INTERNATIONAL HYDROGRAPHIC ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (of UNESCO)

UNDERSEA FEATURE NAME PROPOSAL

(Sea **NOTE** overleaf)

Note: The boxes will expand as you fill the form.

Name Proposed:	**Tangaroa Seamount**	**Ocean or Sea:**	South Pacific Ocean

Geometry that best defines the feature (Yes/No) :

Point	Line	Polygon	Multiple points	Multiple lines*	Multiple polygons*	Combination of geometries*
		X				

***** *Geometry should be clearly distinguished when providing the coordinates below.*

	Lat. (e.g. 63°32.6'N)	Long. (e.g. 046°21.3'W)
Coordinates:	36°19.48'S (centre)	178°01.85'E (centre)
	36°17.30`S	177°57.683`E
	36°15.90`S	177°58.517`E
	36°15.40`S	178°1.05`E
	36°15.75`S	178°3.85`E
	36°16.017`S	178°5.367`E
	36°17.417`S	178°7.50`E
	36°18.10`S	178°11.733`E
	36°21.117`S	178°13.75`E
	36°22.85`S	178°12.483`E
	36°23.967`S	178°9.867`E
	36°24.833`S	178°7.80`E
	36°24.833`S	178°4.80`E
	36°23.933`S	178°0.50`E
	36°22.20`S	177°58.40`E
	36°19.567`S	177°57.967`E
	36°17.30`S	177°57.683`E

Feature Description:	Maximum Depth:	2500 metres	Steepness :	
	Minimum Depth :	600 metres	Shape :	Elongate volcanic edifice with satellite cone on SE flank
	Total Relief :	1900 metres	Dimension/Size :	23 x 17 km

Associated Features:	As shown on the overview map below.

Chart/Map References:	~~Shown Named on Map/Chart:~~ Named in an internationally peer reviewed journal	IC Wright, LM Parson & JA Gamble (1996). Evolution and interaction of migrating cross-arc volcanism and backarc rifting: An example from the southern Havre Trough (35°20'-37°S). Jour. Geol. Geoph. 101, 22071 -22086. IC Wright, TJ Worthington & JA Gamble (2006). New multibeam mapping and geochemistry of the 308–358 S sector, and overview, of southern Kermadec arc volcanism. *Journal of Volcanology and Geothermal Research* 149, 263 – 296.

	Shown Unnamed on Map/Chart:	
	Within Area of Map/Chart:	Chart NZ 14600 INT 600, INT 605

Reason for Choice of Name (if a person, state how associated with the feature to be named)**:**	Named for the NIWA research vessel *RV Tangaroa* (1991-). See: https://www.niwa.co.nz/vessels/rv-tangaroa Tangaroa is the Māori name for the god of the oceans.

Discovery Facts:	Discovery Date:	1978
	Discoverer (Individual, Ship):	HMNZS Monowai

Supporting Survey Data, including Track Controls:	Date of Survey:	1993 - 2011
	Survey Ship:	RV Iavrentyev (1993), RV Giljanes (1994), RV Sonne (1998), RV Tangaroa (1999, 2002, 2004, 2011)
	Sounding Equipment:	EKHOS II, EM12, MR1, Atlas Hydrosweep DS2, EM300, EM302 multibeam
	Type of Navigation:	GPS and DGPS
	Estimated Horizontal Accuracy (nm):	25 m
	Survey Track Spacing:	Multiple tracks of variable spacing
	Supporting material can be submitted as Annex in analog or digital form.	

Proposer(s):	Name(s):	Mr Mark Dyer (Chairperson of the NZGB) & Mr Adam Greenland (National Hydrographer)
	Date:	27 June 2016
	E-mail:	markdyer@linz.govt.nz
	Organization and Address:	New Zealand Geographic Board PO Box 5501 Wellington 6145 New Zealand
	Concurrer (name, e-mail, organization and address):	Dr Vaughan Stagpoole V.Stagpoole@gns.cri.nz GNS Science PO Box 30 368 Lower Hutt 5040 New Zealand

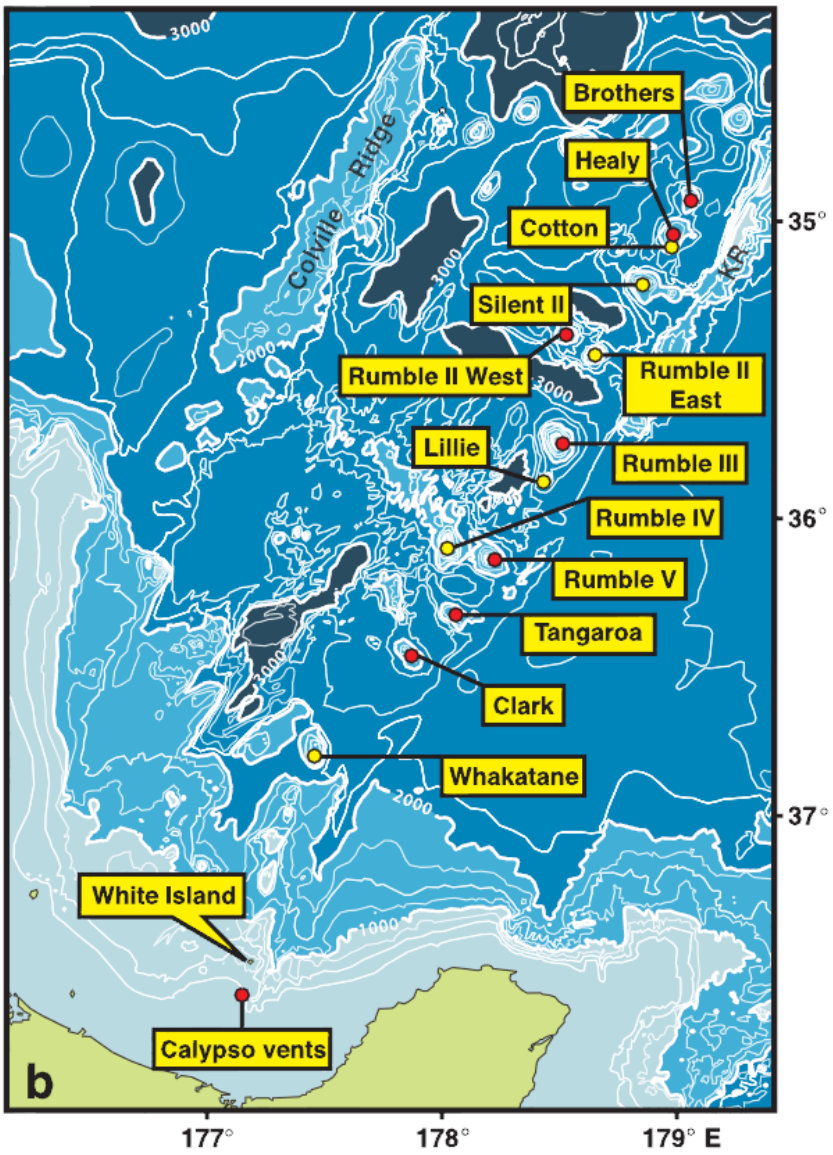
Remarks:	Informally named Tangaroa Volcano. The New Zealand Geographic Board gazetted **Tangaroa Seamount** as an official undersea feature name on 26 May 2016.

NOTE : This form should be forwarded, when completed :

a) **If the undersea feature is located inside the external limit of the territorial sea**:-
to your "National Authority for Approval of Undersea Feature Names" (see page 2-9) or, if this does not exist or is not known, either to the IHB or to the IOC (see addresses below);

b) **If at least 50 % of the undersea feature is located outside the external limits of the territorial sea**:-
to the IHB or to the IOC, at the following addresses :

International Hydrographic Bureau (IHB) 4, Quai Antoine 1er B.P. 445 MC 98011 MONACO CEDEX Principality of MONACO Fax: +377 93 10 81 40 E-mail: info@ihb.mc	Intergovernmental Oceanographic Commission (IOC) UNESCO Place de Fontenoy 75700 PARIS France Fax: +33 1 45 68 58 12 E-mail: info@unesco.org



Commonly used names of volcanoes on the southern Kermadec volcanic arc, north of the Bay of Plenty, New Zealand (from CEJ de Ronde, ET Baker, GJ Massoth, JE Lupton, IC Wright, RA Feely, RR. Greene, 2001. Intra-oceanic subduction-related hydrothermal venting, Kermadec volcanic arc, New Zealand. Earth and Planetary Science Letters 193, 359-369). Hydrothermally active sites, vent hot water, are shown with red circles.

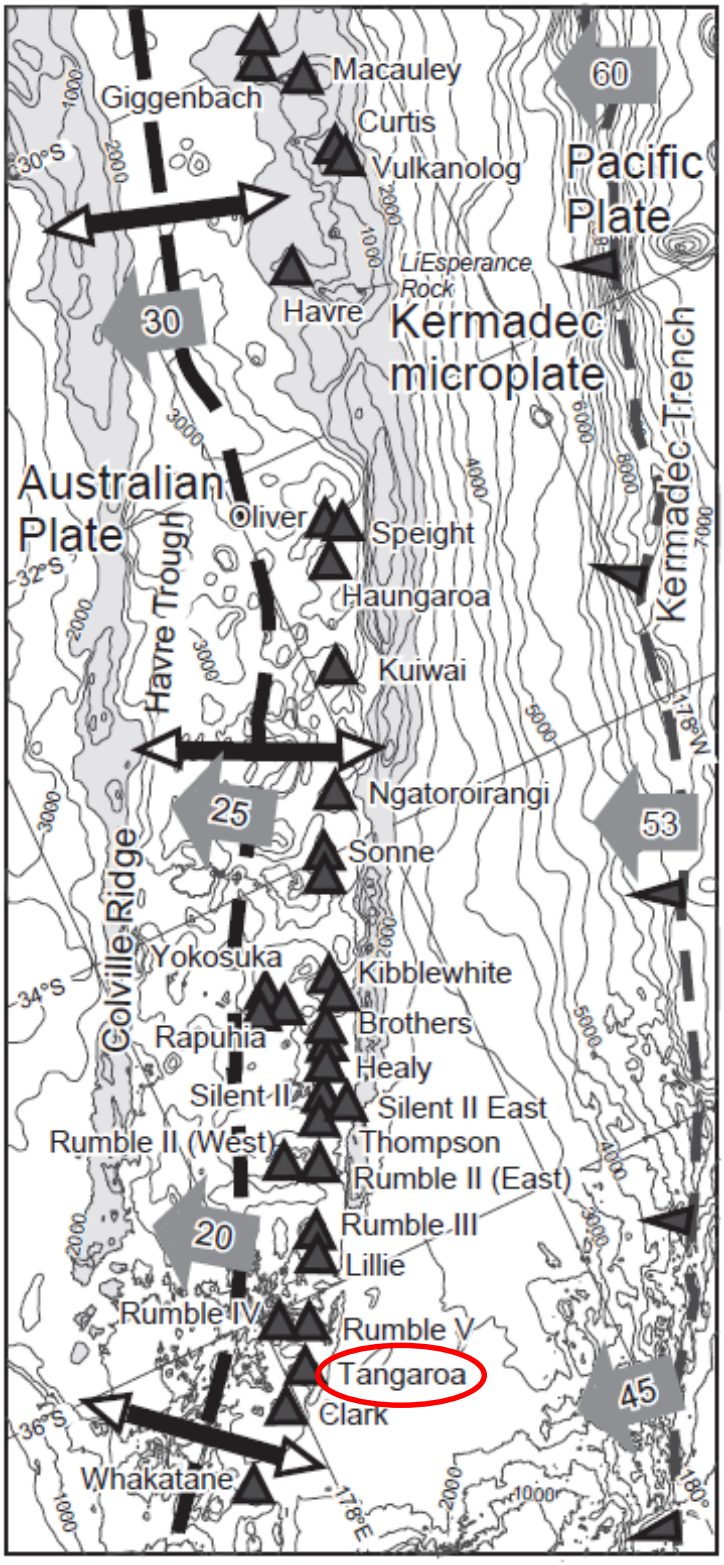
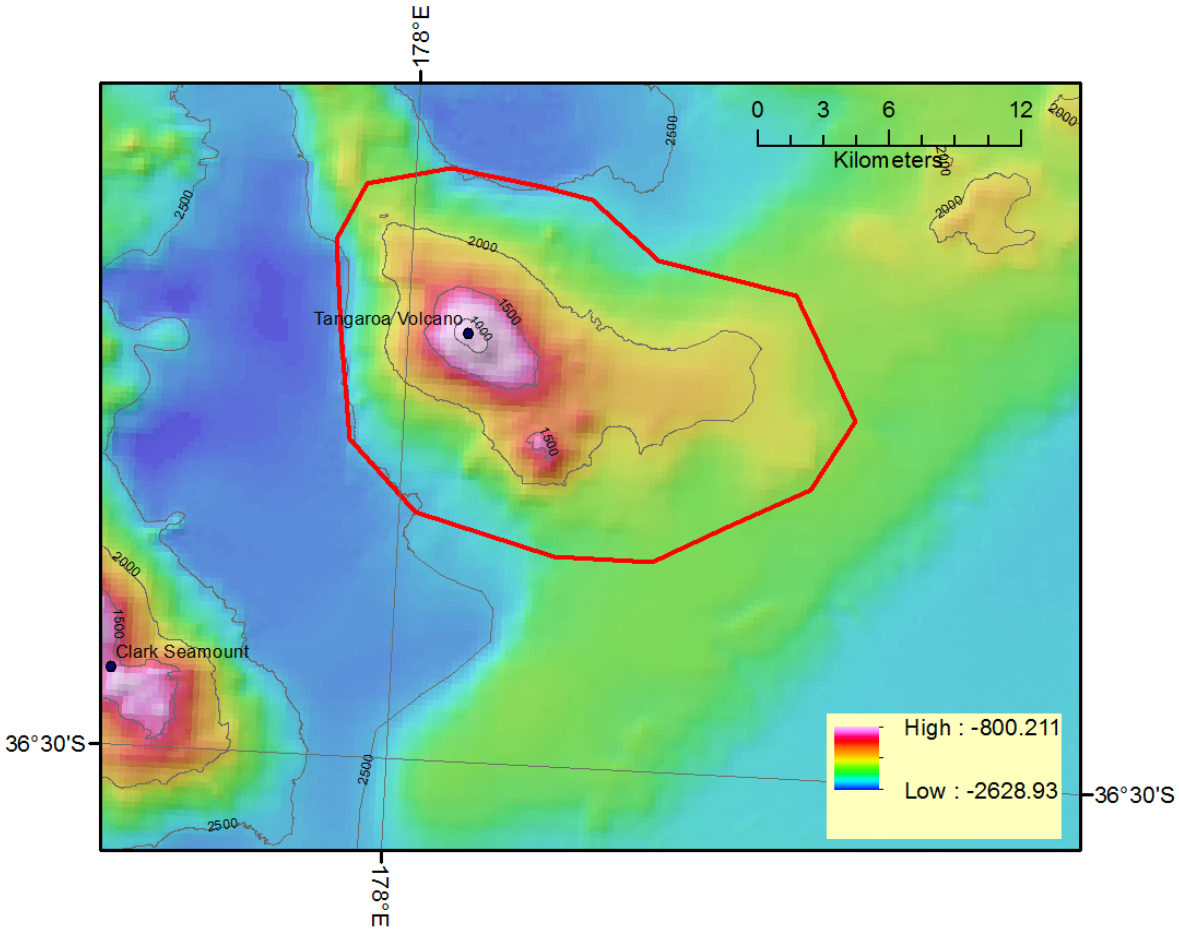
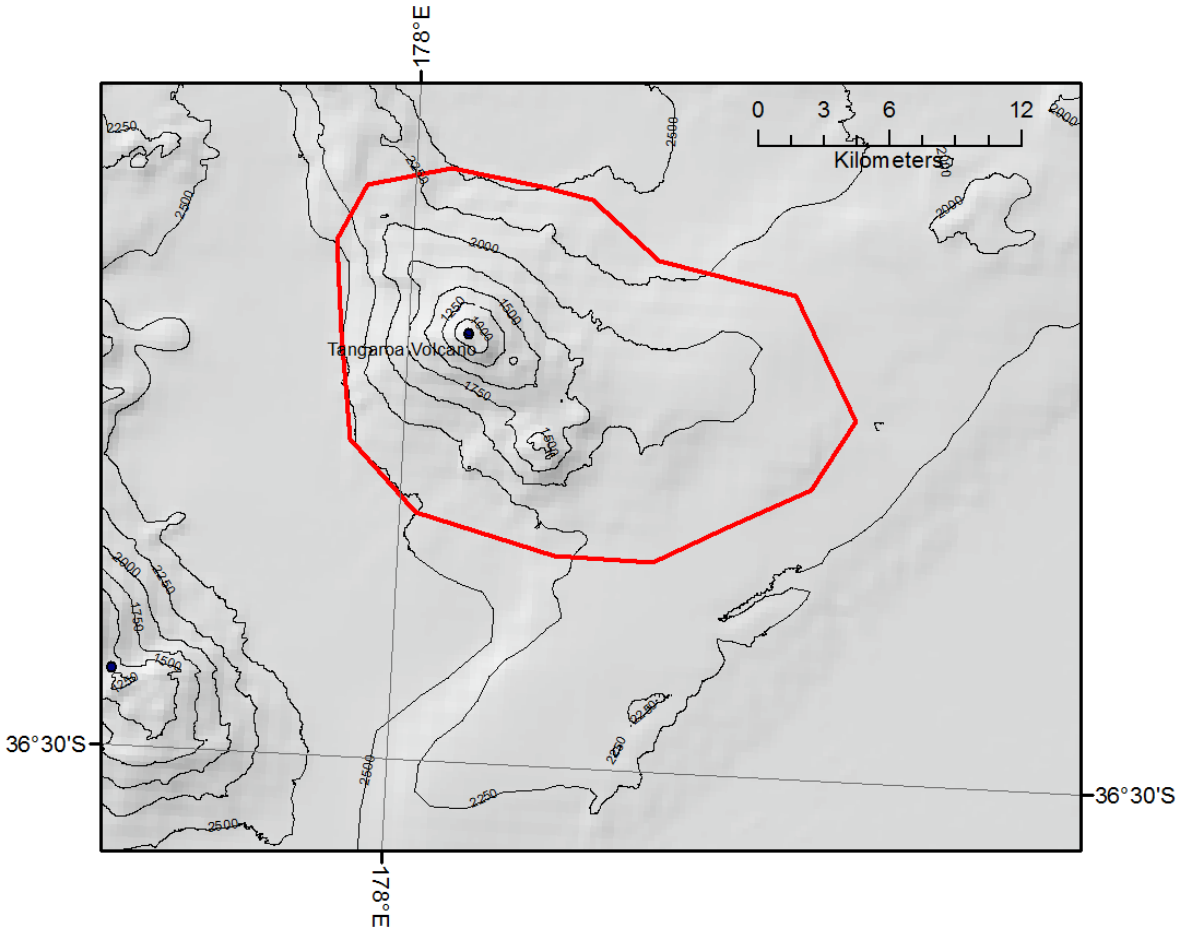


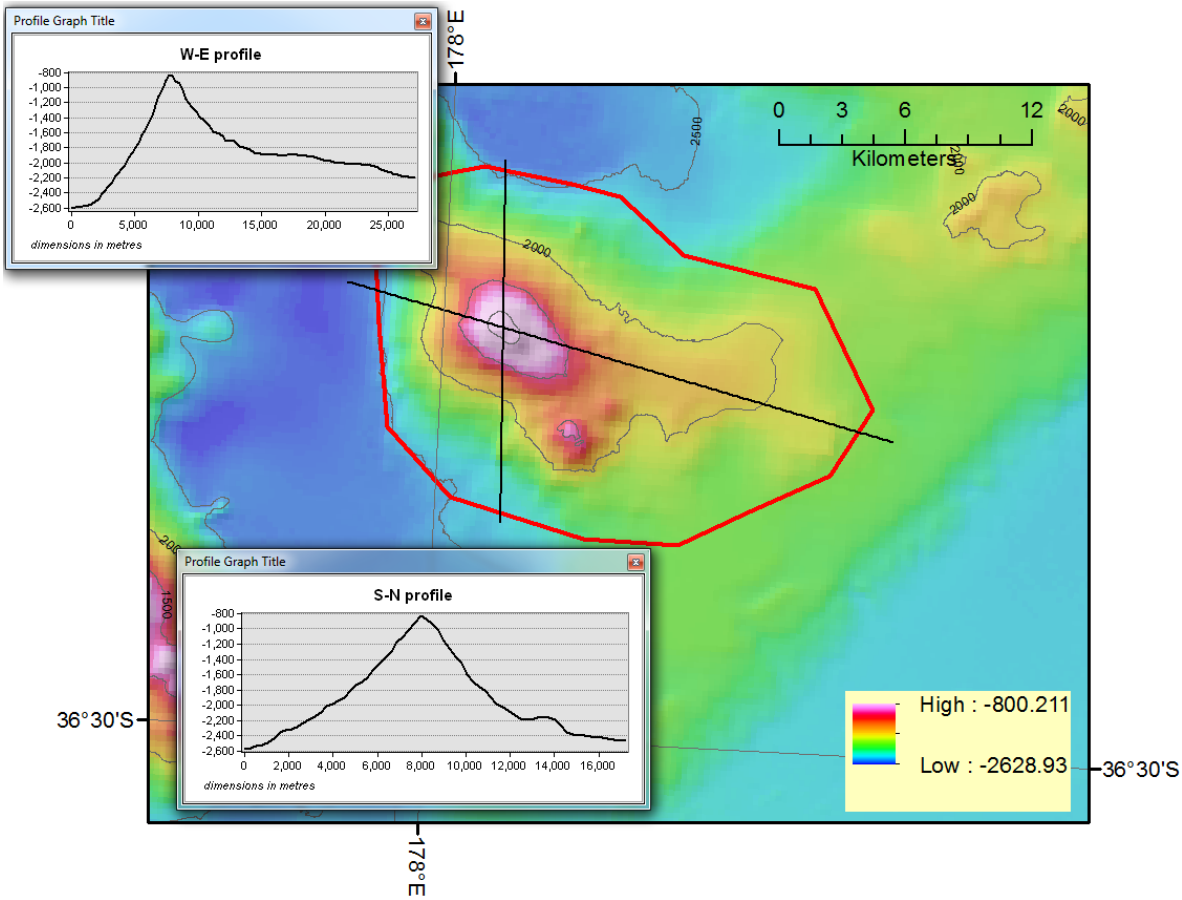
Fig. 2A of Wright et al 2006. Regional setting of the southern and central Kermadec subduction system, including newly discovered volcanoes (closed triangles) of the arc front [including Tangaroa]. Dashed lines show location of the subduction and extensional plate boundaries, east and west of the Kermadec microplate, respectively, with grey arrows showing estimated relative Pa–Ke and Ke–Au plate motion in millimeters per annum.



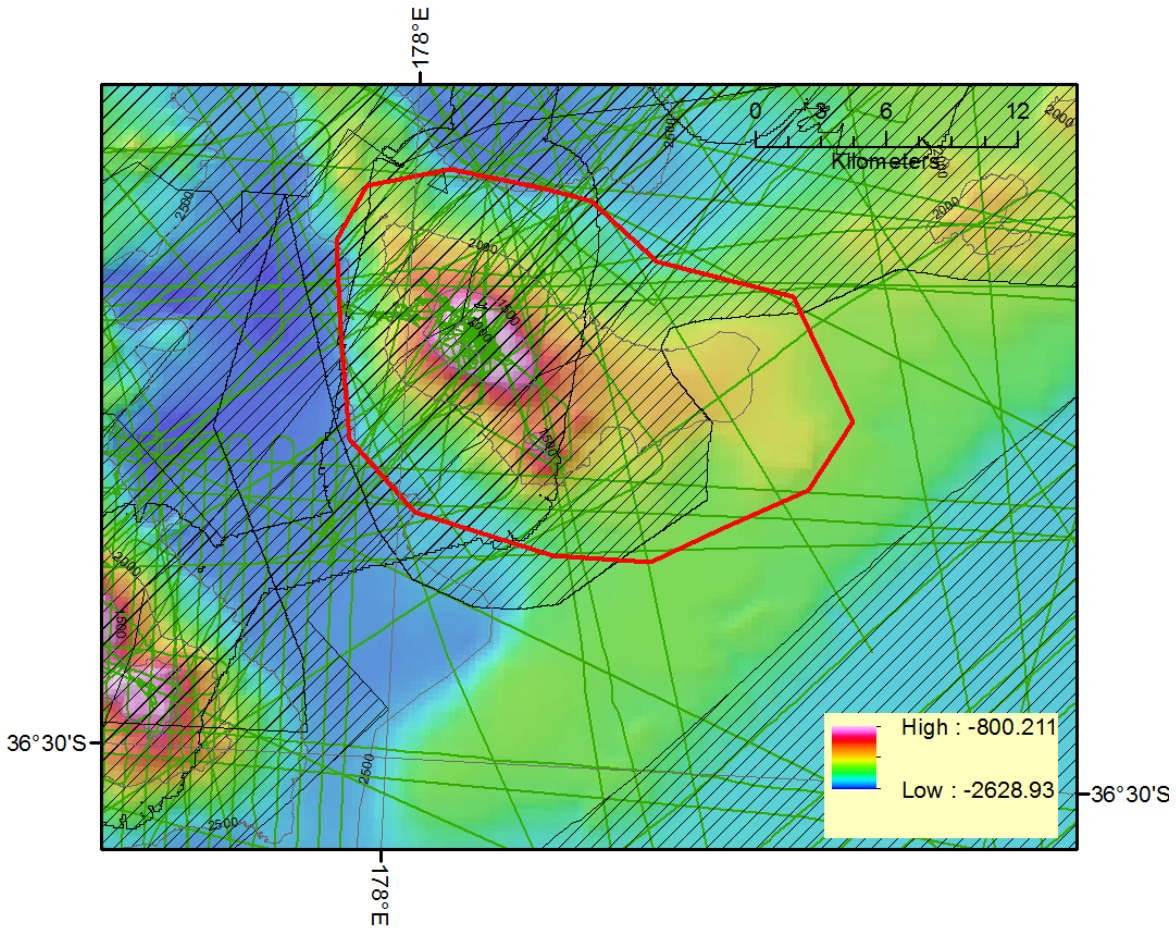
Bathymetry of Tangaroa Seamount (250m grid) and polygon around the feature.



Bathymetry contours on hillshade background



Profiles of Tangaroa Seamount (dimensions in metres).



Data coverage

Cross-hatch = multibeam bathymetry coverage

Dark green = single beam bathymetry data

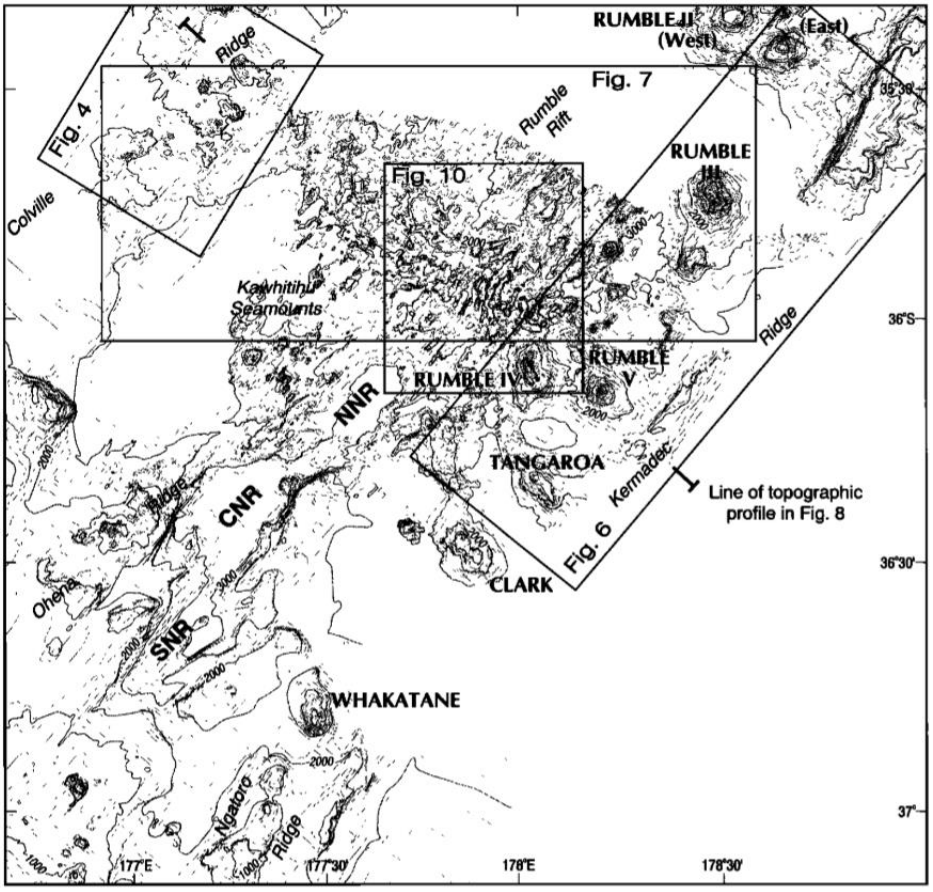


Figure 3. Bathymetry of the southern Havre Trough contoured at 100-m intervals. Box outlines show the areas of Figures 4, 6, 7, and 10.

Figure 3 from Wright et al. (1996) showing the bathymetry of the region and Tangaroa Seamount (centre)

Table 1. Survey Data for Southern Havre Trough, and Flanking Colville and Kermadec Ridges

Year	Ship	Navigation	Data
1978-1979	*Monowai*	Shore-based Decca	conventional bathymetric survey
1987	*Rapuhia*	Transit	seismic reflection
1988	*Rapuhia*	Transit	seismic reflection
1988	*Charles Darwin*	Transit	GLORIA imagery
1990	*Moana Wave*	GPS	swath SYS09 imagery/bathymetry
1991	*Rapuhia*	GPS	seismic reflection
1992	*Rapuhia*	DGPS	swath SYS09 imagery/bathymetry
1993	*Lavrentyev*	GPS	multibeam EKHOS II bathymetry
1994	*Giljanes*	GPS	swath MR1 imagery/bathymetry

GPS, Global Positioning System; DGPS, Differential Global Positioning System.

Data

Data for this study were acquired during eight cruises between 1987 and 1994 (Table 1 and Figure 2), including five cruises with swath imagery and/or bathymetry surveys. Bathymetric data from the 35°20'-37°S segment are principally based on SYS09, MR1, EKHOS II swath data. The SYS09 (Seafloor Surveys International) and MR1 (University of Hawaii) are towed sonar arrays which produce swath bathymetry and imagery. The EKHOS II multibeam system is comparable to a first-generation Sea Beam system, having 15 beams athwartships and a typical swath width of 1.5 times the water depth. Calculated depth data were extracted from the EKHOS II system, merged with navigation data and logged, and were edited, gridded, and contoured using PC-based software, and corrected by hand to remove persistent along-track artifacts. Outside areas of swath data, conventional bathymetric data were hand contoured using GLORIA side-scan sonar imagery as a guide to determine bathymetric trends, and merged with the main data set.

Remnant Colville Arc

The southern sector of the Colville remnant arc forms a 30- to 50-km wide ridge, which rises 500-1200 m above, and west, of the backarc basin floor (Figures 3 and 4). Along its length the ridge has two distinct, but juxtaposed, morphological elements,

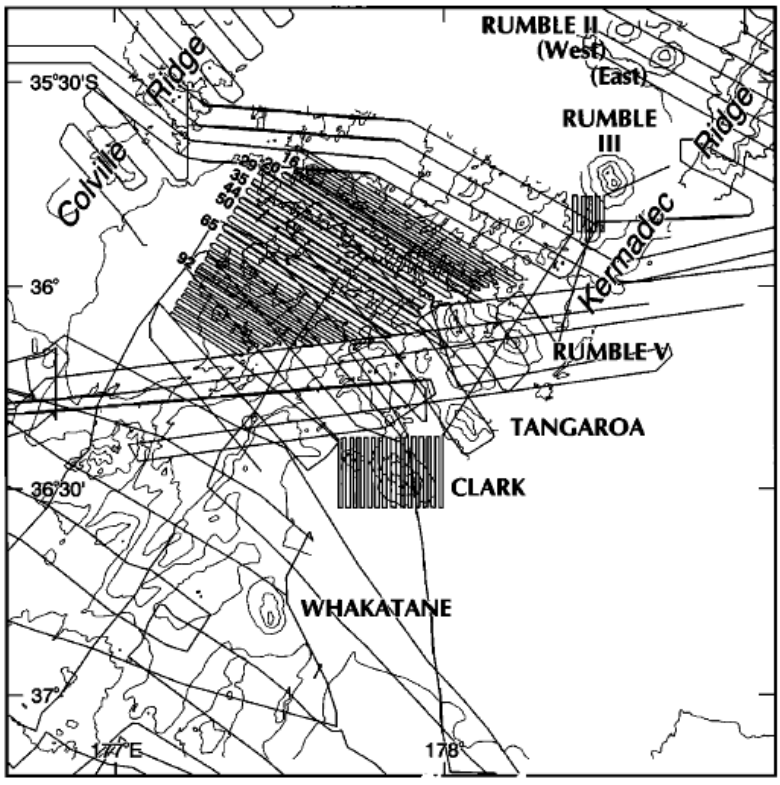


Figure 2. Location map of southern Havre Trough ship track data tabulated in Table 1. Bold tracks are those 3.5-kHz profiles illustrated in Figure 9. Synoptic bathymetry contoured at 500-m intervals.

Table 1 and Figure 2 from Wright et al. (1996) describing the bathymetry surveys in the region until 1994.

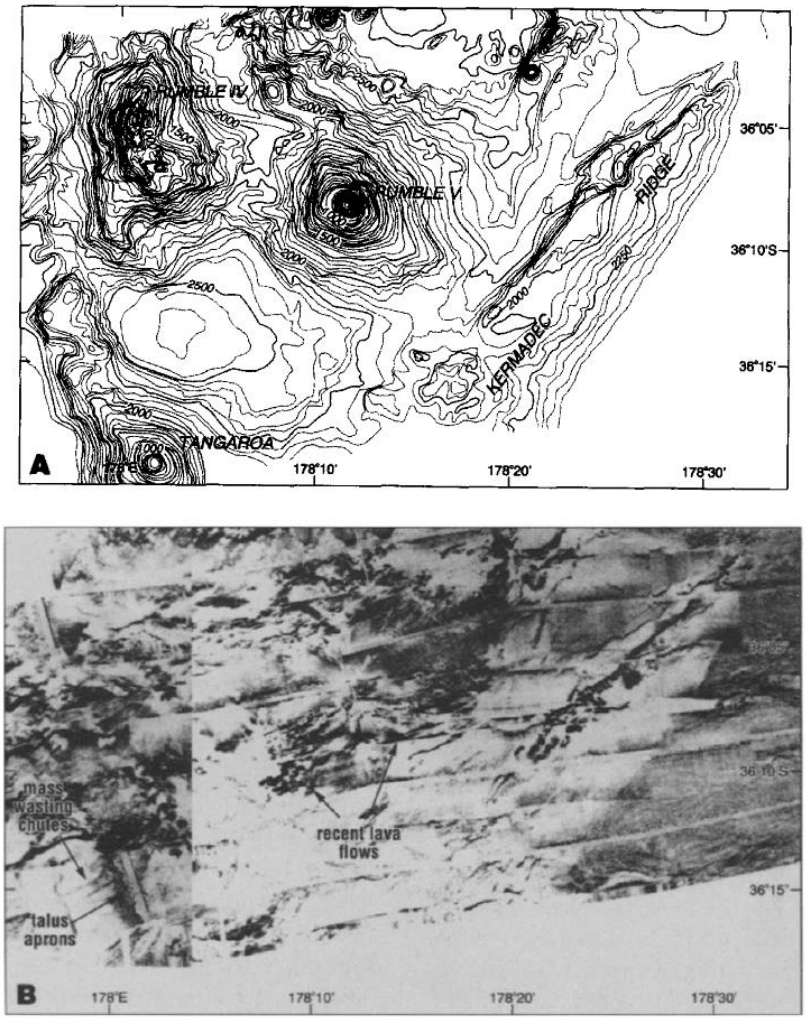


Fig. 6. (A) Bathymetry (50 m contour interval) of Tangaroa, Rumble IV and Rumble V volcanoes. (B) SYS09 sonograph of Tangaroa, Rumble IV and Rumble V volcanoes. Dark zones are areas of high acoustic reflectivity, with reversed signal polarity to Figs. 3B and 4.

Figure 6 from Wright et al. (1996) showing bathymetry and reflectivity (MR1) in the region.