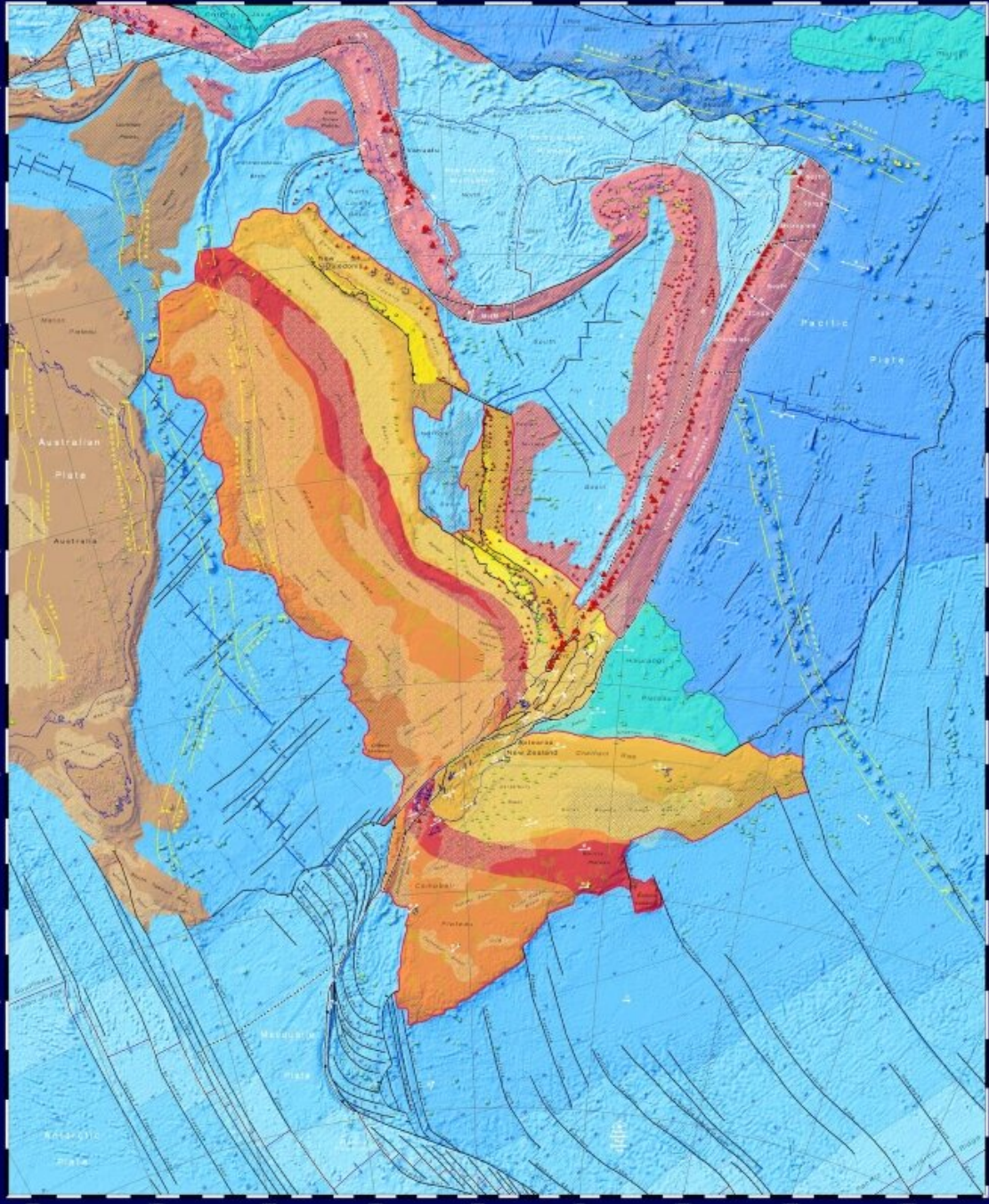


New maps and website give fresh insights into NZ continent

June 25 2020

Tectonic Map of Te Riu-a-Māui / Zealandia



Tectonic Map of Te Riu-a-Māui / Zealandia

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Type of strain

Age	Subduction	Extension	Compression
0-10 Ma	Highly compressive	Highly compressive	Highly compressive
10-20 Ma	Highly compressive	Highly compressive	Highly compressive
20-30 Ma	Highly compressive	Highly compressive	Highly compressive
30-40 Ma	Highly compressive	Highly compressive	Highly compressive
40-50 Ma	Highly compressive	Highly compressive	Highly compressive
50-60 Ma	Highly compressive	Highly compressive	Highly compressive
60-70 Ma	Highly compressive	Highly compressive	Highly compressive
70-80 Ma	Highly compressive	Highly compressive	Highly compressive
80-90 Ma	Highly compressive	Highly compressive	Highly compressive
90-100 Ma	Highly compressive	Highly compressive	Highly compressive

Volcanic locations

Location	Age (Ma)	Strain Type
Whakarewa	0-10	Highly compressive
Whakapoua	0-10	Highly compressive
Whakapoua	10-20	Highly compressive
Whakapoua	20-30	Highly compressive
Whakapoua	30-40	Highly compressive
Whakapoua	40-50	Highly compressive
Whakapoua	50-60	Highly compressive
Whakapoua	60-70	Highly compressive
Whakapoua	70-80	Highly compressive
Whakapoua	80-90	Highly compressive
Whakapoua	90-100	Highly compressive

Other features

- Subduction zone: Active (red), Inactive (blue)
- Extension zone: Active (red), Inactive (blue)
- Compression zone: Active (red), Inactive (blue)

Scale 1:500,000

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The tectonic map highlights the 5 million sq km Te Riu-a-Māui / Zealandia continent, a small part of which is on land, but most of which is under the sea. The colours show continental crust in red, orange, yellow and brown hues and oceanic crust in blues. Island arc crust is pink and large igneous province crust is green. (A large igneous province is a large accumulation of igneous rocks resulting from magma travelling through the crust towards the surface). Credit: GNS Science

Two maps and a website released by GNS Science this week give insights into the amazing forces that shaped Aotearoa New Zealand and the mostly submerged continent that lies beneath our feet.

The maps cover the bathymetry (shape of the ocean floor) and the tectonic origins of Earth's eighth continent—the 5 million square kilometer Te Riu-a-Māui / Zealandia on which New Zealand sits.

They can also be accessed through a new [interactive website](#) called E Tūhura—Explore Zealandia (TEZ) – data.gns.cri.nz/tez. TEZ is designed for exploring onland and offshore geoscience data in and around Te Riu-a-Māui/Zealandia.

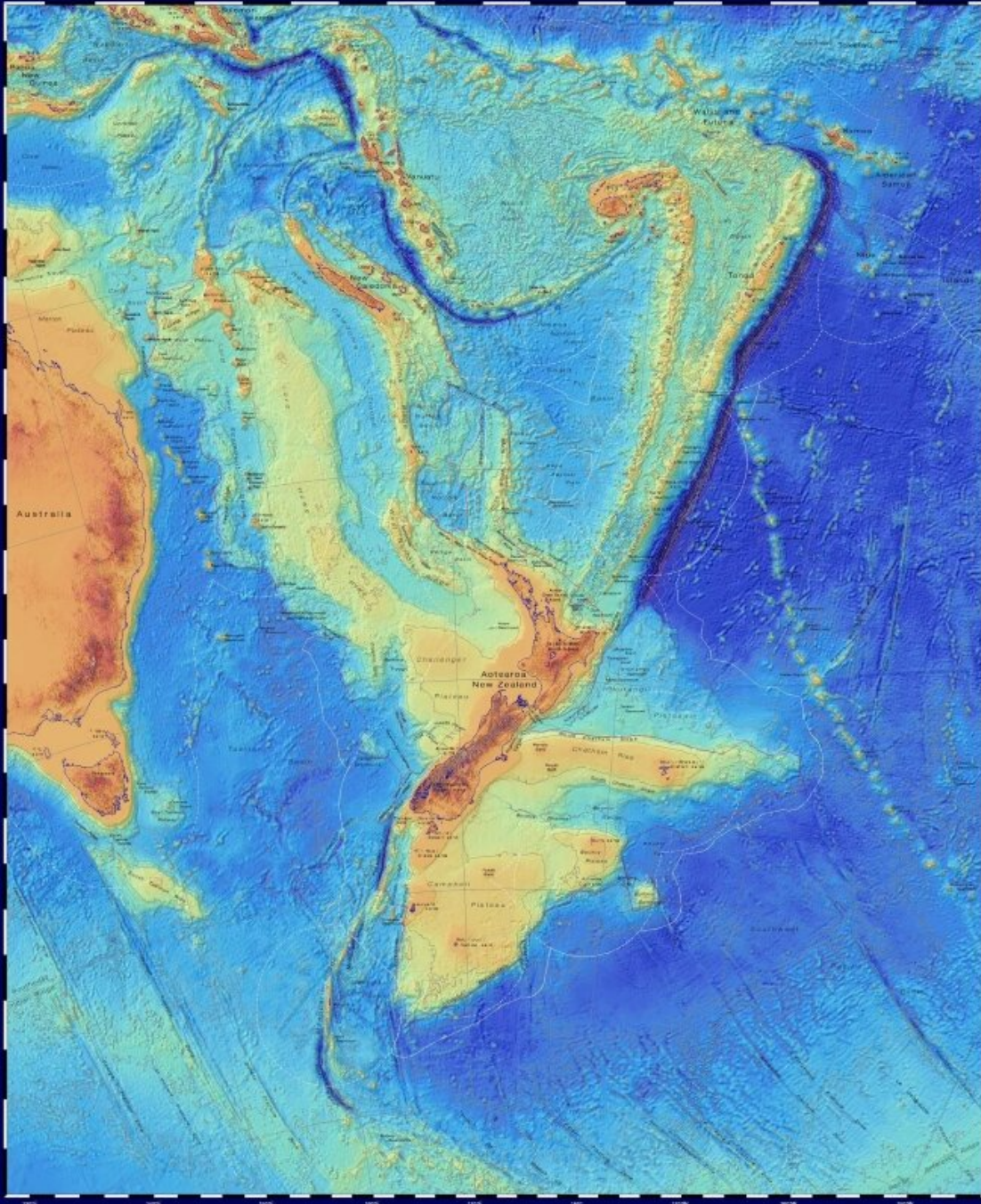
"These maps are a scientific benchmark—but they're also more than that. They're a way of communicating our work to our colleagues, stakeholders, educators and the public," lead author of the maps, geologist Dr. Nick Mortimer says.

"We've made these maps to provide an accurate, complete and up-to-date picture of the geology of the New Zealand and southwest Pacific area—better than we have had before.

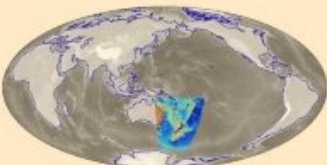
"Their value is that they provide a fresh context in which to explain and understand the setting of New Zealand's volcanoes, plate boundary and sedimentary basins."

The TEZ [website](#) presents a wealth of maps, graphics and other information on the continent compiled in GNS Science research programs.

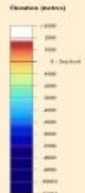
Bathymetric Map of Te Riu-a-Māui / Zealandia



Bathymetric Map of Te Riu-a-Māui / Zealandia



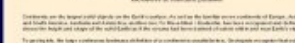
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Boundary Lines
 Boundary between Zealandia and Australia
 Boundary between Zealandia and the Pacific Ocean
 Boundary between the Tonga Trench and the New Zealand Trench

This map shows the top and shape of the land and seabed in the Zealandia region, from the coast to the edge of the continental shelf. The map is based on the most recent bathymetric data available, and is a composite of several maps. The map is based on the most recent bathymetric data available, and is a composite of several maps. The map is based on the most recent bathymetric data available, and is a composite of several maps.

Scale 1:600 000



Coordinates on the map are given in decimal degrees on the GRS80 datum. The map is based on the most recent bathymetric data available, and is a composite of several maps. The map is based on the most recent bathymetric data available, and is a composite of several maps.

The bathymetric map uses the GEBCO 2019 grid, the first output of the Seabed2030 project which is a global initiative to map the ocean floor of the entire world by 2030. The project is a collaboration between The Nippon Foundation in Japan and the General Bathymetric Chart of the Oceans (GEBCO). NIWA, GNS Science and Land Information New Zealand are jointly leading the South and West Pacific Ocean Regional Data Assembly and Coordination Centre, based in Wellington. Credit: GNS Science

Programme Leader Vaughan Stagpoole says TEZ provides the perfect way for users to explore geoscience data from the comfort of their homes or offices.

"Users can zoom and pan around different thematic geoscience webmaps of the region. They can readily view and interrogate the maps and turn layers on or off. They can also query features in the layers and generate custom maps of their own," Dr. Stagpoole says.

As more research results become available, GNS Science will update the maps and add more information to the interactive website.

Copies of the printed maps are available either as flat or folded at \$15 each (\$25 for the pair). PDF files can be downloaded at no cost. Both maps and PDFs are available through the GNS Online Store. An accompanying GNS Science Report 2020/01 lists the data sources used to compile the map posters. The GIS layers from the posters are also available through the TEZ interactive website.

More information: Zealandia interactive website: data.gns.cri.nz/tez

Provided by GNS Science

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