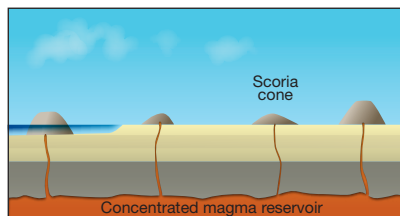


Rangitoto Volcano



Description

- Rangitoto is a volcanic island in the Hauraki Gulf visible from most parts of Auckland City.
- It is the most recent, largest and least altered volcano in the Auckland Volcanic Field which is made up of around 50 small volcanoes.
- It was formed by at least 2 eruptions 600-700 years ago.
- The highest part is 260m, and it is 5.5km wide.
- The island is part of the Hauraki Gulf Maritime Park and is administered by the Department of Conservation.
- Past activities include scoria quarries, military installations and at one time it had a small permanent population.



▲ Rangitoto can be seen from most parts of Auckland City.

◀ Rangitoto is in the Auckland **volcanic field** - an area that has a concentration of lava flows, from which magma bubbles sporadically surface, creating scoria cones.

Maori Name

- *Rangitoto* means 'Bloody sky' and is thought to refer to the serious injury of a Maori chief during a battle on the island.

Features

- Roads and tracks allow visitors to walk over lava fields and through lava caves (tubes left behind by the passage of liquid lava).
- Vegetation varies from 'raw' lava fields to scrub and sparse forests, including the largest pohutukawa forest in NZ.
- A moat like ring around the summit is due to subsidence of the mountaintop as underlying lava flows cooled and shrank.

Type

- It is an intra-plate or hot spot volcano. These occur away from plate boundaries and are not related to subduction.
- The volcano consists of scoria cones on top of a broad ring of lava flows.

Cause

- A mantle hot spot exists about 100 km below Auckland. When rock is melted by this extra heat it will separate from the surrounding solid rock and rise to the surface. The melted rock is basalt magma which has a low viscosity (flows easily) and may rise to the surface at speeds of up to 5 km/hour.

Eruptive history

- The Auckland Volcanic Field is monogenetic, meaning each volcano usually only erupts once. Approximately 50 volcanoes have formed over the last 250,000 years. The field is still active and there is no way to predict where or when the next 'bubble' of magma will rise to the surface and create a new volcano.
- The size and length of each eruption depends on how big the 'bubble' of magma was, so Rangitoto was a comparatively large 'bubble' of magma.

Eruptive material

- If the basalt magma mixes with water (seawater or groundwater) super heated steam blows it apart. This causes a pyroclastic eruption that produces fall and flow deposits and has created the low rings of pyroclastic rock (called tuff) around the craters of many Auckland volcanoes, eg Lake Pupuke.
- When the magma has no contact with water, lava can fountain out less explosively and build a cone of tephra. Basalt tephra is called scoria so the cones are commonly called scoria cones eg, One Tree Hill.
- Rangitoto makes up nearly 60% of the total volume of material erupted by all volcanoes in the Auckland Field.

Last eruptive activity

- Rangitoto erupted 600-700 years ago over an unknown time span.
- The sequence of events was likely to have been:
 - A violent pyroclastic eruption as cold sea water met molten rock, creating an explosion crater and a tuff ring.
 - Ongoing fire fountaining built scoria cones once water could no longer reach the magma
 - Lava flows from the base of the scoria cone

Monitoring

- 8 seismographs are operated jointly by GeoNet and the Auckland Regional Council.

