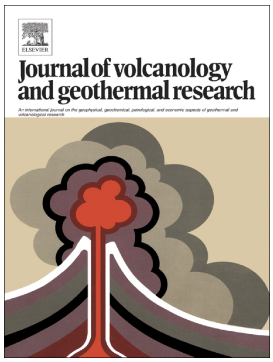

The glaciovolcanic evolution of an andesitic edifice, South Crater, Tongariro volcano, New Zealand

R.P. Cole, J.D.L. White, C.E. Conway, G.S. Leonard, D.B. Townsend, L.R. Pure

PII: S0377-0273(17)30555-3
DOI: doi:10.1016/j.jvolgeores.2017.12.003
Reference: VOLGEO 6256

To appear in: *Journal of Volcanology and Geothermal Research*

Received date: 14 September 2017
Revised date: 28 November 2017
Accepted date: 3 December 2017

Please cite this article as: R.P. Cole, J.D.L. White, C.E. Conway, G.S. Leonard, D.B. Townsend, L.R. Pure , The glaciovolcanic evolution of an andesitic edifice, South Crater, Tongariro volcano, New Zealand. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Volgeo(2017), doi:10.1016/j.jvolgeores.2017.12.003

The glaciovolcanic evolution of an andesitic edifice, South Crater, Tongariro volcano, New Zealand

R.P. Cole[1], J.D.L. White[1], C.E. Conway[2], G.S. Leonard[3], D.B. Townsend[3], L.R. Pure[4]

[1]Geology Department, University of Otago, PO Box 56, Dunedin, New Zealand

[2]Department of Geology and Paleontology, National Museum of Nature and Science, 4-1-1 Amakubo, Tsukuba, Ibaraki 305-0005, Japan

[3]GNS Science, 1 Fairway Drive, Avalon, PO Box 30-368, Lower Hutt 6315, New Zealand

[4]School of Geography, Environment and Earth Sciences, Victoria University of Wellington, Wellington, PO Box 600, Wellington 6140, New Zealand

Corresponding Author: RPC colro756@student.otago.ac.nz

Highlights:

1) The summit ridgeline of Tongariro volcano forms a glacial cirque, constructed and shaped by volcanism in close association with a substantial ice cap during MIS 4 and 5.
2) The basal unit is a thick hyaloclastite formed within a subglacial lake, beneath relatively thick ice.
3) South-trending ridgelines are composed of lava-volcaniclastic sequences, indicating emergence of the edifice where heated meltwater carved channels through the ice.
4) Lava flows and lobes were either restricted to high topography or confined within subglacial channels and cavities.
5) Eruption-fed, waterlain flow deposits located at the top of the cirque are among the few documented examples of andesitic primary clastic material in glaciovolcanic settings. These formed by drainage of explosively erupted material mixed with meltwater.