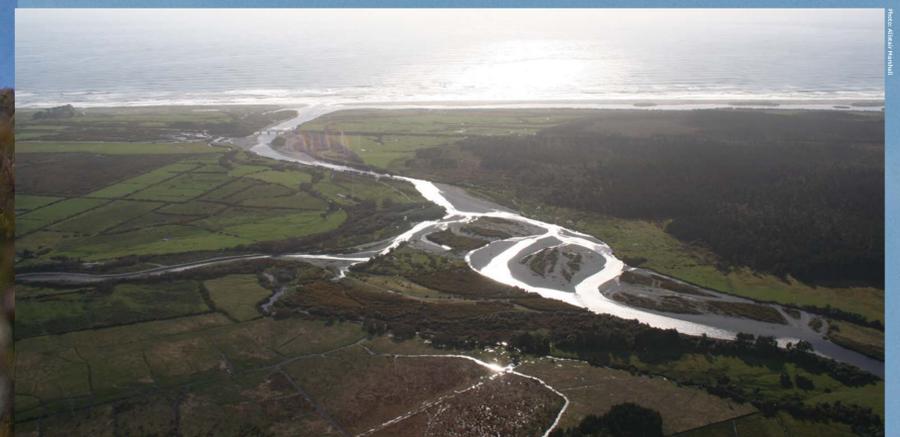




WEST COAST LANDFORMS



Geology

The ancient rocks of the Southern Alps form the geological backbone of the South Island and provide an impressive mountainous back-drop to the West Coast.

Over the past two to three million years the mountain ranges close to Aoraki / Mt Cook have lifted by as much as 20,000 metres from below the sea and 3,000 metres high peaks now tower above the narrow coastal plains. The mountains are very close to the sea, with the western plains at most only 50km wide.

The dense rainforest of the West Coast is interspersed by wild rivers and some 140 glaciers descend to low levels. New Zealand is one of only two places in the world where glaciers terminate in rainforest.

A fault line, known as the Alpine Fault, runs the length of the Alps. This is the meeting place of the Pacific and Australian tectonic plates, and is responsible for many large earthquakes in the South Island. Early European settlers called New Zealand the “shaky isles”. It is this tectonic activity that also creates natural hot springs, which have surfaced in the mountains and are enjoyed by climbers and trampers.

Ice ages

For much of the past two million years, the rising Southern Alps were buried under huge glaciers up to 1,000 metres thick. These glaciers filled valleys as far as 100 kilometres to the east of the Southern Alps as well as westward into the Tasman Sea. The legacy of ice age glaciers can be seen in the large number of lakes and vast deposits of rocks, debris and gravels on the West Coast.



Climate and weather

The Alps generate extreme climatic conditions. The prevailing north-westerly winds travel across the Tasman Sea picking up moisture, striking the Alps and falling as rain on the West Coast.

Hokitika receives around 2,800 mm of rain per year, while the Canterbury Plains on the East Coast receive as little as 600 mm of rain per annum. River flooding, landslides, earthquakes, snow avalanches, lightning strike and hail have all been responsible for loss of life on the West Coast. River flooding is, however, the most frequent hazard.



Looking south from Lake Mahināpua along Totorā Lagoon.

