane accretion or extensional collapse. The Ngezi Group is therefore not an autochthonous unit.