



## fact file

# The World's Largest Sand Island

QUEENSLAND: World Heritage-listed Fraser Island is the world's largest sand island stretching more than 123 kilometres in length and 22 kilometres at its widest point, with approximately 316 kilometres of coastline.

The island's highest dune is 244 metres, but most rise between 100 and 200 metres above sea level. Drilling shows the sand extends to 100 metres below sea level in places. Most of the sand is made up of grains of quartz (silica) with less than two per cent being other minerals such as the heavy minerals ilmenite, rutile and zircon.

Fraser Island has been formed over hundreds of thousands of years as winds, waves and ocean currents have carried sands from the far south-east of Australia, and from as far away as Antarctica (but before Australian and Antarctica split from each other), out to the continental shelf, and in towards the land again in a zigzag pattern, to form a string of sand islands along the Queensland coast.

These sand islands stretch from South Stradbroke Island (off the Gold Coast) to Fraser Island at the southern tip of The Great Barrier Reef.

The largest of these islands, Fraser Island was formed as the sand was deposited over what was once a low, hilly terrain formed millions of years ago by volcanic activity. This terrain we know today as the rocky outcrops of Indian Head, Middle Rocks and Waddy Point, on the eastern side of the island.

Periodic changes in the earth's temperature have created changes in sea levels which have helped to form the island. Falling sea levels increased the continental area. During these periods dune building was at its most prolific with sand sweeping across the island faster than plants could stabilise it. This loose, bare sand formed U or V-shaped parabolic dunes, which then stabilised over time.

The sandblows along the eastern coast of the island today are mobile and are not being replaced by sand from the beach, but from sand excavated by the prevailing south-easterly winds from deflation corridors.

These dunes progress across the island often burying forests and other plant communities. The rate of movement of the dunes each year depends on factors such as wind strength, the amount of moisture in the sand and plant colonisation.

These dunes will gradually stop moving when they reach areas protected from the winds.



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The young dunes behind the eastern beaches are colonised and stabilised by Spinifex grass and other coastal plants that have adapted to harsh salt and wind conditions.

In the sheltered central regions of the island, where the dunes are stable and there are more nutrients for growth, diverse plant communities and rainforests are found.

The oldest dunes of Fraser Island (on the western side of the island) have been exposed to seasons of weathering and erosion. Their characteristic bright white sand indicates a near complete leaching of nutrients and mineral compounds.

These dunes support the survivors of the Australian bush - hardy plants which have adapted to withstand poor conditions - that is open forest species such as the Eucalypts, Casuarinas, Acacias and Banksias.

This dynamic landscape has formed a series of overlapping sand dune systems dating back at least 700,000 years. The shifting sands of Fraser Island, and those of nearby Cooloola, have continually concealed and revealed a unique geological history.

Fraser Island's dunes have the longest and most complete age sequence of coastal dune systems in the world.

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