

**UNDERSEA FEATURE NAME PROPOSAL**  
(Sea NOTE overleaf)

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

<b>Name Proposed:</b> Mammerickx Microplate	<b>Ocean or Sea:</b> Indian Ocean
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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) 22°S (approx. centre point of microplate)	Long. (e.g. 046°21.3'W) 84°E (approx. centre point of microplate)
<b>Coordinates:</b>	Coordinates that define a polygon:	Coordinates that define a polygon:
	-21.8075711645	82.9510748387
	-21.4942659983	82.5237316007
	-21.2994117584	82.2820336332
	-21.1388522493	82.1432179056
	-21.0023860769	82.0933133526
	-20.8745570398	82.0703854597
	-20.5543710733	82.0464389995
	-20.3628097142	82.0976443913
	-20.1717105859	82.2305471589
	-20.2096442753	82.4115718152
	-20.0228325046	82.5871324812
	-20.2335033064	82.7787624577
	-20.0250490111	83.0426128023
	-20.215994979	83.2175035632
	-20.3593268306	83.0716098609
	-20.4966980084	83.2216525122
	-20.3583204493	83.3396204106
	-20.6908396586	83.6725252351
	-20.6466246866	83.9546569505
	-20.9581350024	84.1756699694
	-20.9534014466	84.4198406711
	-20.9036215186	84.785871563
	-21.1757002762	84.9406898134
	-21.1593451723	85.2936621385
	-21.2327417611	85.4668019272
	-21.415676601	85.6667769984
	-21.6626877433	85.9300083706
	-21.8661769791	86.0873985524
	-22.3041382215	86.230521371
	-22.6137679318	86.3226447585
-22.8801765426	86.3515926595	
-23.1930806106	86.2137582392	
-23.5582294031	85.8769819467	
-23.8341107094	84.9295821374	
-23.854964838	84.588571306	
-23.6970501924	84.4490192469	
-23.5005054	84.3769099233	
-23.2907158037	84.2966972944	
-22.9839575452	84.085226264	
-22.4854216949	83.7206563905	

	-22.0728363499 -21.8075711645	83.2689686965 82.9510748387
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<b>Feature Description:</b>	Maximum Depth:	Steepness :	
	Minimum Depth :	Shape :	rectangular – elliptical
	Total Relief :	Dimension/Size :	~95000 km <sup>2</sup>

<b>Associated Features:</b>	<p>These features listed below were all identified in satellite altimetry-derived vertical gravity gradient maps, while multibeam bathymetry maps (listed later in the form) were used to confirm the rotated abyssal hill fabric.</p> <p>An <b>extinct ridge</b> forms the northern boundary of the microplate and a <b>pseudofault</b> forms the southern boundary (its <b>conjugate pseudofault</b> is located north of the Kerguelen Plateau – centred on ~64°45'E, 40°45'S). Rotated <b>abyssal hill fabric</b>, oblique to the dominant spreading direction between India and Antarctica at the time of formation, is identified in the southeastern section of the microplate, as well as adjacent to the extinct ridge (in multibeam bathymetry maps).</p>
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<b>Chart/Map References:</b>	Shown Named on Map/Chart:	-
	Shown Unnamed on Map/Chart:	-
	Within Area of Map/Chart:	

<b>Reason for Choice of Name</b> (if a person, state how associated with the feature to be named):	<p>We have named the microplate after Dr Jacqueline Mammerickx, a former Scripps Institution of Oceanography researcher. Dr Mammerickx devoted her career to seafloor mapping, with an emphasis on plate tectonics and mapping microplates in the Pacific Ocean. Dr Mammerickx is also the official proposer of 33 feature names in the GEBCO Undersea Feature Names Gazetteer, and is the discoverer of two of these features.</p> <p>This is the first Pacific-style microplate to be identified in the Indian Ocean, and Dr Mammerickx's pioneering work in the Pacific, particularly related to the Mathematician Microplate, was pivotal for our discovery. Her work helped us with both identifying and mapping the microplate, and also interpreting its formation.</p>
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<b>Discovery Facts:</b>	Discovery Date:	Feature first identified in 2014 (October 2015 – paper describing the microplate submitted to Earth and Planetary Science Letters; January 2016 – paper published)
	Discoverer (Individual, Ship):	Dr Kara J. Matthews Prof R. Dietmar Müller Prof David T. Sandwell

<b>Supporting Survey Data, including Track Controls:</b>	Date of Survey:	1997/01/08 - 1997/02/14 Sojourn Expedition Leg 4
	Survey Ship:	R/V Melville
	Sounding Equipment:	
	Type of Navigation:	
	Estimated Horizontal Accuracy (nm):	
	Survey Track Spacing:	
Supporting material can be submitted as Annex in analog or digital form.		

<b>Proposer(s):</b>	Name(s):	Dr Kara J. Matthews (University of Sydney during discovery, now at University of Oxford) Prof R. Dietmar Müller (University of Sydney) Prof David T. Sandwell (Scripps Institution of Oceanography)
	Date:	27 April 2016
	E-mail:	<a href="mailto:kara.matthews@earth.ox.ac.uk">kara.matthews@earth.ox.ac.uk</a> ; <a href="mailto:dietmar.muller@sydney.edu.au">dietmar.muller@sydney.edu.au</a> ; <a href="mailto:dsandwell@ucsd.edu">dsandwell@ucsd.edu</a>
	Organization and Address:	University of Oxford, South Parks Road, Oxford OX1 3AN, United Kingdom; University of Sydney, Sydney, NSW 2006, Australia; Scripps Institution of Oceanography, La Jolla, CA 92093, USA
	Concurren (name, e-mail, organization and address):	Margaret Leinen Director of Scripps Institution of Oceanography and Vice Chancellor of University of California-San Diego <a href="mailto:mleinen@ucsd.edu">mleinen@ucsd.edu</a> Scripps Institution of Oceanography, La Jolla, CA 92093, USA
<b>Remarks:</b>	<p>The Mammerickx Microplate was discovered and defined using satellite altimetry-derived vertical gravity gradient (VGG) data. The VGG dataset from Sandwell et al. (2014) [Sandwell, D.T., Müller, R.D., Smith, W.H., Garcia, E., Francis, R., 2014. <i>New global marine gravity model from CryoSat-2 and Jason-1 reveals buried tectonic structure. Science</i> 346, 65–67.] combines new altimeter measurements from the CryoSat-2 and Jason-1 satellites with older data from Geosat and ERS-1.</p> <p>Multibeam bathymetry data from the 1997 Sojourn Expedition Leg 4, R/V Melville (details listed above under 'Supporting Survey Data'), were used to confirm the existence of the microplate. In particular, we were able to identify two distinct abyssal hill orientations near the extinct ridge. The abyssal hills away from the extinct ridge are perpendicular to the dominant spreading direction between India and Antarctica at the time, while the group of abyssal hills near the extinct ridge are oblique indicating rotation of the dying ridge, as is seen at Pacific microplates.</p> <p>The formation of the microplate is described in detail in the publication listed below. Note: see Figure 1 for VGG map interpretations and Figure 5 for multibeam bathymetry interpretations.</p> <p>Publication: <b>Matthews, K.J., Müller, R.D., Sandwell, D.T., 2016. Oceanic microplate formation records the onset of India–Eurasia collision. Earth. Planet. Sci. Lett. 433, 204-214.</b></p> <p>Finally, along with this proposal we also include a copy of the above publication and its supplementary material, an additional map showing the microplate and associated structures, and ESRI Shapefile and Google Earth-formatted outlines.</p>	

**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: <a href="mailto:info@ihb.mc">info@ihb.mc</a>	Intergovernmental Oceanographic Commission (IOC) UNESCO Place de Fontenoy 75700 PARIS France Fax: +33 1 45 68 58 12 E-mail: <a href="mailto:info@unesco.org">info@unesco.org</a>
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