

SESRIEM CANYON



Source: Roadside Geology of Namibia

Over millions of years westward flowing rivers have shaped the land surface and left their mark in the form of successive gravel terraces whose relative age is determined by their respective heights above the current river bed. While the diamondiferous deposits along the Orange River are both of economic and palaeontological interest - Arriesdrif, ca. 40 km upstream from the Orange River mouth, is one of southern Africa's most important fossil sites for early mammals - the fluvial terraces of the ephemeral streams threading their way to the Namibian coast are best known to geomorphologists trying to reconstruct ancient landscapes and river dynamics. Two well-known examples are the canyons cut by the Kuiseb and Tsauchab Rivers, which not only form spectacular topographic features on the verge of the Namib Desert, but attest to alternating drier and wetter climatic periods, with fluctuating fluvial discharge. In addition, the Kuiseb Canyon gained notoriety as the war time hide-out of German geologists Henno Martin and Hermann Korn, when fleeing internment at the outbreak of World War II ("The Sheltering Desert").



Satellite image of the Tsauchab between Sesriem and Sossusvlei

The Tsauchab River is a small, ca. 120 km long, ephemeral stream which rises east of the Naukluft Mountains and flows westwards across the Namib. Where it cuts through the calcified gravels of the ca. 15 million year old Karpfenkliff Formation laid down by flash floods on an ancient braid-plain during a more humid period when the Tsauchab carried more water than at present, it forms the up to 30 m deep and one kilometre long Sesriem Canyon, which in places is no more than two metres wide. Like the Kuiseb Canyon to the

north, the formation of the Sesriem Canyon dates back ca. five million years to the Pliocene period. The clasts comprising the Karpfenkliff conglomerate are derived from the much older carbonates (> 540 million years) of the Naukluft Mountains in the Tsauchab catchment on the Great Escarpment. Locally, at the bottom of the canyon, sandstones of the Proto-Namib have been exposed by fluvial erosion, which continues to mold the canyon walls during periods of flash floods after heavy rains. The Tsondab Sandstone Formation, which represents the consolidated „Namib Sand Sea“ of some 15 million years ago, also contains abundant fossils, the most common being rhizoliths and termite bioconstructions. Once past the canyon, the Tsauchab flattens and grows broader as it slopes towards its termination amidst the star dunes at Sossusvlei. The name Sesriem was coined by early Afrikaans settlers, who had to join up six belts (*ses riem*) made of oryx hide in order to draw up water from the canyon floor.



Flash floods after heavy rainfalls have been modelling the conglomerate of the canyon walls for millions of years