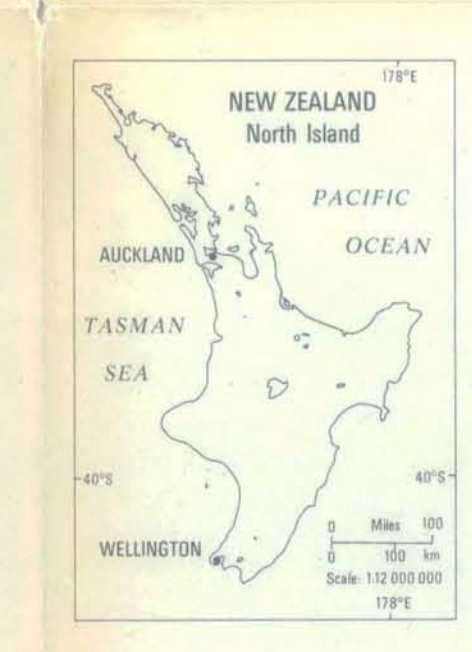


GEOLOGICAL LEGEND

TEPHRAS	SEDIMENTS	VOLCANICS	FORMATION	LITHOLOGY	CHRONOLOGY** Year ± BP (1950)
Rotomahana Mud Taruwera Ash/Lapilli	ff	rt	Alluvium, derived from Rotomahana Mud Rotomahana Mud Taruwera Basalt	Redeposited ash and silt Explosive breccias and basalt lapilli	64 (1886 AD)
	fb	fk	Alluvium, from Kaharoa Pyroclastics	Redeposited ash and pumice	
Kaharoa Ash	kop	ka	Kaharoa Pyroclastics	Pyroclastic flow, surge, and avalanche deposits	c.700
Taupo Pumice	fp	tp	Taupo Ignimbrite, and Taupo Pumice Alluvium	Pyroclastic flow and tephra deposits	c.1800
	fa	ff	Alluvium (fan) and fan deposits (ff), undifferentiated	Pumiceous sediments	
Rotokawau Ash	rk	ra	Rotokawau Basalt	Basaltic scoria deposits	c.4000
	ed	ed	Edgercumbe Lavas (ed) and avalanche deposits (ed)	Andesite/dacite lava flows, flows, and avalanche deposits	
	ha3	ha3	Haparangi Rhyolite lavas (ha3) and associated pyroclastics (undifferentiated) (ha3)	Lava domes, flows, pyroclastic surge and flow deposits	
Whakatae Ash	whp	wh	Whakatae Pyroclastics	Rhyolite pyroclastic flow and surge deposits	c.5500
Mamaku Ash	mcp	ma	Mamaku Pyroclastics	"	c.7500
Rotoma Ash	rmp	ro	Rotoma Pyroclastics	"	c.9000
	rp	rp	Pukerimi Pyroclastics	"	c.9000
	ot	ot	Oramuri Pyroclastics	"	c.9000?
	wab	wa	Waiohau Pyroclastics	"	c.11 000
	rwb	rw	Berehakaaitu Pyroclastics	"	c.15 000
	th	th	Te Hahaione Breccia	"	>15 000
	or	or	Oramuri Breccia	Fine-grained ash flow deposits	c.20 000
	fa	fa	Himora Formation	Sands and gravels, re-deposited Earthquake Flat breccia	
	ta	ta	Terrace and fan deposits (undifferentiated)	"	
Mangaone Sub-group	mb	mb	Tapaeharuru Breccia	Coarse, pyroclastic flow breccia	c.30 000
	bc	bc	Earthquake Flat Breccia	Unwelded, rhyolite pyroclastic flow and interbedded fall deposits	
Rototohu Ash	rb	ro	Rototohu Breccia	"	>42 000
	od	od	Onepu Dacite	Lava domes	
	hu2	hu2	Huka Group	Lacustrine silts, sands and diatomite	
	tw	tw	Te Wairoa Breccia	Rhyolite pyroclastic flow deposits	
	ha2	ha2	Haparangi Rhyolite and associated pyroclastics	Lava domes, flows and associated pyroclastic flow deposits	
	mk	mk	Mamaku Ignimbrite	Pink quartzose, moderately-welded ignimbrites	c.140 000
	kg1	kg1	Kaingaroa Ignimbrites	Upper pink-grey, lower dark grey, quartz-poor ignimbrites	c.150 000?
	md	md	Mangakakaramea Dacite	Lava domes and flows	c.160 000?
	pd	pd	Puhapuhi Breccia	Lava domes, flows, and dikes?	
	pdb	pdb	Puhapuhi Beds	Interbedded sediments and dacite lavas (not mapped separately)	
	hu1	hu1	Huka Group	Lacustrine silts and sands	
	mc	mc	Matahina Ignimbrite	Unwelded to densely welded, brown, quartz-bearing ignimbrite	c.200 000
	wa	wa	Waiohau Andesite/Dacite	Grey, pyroxene-plagioclase lavas	
	pb	pb	Okuku Breccia	Moderately compacted, crystal-poor pumiceous pyroclastics	
	pk	pk	Pokopoko Breccia	"	
	ra	ra	Rangitaki Ignimbrites	Crystal-rich grey ignimbrites, containing large quartz phenocrysts	c.230 000?
	w2	w2	Huka Group (Wairoa Formation)	Well-compacted pumiceous pyroclastics and interbedded sediments	
	ha1	ha1	Haparangi Rhyolite	Lava domes and flows	
	wi	wi	Waiohau Ignimbrite	Moderately-welded, quartz-poor, pink-grey ignimbrite	
	po	po	Paeora Ignimbrites	Moderately-welded, quartz-biotite, grey-pink ignimbrites	
	ba	ba	Beson's Island Volcanics	Pyroxene andesite lava flows	c.400 000?
	ka	ka	Te Kopua Ignimbrites	Strongly-welded, grey-black quartzose ignimbrites	c.550 000

MAP 1
Geological Map of the
Okataina Volcanic Centre

- SYMBOLS**
- Contact
 - Uncertain contact
 - Fault, ball on downthrown side
 - Inferred fault
 - Boundary of extrusive unit (lava dome or flow)
 - Isobaths, at 10 m intervals, except in Lake Rotomahana (20 m)
 - Eruptive vent, pre-20 000 years
 - Eruptive vent, post-20 000 years
 - Phreatic/hydrothermal eruptive vent
 - Hot well
 - Cold well
 - Regional dip
 - Local dip
- Lake bathymetry from J. Irwin, N.Z. Oceanographic Institute (see text for references)



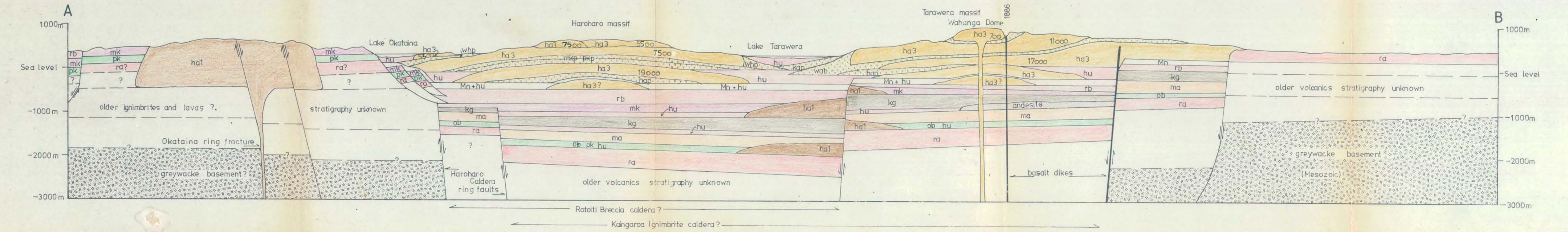
*Tephrae are not mapped separately. They are shown here as mantling, intercalated, or underlying beds which provide stratigraphic control on volcanics and sediments within Harohoro Caldera.

Examples: **ha/ha3** indicates Rotoma Ash overlying **ha** lava without weathering at contact. **wh/ha3** indicates Whakatae Ash overlying paleosol developed on **ha** lava. **wh/ha3** indicates Whakatae Ash interbedded with **ha** lava of equivalent age.

**See Tables 1 and 3 for techniques and sources of radiometric ages.

†/A/ dates, J. Stipp, pers. comm.

HYPOTHETICAL CROSS SECTION INFERRED FROM SURFACE GEOLOGY, ERUPTIVE HISTORY, AND PYROCLASTIC LITHOLOGY (see text)



See MAP 2 for TECTONIC INTERPRETATION, and MAP 3 for locations of GEOTHERMAL FIELDS

I.A. Hearn 1981

SCALE 1:50 000

Topographic contours on this sheet are at 100 ft (30.5 m) intervals.