INTERNATIONAL HYDROGRAPHIC ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (of UNESCO)

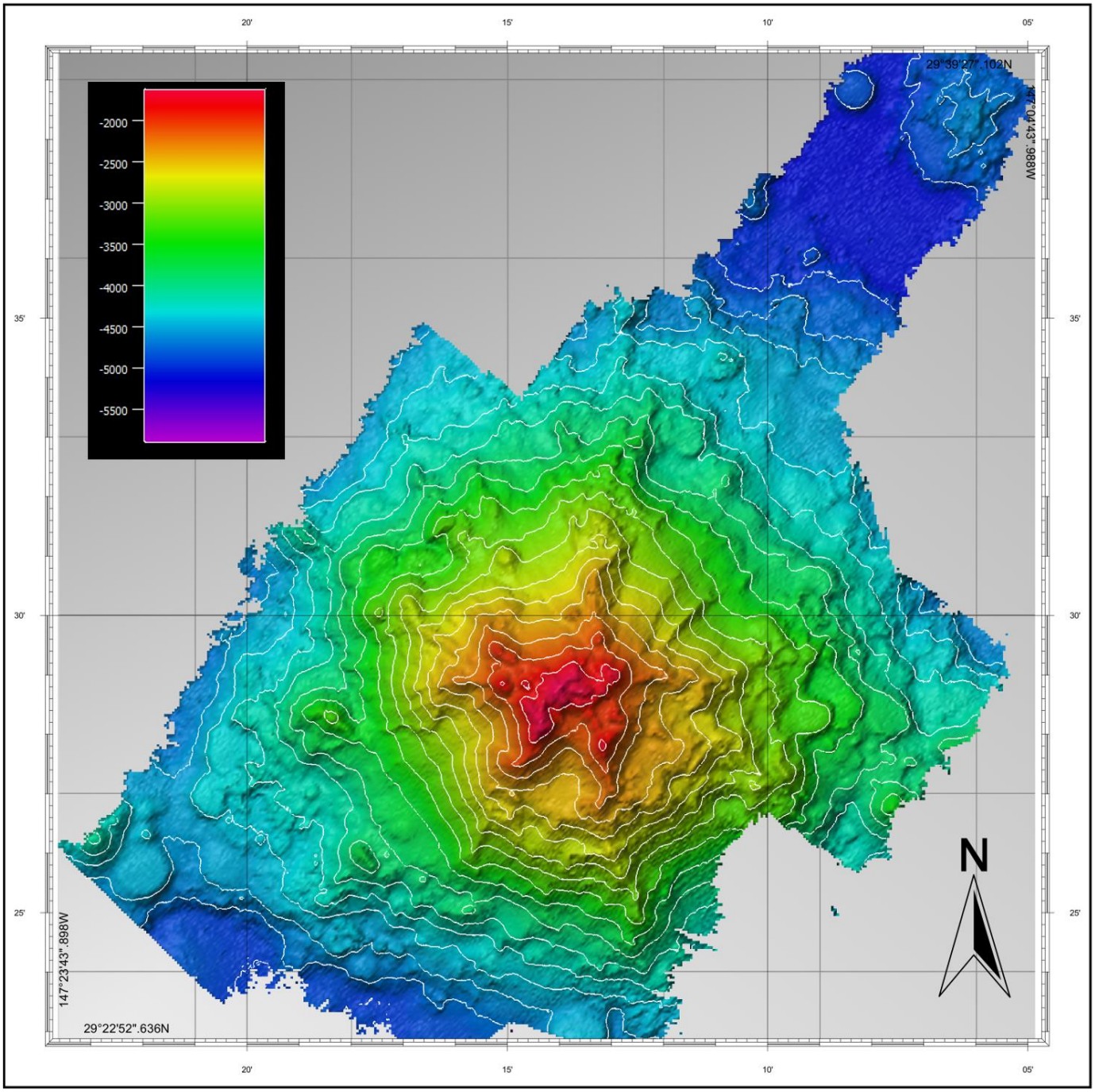
UNDERSEA FEATURE NAME PROPOSAL

(Sea **NOTE** overleaf)

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

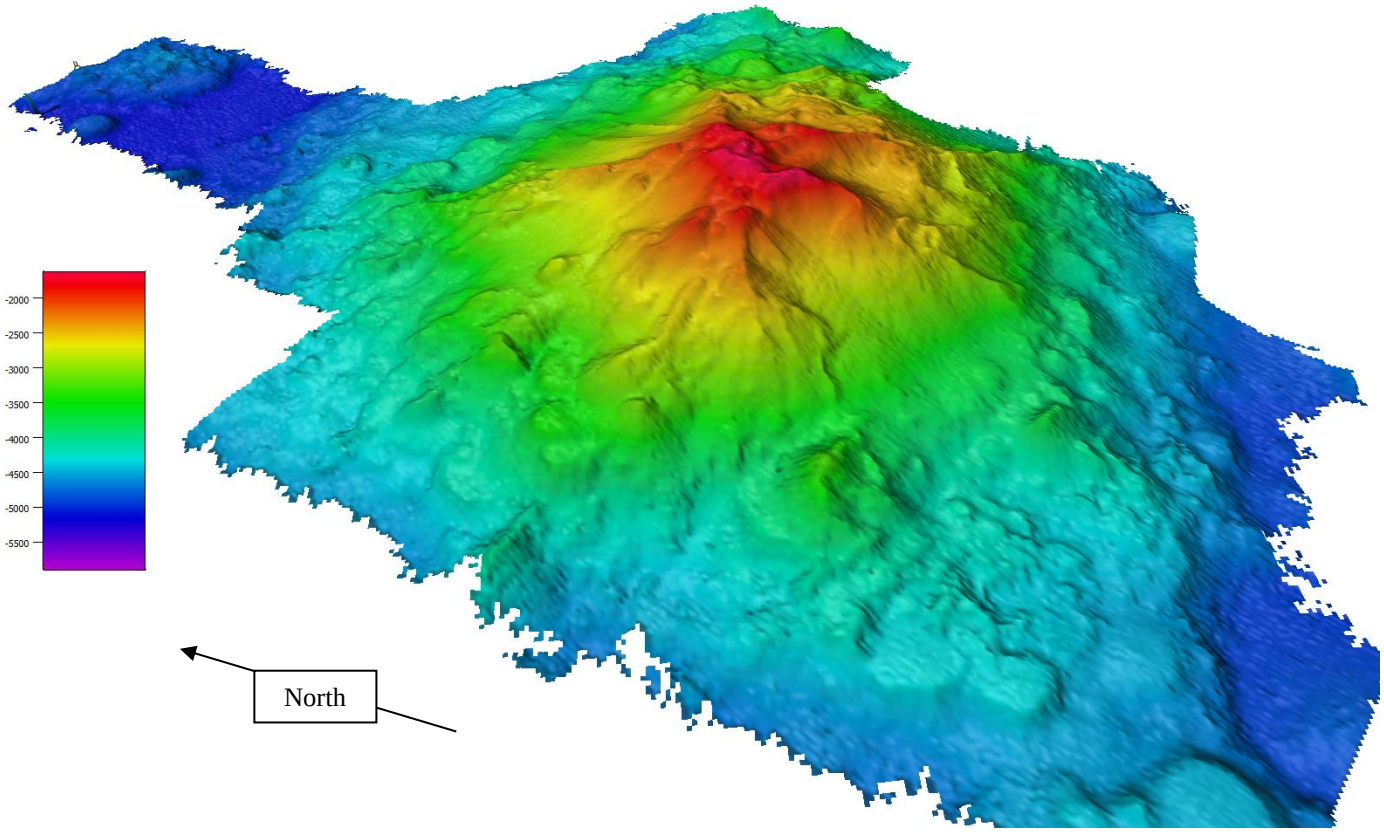
Name Proposed:	**Phobos Seamount**	**Ocean or Sea:**	North Pacific Ocean

The proposer offers the IHO/SCUFN the option to select a name for this feature should one be deemed more suitable or already proposed but held on a reserved names list



Above: 200m contour plot (WGS84 DD MM SS) of the proposed **Phobos Seamount** detailed in this naming proposal

[File: Phobos Seamount 001]

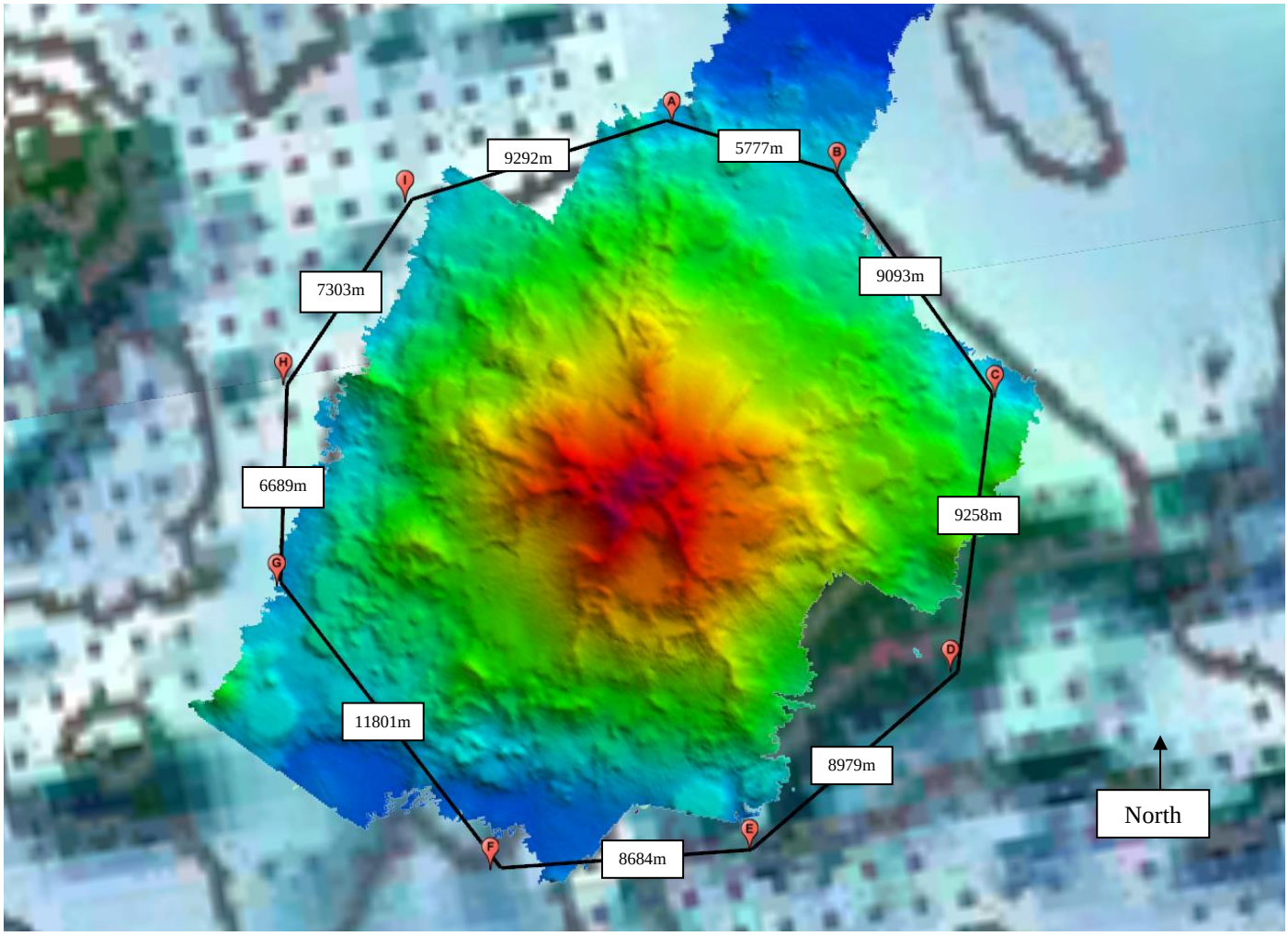


Above: 3D rendering of the proposed **Phobos Seamount** feature with depth scale

[File: Phobos Seamount 002]

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.*



Above: Boundary perimeter of the proposed **Phobos Seamount** with **9** defining points. Latitude and Longitude of individual points are given in the following table

[File: Phobos Seamount 003]

Table 1.0 - Points defining the proposed ***Phobos Seamount*** *feature*

	Lat DD MM.MMM	Lon DD MM.MMM	Lat DD.DDD	Lon DD.DDD	Lat DD MM SS.SS	Lon DD MM SS.SS	Distance from Previous	Total Distance
Point A	N 29 35.079	W 147 12.045	29.584642	-147.200742	N 29 35 04.71	W 147 12 02.67	0m	0m
Point B	N 29 33.713	W 147 08.826	29.561885	-147.147104	N 29 33 42.79	W 147 08 49.57	5777.134 m	5777.134 m
Point C	N 29 29.304	W 147 06.323	29.488407	-147.105386	N 29 29 18.27	W 147 06 19.39	9093.373 m	14870.507m
Point D	N 29 24.548	W 147 08.127	29.409135	-147.135453	N 29 24 32.89	W 147 08 07.63	9258.296 m	24128.803m
Point E	N 29 21.932	W 147 12.805	29.365538	-147.213421	N 29 21 55.94	W 147 12 48.32	8979.885 m	33108.688m
Point F	N 29 22.344	W 147 18.152	29.372401	-147.302530	N 29 22 20.64	W 147 18 09.11	8684.965 m	41793.653m
Point G	N 29 27.974	W 147 21.599	29.466236	-147.359984	N 29 27 58.45	W 147 21 35.94	11801.136 m	53594.789m
Point H	N 29 31.531	W 147 20.823	29.525516	-147.347053	N 29 31 31.86	W 147 20 49.39	6689.458 m	60284.247m
Point I	N 29 34.432	W 147 17.751	29.573861	147.295847	N 29 34 25.90	W 147 17 45.05	7303.786 m	67588.033m
						Back to Waypoint A	9292.002 m	76880.035

[File: Phobos Seamount 004]

Polygon defining the proposed ***Phobos Seamount***

POLYGON ((-147.200742 29.584642, -147.147104 29.561885, -147.105386 29.488407, -147.135453 29.409135,-147.213421 29.365538,-147.302530 29.372401,-147.359984 29.466236,-147.347053 29.525516,-147.295847 29.573861))

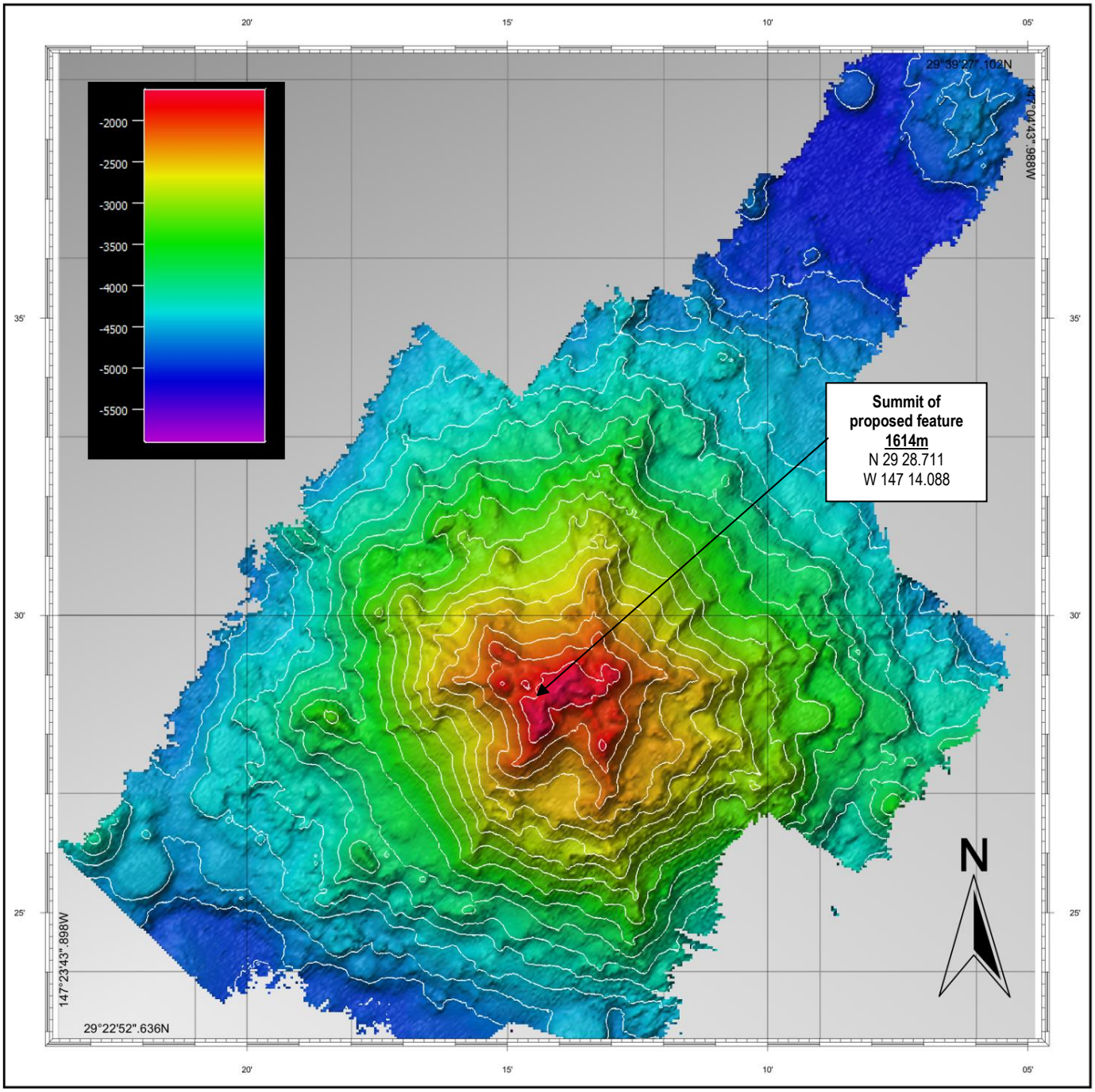
Table 2.0 - Point defining the center of the proposed ***Phobos Seamount***

POINT (-147.230767 29.480245)

		Lat DD MM.MMM	Lon DD MM.MMM	Lat DD.DDD	Lon DD.DDD	Lat DD MM SS.SS	Lon DD MM SS.SS
Point		N 29 28.815	W 147 13.846	29.480245	-147.230767	N 29 28 48.88	W 147 13 50.76

Table 3.0 - Coordinates for summit (shallowest sounding) of the proposed ***Phobos Seamount*** feature

	Summit	Lat DD MM.MMM	Lon DD MM.MMM	Lat DD.DDD	Lon DD.DDD	Lat DD MM SS.SS	Lon DD MM SS.SS
Summit	1614m	N 29 28.711	W 147 14.088	29.478525	-147.234794	N 29 28 42.69	W 147 14 05.26

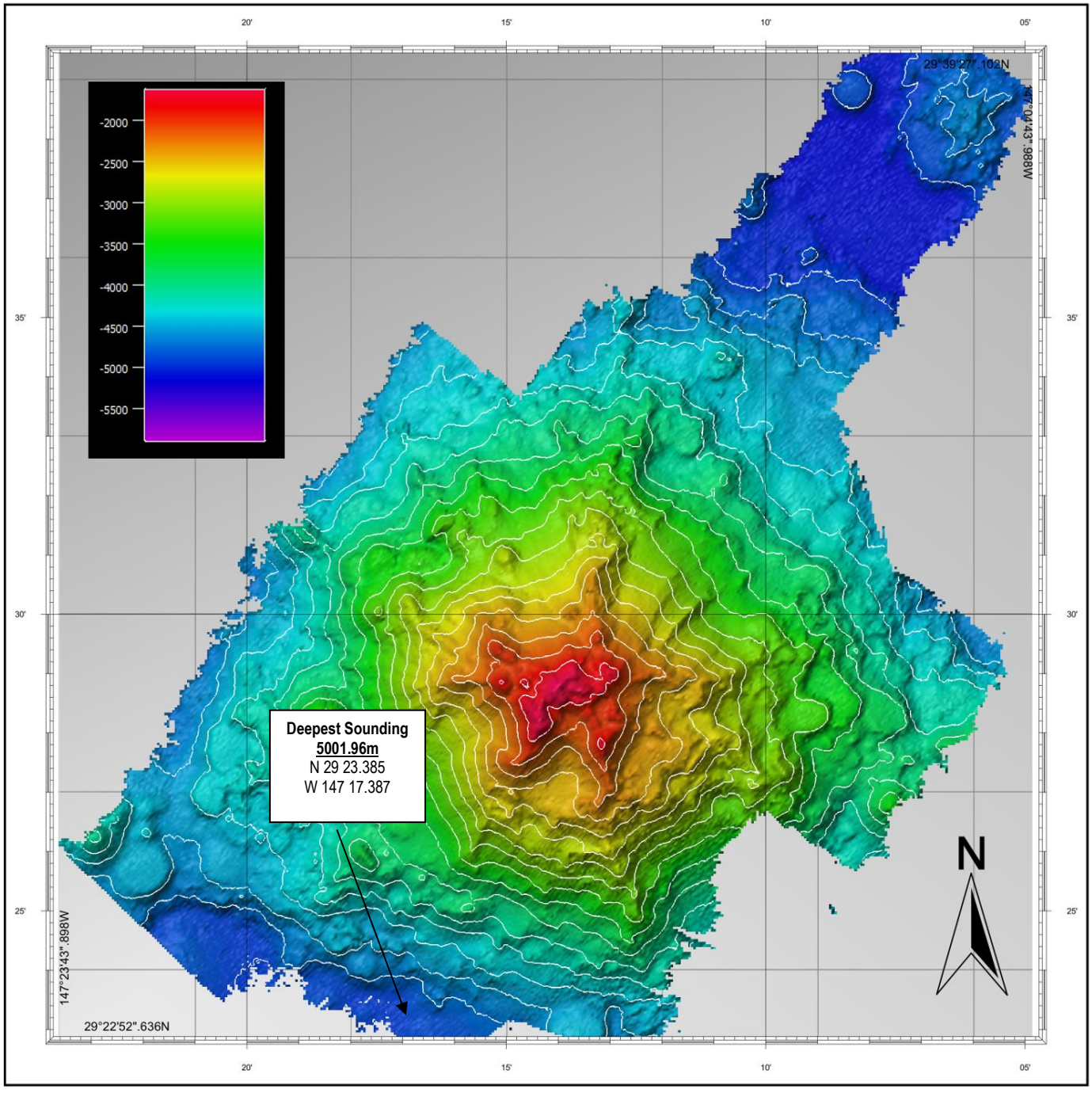


Above: Overview of the proposed ***Phobos Seamount*** with arrow indicating the location of the shallowest point measuring **1614m**

[File: Phobos Seamount 005]

Table 3.0 - Coordinates for deepest sounding of the proposed ***Phobos Seamount*** feature

	Deepest Point	Lat DD MM.MMM	Lon DD MM.MMM	Lat DD.DDD	Lon DD.DDD	Lat DD MM SS.SS	Lon DD MM SS.SS
Deepest Point	5001.96m	N 29 23.385	W 147 17.387	29.389747	-147.289786	N 29 23 23.09	W 147 17 23.23

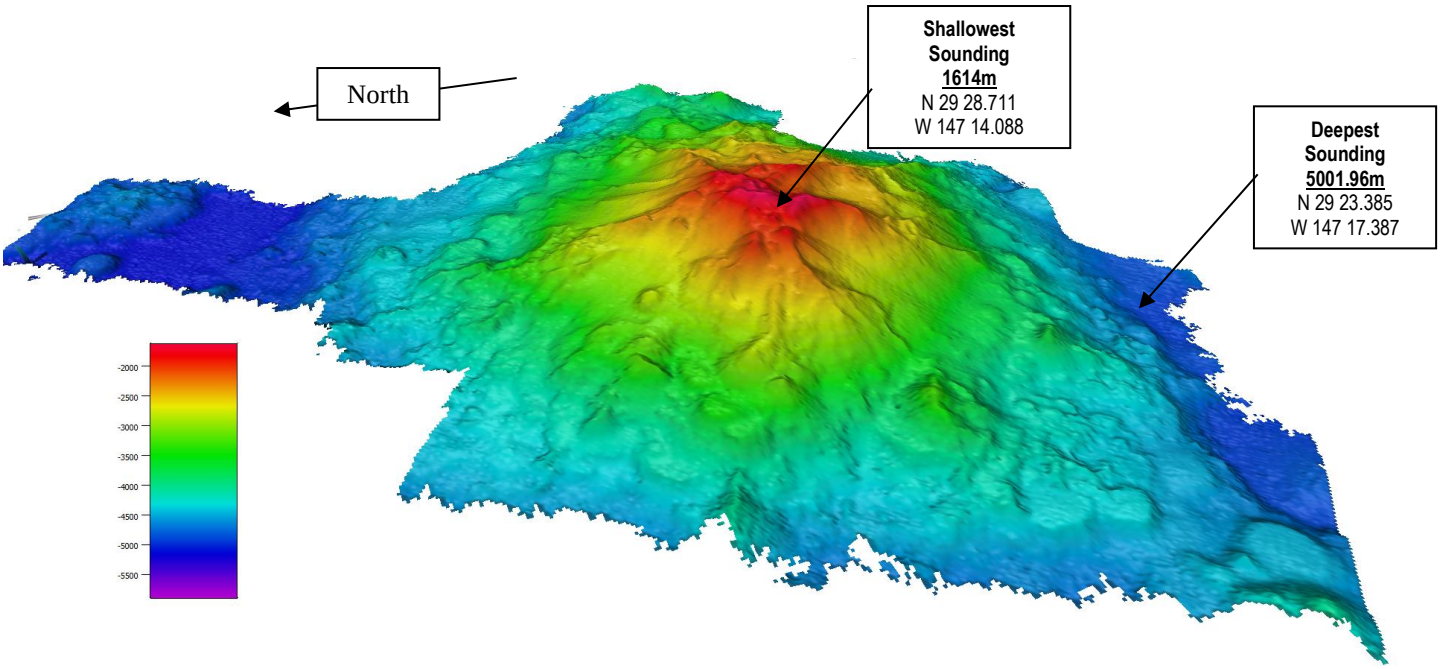


Above: Overview of the proposed ***Phobos Seamount*** with arrow indicating the deepest sounding (5001m) within the area defined in (Table 1.0)

[File: Phobos Seamount 006]

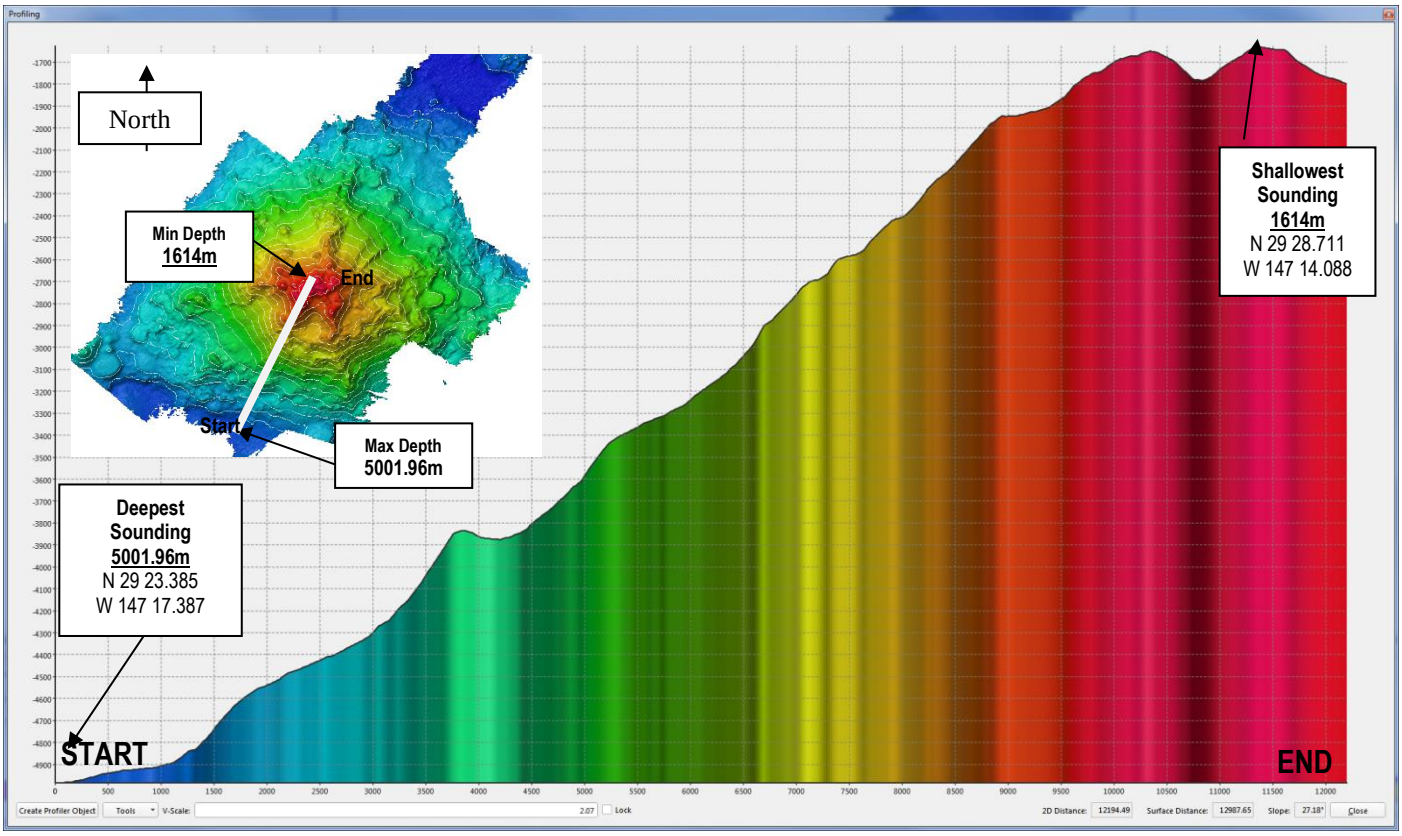
Table 4.0 – Feature Description of Proposed ***Phobos Seamount***

Feature Description:	Maximum Depth:	5001 m	Steepness :	See individual profiles
	Minimum Depth :	1614m	Shape :	Irregular
	Total Relief :	3387m	Dimension/Size :	14.41 NM x13.64 NM



Above: 3D Overview of the proposed ***Phobos Seamount*** displaying both the shallowest and deepest soundings within the feature boundary defined in Table 1.0

[File: Phobos Seamount 007]

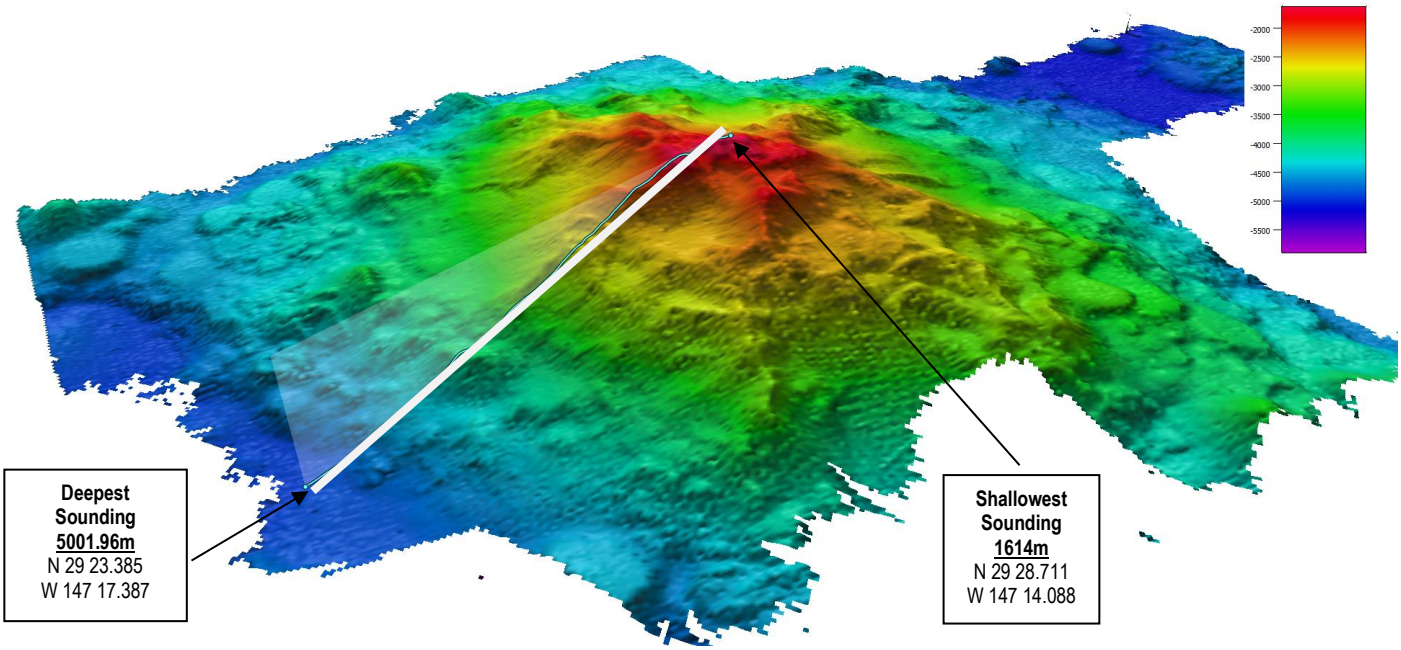


Above: Depth profile through both the shallowest and deepest sounding of the proposed ***Phobos Seamount***. [Fladermaus]

[File: Phobos Seamount 007]

Table 5.0 – Profile line intersecting the shallowest and deepest soundings of the proposed ***Phobos Seamount***

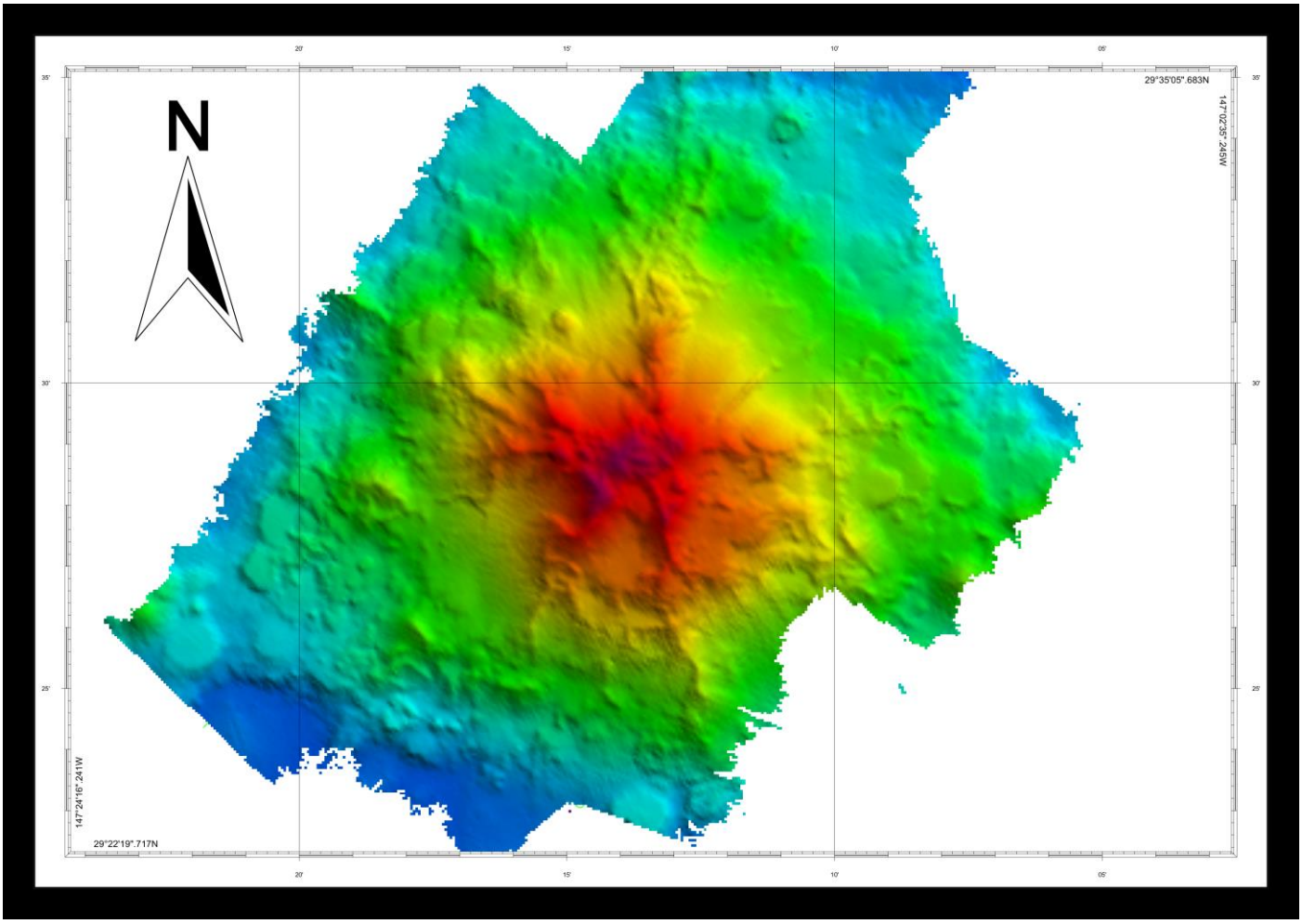
	Length	Start	End	Shallowest Point	Deepest Point	Total Relief
Profile Line Shallow to Deep	12194m	N 29 23.127, W 147 16.978	N 29 29.132, W 147 13.910	N 29 28.711 W 147 14.088 1614m	N 29 23.385 W 147 17.387 5001.96m	**3387m**



Above: Depth profile through both the shallowest and deepest soundings of the proposed ***Phobos Seamount***.

[File: Phobos Seamount 008]

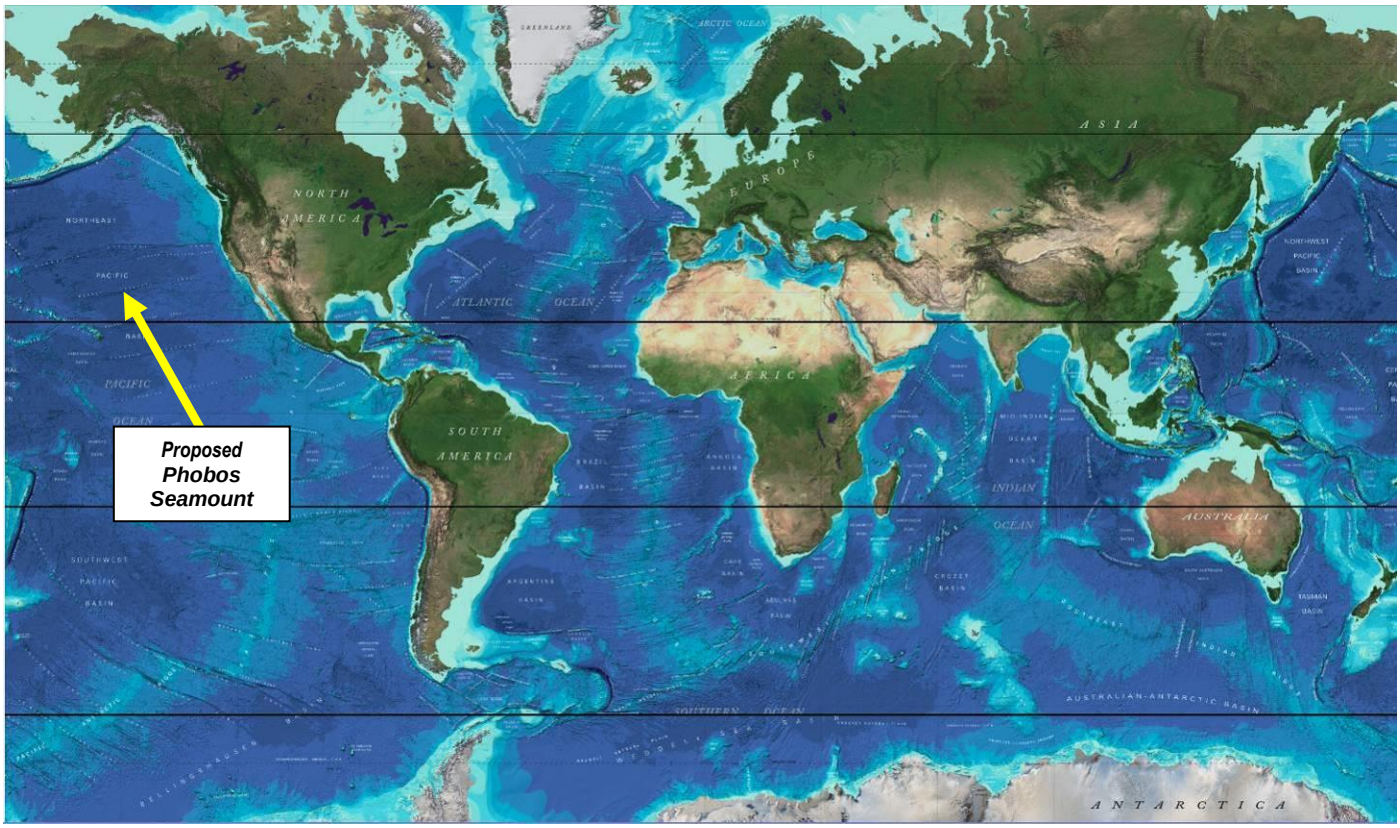
Location of proposed ***Phobos Seamount*** feature



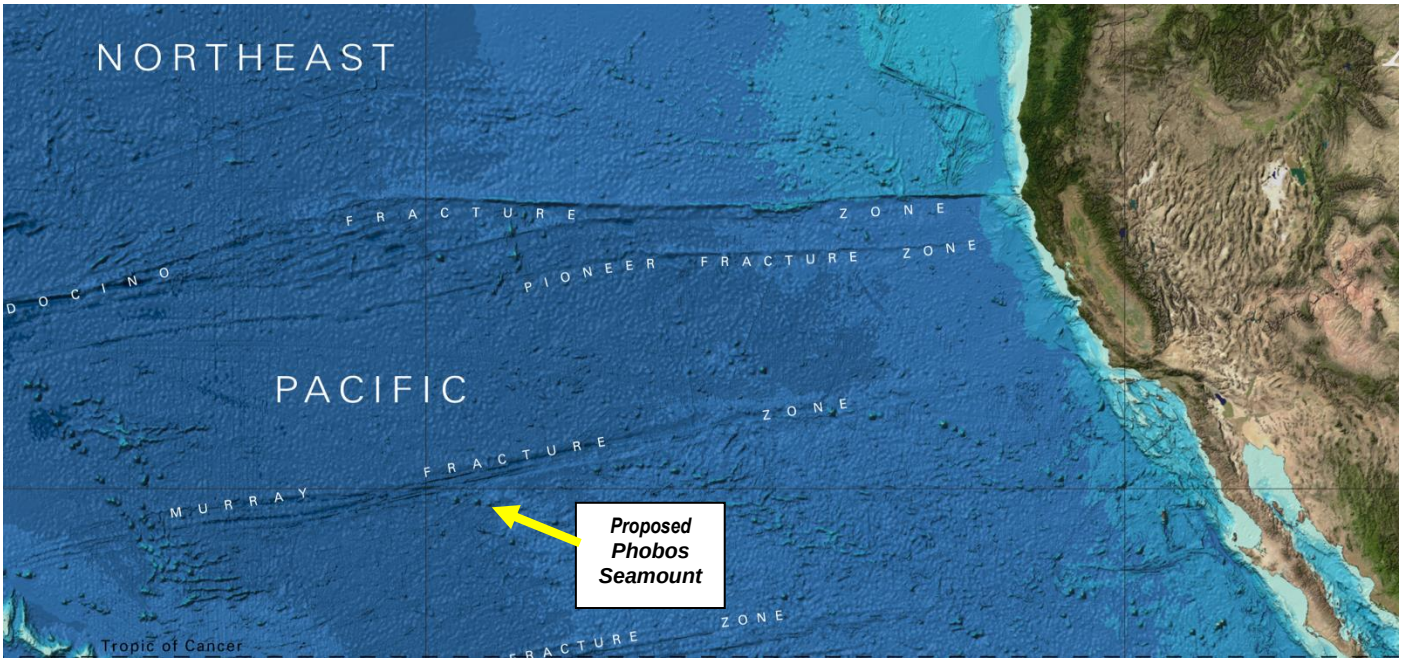
Above: Overview of the proposed ***Phobos Seamount*** *with latitude and longitude grid in DD MM SS (WGS 84)*

[File: Phobos Seamount 009]

Location of proposed ***Phobos Seamount*** feature

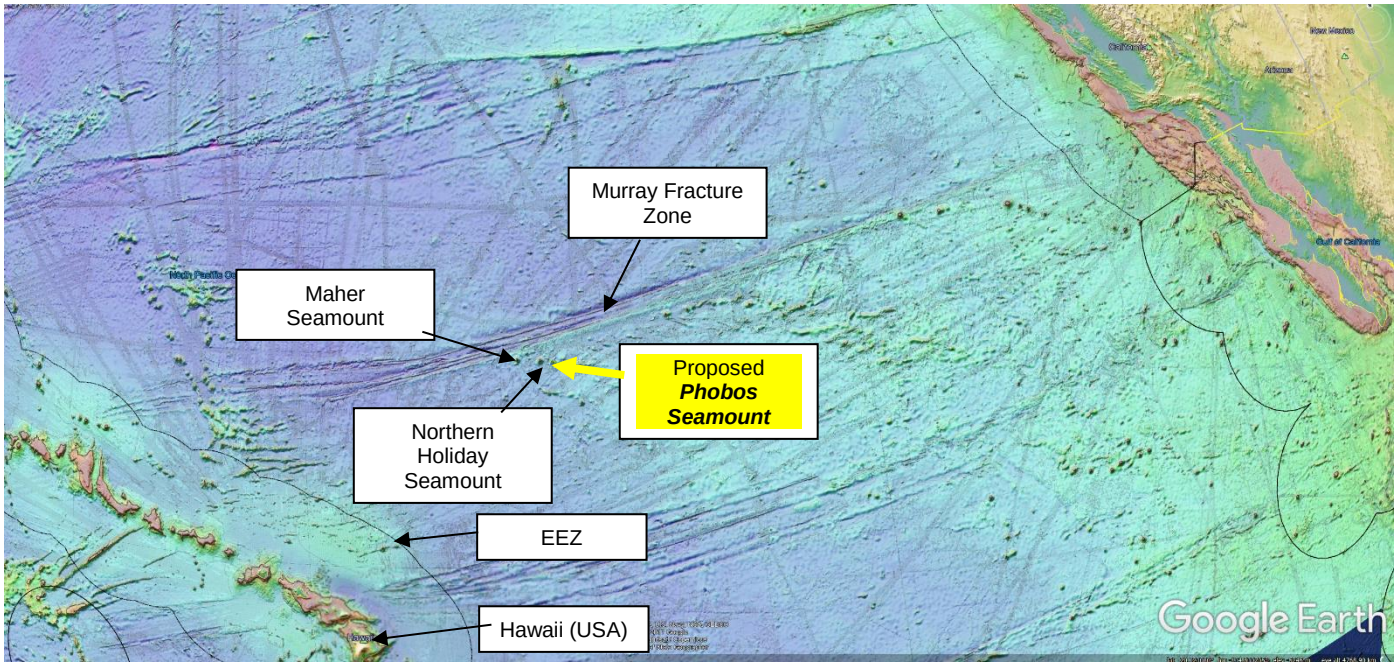


Above: Overview showing the location of proposed ***Phobos Seamount*** overlaid on GEBCO World Map 2014 Geotiff



Above: Overview showing the location of proposed ***Phobos Seamount*** overlaid on GEBCO World Map 2014

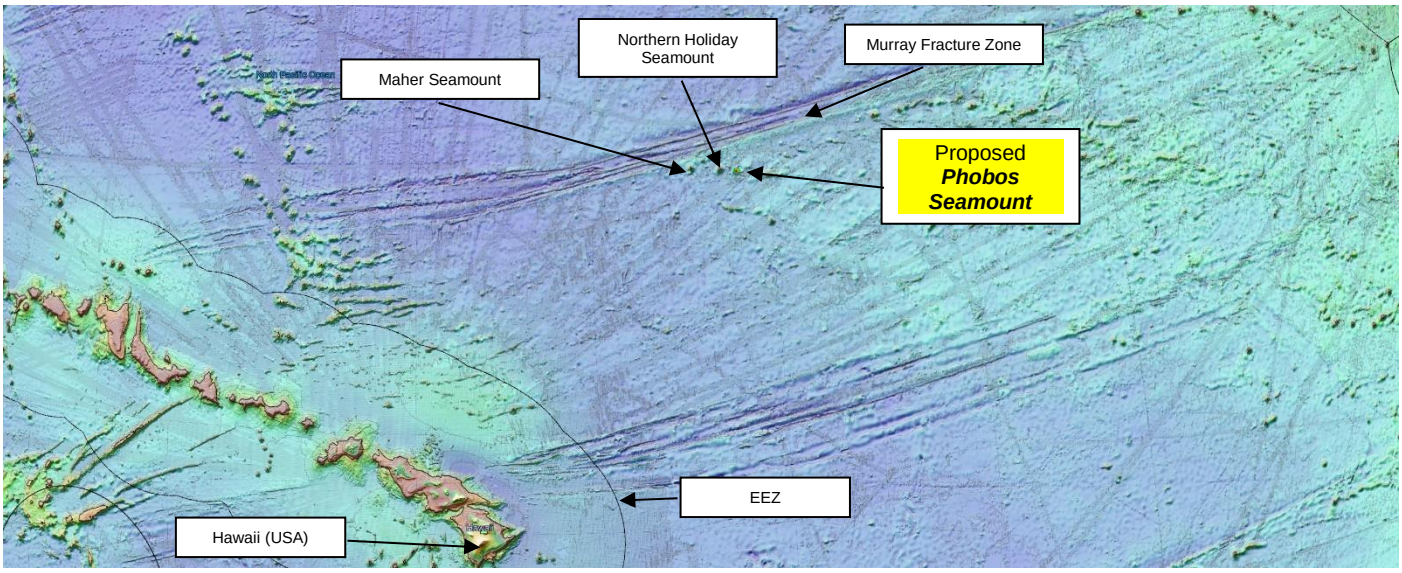
[File: Phobos Seamount 010]



Above: Location of proposed ***Phobos Seamount*** overlaid on SRTM30_PLUS V7 (Global Bathymetry and Elevation Data at 30 Arc Seconds Resolution: SRTM30 PLUS). This data set includes 290 million, depth soundings compiled and edited by investigators at SIO, NOAA, NGA, U.S. Navy, and GEBCO. The details are included in the following publication:

http://topex.ucsd.edu/sandwell/publications/124_MG_Becker.pdf

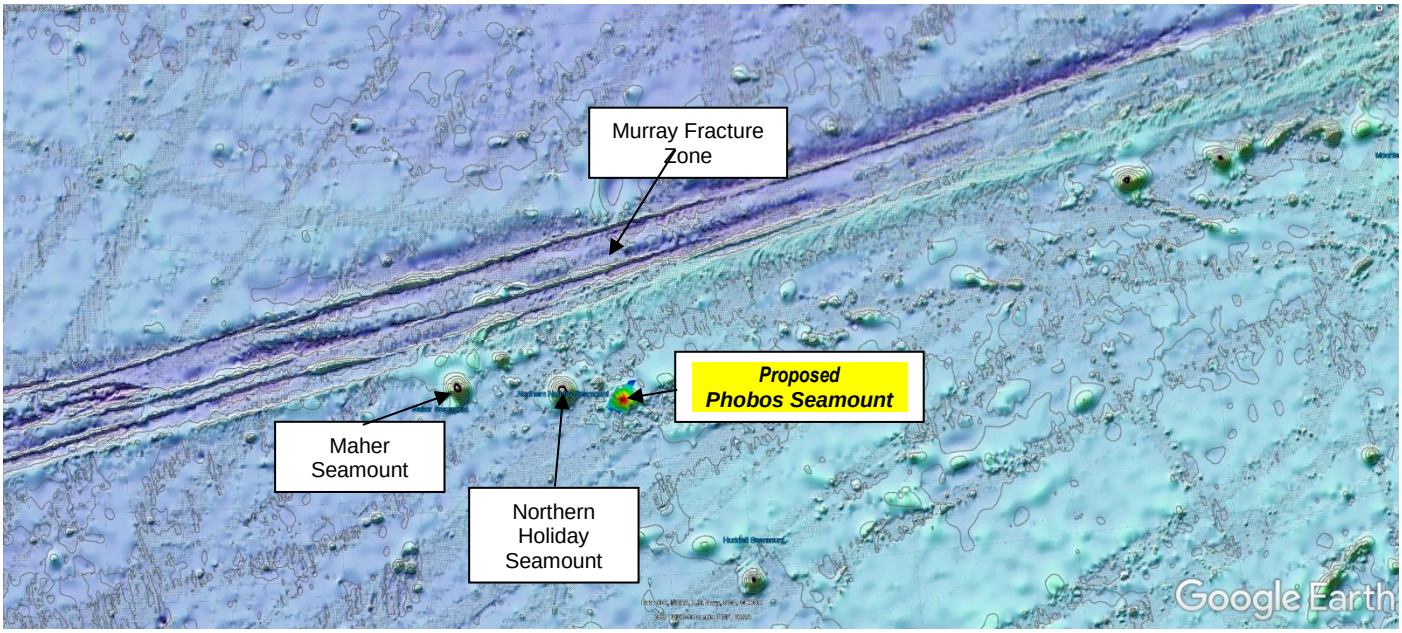
[File: Phobos Seamount 011]



Above: Location of proposed ***Phobos Seamount*** overlaid on SRTM30_PLUS V7 (Global Bathymetry and Elevation Data at 30 Arc Seconds Resolution: SRTM30 PLUS). This data set includes 290 million, depth soundings compiled and edited by investigators at SIO, NOAA, NGA, U.S. Navy, and GEBCO. The details are included in the following publication:

http://topex.ucsd.edu/sandwell/publications/124_MG_Becker.pdf

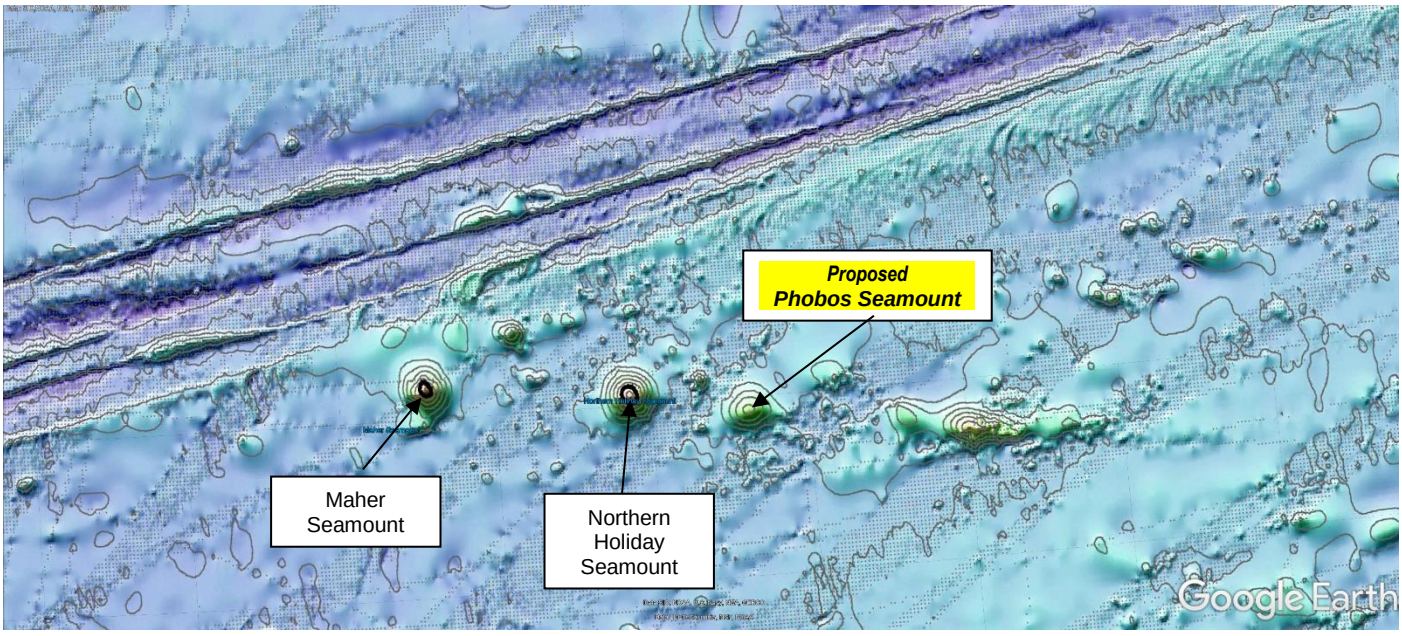
[File: Phobos Seamount 012]



Above: Location of proposed ***Phobos Seamount*** overlaid on SRTM30_PLUS V7 (Global Bathymetry and Elevation Data at 30 Arc Seconds Resolution: SRTM30 PLUS). This data set includes 290 million, depth soundings compiled and edited by investigators at SIO, NOAA, NGA, U.S. Navy, and GEBCO. The details are included in the following publication:

http://topex.ucsd.edu/sandwell/publications/124_MG_Becker.pdf

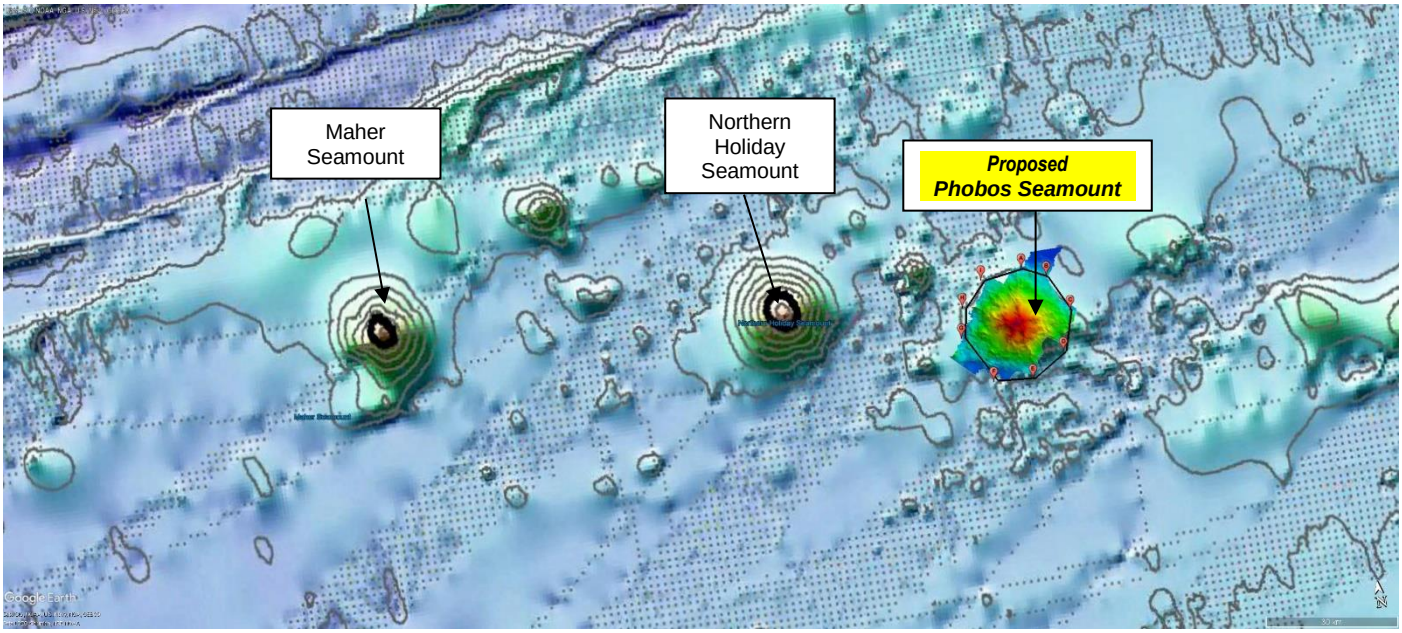
[File: Phobos Seamount 013]



Above: Location of proposed ***Phobos Seamount*** showing existing SRTM30_PLUS V7 (Global Bathymetry and Elevation Data at 30 Arc Seconds Resolution: SRTM30 PLUS). This data set includes 290 million, depth soundings compiled and edited by investigators at SIO, NOAA, NGA, U.S. Navy, and GEBCO. The details are included in the following publication:

http://topex.ucsd.edu/sandwell/publications/124_MG_Becker.pdf

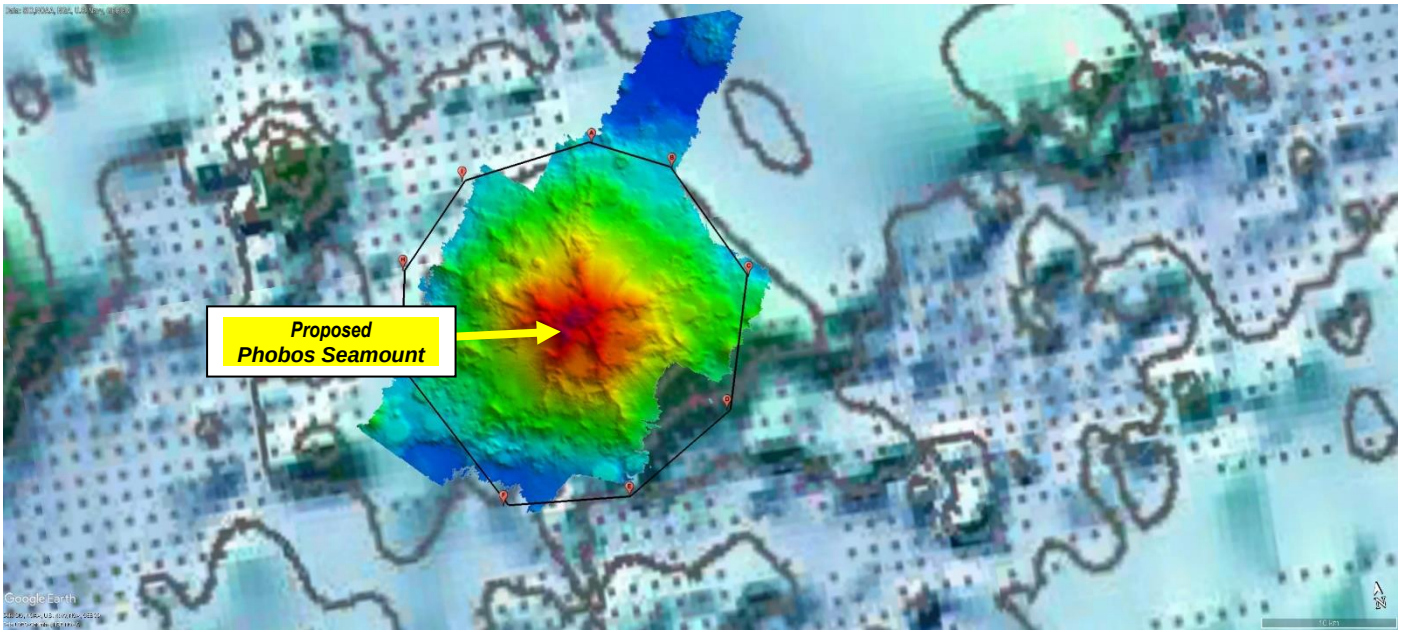
[File: Phobos Seamount 014]



Above: Location of proposed ***Phobos Seamount*** overlaid on SRTM30_PLUS V7 (Global Bathymetry and Elevation Data at 30 Arc Seconds Resolution: SRTM30 PLUS). This data set includes 290 million, depth soundings compiled and edited by investigators at SIO, NOAA, NGA, U.S. Navy, and GEBCO. The details are included in the following publication:

http://topex.ucsd.edu/sandwell/publications/124_MG_Becker.pdf

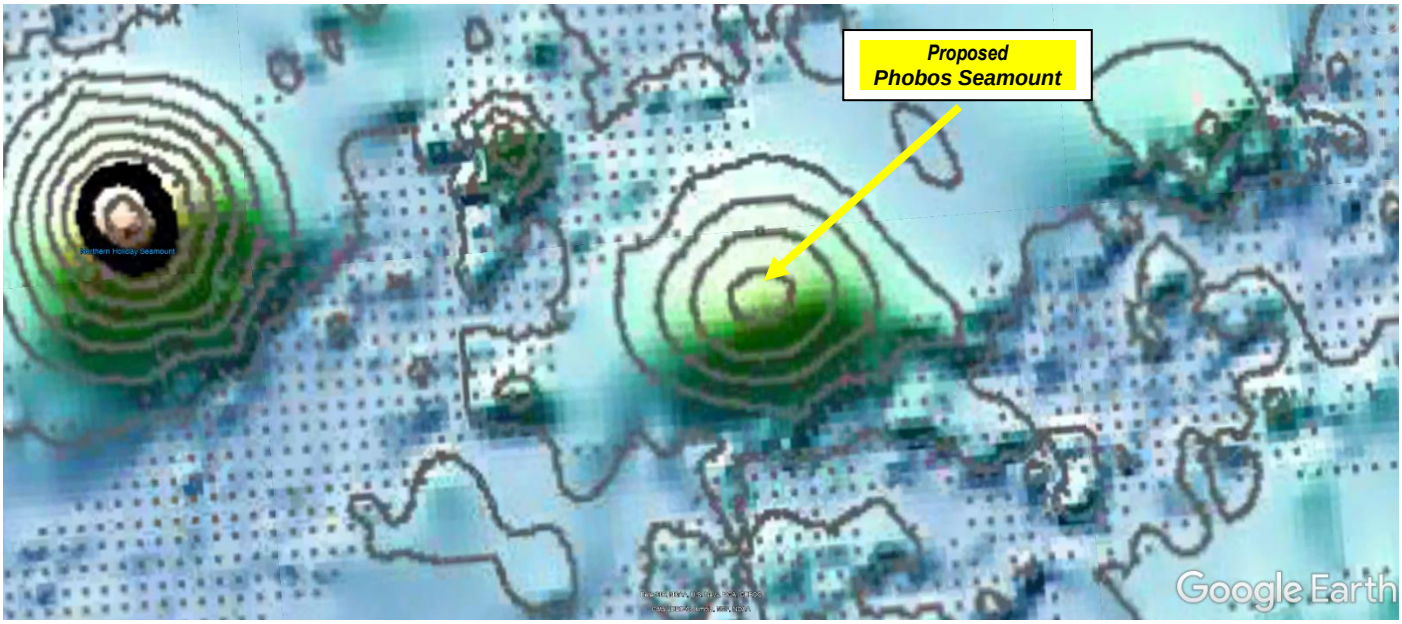
[File: Phobos Seamount 015]



Above: Location of proposed ***Phobos Seamount*** overlaid on SRTM30_PLUS V7 (Global Bathymetry and Elevation Data at 30 Arc Seconds Resolution: SRTM30 PLUS). This data set includes 290 million, depth soundings compiled and edited by investigators at SIO, NOAA, NGA, U.S. Navy, and GEBCO. The details are included in the following publication:

http://topex.ucsd.edu/sandwell/publications/124_MG_Becker.pdf

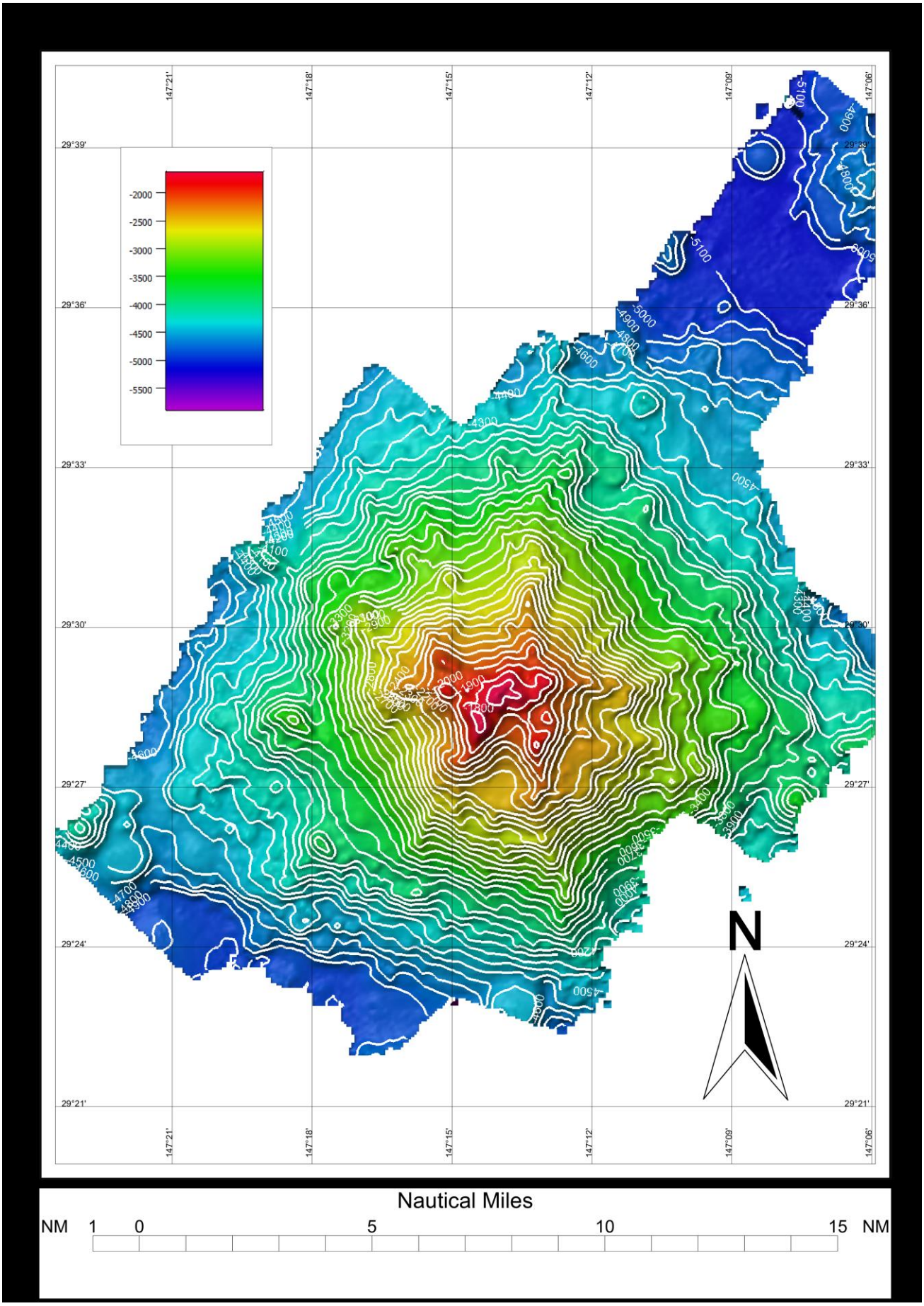
[File: Phobos Seamount 016]



Above: Location of proposed ***Phobos Seamount*** on existing SRTM30_PLUS V7 (Global Bathymetry and Elevation Data at 30 Arc Seconds Resolution: SRTM30 PLUS). This data set includes 290 million, depth soundings compiled and edited by investigators at SIO, NOAA, NGA, U.S. Navy, and GEBCO. The details are included in the following publication:

[File: Phobos Seamount 017]

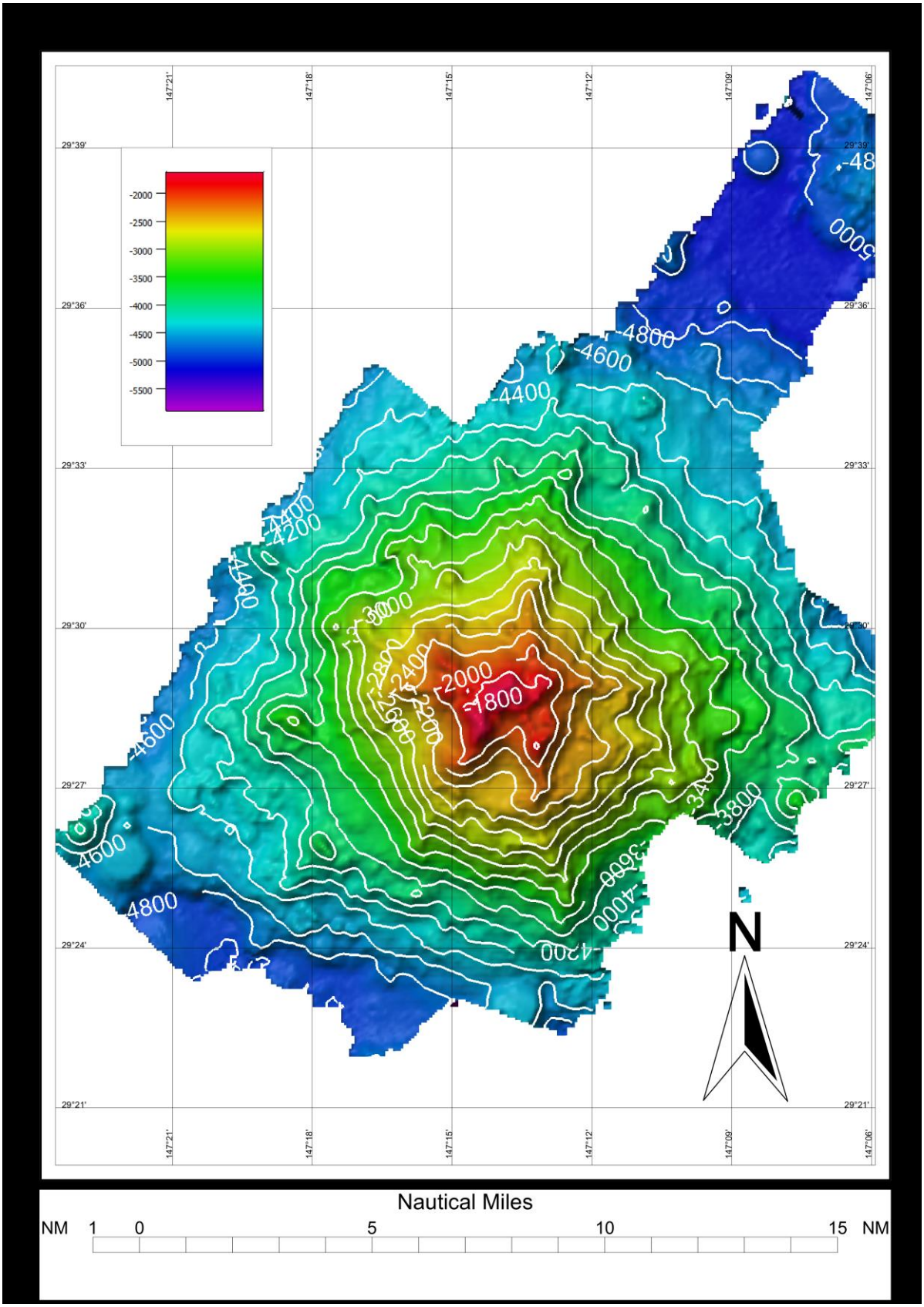
100m Contour plot of proposed ***Phobos Seamount***



***Above**: Contour plot of the proposed **Phobos Seamount** with 100m spacing between contour lines. DD MM SS plot (WGS84)*

[File: Phobos Seamount 018]

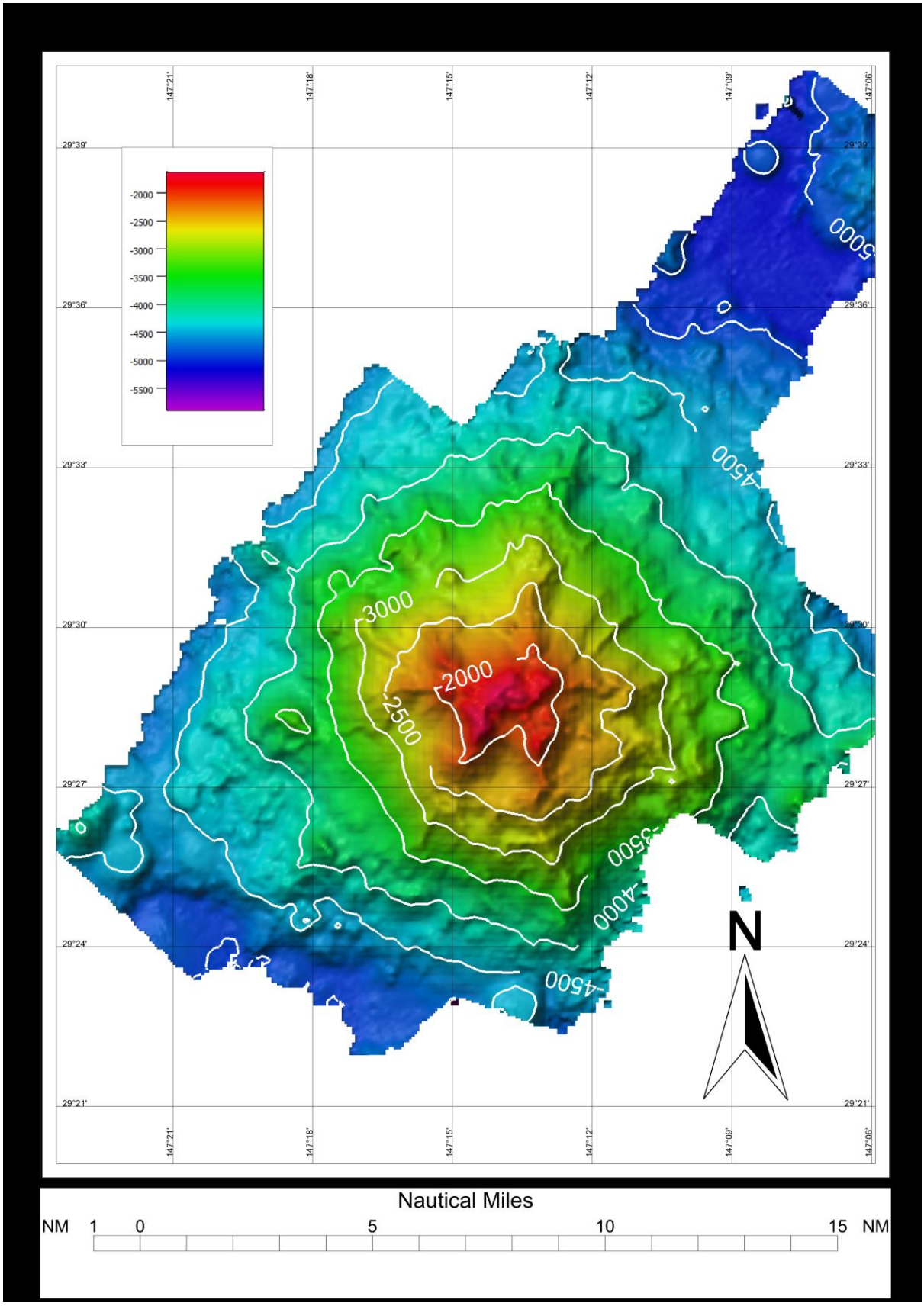
200m Contour plot of proposed ***Phobos Seamount***



Above: *Contour plot of the proposed* ***Phobos Seamount*** *with 200m spacing between contour lines. DD MM SS plot (WGS84)*

[File: Phobos Seamount 019]

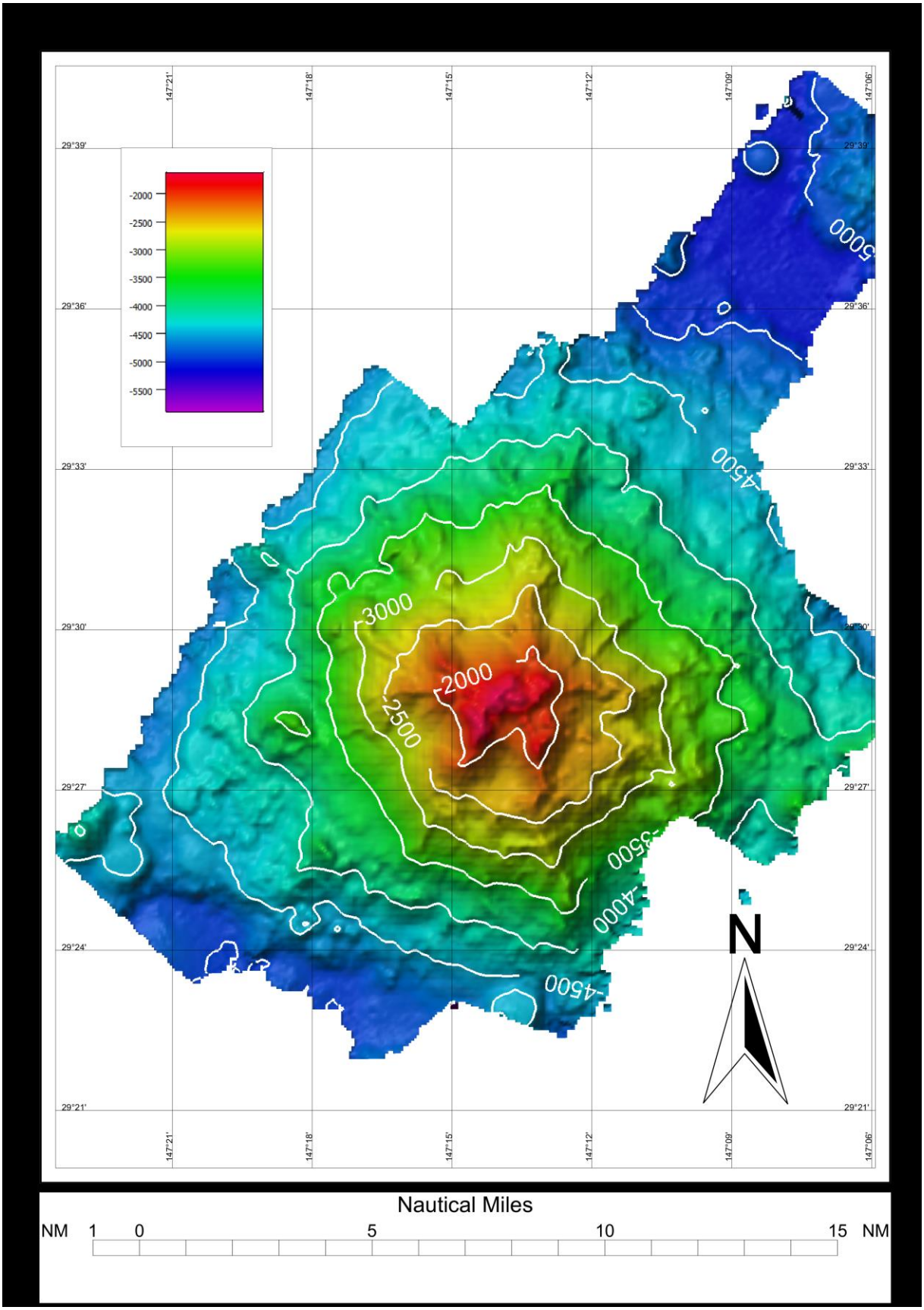
500m Contour plot of proposed ***Phobos Seamount***



Above: *Contour image of proposed* ***Phobos Seamount*** *with 500m depth spacing's between contours. DD MM SS plot (WGS84)*

[File: Phobos Seamount 020]

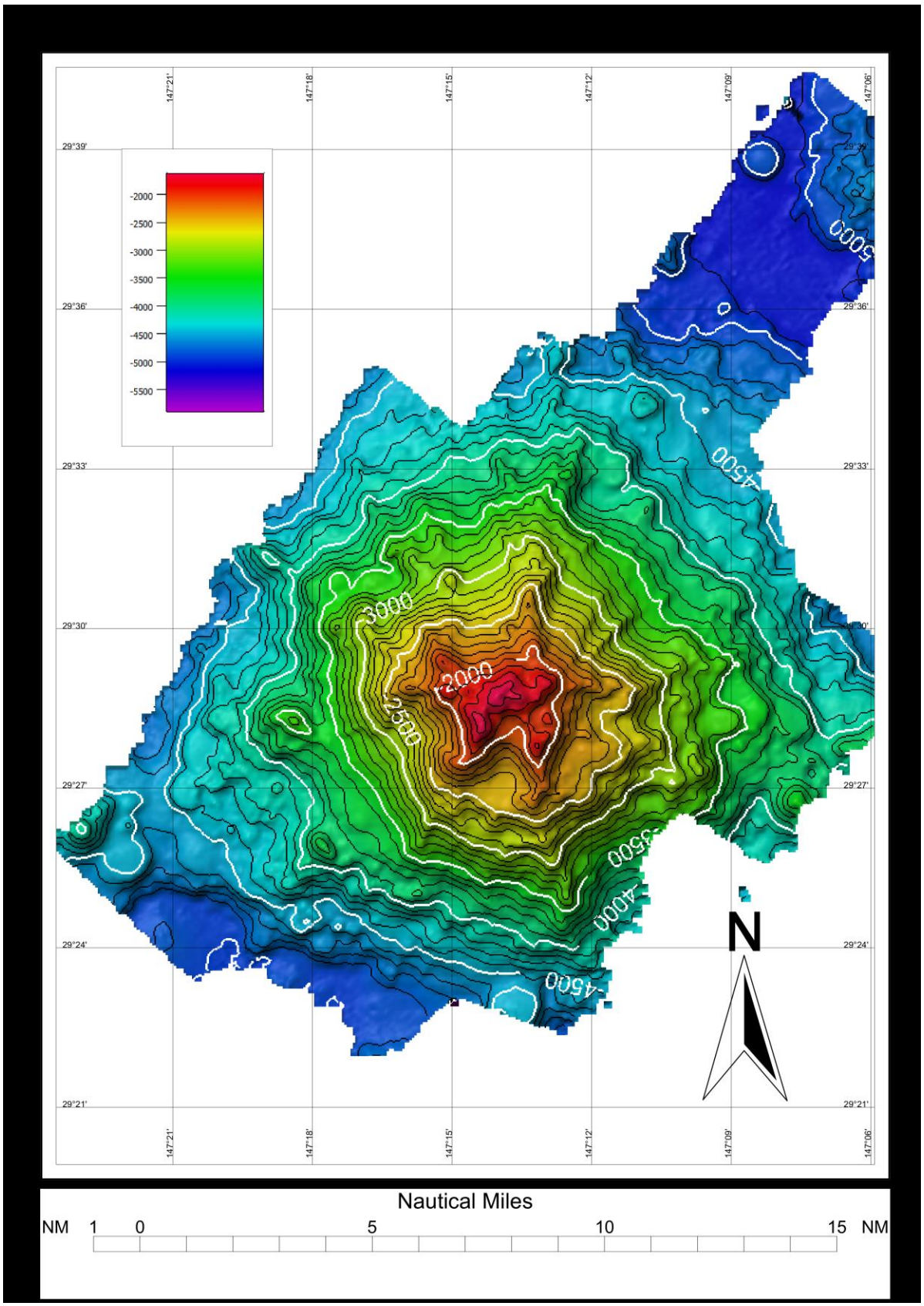
1000m Contour plot of proposed ***Phobos Seamount***



Above: *Contour plot of the proposed* ***Phobos Seamount*** *with 1000m depth spacing's between contours. DD MM SS plot (WGS84)*

[File: Phobos Seamount 021]

1000m Labelled Contour/100m unlabeled plot of proposed ***Phobos Seamount***

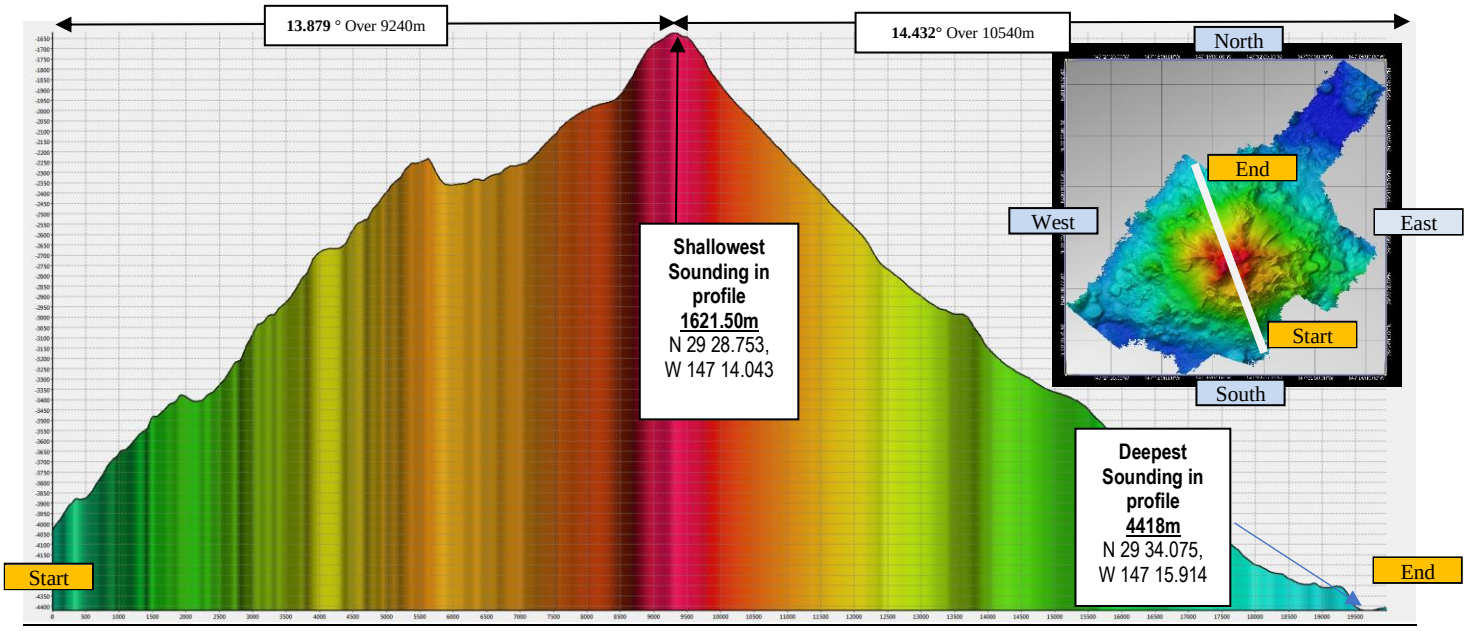


***Above**: Contour plot of the proposed **Phobos Seamount** with 1000m depth spacing's between labeled contours and 100m spaced unlabeled contours. DD MM SS plot (WGS84)*

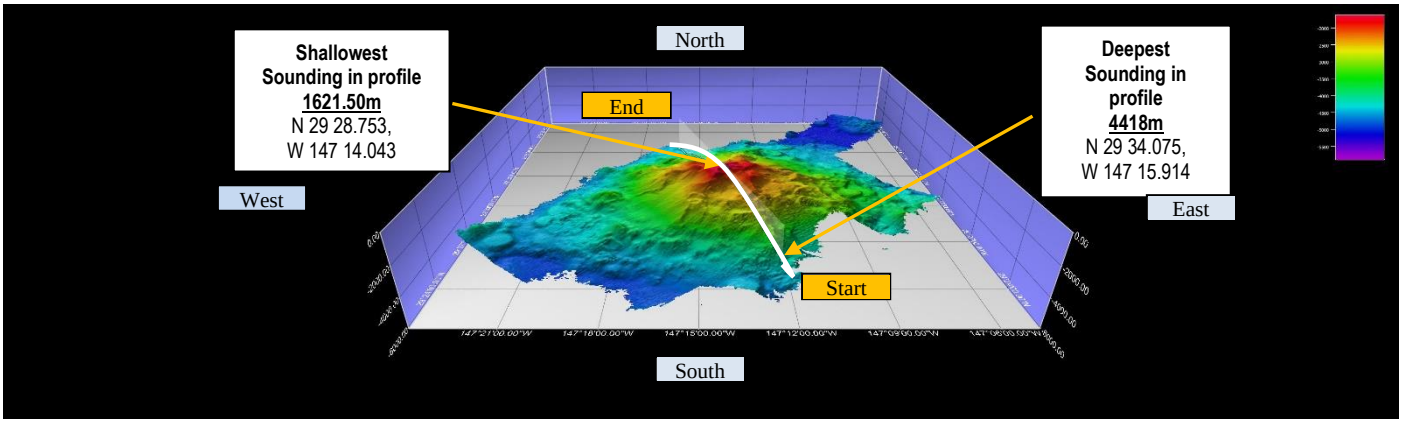
[File: Phobos Seamount 022]

Profiles of Proposed ***Phobos Seamount*** Feature

Profile 001 – South-South-East to North-North-West profile line across proposed ***Phobos Seamount*** feature



[File: Phobos Seamount 023]



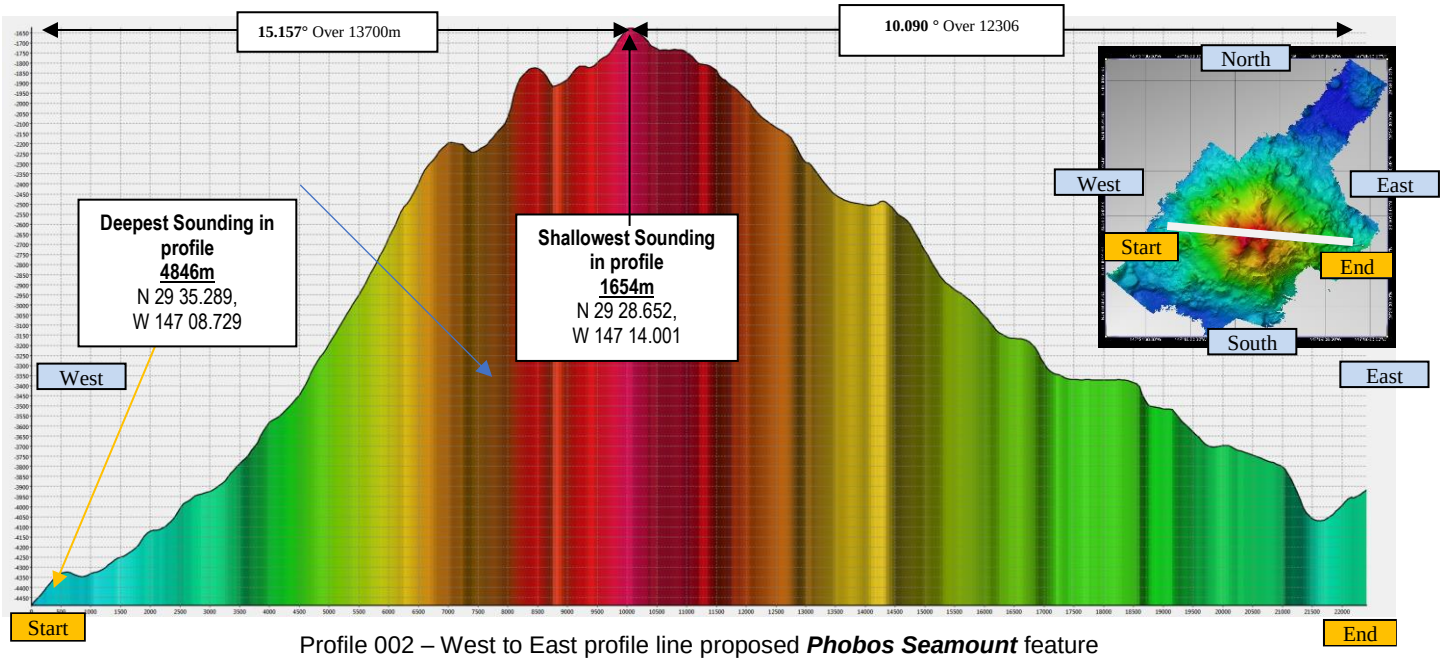
[File: Phobos Seamount 024]

Table 6.0 – Profile line 001 of proposed ***Phobos Seamount*** from West to East

Profile Length	Profile Start	Profile End	Shallowest Point of Profile Line	Deepest Point of Profile Line	Gradient of SSE Slope	Gradient of NNW Slope	Total Relief of profile line
19957m	N 29 23.950, W 147 12.355	N 29 34.235, W 147 15.970	1621.50m N 29 28.753, W 147 14.043	4418m N 29 34.075, W 147 15.914	**13.879** ° Over 9240m	**14.432°** Over 10540m	**2797m**

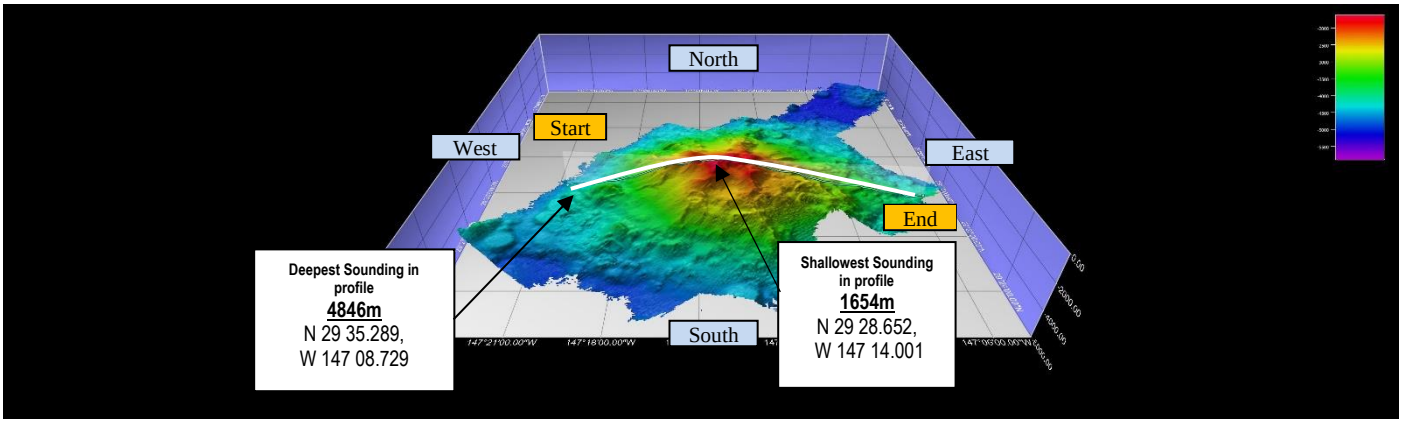
[Profile File: Phobos Seamount 025]

Profile 002 – West/East profile of proposed Phobos Seamount



Profile 002 – West to East profile line proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 026]



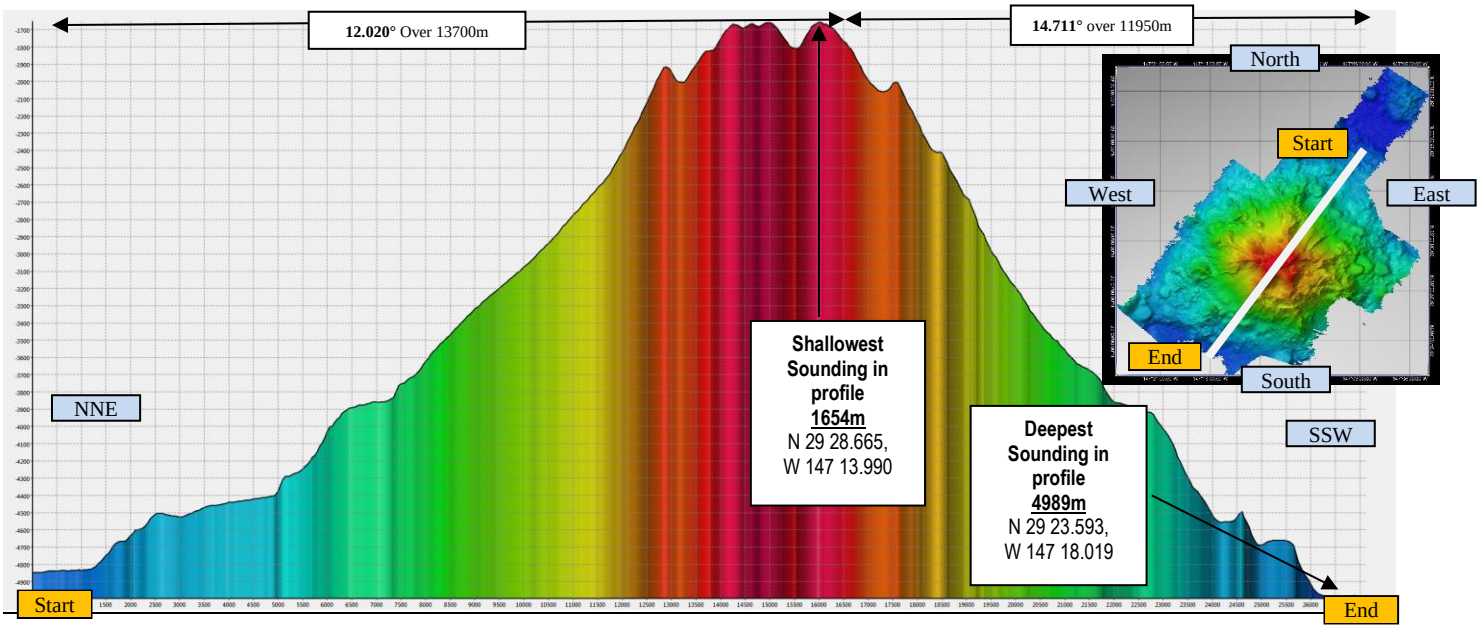
[File: Phobos Seamount 027]

Table 7.0 – Profile line 002 of proposed ***Phobos Seamount*** from North to South

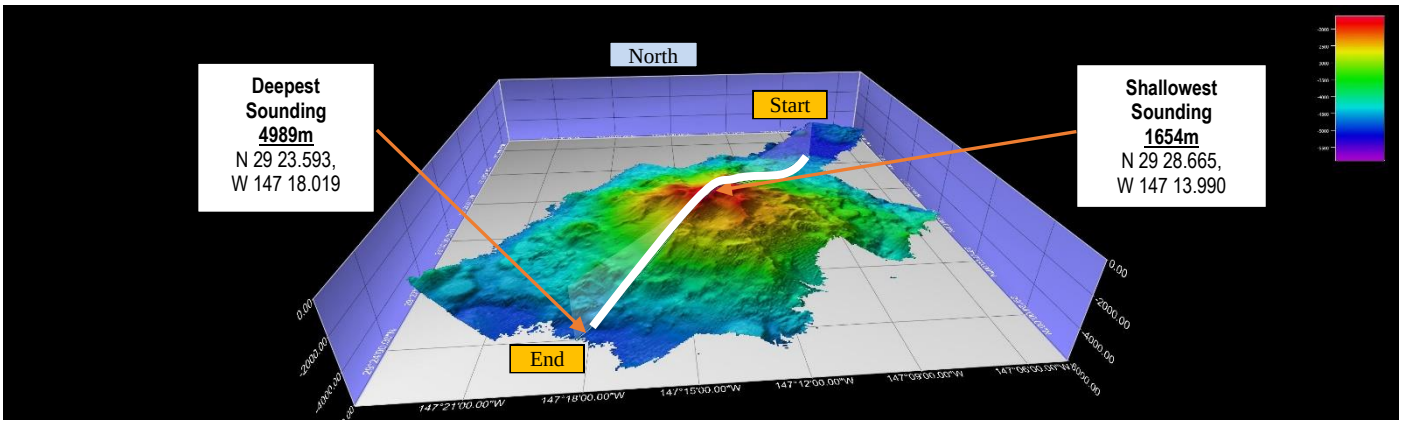
Profile Length	Profile Start	Profile End	Shallowest Point of Profile Line	Deepest Point of Profile Line	Gradient of Western Slope	Gradient of Eastern Slope	Total Relief of profile line
27045m	N 29 35.295, W 147 08.724	N 29 23.301, W 147 18.251	1654m N 29 28.652, W 147 14.001	4846m N 29 35.289, W 147 08.729	**15.157° Over 13700m**	**10.090 ° Over 12306**	3202m

[File: Phobos Seamount 028]

Profile 003 – NNE/SSW profile line across proposed ***Phobos Seamount*** feature



[File: Phobos Seamount 029]

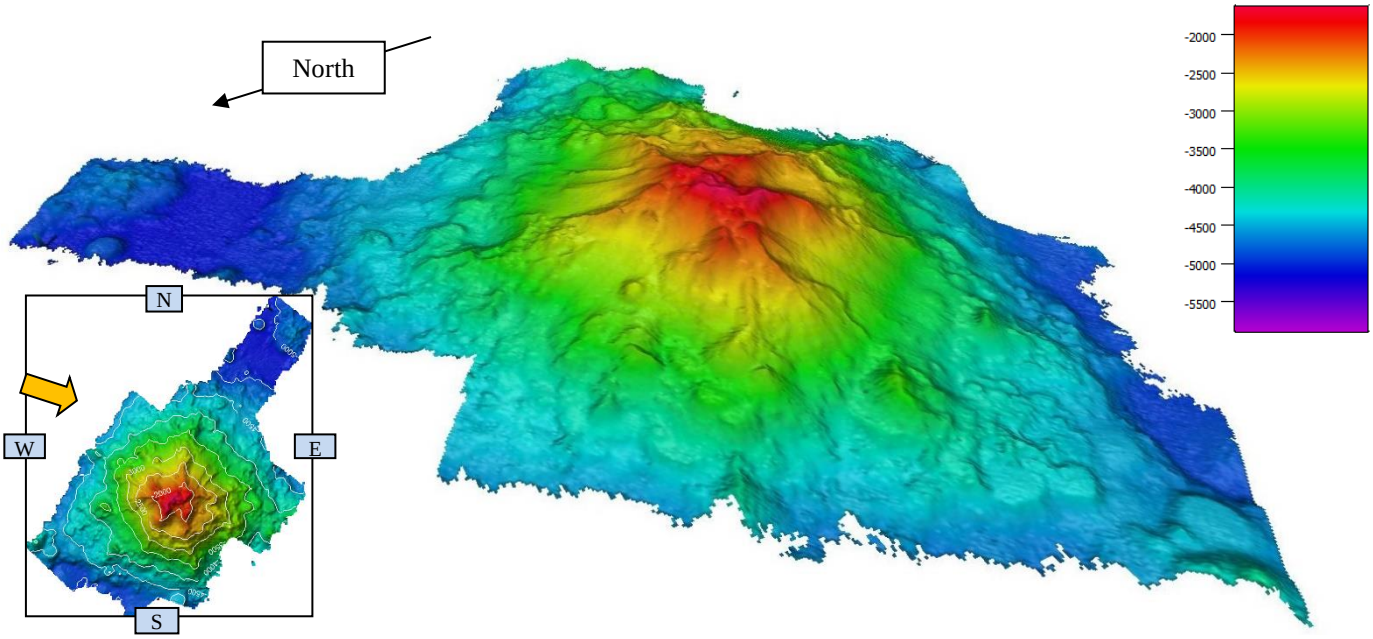


[File: Phobos Seamount 030]

Table 8.0 – Profile line 003 of proposed ***Phobos Seamount*** from North-North-East to South-South-West

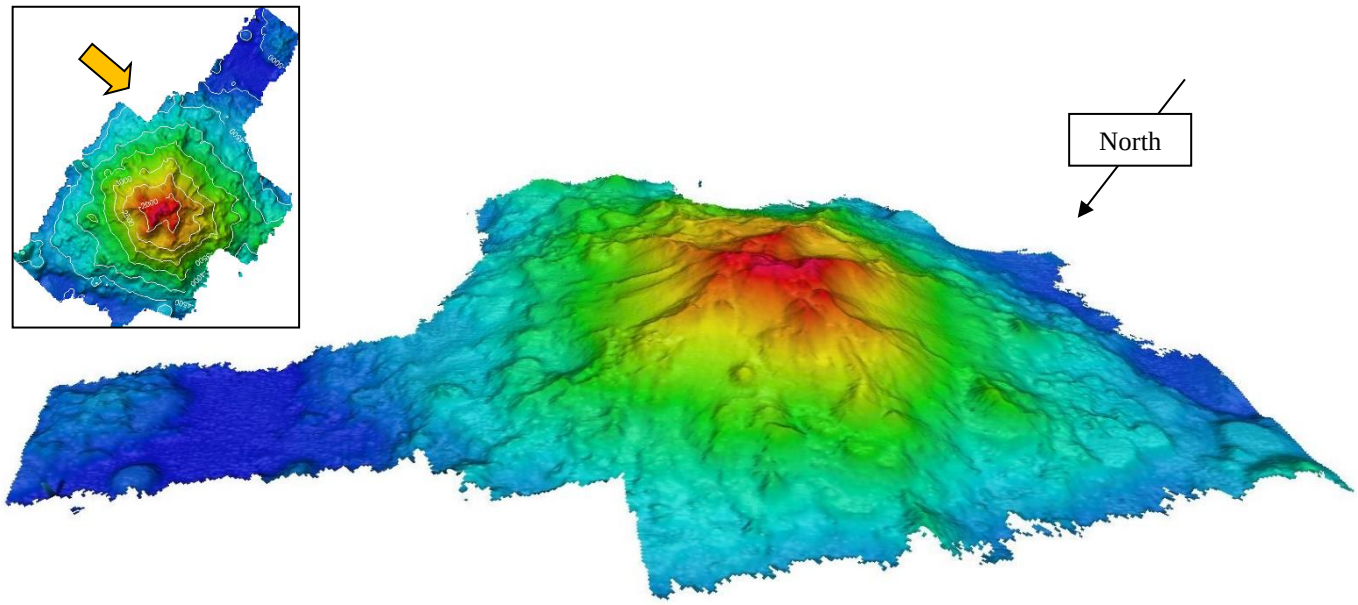
Profile Length	Profile Start	Profile End	Shallowest Point of Profile Line	Deepest Point of Profile Line	Gradient of North North West slope	Gradient of Southern Slope	Total Relief of profile line
27045m	N 29 35.295, W 147 08.724	N 29 23.301, W 147 18.251	1654m N 29 28.665, W 147 13.990	4989m N 29 23.593, W 147 18.019	**12.020°** Over 13700m	**14.711°** over 11950m	3335m

3D Images of Proposed ***Phobos Seamount*** Feature



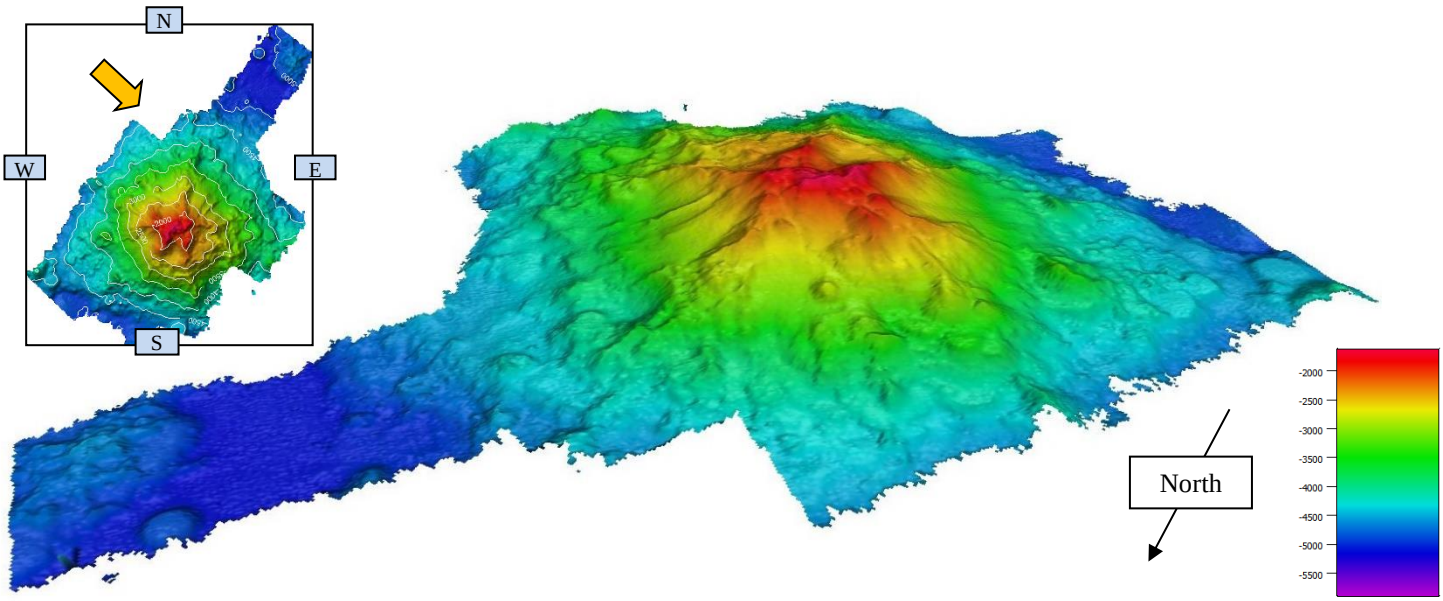
Above: Looking Easterly from a position to the North-North-West of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 031]



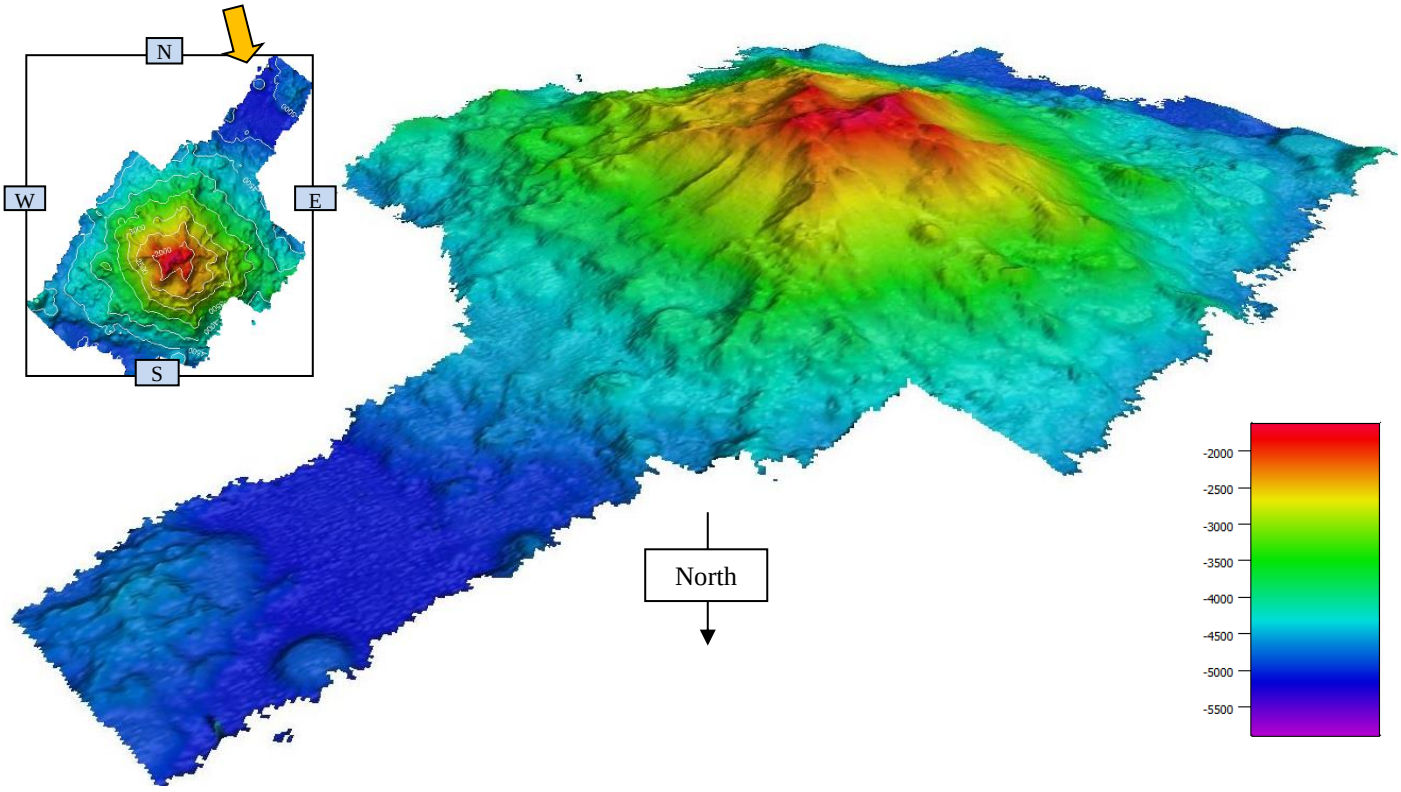
Above: Looking South-South-East from a position to the North-North-West of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 032]



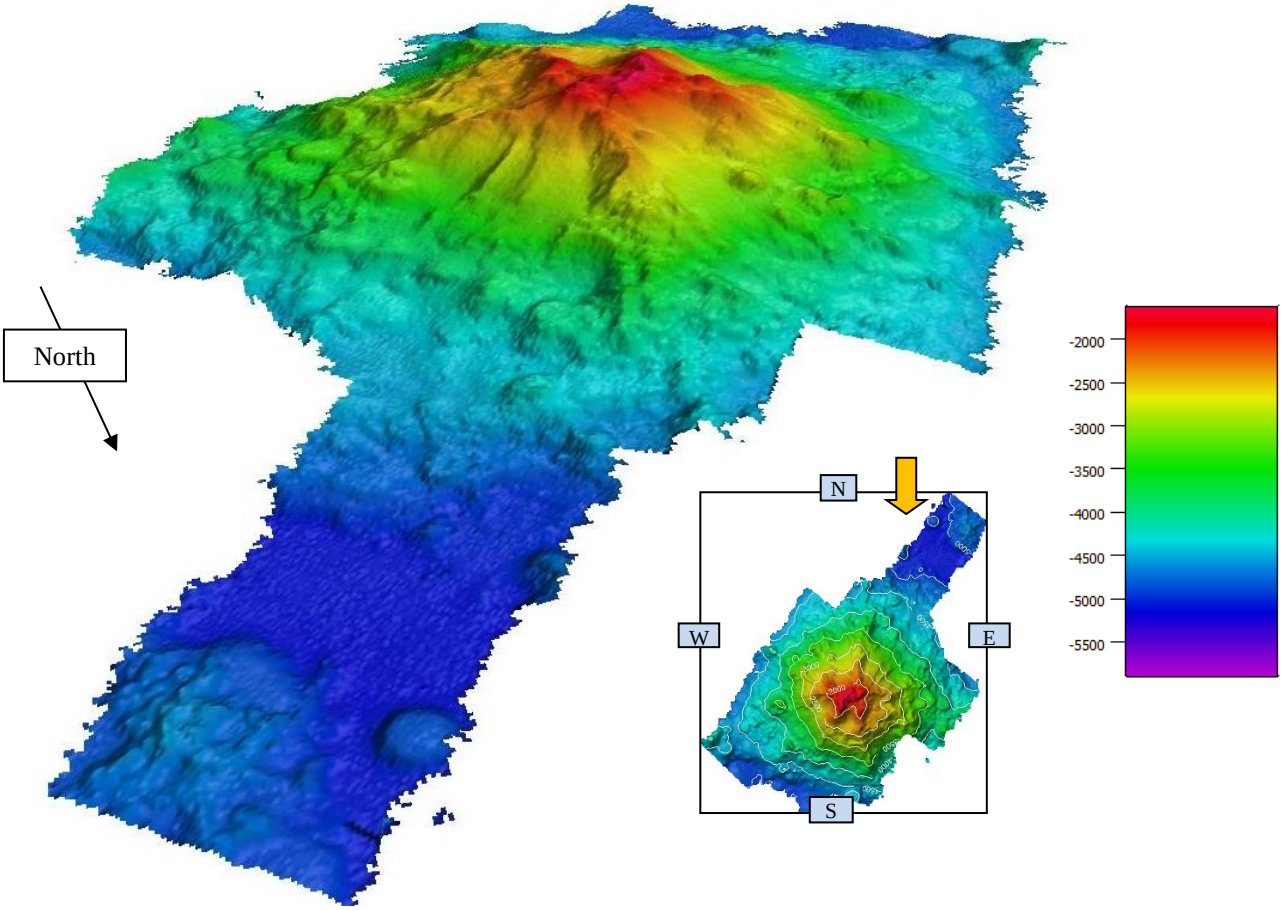
Above: Looking South-South-East from a position to the North-North-West of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 033]



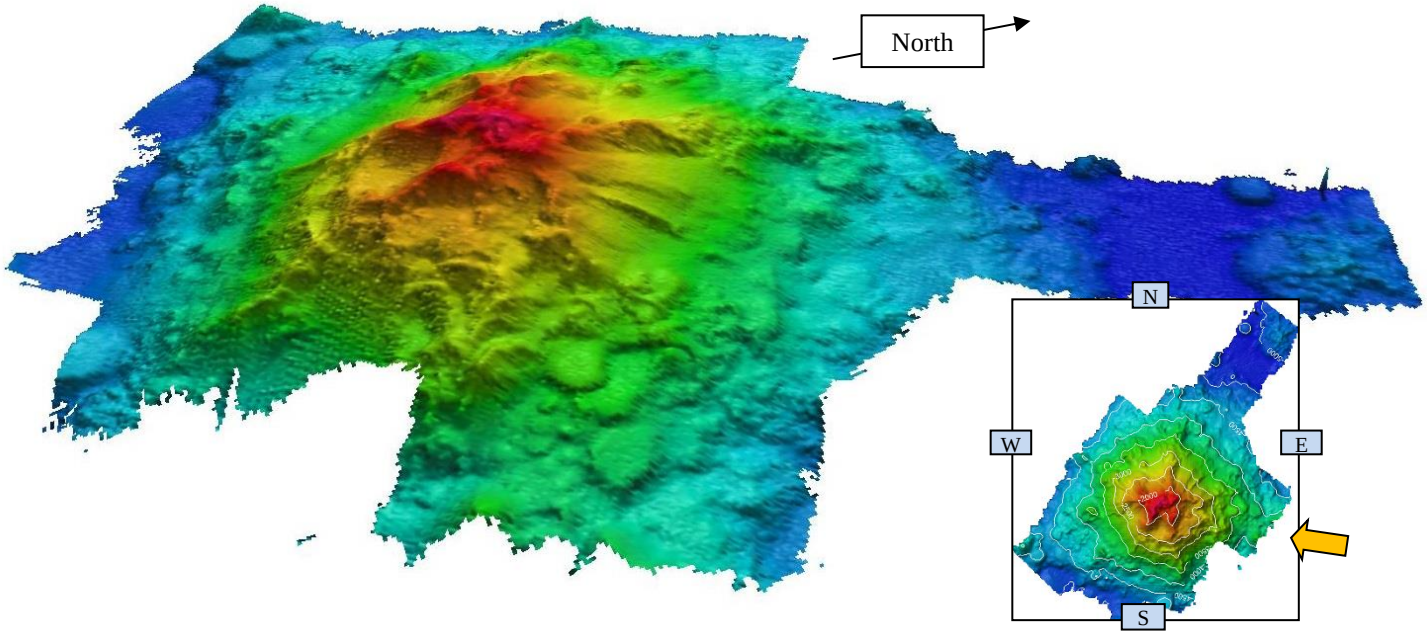
Above: Looking Southerly from a position to the North of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 034]



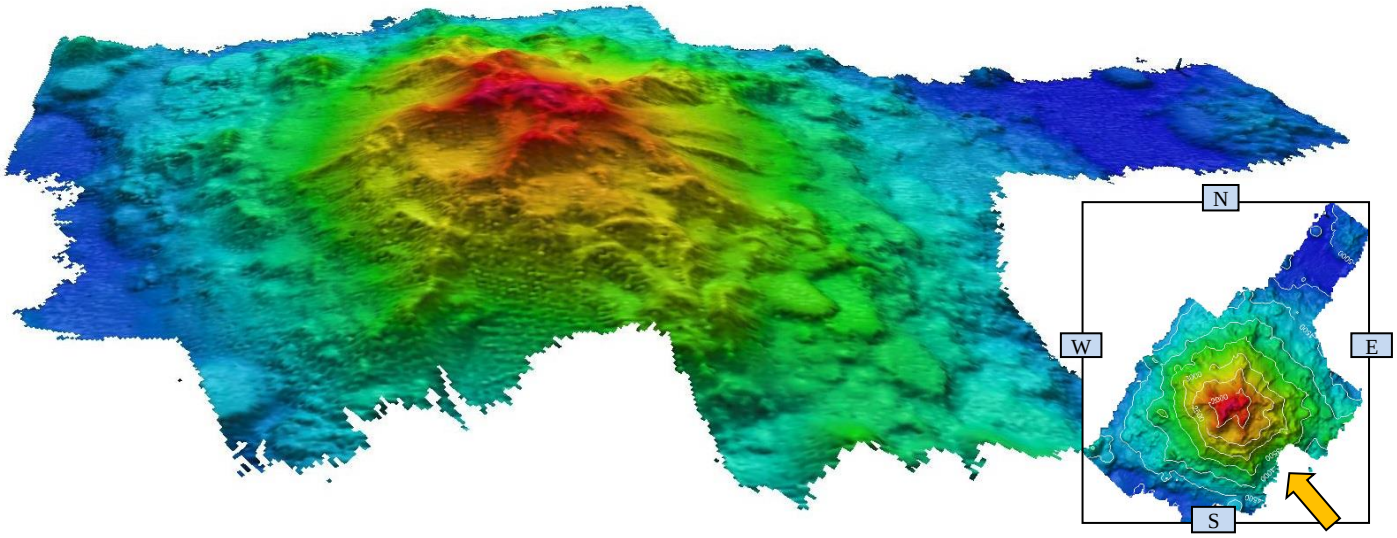
Above: Looking South from a position to the North of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 035]



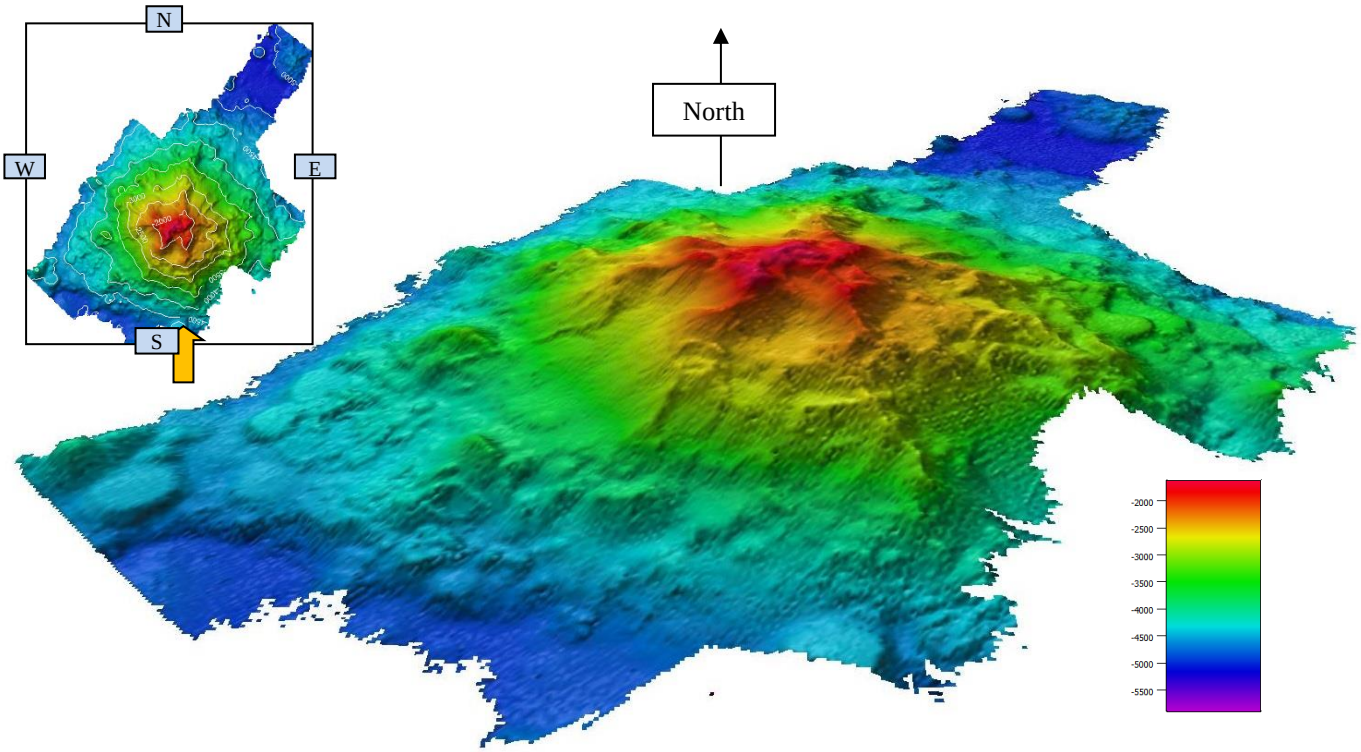
Above: Looking Westerly from a position to the East of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 036]



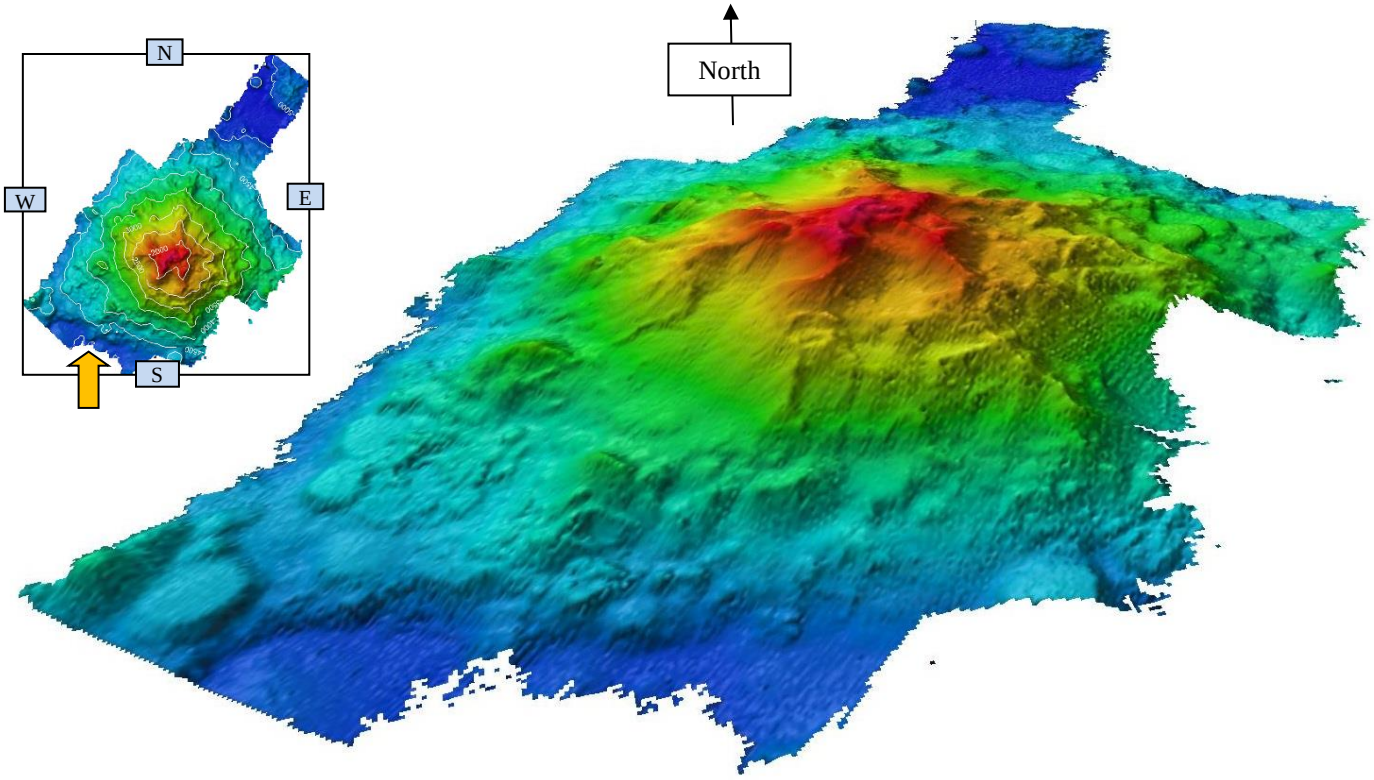
Above: Looking North-North-West from a position to the South-South-East of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 037]



Above: Looking North from a position to the South of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 038]



Above: Looking North from a position to the South of the proposed ***Phobos Seamount*** feature

[File: Phobos Seamount 039]

Associated Features:	

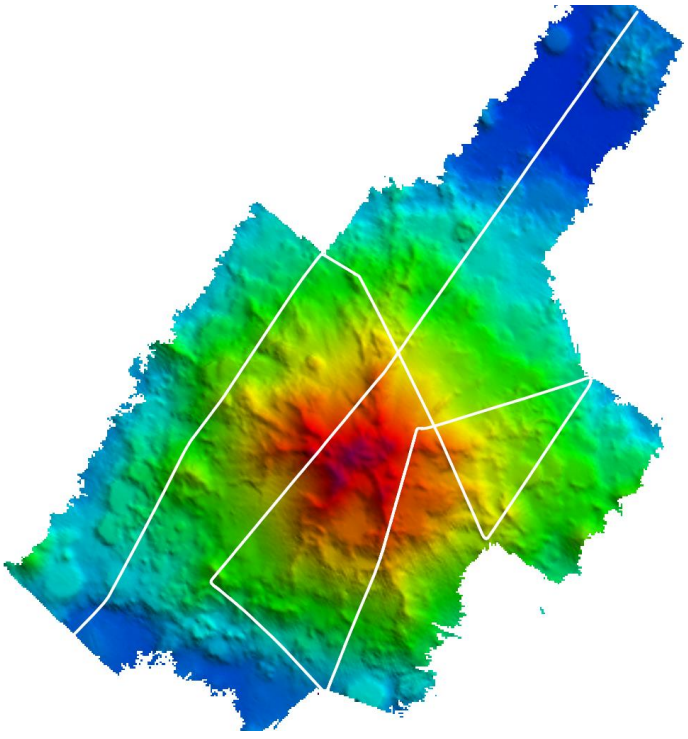
Chart/Map References:	Shown Named on Map/Chart:	No
	Shown Unnamed on Map/Chart:	Yes (Satellite elevation data)
	Within Area of Map/Chart:	

Reason for Choice of Name (if a person, state how associated with the feature to be named)**:**	**Phobos Seamount.** The choice of Phobos came from a simple idea to allocate a name to the detected feature from a historic event that occurred on the same day as our survey (17th August) On the 17th August 1877 one of the two moons orbiting Mars was discovered (details given below). The name Phobos was selected as it had no political or negative associations and the name was anot already allocated in the Undersea Feature Name Gazeetter **Information on Phobos** Phobos the innermost and larger of the two natural satellites of Mars, the other being Deimos. Both moons were discovered in 1877 by American astronomer Asaph Hall. Phobos was discovered on the 17th August 1877. Phobos is a small, irregularly shaped object with a mean radius of 11 km (7 mi), and is seven times as massive as the outer moon, Deimos. Phobos is named after the Greek god Phobos, a son of Ares (Mars) and Aphrodite (Venus), and the personification of horror (cf. phobia). Phobos orbits 6,000 km (3,700 mi) from the Martian surface, closer to its primary body than any other known planetary moon. It is indeed so close that it orbits Mars much faster than Mars rotates, and completes an orbit in just 7 hours and 39 minutes. As a result, from the surface of Mars it appears to rise in the west, move across the sky in 4 hours and 15 minutes or less, and set in the east, twice each Martian day.

	Phobos is one of the least reflective bodies in the Solar System, with an albedo of just 0.071. Surface temperatures range from about −4 °C (25 °F) on the sunlit side to −112 °C (−170 °F) on the shadowed side. The defining surface feature is the large impact crater, Stickney, which takes up a substantial proportion of the moon's surface. Images and models indicate that Phobos may be a rubble pile held together by a thin crust, and that it is being torn apart by tidal interactions. Phobos gets closer to Mars by about 2 meters every one hundred years, and it is predicted that within 30 to 50 million years it will either collide with the planet, or break up into a planetary ring The use of seamount was selected from STANDARDIZATION OF UNDERSEA FEATURE NAMES GUIDELINES in Publication B-6 Edition 4.1.0, September 2013 In this publication, a seamount is categorized as: *A distinct generally equidimensional elevation greater than 1000m above the surrounding relief as measured from the deepest isobath that surrounds most of the feature.* The proposed feature matches this categorization and the supporting data in this proposal shows that the feature is equidimensional and with an elevation greater than 1000m

Discovery Facts:	Discovery Date:	17 August 2017
	Discoverer (Individual, Ship):	Leighton Rolley (Hydrographer) – (Employee of Schmidt Ocean Institute) Onboard Research Vessel Falkor

EM302 Survey lines over the proposed ***Phobos Seamount***



Above: Above image showing survey lines run over the proposed ***Phobos Seamount***

[File: Phobos Seamount 040]

EM302 survey line and RAW file information

Multibeam Raw Data File/line ID	Date	Lime Start	Duration	Line End	Distance	AVG Speed
0000_20170817_025113	2017.08.17	02:51:14	00:59:48	03:51:09	18463	5.14 m/sec.,9.98 kn
0001_20170817_035110	2017.08.17	03:51:10	00:42:37	04:33:58	13156	5.12 m/sec.,9.96 kn
0002_20170817_043358	2017.08.17	04:33:59	00:01:49	04:35:59	554	4.62 m/sec.,8.98 kn
0003_20170817_043600	2017.08.17	04:36:00	00:20:13	04:56:22	6640	5.43 m/sec.,10.56 kn
0004_20170817_045623	2017.08.17	04:56:23	04:58:05	00:01:31	420	4.13 m/sec.,8.02 kn
0005_20170817_045805	2017.08.17	04:58:06	00:35:08	05:33:19	11797	5.58 m/sec.,10.85 kn
0006_20170817_053320	2017.08.17	05:33:20	00:01:59	05:35:26	602	4.79 m/sec.,9.30 kn
0007_20170817_053526	2017.08.17	05:35:27	00:22:16	05:57:56	7592	5.63 m/sec.,10.94 kn
0008_20170817_05575	2017.08.17	05:57:57	00:02:07	06:00:14	577	4.22 m/sec.,8.20 kn
0009_20170817_060015	2017.08.17	06:00:15	00:23:51	06:24:15	7962	5.53 m/sec.,10.75 kn
0010_20170817_062415	2017.08.17	06:24:16	00:00:29	06:24:54	213	5.61 m/sec.,10.90 kn
0011_20170817_062455	2017.08.17	06:24:55	00:01:19	06:26:23	372	4.23 m/sec.,8.23 kn
0012_20170817_062624	2017.08.17	06:26:24	00:04:35	06:31:08	1603	5.65 m/sec.,10.98 kn
0013_20170817_063108	2017.08.17	06:31:09	00:32:30	07:03:48	11167	5.70 m/sec.,11.08 kn
0014_20170817_070349	2017.08.17	07:03:49	00:00:51	07:04:53	310	4.85 m/sec.,9.44 kn
0015_20170817_070454	2017.08.17	07:04:54	00:04:31	07:09:33	1552	5.56 m/sec.,10.82 kn
0016_20170817_070934	2017.08.17	07:09:34	07:11:15	00:01:31	441	4.38 m/sec.,8.50 kn
0017_20170817_071115	2017.08.17	07:11:16	08:04:07	00:52:39	18217	5.75 m/sec.,11.17 kn
0018_20170817_080408	2017.08.17	08:04:08	09:04:15	00:59:57	20256	5.62 m/sec.,10.92 kn

Supporting Survey Data, including Track Controls:	Date of Survey:	August 17th 2017
	Survey Ship:	**Vessel**: R/V *Falkor* **Call Sign**: ZCYL5 **IMO**: 7928677 **MMSI**: 319005600 **Home Port**: George Town, Gran Cayman **Class**: GL **Operator**: Schmidt Ocean Institute
	Sounding Equipment:	Kongsberg EM302 Multibeam 1x0.5 **Serial No:** 105 **Survey ID:** FK170809 **SIS Version:** 4.1.3 **Build:** 14 **DB Version**: 24.0 **Post Processing:** Caris Hips & Sips 10.2.2 (64 Bit) Build 2017-03-30_07_23_30

	Type of Navigation:	DGPS was utilized for the entire duration of the survey. **Seapath 320 Primary Science** S/W Version 1.02.01 MRU 5 S/N 7834 **POSMV – Secondary Science GPS** Fully Surveyed: 08/2014 **DGPS Corrections** Model: C NAV 3050 S/N: 12380 SW Version: 3.00 Build 165 **NTP** S350 Timing Sync Server
	Estimated Horizontal Accuracy (nm):	The vessel average survey speed during the survey line across the proposed feature was **10kts** Average time between pings during this survey line was **9** seconds giving a horizontal resolution of roughly **50m** HDOP (Horizontal Dilution of Precision) throughout the survey of proposed **Phobos Seamount** was 0.7-0.9 During the survey XBT's were deployed on 6 hour basis unless a sufficient change was detected in the S/Speed value using a hull mounted Valeport SVP at the transducer face
	Survey Track Spacing:	Multiple survey lines were run over this feature. Survey lines were run to maximize data collection in the short window (5hrs) available to map this feature during the vessel transit from Portland, Oregon (USA) to Honolulu, Hawaii (USA) *Please see previous image showing vessel survey lines*
	Multibeam Data Processed and rendered using: Caris HIPS and SIPS Version 10.2.2 (64 Bit) Build: 2017-03-30_07_23_20 Flederamus 3D renderings produced using Flederamus Version 7.7.2 (64 Bit) Build 433, Dec 23 20176, 10:28:17 EPSG Database Version 8.7	

Proposer(s):	Name(s):	Leighton Rolley 2 Brucehill Cottages Brucehill Port of Menteith Stirlingshire Scotland,UK FK8 3JY Tel: UK (+44) 07886784890 Landline: UK (+44) 2920560389
	Date:	23rd August 2017
	E mail:	Leighton.r@soi-team.org
	Organization and Address:	Schmidt Ocean Institute 555 Bryant Street, #374 Palo Alto, CA 94301 Phone: (415) 975 4080 Fax: (415) 975 4081
	Concurrer (name, e mail, organization and address):	Veit Huehnerbach Veit.h@soi-team.org C/o Schmidt Ocean Institute 555 Bryant Street, #374 Palo Alto, CA 94301 Phone: (415) 975 4080 Fax: (415) 975 4081 **Captain R/V Falkor** Philip Gunther C/O Schmidt Ocean Institute 555 Bryant Street, #374 Palo Alto, CA 94301 Phone: (415) 975 4080 Fax: (415) 975 4081

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 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

Supporting Documentation