

Re: Action SCUFN 28/50 Parece Vela Knoll Province

Yasuhiko Ohara

August 15, 2016

1. Introduction

This is to reply to Action SCUFN 28/50, which was on the “Parece Vela Knoll Province”.

The major criticism raised by the sub-committee in SCUFN-28 (2015, Niteroi) was that the proposed “Parece Vela Knoll Province” may include not only knolls, but also hills. Therefore, the proposal was kept pending and Y. Ohara was supposed to provide complementary information that give evidences for adopting the generic terms (knoll, province), the polygon, additional information such as existing maps using this name already.

2. Reply

JCUFN also agrees that the proposed province included knolls and hills. Therefore, JCUFN would like to propose the new name “Parece Vela Knoll and Hill Province”. In order further resolve the criticism by the sub-committee, the JCUFN has made a geophysical analysis of the concerned area, making a Bouguer anomaly map. The Bouguer anomaly was based on an assumed crustal density of 2670 kg/m^3 , GEBCO-2014 bathymetry grid, and gravity data from Sandwell et al. [2014]. The proposed province can generally be defined by the region less than 340 mGal Bouguer anomaly, suggesting that the province corresponds to a region with relatively thicker crust. It should be noted that the Parece Vela Basin has a typical oceanic crust with crustal thickness is $\sim 6 \text{ km}$. So, the thickened crust beneath the province was probably due to anomalous magmatism involved with enriched mantle component [e.g., Ishizuka et al., 2011]. This anomalous magmatism was in turn responsible for the presence of small knolls and hills in that region. The thickened crust beneath the province also shown by seismic velocity structures [Nishizawa et al., 2016].

Based on the information above, we prepared the revised proposal for the “Parece Vela Knoll and Hill Province” (starting from the next page).

References

- Nishizawa et al., 2016, Crust and uppermost mantle structure of the Kyushu-Palau Ridge, remnant arc on the Philippine Sea plate, *Earth, Planets and Space*, 68, 30, DOI: 10.1186/s40623-016-0407-3.
- Ishizuka, O., et al., 2011, Making and breaking an island arc: a new perspective from the Oligocene Kyushu-Palau arc, *Philippine Sea, Geochemistry, Geophysics, Geosystems*, 12, 5, Q05005, DOI: 10.1029/2010GC003440.
- Sandwell, D.T. et al., 2014, New global marine gravity model from CryoSat-2 and Jason-1 reveals buried tectonic structure, *Science*, 346, 65, DOI: 10.1126/science.1258213.

INTERNATIONAL HYDROGRAPHIC ORGANIZATION	INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (of UNESCO)
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UNDERSEA FEATURE NAME PROPOSAL
(Sea NOTE overleaf)

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

Name Proposed:	Parace Vela Knoll and Hill Province	Ocean or Sea:	Philippine Sea
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Geometry that best defines the feature (Yes/No) :						
Point	Line	Polygon	Multiple points	Multiple lines*	Multiple polygons*	Combination of geometries*
		Yes				

* 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:	19°31.44'N	136°15.40'E
	19°38.01'N	136°10.12'E
	19°51.28'N	136°17.55'E
	20°08.42'N	136°26.97'E
	20°23.84'N	136°30.55'E
	20°45.97'N	136°35.39'E
	20°58.82'N	136°45.81'E
	21°13.95'N	136°52.82'E
	21°34.36'N	136°49.53'E
	21°39.64'N	136°55.10'E
	21°52.64'N	136°53.81'E
	22°06.98'N	137°00.97'E
	22°16.19'N	136°57.81'E
	22°30.76'N	137°15.66'E
	22°58.43'N	137°19.37'E
	23°08.78'N	137°28.65'E
	23°02.36'N	137°58.63'E
	23°08.78'N	138°07.91'E
	23°00.93'N	138°20.05'E
	22°20.24'N	138°33.61'E
	21°51.33'N	138°20.75'E
	21°07.79'N	138°27.54'E
	20°45.29'N	138°17.90'E
	19°53.89'N	138°19.58'E
	19°45.11'N	137°56.03'E
	19°29.27'N	137°40.18'E
	19°43.83'N	137°32.26'E
	19°42.11'N	137°21.98'E
	19°12.99'N	137°15.12'E
	19°04.64'N	137°00.35'E
18°49.22'N	136°58.63'E	
18°48.23'N	136°46.53'E	
18°59.30'N	136°40.82'E	
18°59.03'N	136°18.83'E	
19°31.44'N	136°15.40'E	

Feature Description:	Maximum Depth :		Steepness :	
	Minimum Depth :		Shape :	
	Total Relief :		Dimension/Size :	537 km × 288 km

Associated Features:		
Chart/Map References:	Shown Named on Map/Chart:	6722
	Shown Unnamed on Map/Chart:	
	Within Area of Map/Chart:	
Reason for Choice of Name (if a person, state how associated with the feature to be named):	This province is located within the Parece Vela Basin.	
Discovery Facts:	Discovery Date:	Dec. 1987
	Discoverer (Individual, Ship):	The Japanese survey vessel "Takuyo"
Supporting Survey Data, including Track Controls:	Date of Survey:	Jan., Feb. and Mar. 2003, May. and Jun., Jul. 2004, Jan. and Feb. 2008
	Survey Ship:	The Japanese survey vessel "Takuyo" and "Shoyo"
	Sounding Equipment:	Multibeam echo sounder Seabeam 2112
	Type of Navigation:	GPS without Selective Availability
	Estimated Horizontal Accuracy (nm):	0.014 nm (26 m)
	Survey Track Spacing:	7 nm
	Supporting material can be submitted as Annex in analog or digital form.	
Proposer(s):	Name(s):	JCUFN
	Date:	August 15, 2016
	E-mail:	ico@jodc.go.jp
	Organization and Address:	Hydrographic and Oceanographic Department, Japan Coast Guard Kasumigaseki 3-1-1, Chiyoda-ku, Tokyo 100-8932, Japan
	Concurren (name, e-mail, organization and address):	
Remarks:		

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	Intergovernmental Oceanographic Commission (IOC) UNESCO Place de Fontenoy 75700 PARIS France
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Fax: +377 93 10 81 40
E-mail: info@ihb.mc

Fax: +33 1 45 68 58 12
E-mail: info@unesco.org

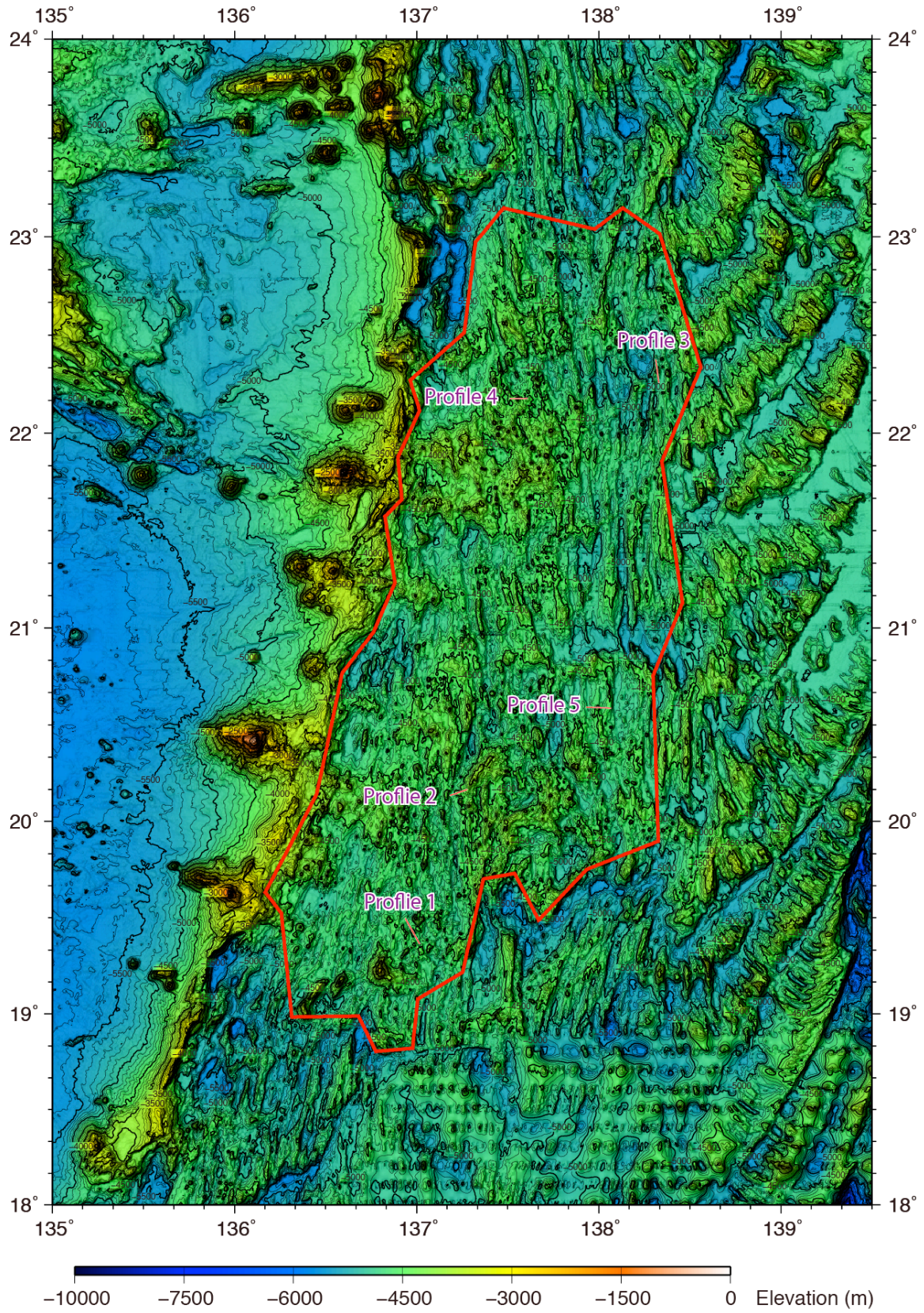


Fig. 1. Bathymetric map of the Parece Vela Knoll and Hill Province. Contours are in 100 m.

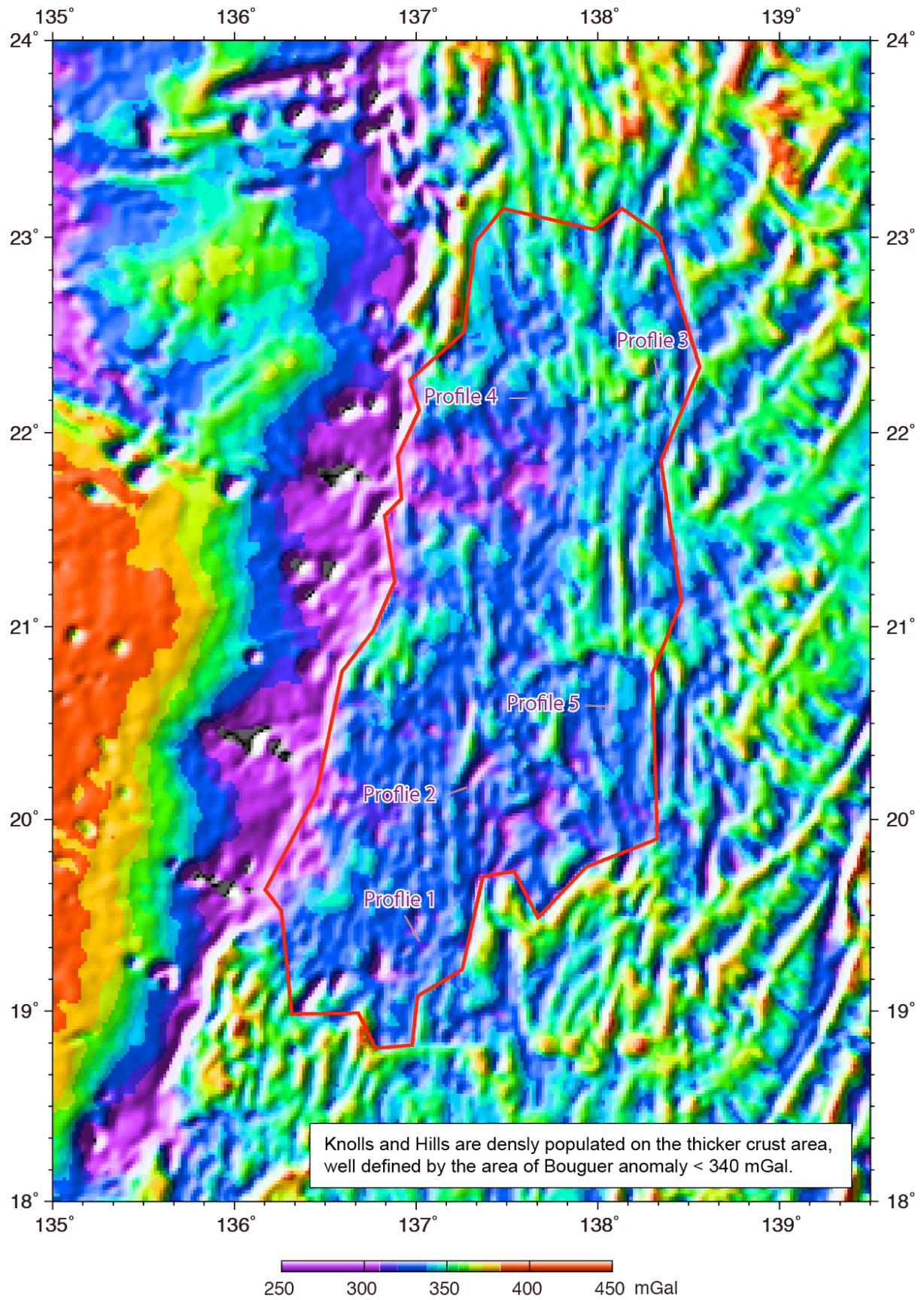


Fig. 2. Bouguer anomaly map of the Parece Vela Knoll and Hill Province.

Fig. 3. Close-up view of the southern part of the Parece Vela Knoll and Hill Province, showing with three bathymetric profiles.

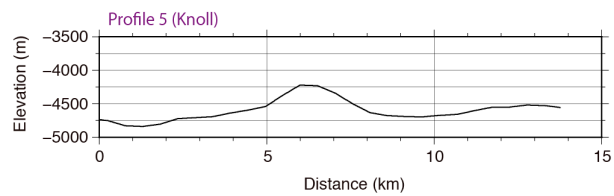
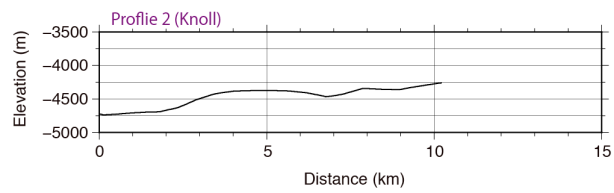
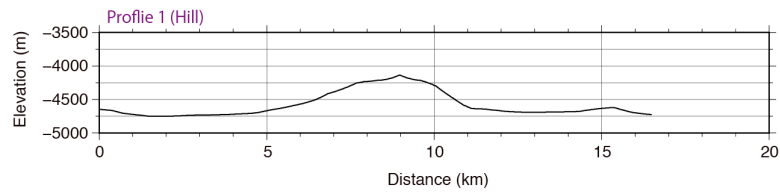
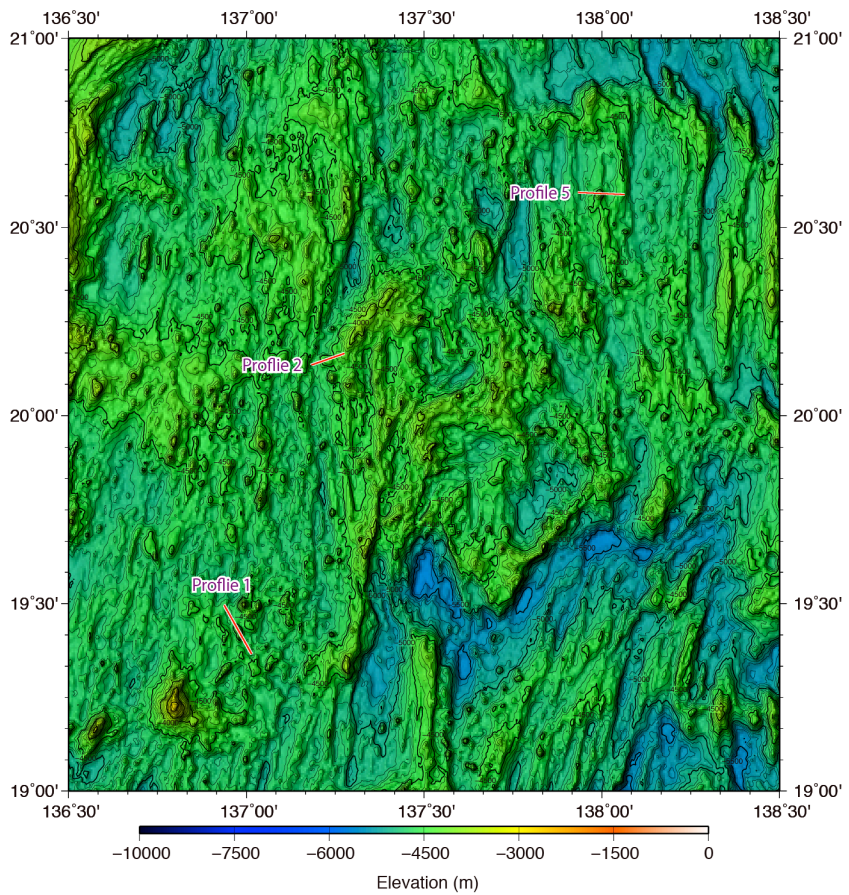


Fig. 4. Close-up view of the northern part of the Parece Vela Knoll and Hill Province, showing with two bathymetric profiles.

