

# Heavy Minerals From Taieri River Mouth, Otago

Kate Wignell

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Bachelor of Science, Geology Major

Third and final year at University of Otago

AusIMM EET Scholarship recipient for my individual research project



Four sand samples were collected of placer deposits on Taieri Beach from the Taieri River Mouth.

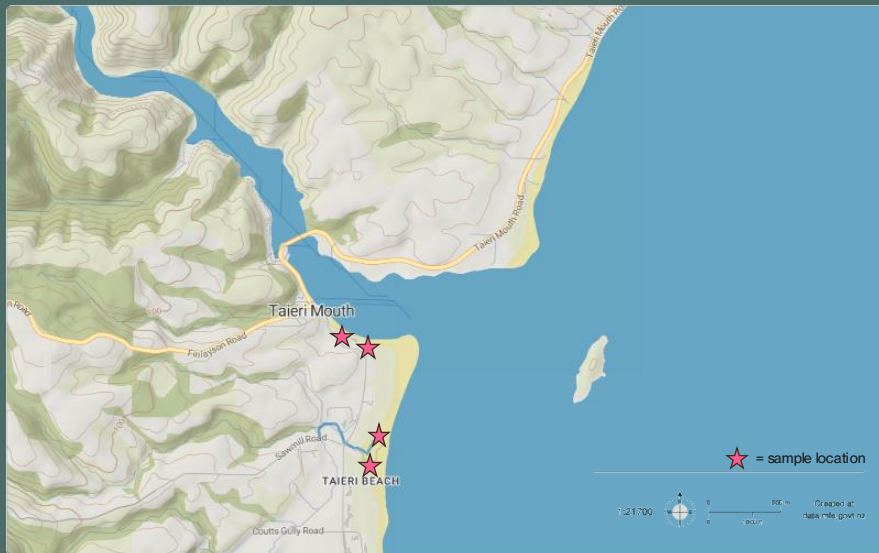
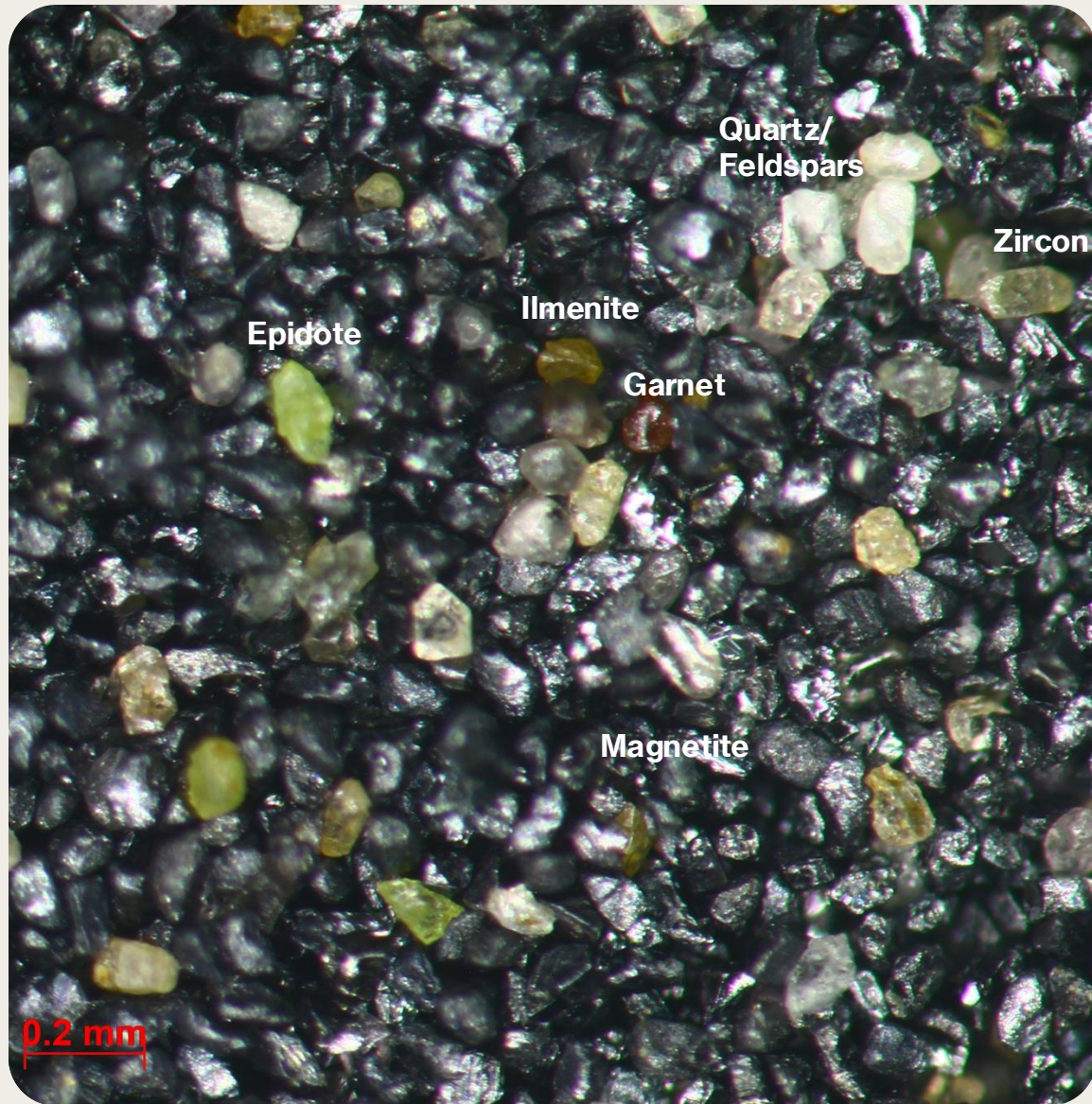


Figure 1: Taieri Beach and river mouth map showing 4 sample locations.



Figure 2: Placer deposit on Taieri Beach.



## Photographic Microscope Image

- Iron Oxide (Magnetite)
- Garnet
- Epidote
- Ilmenite
- Quartz
- Zircon
- Feldspar

Figure 3: Washed, dried and sieved to 4 phi grains from sample #4.

# Thin Section Images

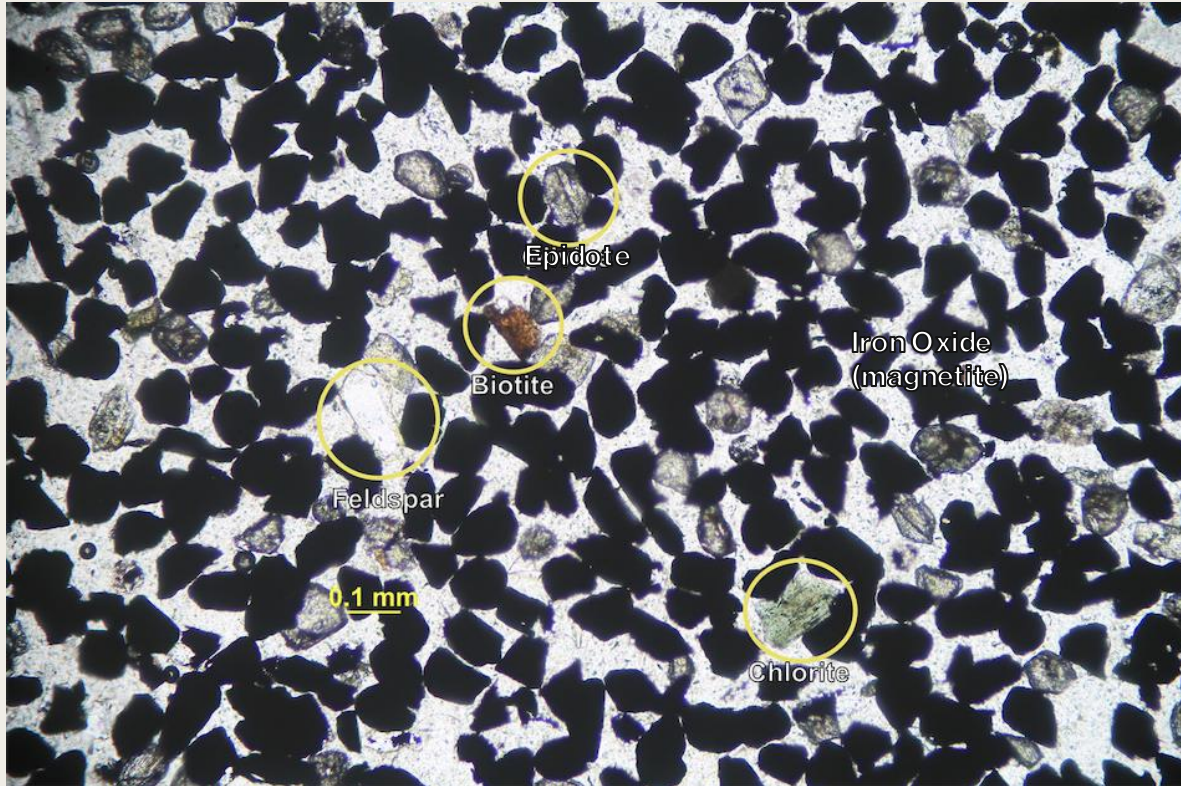


Figure 4: Sample #4 under plane polarised light (PPL).

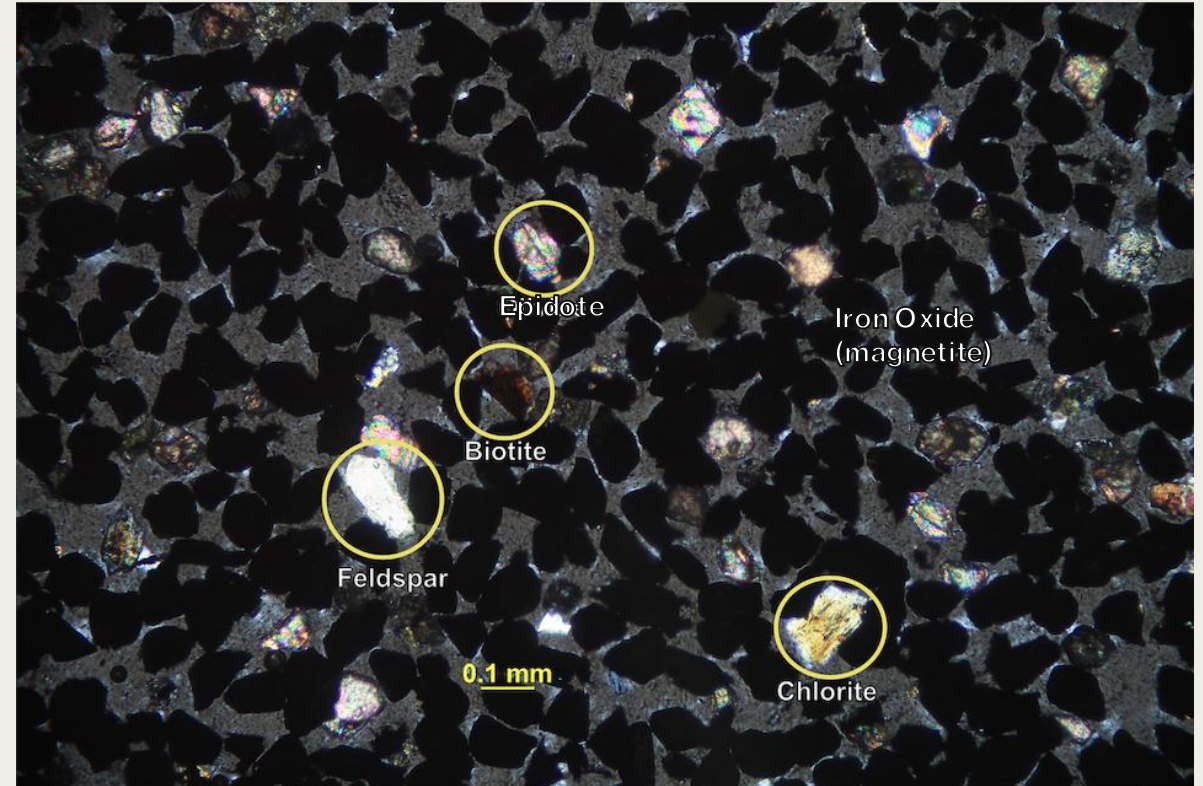


Figure 5: Sample #4 under cross polarised light (XPL).

# SEM

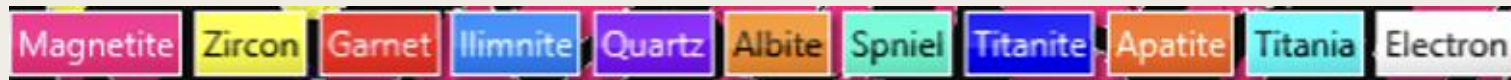
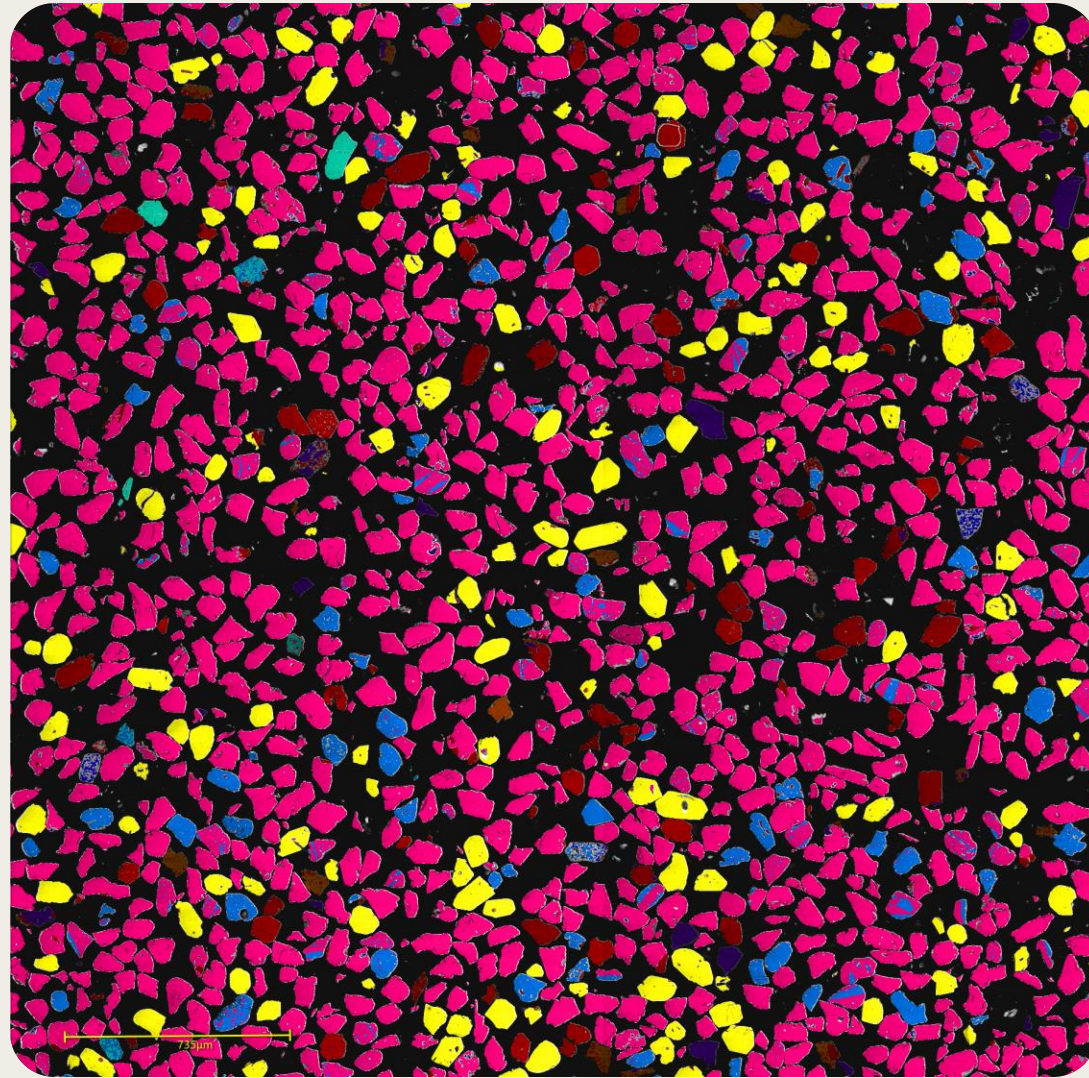


Figure 6: Montaged SEM map of six images from sample #4.

# River Catchments & Rock Types

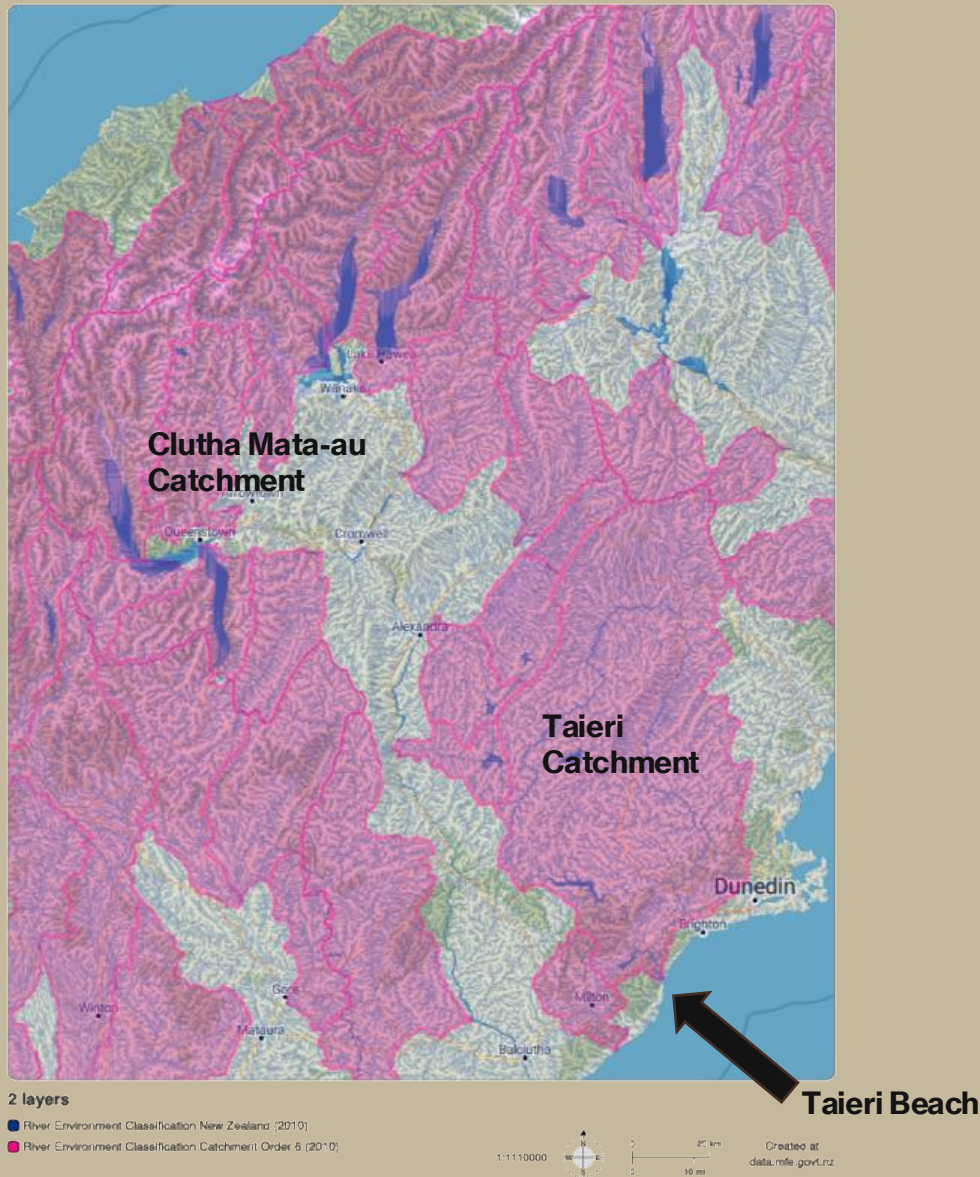


Figure 7: River catchment map (Ministry for the Environment, n.d.)

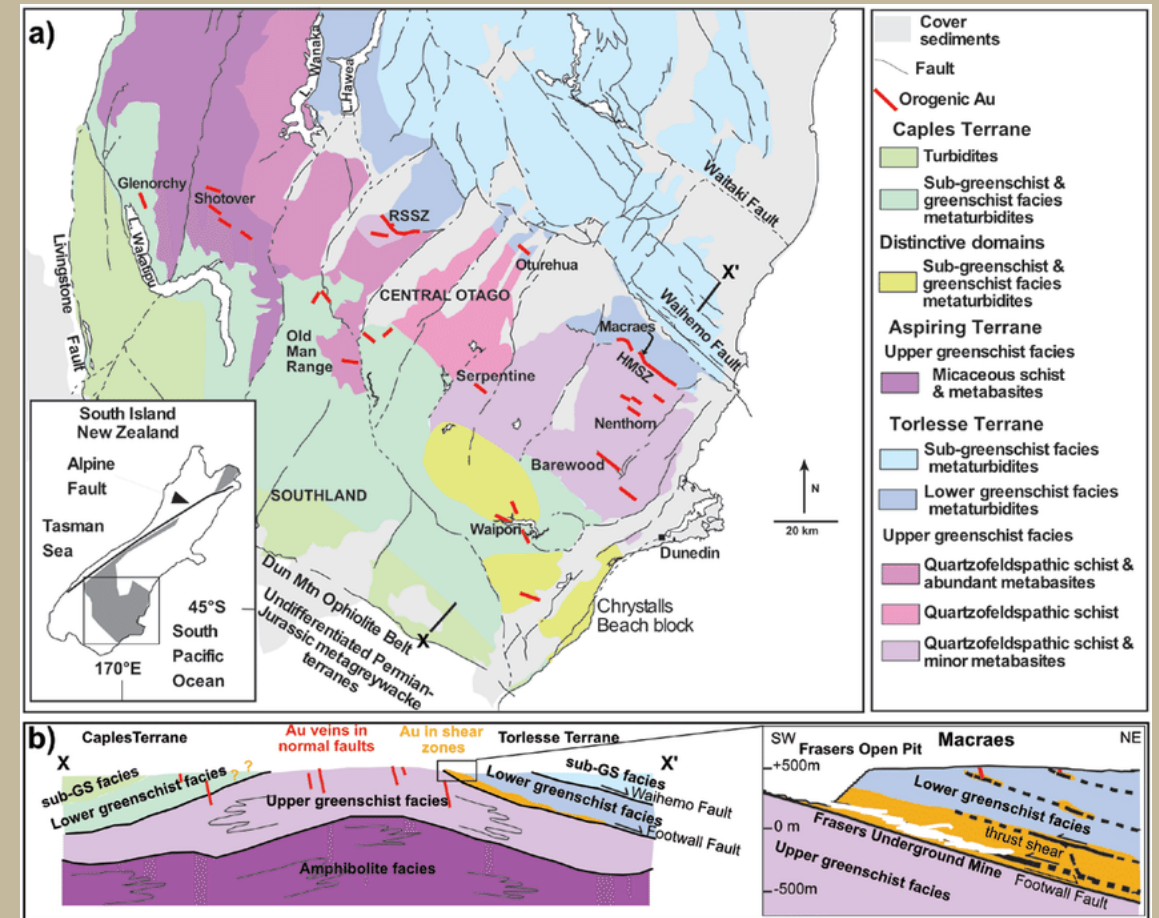


Figure 8: Otago region geological map of rock types with faults. Predominantly greenschist with quartzofeldspathic schist in the area of the Taieri catchment (MacKenzie & Craw, 2017).

# Conclusion & Future Work

- An educated hypothesis from the observed minerals seen in the samples and analysis, the minerals are consistent with greenschist metamorphism and inferred to be from the Otago region transported through the Taieri catchment.
- Continuing to research the original rock formations and the transportation paths through river catchments.
- Specific mineral chemistry to connect larger scale ideas with specific grains.

## References (map sources)

<https://data.mfe.govt.nz/data/>

MacKenzie, D., & Craw, D. (2017). Geophysical signals and exploration for orogenic gold on the low-grade margins of the Otago Schist. In *Proceedings of the Gold'17 Conference* (Extended Abstracts, pp. 62–65). Rotorua, New Zealand.