

Petrology of the KIWIKIWI Formation – Mt Ruapehu

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Mt Ruapehu is a large composite cone on the central plateau of New Zealand's North Island, and a source of multiple volcanic hazards.

Young explosive activity took place during the Taurewa episode ca. 10,000 years ago producing widely dispersed plinian fall deposits as well as small pyroclastic flows. Within the last 2000 years Ruapehu has produced frequent, but much smaller eruptions, which formed the TufaTrig formation characterized by a distinctive pyroclast petrography. Its youngest member was formed in 1995 / 1996.

Until recently the time in-between these eruptive episodes was believed to represent a period of relative quiescence. A newly identified and voluminous deposit of reworked-pyroclastic rocks – the Kiwikiwi Formation (about 4600 years old), may, however, be the missing link in the series, and provide insight into the reasons for the change in eruptive style and pyroclast composition and petrography. Such an investigation has to consider physical controls on eruption (e.g. the presence or absence of a crater lake, activity through different summit vents) as well as deep and shallow magma genesis and evolution as reflected in the geochemical data. In this study we present some preliminary data from the study of melt inclusions from the Kiwikiwi Formation and compare our results with those for the preceding and following eruptive episodes.