

SAND DUNES AND SAND SHEETS OF THE SKELETON COAST

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The Skeleton Coast National Park has two extensive dune fields, namely the Skeleton Coast Erg and the Kunene (or Northern Namib) Erg, as well as sandy plains and isolated dunes.

SKELETON COAST ERG (DUNE FIELD)

The first isolated barchan dunes appear north of the Huab River. The Skeleton Coast Dune Field stretches from $\pm 20.36^{\circ}\text{S}$, halfway between the Koigab and Uniab Rivers, to the Hoarusib River at $\pm 19^{\circ}\text{S}$ over 165 km, covering about 1,800 km². A 1-2 km wide band of barchans continue beyond the Hoarusib River Mouth for another 25 km to the Khumib.



Figure 1. Skeleton Coast Dune Field (*Bing Aerial*)

The western margin of the dune field is 2-5 km inland, parallel to the coast. The dune field's width varies between 6 and 22 km. It is interrupted by the Uniab and Hoanib Rivers and occasionally breached by large floods in some of the other ephemeral rivers. In the south, a deflation surface of exposed schists, granites and basalts are, in places, covered by a thin layer of wind-driven sand and isolated 3-10 m high barchan dunes. A larger sand supply further north allows the barchans to coalesce into compound transverse dunes of up to 50 m height and, in places, a longitudinal dune wall of up to 80 m height, with the slip face to the east. 3-10 m high barchan dunes march along the eastern, downwind margin of the dune field. NW-SE trending transverse dunes dominate south of the Hoanib. North of the Hoanib, their orientations swing more WNW-ESE and a few complex linear dunes appear.



Figure 2. NW – SE trending transverse dunes of the Skeleton Coast Dune Field (*Bing Aerial*)

KUNENE ERG

The Kunene (or Northern Namib) Dune Field, covering about 1,600 km², stretches from $\pm 17.86^\circ\text{S}$, north of the Engo River, to the Kunene River at $\pm 17.16^\circ\text{S}$, where the river abruptly stops the northward migration of dunes.

The erg is underlain by igneous and metamorphic rocks from the Swakop Group (570 – 900 Ma) that had been worn down by erosion over millions of years to a peneplain and subsequently covered by sand.



Figure 3. Kunene Dune Field (excluding adjacent sandy plains) (*Bing Aerial*)

The most extensive dune type is transverse dunes in the centre and northwest of the dune field, with average ridge lengths of about 3 km. Their orientations change from N-S to more E-W as one progresses north-eastwards across the dune field.

Sand streaks and trains of barchans, with average lengths of 560 m and average width between horns of 193 m, occur in the southwest of the dune field. Closer to the coast, barchan dunes are oriented toward the north, while they point more northeast further inland.

Linear dunes, with average lengths of about 7 km, are found in the east and northeast of the dune field. Their shapes are more complex than those of the Kalahari Desert. They are to some extent overlain by transverse dunes, which indicates that they are older than the transverse dunes. Their orientation also swings around more E-W as one moves northeast across the dune field.



Figure 4. Complex linear dunes south of the Kunene River, with their orientation swinging more E-W towards the northeast of the dune field (*Bing Aerial*)



Figure 5. Transverse dunes superimposed upon older linear dunes (*Bing Aerial*)

Windblown sand generally moves northward in the Skeleton Coast National Park. Low bedforms are also deposited in river beds – such as those of the Hoanib and Hoarusib – up to 50 km east of the main dune fields, by the eastward funnelling effect of these deeply incised river valleys.

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