

New Zealand Geoheritage and Geodiversity Framework



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Global Recognition of Geoheritage of SW Pacific



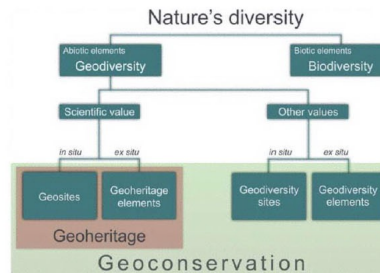
THE FIRST
100
IUGS GEOLOGICAL HERITAGE SITES

IUGS 60TH ANNIVERSARY

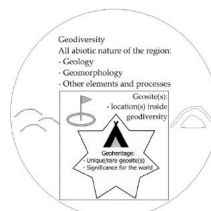
NO
New Zealand site
is on the list



Geoheritage vs Geodiversity



Brilha J (2018) Chapter 4 - Geoheritage: Inventories and Evaluation. In: Reynard E, Brilha J (eds) Geoheritage. Elsevier, pp 69-85



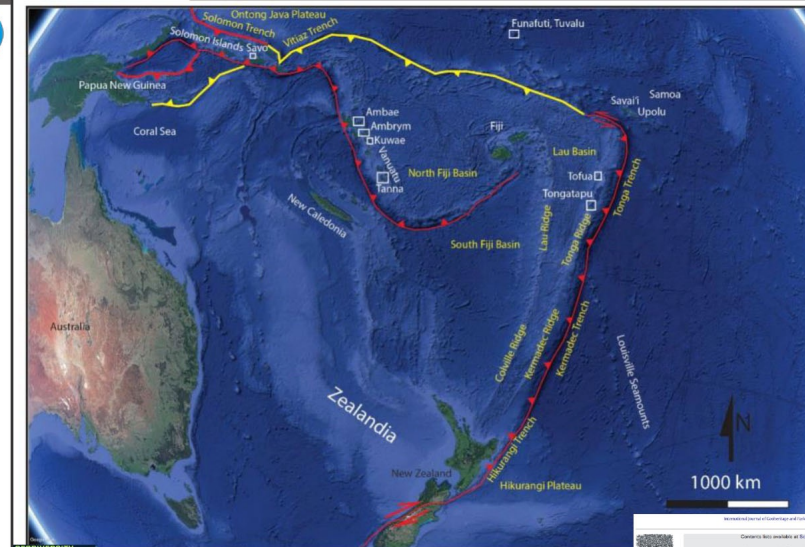
New Zealand Geoheritage Key Aspects

- Geological Terrains
- Accretionary Prism
- Cold Water Carbonates
- Volcanic Geoheritage
- Tectonic Geoheritage
- Active Geological Processes: coastal processes, tsunami deposits, glacial, mass movements etc.

Zakharovskiy V, Németh K (2021) Quantitative-Qualitative Method for Quick Assessment of Geodiversity. Land 10(9):946

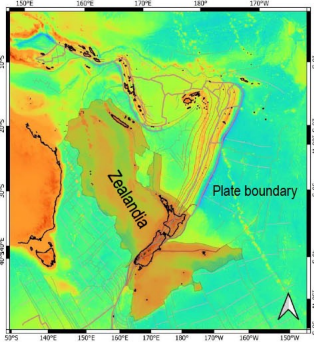


SW Pacific Context

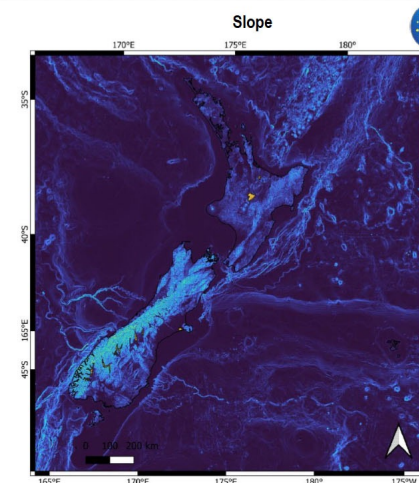
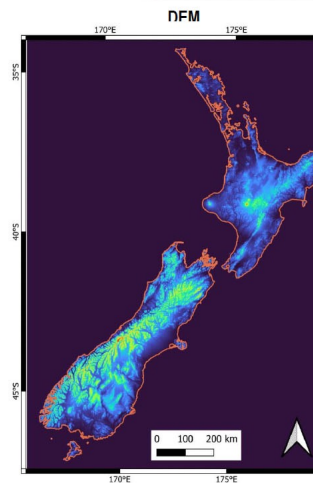
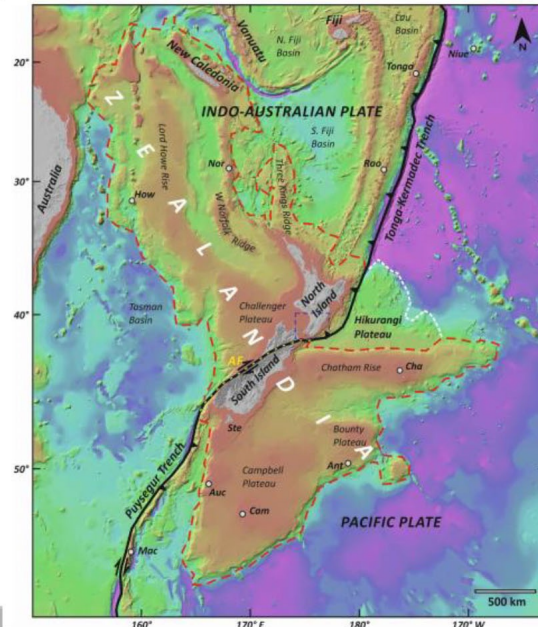


Geoheritage and geodiversity elements of the SW Pacific: A conceptual framework

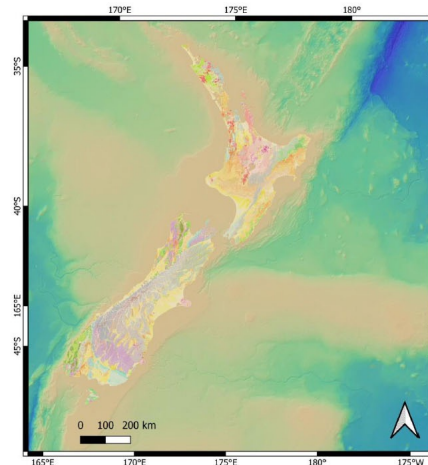
Károly Németh, Blum, Gaudin



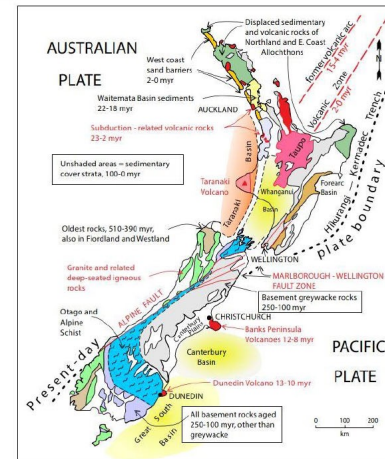
Mortimer N, Smith Lyttle B, Black J. (2020). *Te Riu-a-Māui / Zealandia digital geoscience data compilation, scale 1:8 500 000. GNS Science Geological Map 11. Lower Hutt, New Zealand. GNS Science.* <http://doi.org/10.21420/GYZR-YW05>



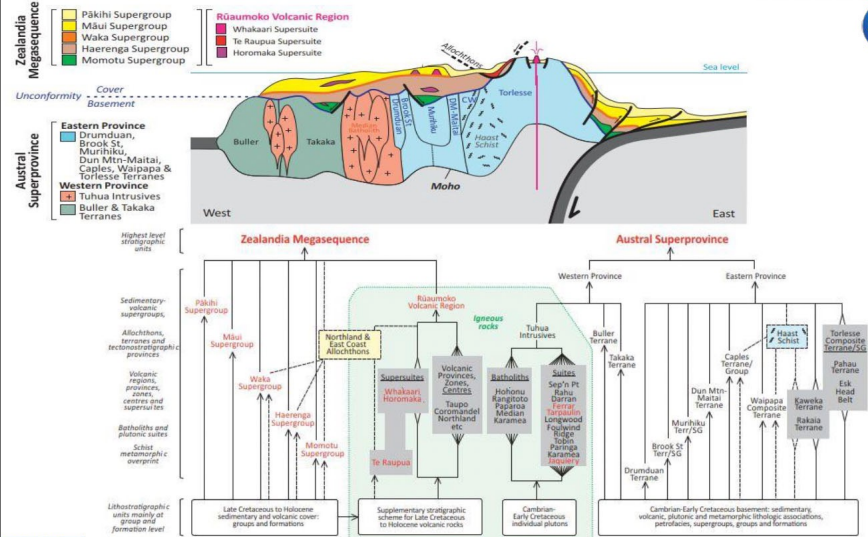
Mortimer N, Smith Lyttle B, Black J. (2020). *Te Riu-a-Māui / Zealandia digital geoscience data compilation, scale 1:8 500 000. GNS Science Geological Map 11. Lower Hutt, New Zealand. GNS Science.* <http://doi.org/10.21420/GYZR-YW05>



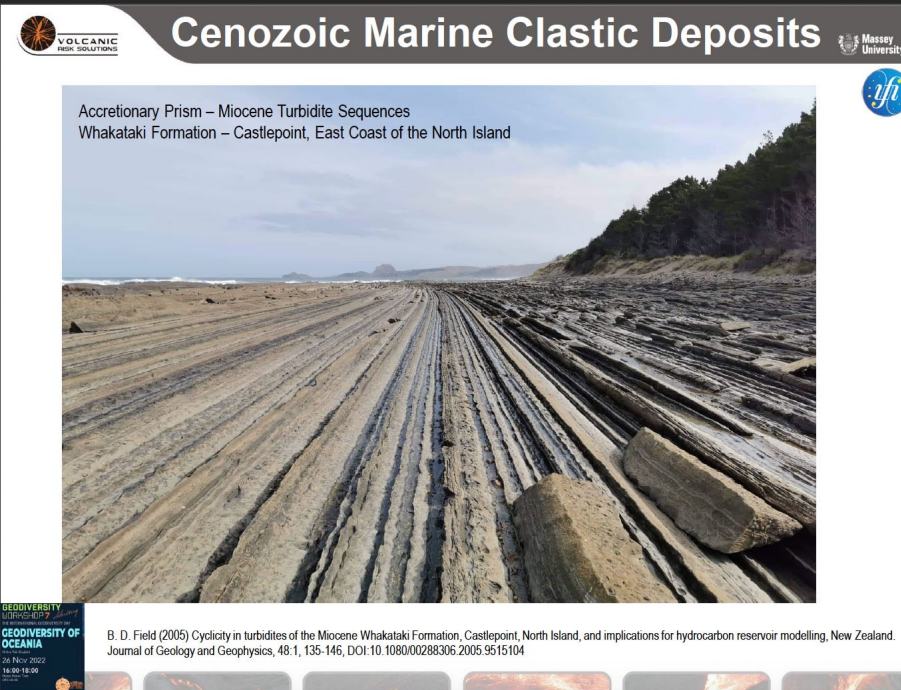
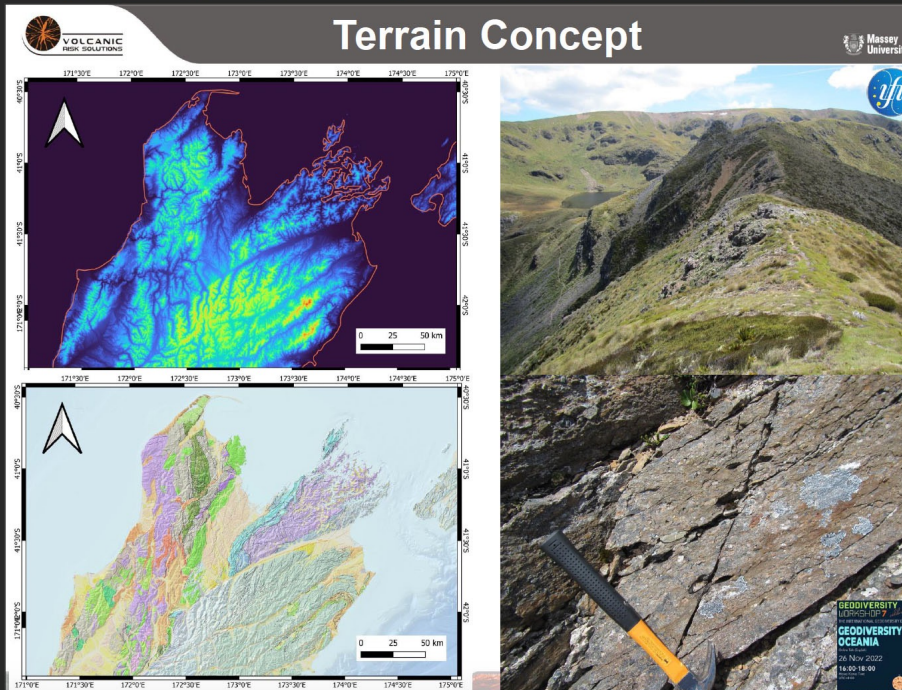
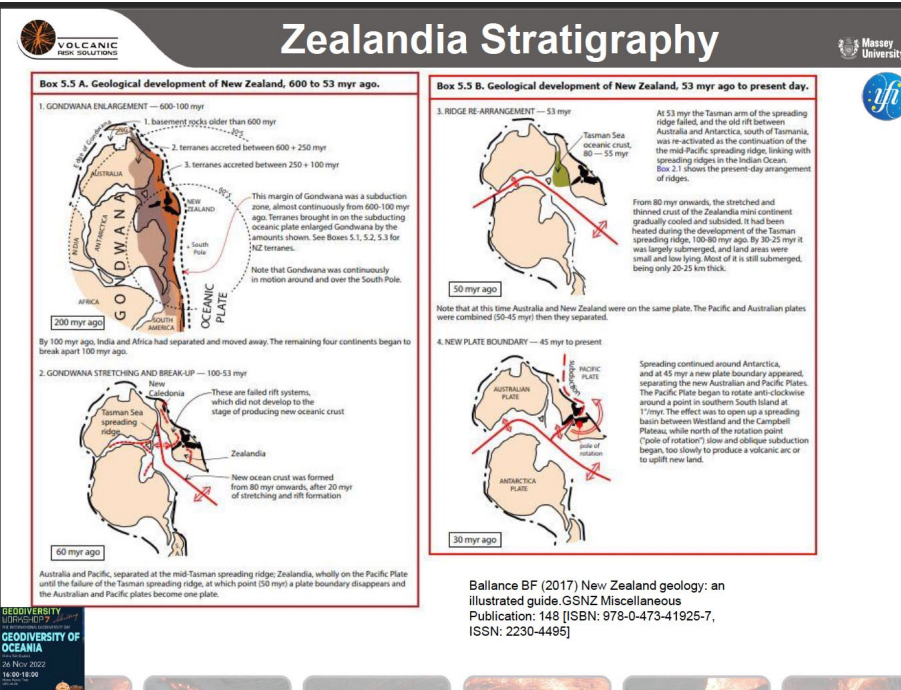
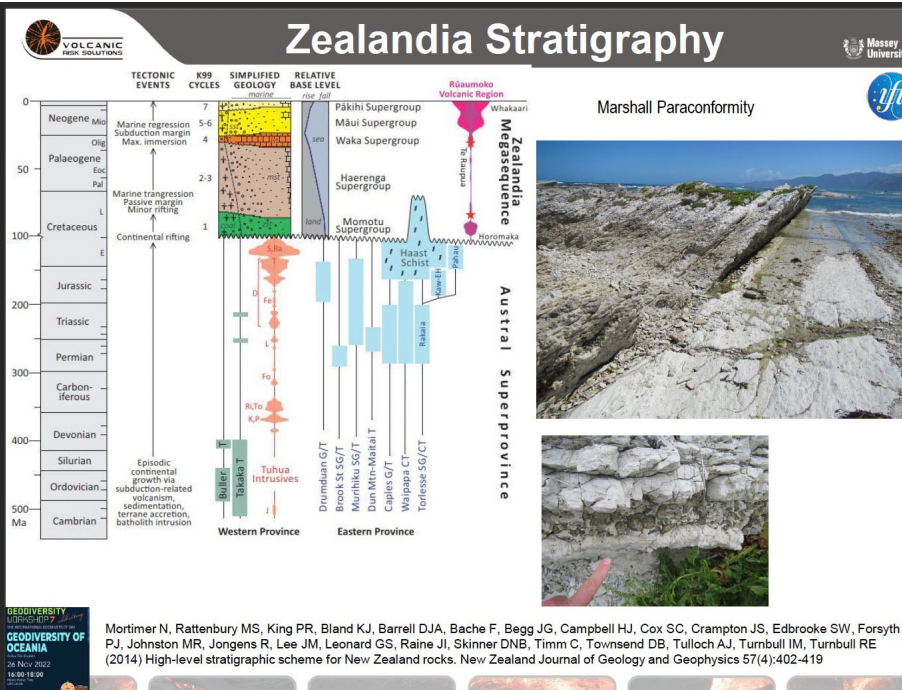
Geology data based on the 1:250 000 Geological Map of New Zealand (QMAP)

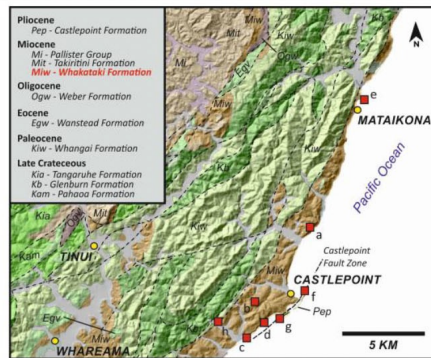
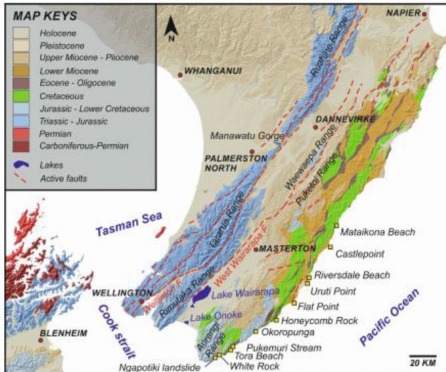


Ballance PF (2017) *New Zealand geology: an illustrated guide. e-Book - GSNZ Miscellaneous Publication 148* [ISBN: 978-0-473-41925-7, ISSN: 2230-4495]

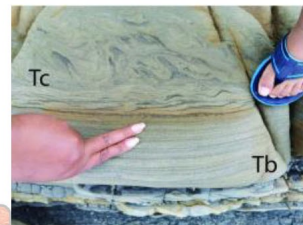
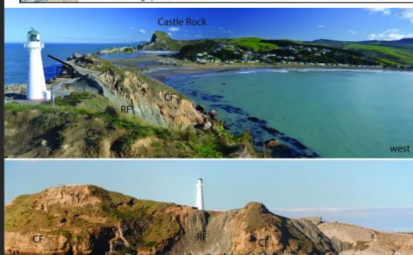


Mortimer N, Rattenbury MS, King PR, Bland KJ, Barrell DJA, Bache F, Begg JG, Campbell HJ, Cox SC, Crampton JS, Edbrooke SW, Forsyth PJ, Johnston MR, Jongsens R, Lee JM, Leonard GS, Raine JI, Skinner DNB, Timm C, Townsend DB, Tulloch AJ, Turnbull IM, Turnbull RE (2014) High-level stratigraphic scheme for New Zealand rocks. *New Zealand Journal of Geology and Geophysics* 57(4):402-419

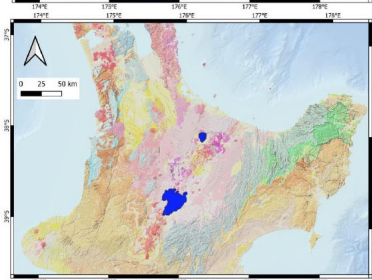
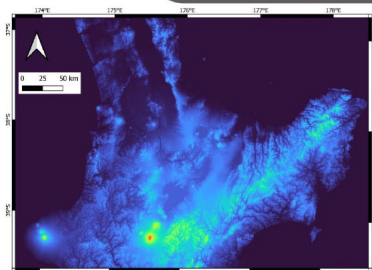
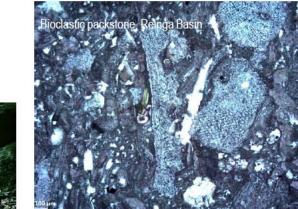
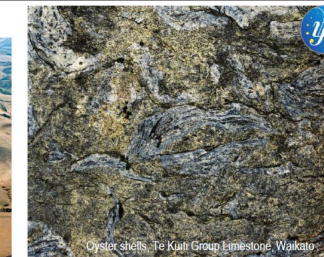




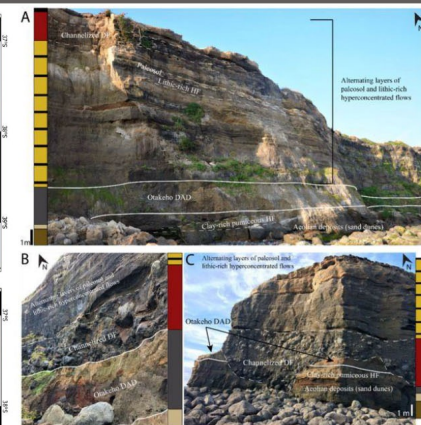
Palmer J, Németh K, Palmer A, Kosik S (2020) Geoheritage Values of the Wairarapa "Mudstone Country", North Island, New Zealand. *Geoconservation Research* 3(2):97-127



Lawrence MJF, Morgans HRG, Grundwell MP, Patriat M (2020) Carbonate rocks of offshore northern Zealandia. *New Zealand Journal of Geology and Geophysics*, 63(1): 66-89.



Primary silicic tephra and their reworked derivatives

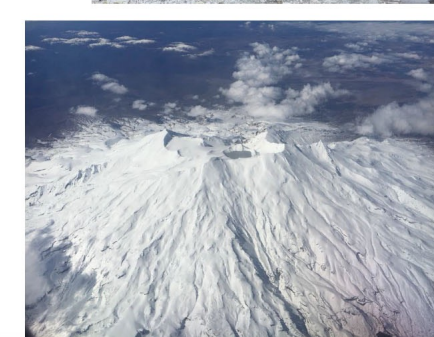
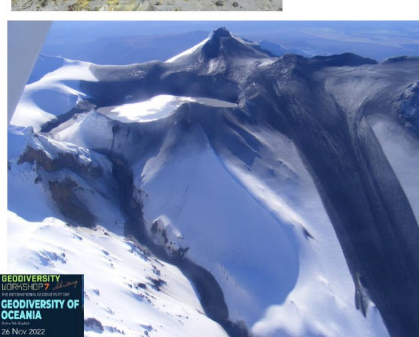


LEGEND
 - Unconsolidated flow (U)
 - Channelized debris flow (CD)
 - Clay-rich hyperconcentrated flow (H)
 - Ash-rich deposit
 - Outwash debris avalanche deposit (ODAD)
 - Paleosol

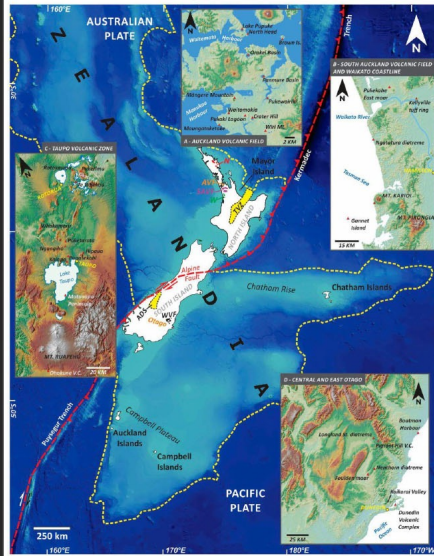
Zemany A, Procter J, Németh K, Zellmer GF, Zernack AV, Cronin SJ (2021) Elucidating stratovolcano construction from volcanoclastic mass-flow deposits: The medial ring plain of Taranaki Volcano, New Zealand. *Sedimentology* DOI:10.1111/sed.12857



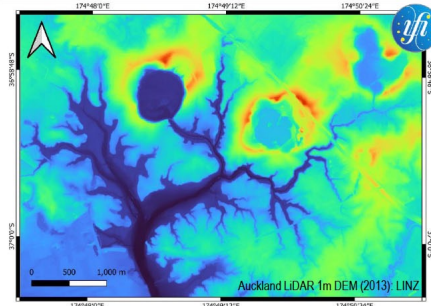
- Geothermal Areas
- Active Volcanoes
- Lahars
- Ring plains
- Tephrastratigraphy



Intraplate Volcanism



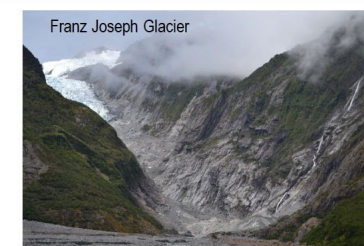
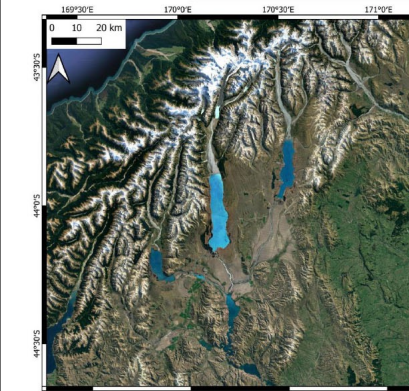
Németh K, Kösik S (2020) The role of hydrovolcanism in the formation of the Cenozoic monogenetic volcanic fields of Zealandia. New Zealand Journal of Geology and Geophysics 63(4):402-427



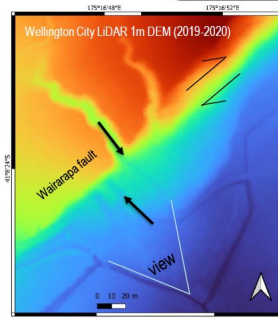
Hopkins JL, Smid ER, Eccles JD, Hayes JL, Hayward BW, McGee LE, van Wijk K, Wilson TM, Cronin SJ, Leonard GS, Lindsay JM, Németh K, Smith IEM (2021) Auckland Volcanic Field magmatism, volcanism, and hazard: a review. New Zealand Journal of Geology and Geophysics 64(2-3):213-234



Modern Geo-Environments

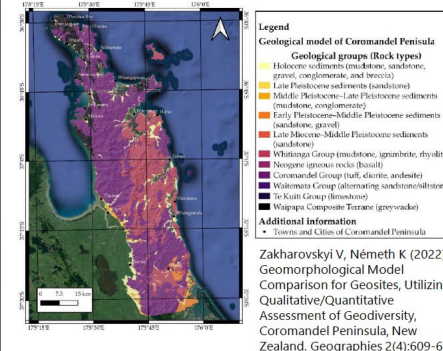


Tectonic Sedimentology and Geomorphology



Manighetti I, Perrin C, Gaudemer Y, Dominguez S, Stewart N, Malavielle J, Garambois S (2020) Repeated giant earthquakes on the Wairarapa fault, New Zealand, revealed by Lidar-based paleoseismology. Scientific Reports 10(1)

Geodiversity Measurements: New Zealand



Legend

Geological groups (Rock types)

- Holocene sediments (alluvium, sandstone, gravel, conglomerate, and breccia)
- Late Pleistocene sediments (sandstone)
- Middle Pleistocene-Late Pleistocene sediments (mudstone, conglomerate)
- Early Pleistocene-Middle Pleistocene sediments (sandstone, gravel)
- Late Pleistocene-Middle Pleistocene sediments (sandstone)
- Whitanga Group (mudstone, lignite, rhyolite)
- Neogene igneous rocks (basalt)
- Coromandel Group (trachyte, andesite)
- Waikato Group (alternating sandstone/siltstone)
- Tu Kaiti Group (rhyolite)
- Waipara Composite Terrane (gneiss)

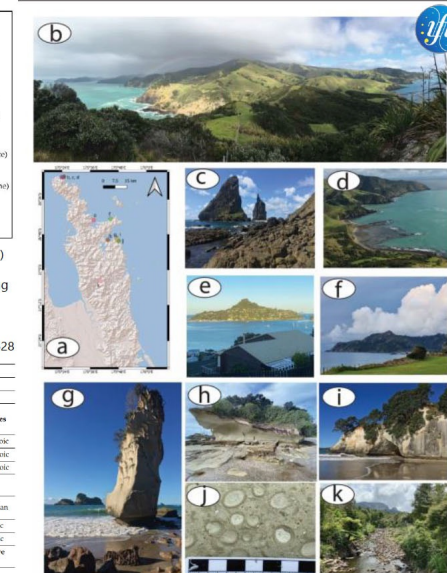
Additional information

- Towns and Cities of Coromandel Peninsula

Zakharovskiy V, Németh K (2022) Geomorphological Model Comparison for Geosites, Utilizing Qualitative/Quantitative Assessment of Geodiversity, Coromandel Peninsula, New Zealand. Geographies 2(4):609-628

Main Values of Geodiversity

Values (7-Point System)	Elements of Geodiversity	
	Geomorphology	Geology
1 (the lowest)	Slope, Roughness, Rugosity, Total Curvature	Flat and Slope
2 (low)		Hollow and Spur
3 (low to middle)		Frontslope and Shoulders
4 (middle)		Valley and Ridge
5 (middle to high)		Depression and Summit
6 (high)		Spout system
7 (the highest)		
8 (the rarest)	Daily Rocks	Sedimentary (Precambrian), Metamorphic and Intrusive (Cenozoic, Mesozoic, Paleozoic), Extrusive (Paleozoic, Precambrian)



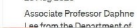


Geological research in this region has been critical to our understanding of the evolution of modern cetaceans, the eruption dynamics of submarine volcanoes, and the nature of the lithospheric mantle


Massey University

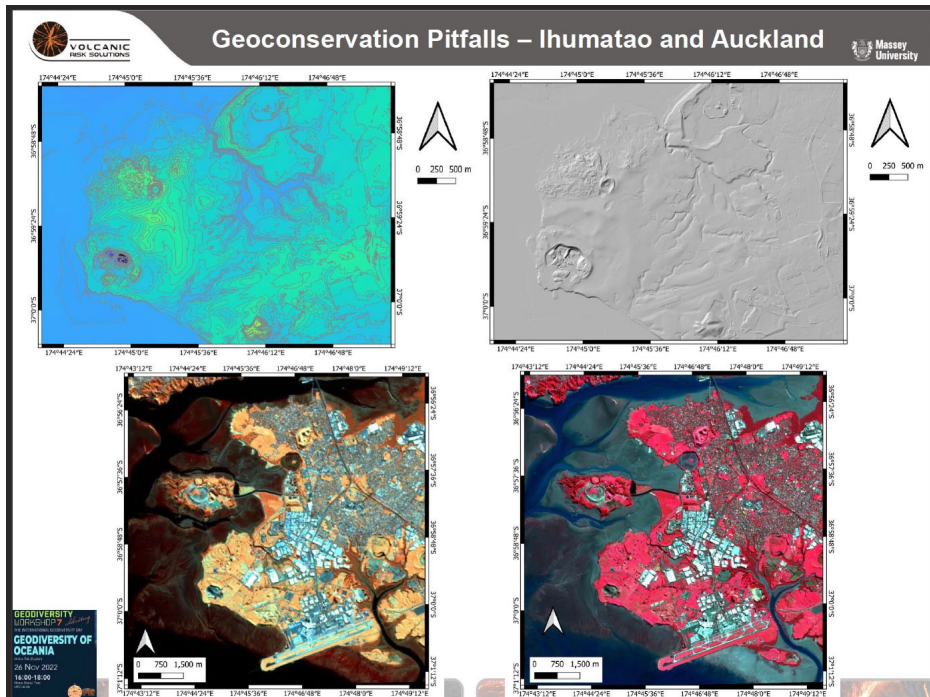
GEODIVERSITY WORKSHOP 7 *Learning*
THE INTERNATIONAL GEODIVERSITY DAY
GEODIVERSITY OF OCEANIA
(with a field excursion)
26 Nov 2022
16:00-18:00
Hawke Research Trust
0870-46108





GEODIVERSITY WORKSHOP 7 *celebrating*
THE INTERNATIONAL GEODIVERSITY DAY
GEODIVERSITY OF OCEANIA
Friday 26 November
26 Nov 2022
14:00-18:00
Online (Zoom) / Free
with a ticket





Geoconservation Pitfalls – Ihumatao and Auckland

RNZ Home News Radio Podcasts & Series Topics Pacific

New Zealand World Politics Pacific Te Ao Māori Sport Business Country Local Democracy

POLITICS / TE AO MĀORI

Ihumātao: Deal struck between government and Fletcher Building to buy disputed land

7:16 pm on 17 December 2020

Jane Patterson, Political Editor
@janepatterson jane.patterson@rnz.co.nz

A deal has been struck between the government and Fletcher Building to buy the disputed Ihumātao land for just under \$30 million, the first step in breaking the long-running deadlock.

RELATED STORIES

Ihumātao land dispute: Initial deal expected to go to Cabinet today
14 Dec 2020
Jacinda Ardern has ruled out visiting Ihumātao before a resolution is reached and says at the moment it is a stalemate. An initial deal expected to go to Cabinet today. (AUDIO)

Explainer: Why Ihumātao is being occupied by 'protectors'
24 Jul 2019
For more than three years, there has been an occupation of 'protectors' at Ihumātao. Here's why. (AUDIO)

Geoconservation Trust Aotearoa SW Pacific

<https://www.geoconservation.org/>

THE GEOCONSERVATION TRUST
Protecting Aotearoa New Zealand's Geoheritage

Home About Activities Publications Trustees Contact

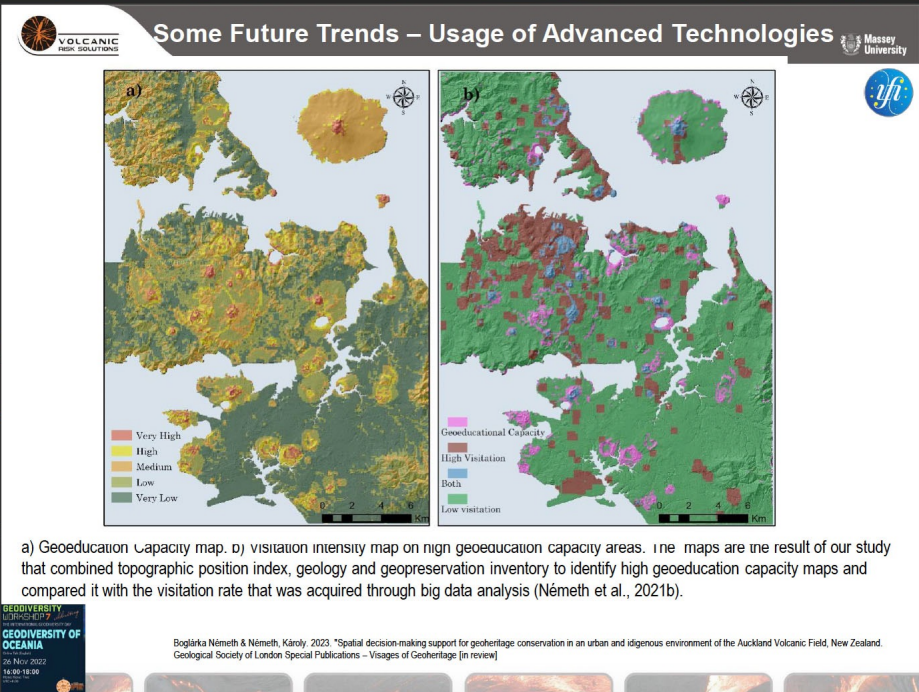
The Trust's mission is to engage in activities that develop and share principles and practice of geoconservation for long term national sustainability and to support community-based whanaungatanga (relationships and belonging).

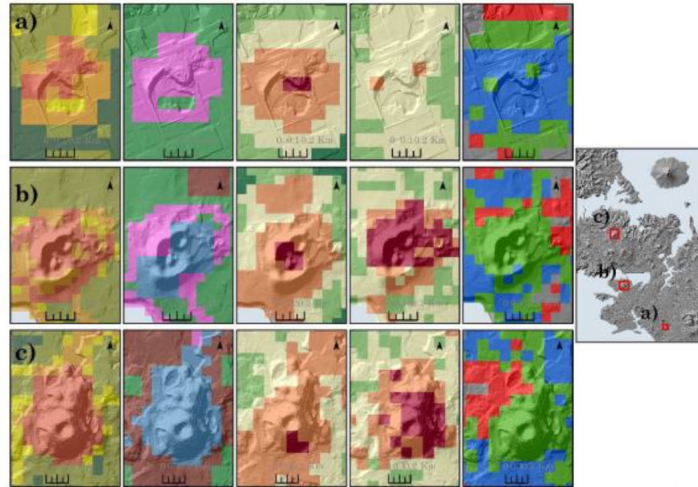
The Geoconservation Trust Aotearoa Pacific

Protecting New Zealand's unique, fragile, and world-class geological features in an environmentally and culturally rich landscape.

We are establishing a hub of shared expertise and technology in the specialties of geology, archaeology, paleontology, cultural landscape studies and conservation.
This is a trans-disciplinary community-based approach to science, conservation, education, economy, art and culture.
We support communities and hapu in building matauranga Māori and scientific knowledge to strengthen communications and land use policy.

26 Nov 2022 16:00-18:00





Comparison of Wiri quarry (row 1), Mangere Mt (row 2) and Mt Eden (row 3) by the geoeducation capacity (1), visitation rate (2), areas for cultural conservation (3), areas for geoheritage conservation (4) and MOLA (5).