

Thème 2A – Geothermie et propriétés thermiques de la Terre

NEW ZEALAND AND GEOTHERMAL ENERGY

Use the documents and your knowledge to explain:

- Why the Taupo Zone is the most interesting area to tap NZ's geothermal energy.
- Why this source of energy is interesting.
- Why this area can be dangerous too.

Doc 1: Rotorua and Taupo Volcanic Zone

More than 900 **shallow wells*** have been drilled at Rotorua to provide hot water for private homes, hospitals, schools, motels, hotels, and other commercial and industrial uses. At peak use, around 430 wells were operating. Currently less than 300 are operating. About 90 of the wells are less than 200 m deep and typically recover geothermal fluid at temperatures of 120 to 200°C. The development of the field has been carried out in an unplanned way and although the domestic, commercial and industrial heating systems that were developed were generally cost-effective, they were also inefficient and were characterized by their wastage of geothermal heat.

The Taupo Volcanic Zone extends from White Island in the Bay of Plenty southwest to Mt Ruapehu. Geothermal fields are associated with young and active rhyolitic volcanism. Magma intruded into the stretched and fractured crust of the zone has resulted in temperatures of at least 350°C at depths of less than 5 km. This has provided a huge heat source from which geothermal systems have developed and been sustained for periods of up to hundreds of thousands of years.

<http://www.nzgeothermal.org.nz>

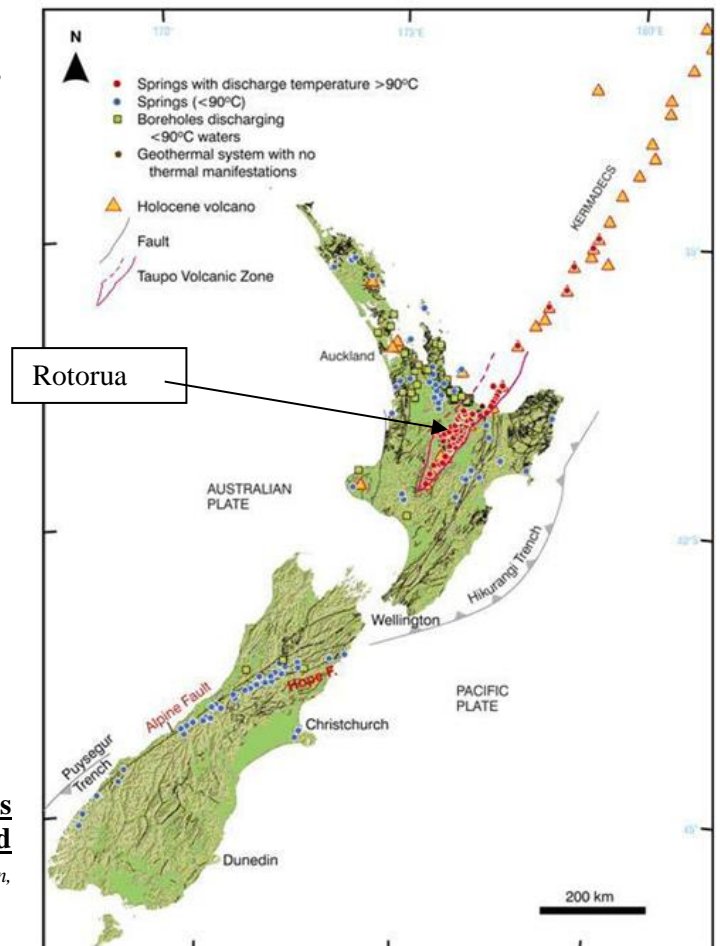
shallow wells*= forages de surface ou puits peu profonds

Doc 2: Rotorua hot springs



<http://www.rotorua.nz.com/geothermal.aspx>

Doc 3: Distribution of hot springs, drill holes discharging hydrothermal fluids, active volcanoes and the main faults zones in New Zealand. (Reyes and Christenson, in prep; faults from www.gns.cri.nz another GNS databases)



Doc 4: map of geothermal fields in the Taupo Volcanic Zone (<http://www.nzgeothermal.org.nz>)

