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The coal deposits of Mozambique

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The Karoo basins of Mozambique form part of the network of rift-related basins of south-central Africa. Most of the coal bearing Karoo Supergroup equivalent deposits of Mozambique were laid down in an east-west trending, tectonically controlled basin, collectively referred to as the main Zambezi Basin. This basin trends more or less west-east for over 350 km, from Lake Cahora Bassa in the west, to the Malawi border in the east, and follows the fabric of the underlying Sanângoè Shear Zone in the Precambrian basement. The main Zambezi Basin may be further divided into a number of sub-basins (mostly fault-bounded grabens and half-grabens) that are now disconnected due to Jurassic and Cretaceous extensional tectonics and subsequent erosion.

Work completed in Mozambique over the past decade in the main Moatize–Minjova sub-basin has produced more than 2000 drill holes covering a 100 km strike length across the sub-basin. Coupled to extensive regional mapping, this core library and drill hole database has allowed the development of a regional sedimentological model for the area.

This sedimentological model shows how the Early-Late Permian coal measures of this area were deposited in half-graben extensional settings during frequent base level changes. Sediment influxes are characterised by transgressive and regressive cycles, depositing alluvial facies through to shallow lacustrine facies. Field units are characterised by fining upward and coarsening upward sandstone units interspersed with mudstones, siltstones and coals.

The integration of surface mapping, down hole geology and geophysics, and remote sensing, has resulted in the construction of a type log for the main sedimentological sequences and a 3D image of the basin development through the Permo-Carboniferous.