



TephraNZ:

a major and trace element reference dataset for prominent Quaternary rhyolitic tephras in New Zealand

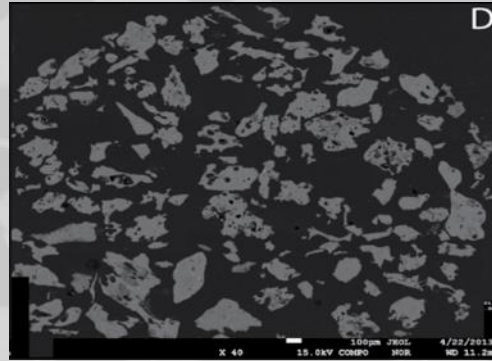
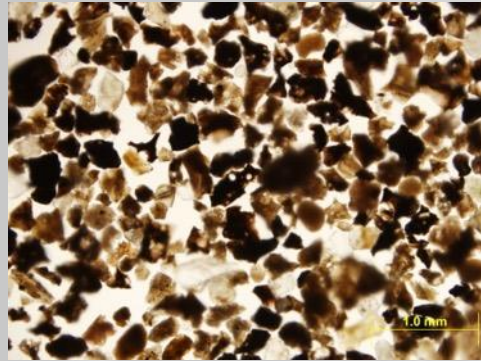
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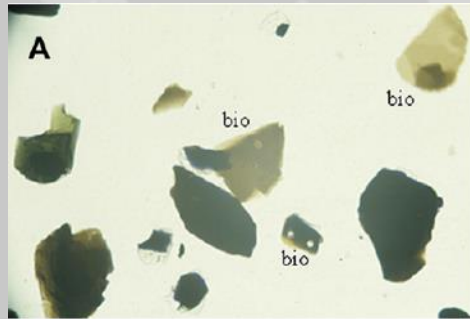


TephraNZ – the background



Glass shard geochemistry

➤ Reference data



Mineral assemblages

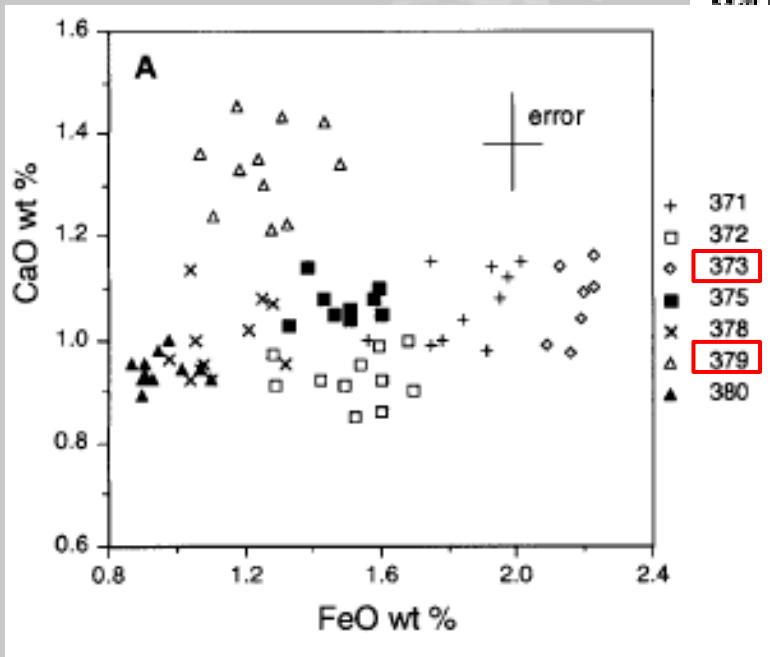


Dating techniques,
e.g. Zircon fission-track dating (direct)
or ¹⁴C dating (indirect)



TephraNZ – the background

Sample no	371	372	375	378	380
SiO ₂	76.39 (0.41)	77.50 (0.29)	77.01 (0.89)	78.38 (0.37)	78.56 (0.29)
Al ₂ O ₃	13.03 (0.17)	12.58 (0.14)	12.91 (0.21)	12.35 (0.22)	12.35 (0.17)
TiO ₂	0.12 (0.04)	0.09 (0.03)	0.19 (0.06)	0.21 (0.06)	0.18 (0.06)
FeO	1.81 (0.18)	1.52 (0.14)	1.43 (0.16)	1.13 (0.11)	0.96 (0.08)
MnO	0.05 (0.04)	0.07 (0.05)	0.1 (0.06)	0.07 (0.05)	0.06 (0.04)
MgO	0.09 (0.02)	0.05 (0.02)	0.19 (0.05)	0.17 (0.03)	0.15 (0.02)
CaO	1.05 (0.08)	0.93 (0.05)	1.01 (0.15)	1.00 (0.09)	0.94 (0.03)
Na ₂ O	3.82 (0.14)	3.72 (0.15)	4.01 (0.28)	3.68 (0.18)	3.68 (0.16)
K ₂ O	3.46 (0.15)	3.36 (0.26)	2.90 (0.12)	2.82 (0.19)	2.90 (0.14)
H ₂ O	0.14 (0.02)	0.16 (0.03)	0.21 (0.04)	0.15 (0.02)	0.18 (0.02)
Total	7.06 (0.45)	6.86 (0.75)	7.52 (0.97)	7.59 (0.72)	7.65 (0.66)



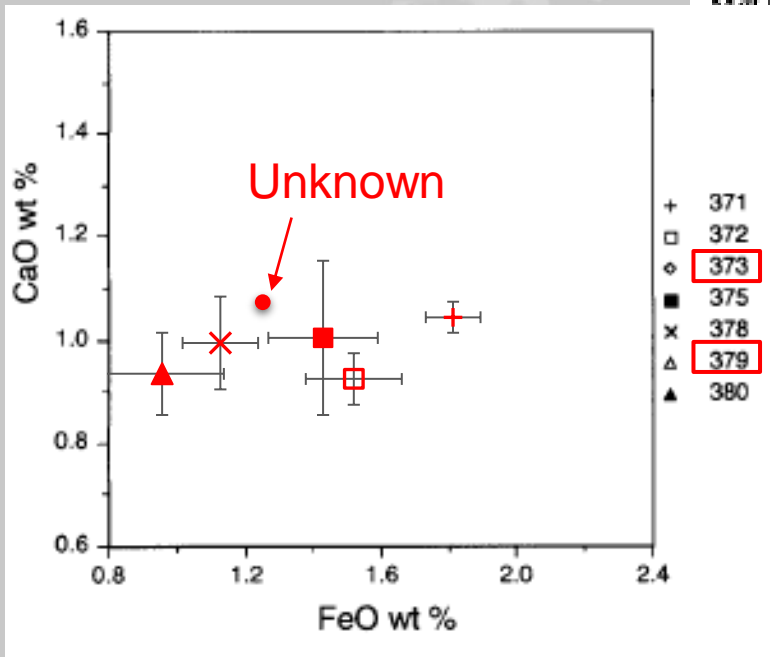
X 10 X 9 X 10 X 10

Data from an undisclosed source



TephraNZ – the background

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	X		X	X	X



10	9	10	10
Data from an undisclosed source			

TephraNZ – the background



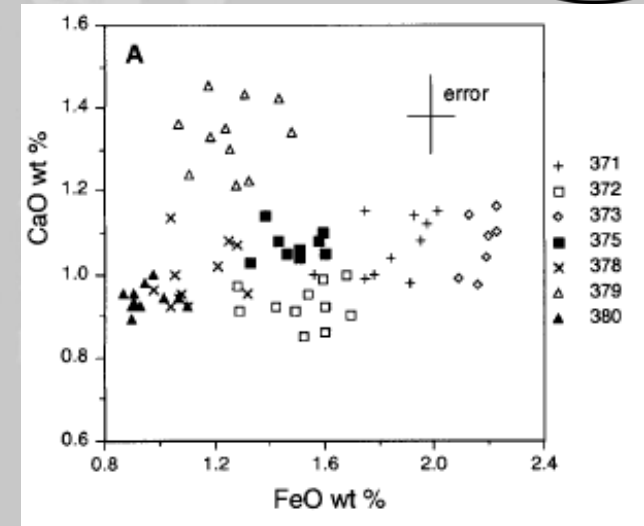
Unpublished data from X.Y. Zed

Or

Data from **Wild** et al., 1999

> data from **Goose** et al., 1990

> data from **Chase** et al., 1988




Tephra data is commonly untraceable and therefore useless for correlations

TephraNZ – the background



- Missing or incorrect data
- Just figures and no data
- Untraceable data
- Means + standard deviations or data ranges
- Range of ages for the data (out of date methods)
- Range of methods and standards
- HUGE range of publications

Bee in Your Bonnet



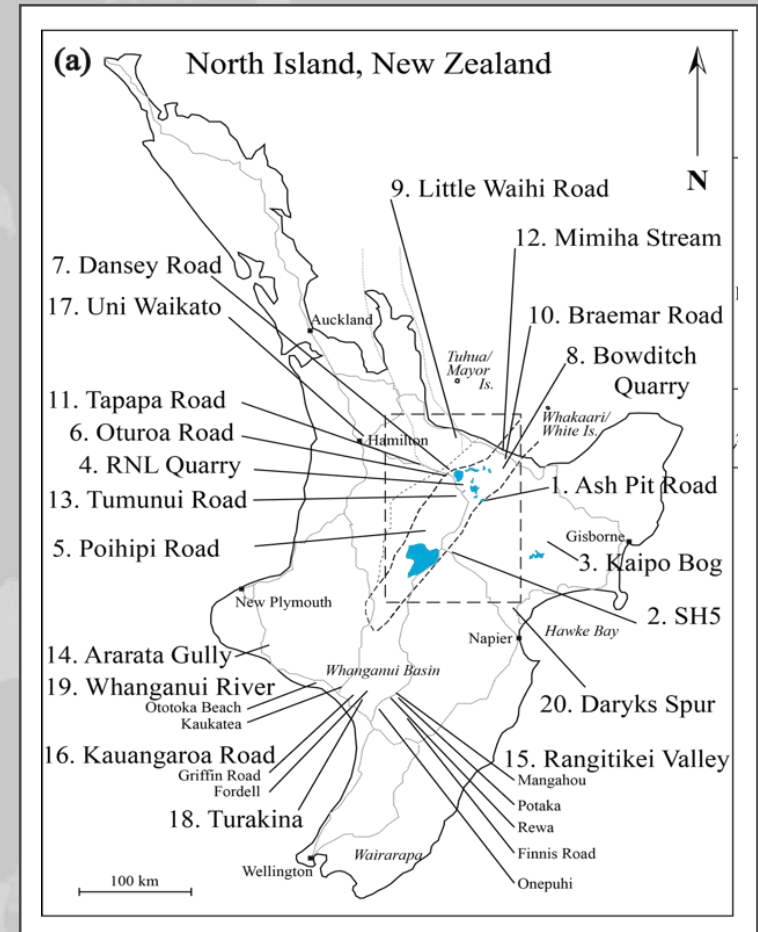
To have a bee in your bonnet means to be preoccupied with something and may also mean to talk about it excitedly, angrily, etc., often to excess.

TephraNZ – the concept



To produce an open access reference dataset that is:

- Systematically analysed
- Comprehensively compiled
- Up-to-date
- High accuracy and precision
- Methodologically explicit





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Now(?) in open review at “Geochronology”

Soon to be live at tephranz.com and pet.gns.cri.nz

