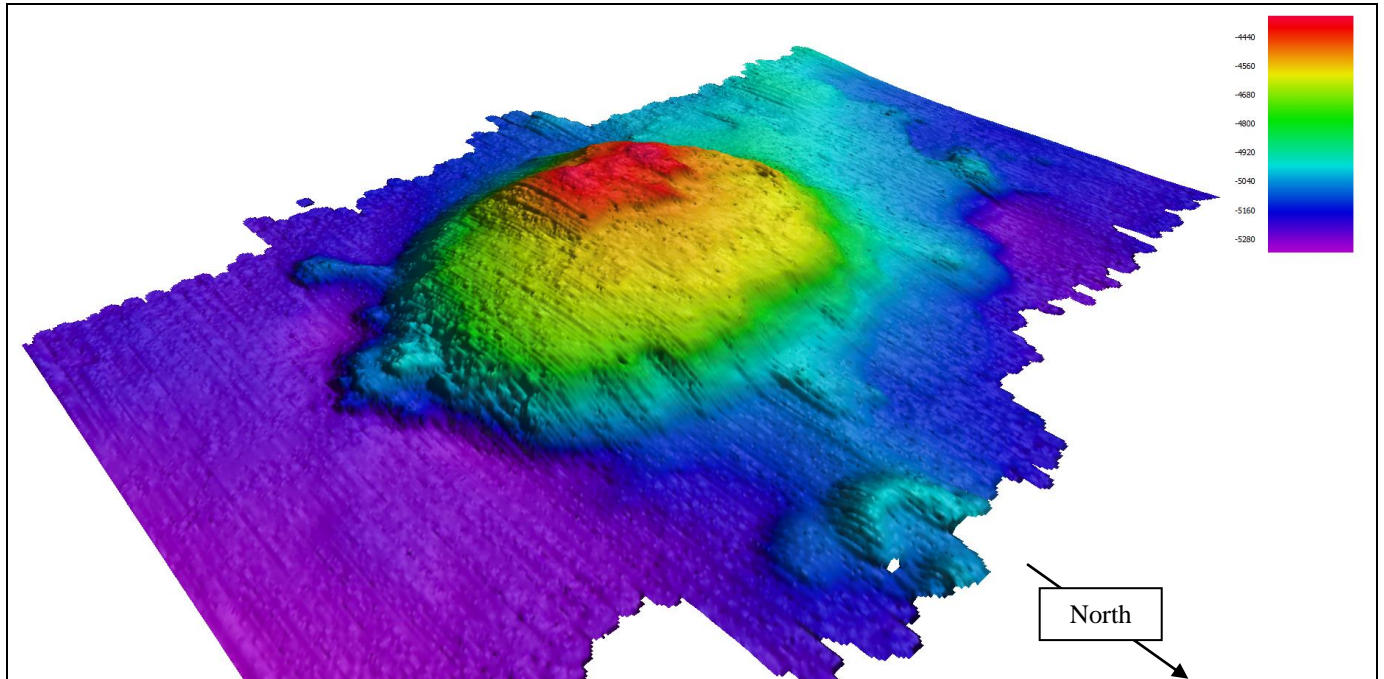


UNDERSEA FEATURE NAME PROPOSAL
(Sea NOTE overleaf)

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

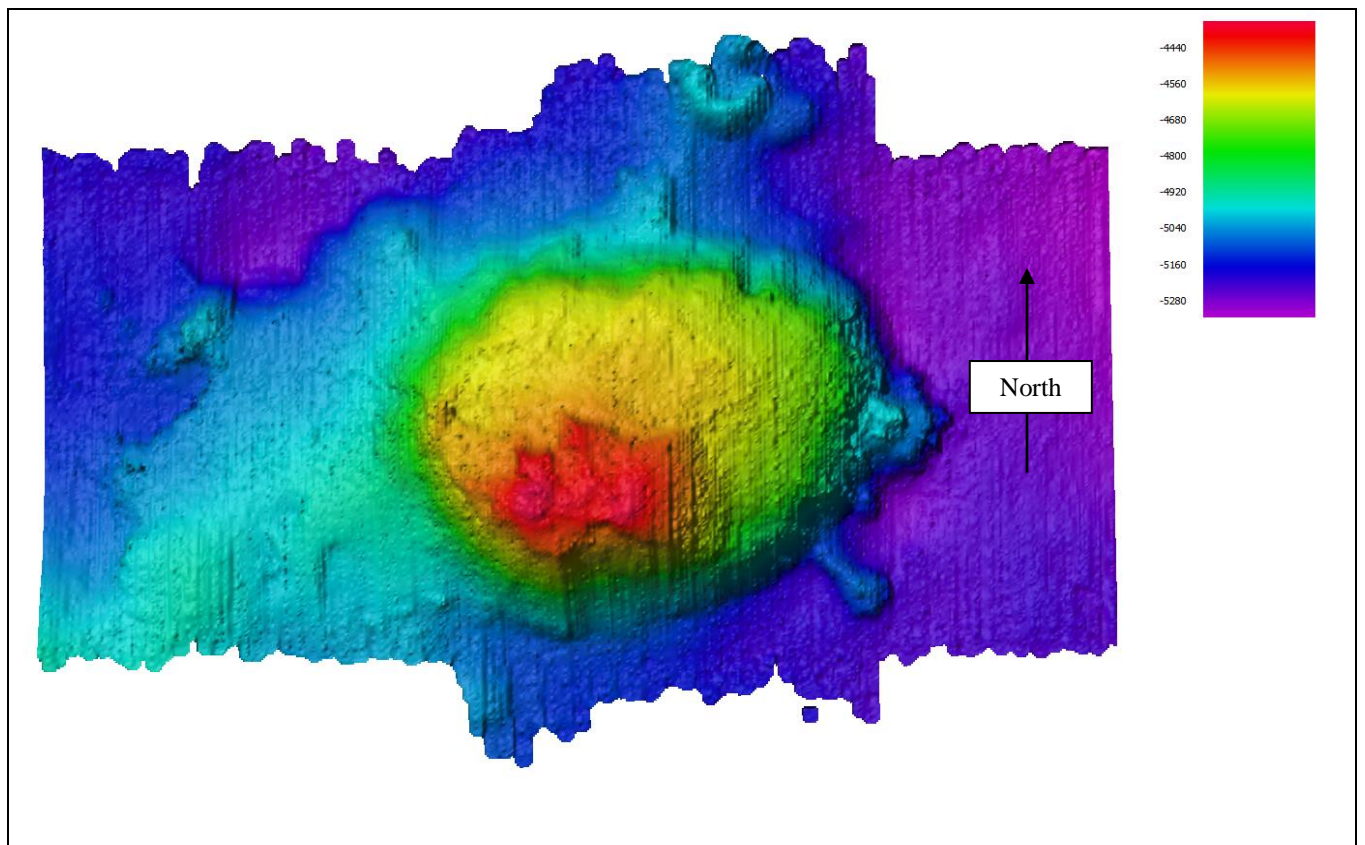
Name Proposed: **Ffynnon Garw Hill** Ocean or Sea: **Central Pacific**

The proposer offers SCUFN/IHO the option to apply a name from their list of available names to be applied to the feature should that deem one suitable.



Above: 3D rendering of the proposed *Ffynnon Garw Hill* feature detailed in the following proposal [Fledermaus]

[Supporting image 001.png]

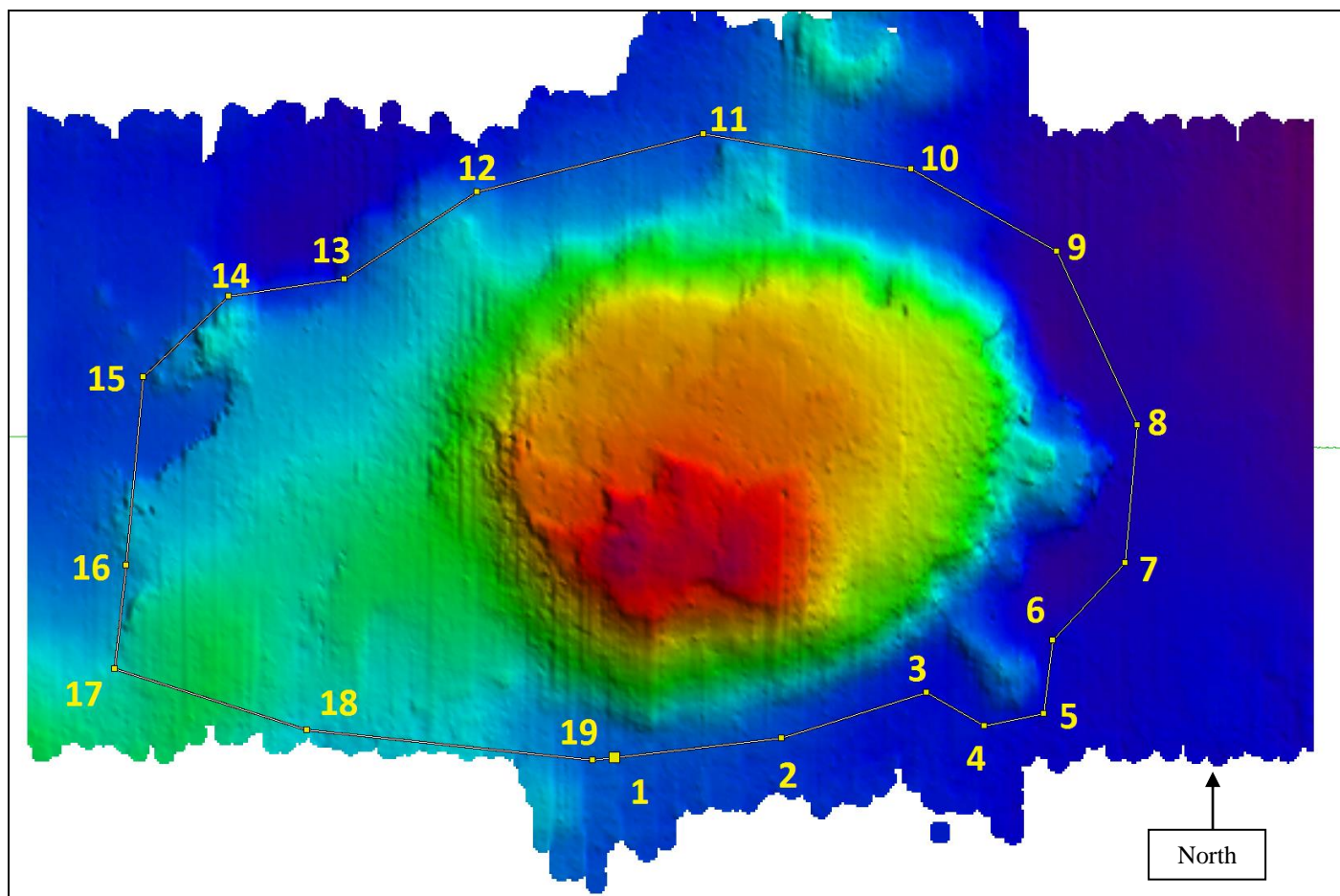


Above: Plan view of proposed *Ffynnon Garw Hill* feature [Fledermaus]

[Supporting image 002.tif]

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 **Ffynnon Garw Hill** with 19 points. Lat/Lon of individual points is given in the following table [Caris]

[Supporting image 003.png]

Table 1.0 - Points defining the proposed *Ffynnon Garw Hill* 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	Total Distance
Position 1	09 58.215037 N	149 48.873690 W	9.970251	-149.814562	N 9 58 12.90	W 149 48 52.42	0.00
Position 2	09 58.333656 N	149 47.920801 W	9.972228	-149.798680	N 9 58 20.02	W 149 47 55.25	1755.07
Position 3	09 58.594936 N	149 47.097407 W	9.976582	-149.784957	N 9 58 35.70	W 149 47 05.84	3335.00
Position 4	09 58.409671 N	149 46.766698 W	9.973495	-149.779445	N 9 58 24.58	W 149 46 46.00	4029.18
Position 5	09 58.484392 N	149 46.427038 W	9.974740	-149.773784	N 9 58 29.06	W 149 46 25.62	4665.00
Position 6	09 58.899545 N	149 46.380345 W	9.981659	-149.773006	N 9 58 53.97	W 149 46 22.82	5435.06
Position 7	09 59.339833 N	149 45.971240 W	9.988997	-149.766187	N 9 59 20.39	W 149 45 58.27	6538.55
Position 8	10 00.120143 N	149 45.905313 W	10.002002	-149.765089	N 10 00 07.21	W 149 45 9.05	7982.06
Position 9	10 01.095062 N	149 46.376658 W	10.018251	-149.772944	N 10 01 05.70	W 149 46 22.60	9975.00
Position 10	10 01.552599 N	149 47.211887 W	10.025877	-149.786865	N 10 01 55.3	W 149 47 21.2	11718.70
Position 11	10 01.741696 N	149 48.396343 W	10.029028	-149.806606	N 10 01 44.50	W 149 48 23.78	13910.80
Position 12	10 01.404459 N	149 49.687823 W	10.023408	-149.828130	N 10 01 24.27	W 149 49 41.27	16351.08
Position 13	10 00.905856 N	149 50.442246 W	10.015098	-149.840704	N 10 00 54.35	W 149 50 26.53	18007.91
Position 14	10 00.800685 N	149 51.099645 W	10.013345	-149.851661	N 10 00 48.04	W 149 51 05.98	19224.68
Position 15	10 00.343055 N	149 51.586579 W	10.005718	-149.859776	N 10 00 20.58	W 149 51 35.19	20450.80
Position 16	09 59.275068 N	149 51.672069 W	9.987918	-149.861201	N 9 59 16.50	W 149 51 40.32	22425.78
Position 17	09 58.688379 N	149 51.733881 W	9.978140	-149.862231	N 9 58 41.30	W 149 51 7.34	23513.20
Position 18	09 58.354958 N	149 50.632061 W	9.972583	-149.843868	N 9 58 21.30	W 149 50 37.92	25618.46
Position 19	09 58.197365 N	149 49.001840 W	9.969956	-149.816697	N 9 58 11.84	W 149 49 00.11	28611.79

Polygon defining the proposed *Ffynnon Garw Hill*

POLYGON ((-149.814562 9.970251, -149.798680 9.972228, -149.784957 9.976582, -149.779445 9.973495, -149.773784 9.974740, -149.773006 9.981659, -149.766187 9.988997, -149.765089 10.002002, -149.772944 10.018251, -149.786865 10.025877, -149.806606 10.029028, -149.828130 10.023408, -149.840704 10.015098, -149.851661 10.013345, -149.859776 10.005718, -149.861201 9.987918, -149.862231 9.978140, -149.843868 9.972583, -149.816697 9.969956))

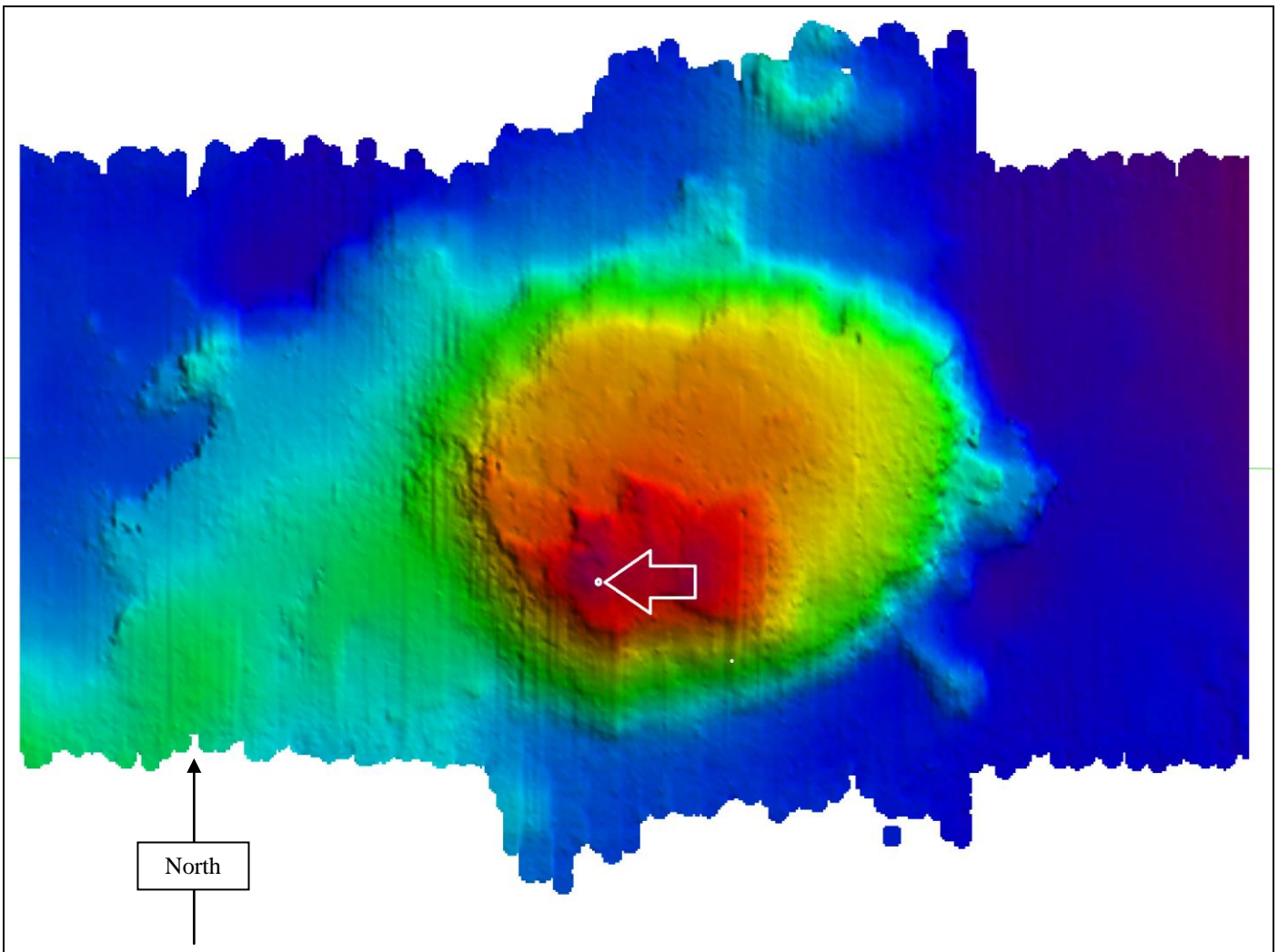
Table 1.1 - Point defining the centre of the proposed *Ffynnon Garw Hill*

POINT (-149.811374 9.999498)

	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
Point	4540.0m	N 9 59.970	W 149 48.682	9.999498	-149.811374	N 9 59 58.19	W 149 48 40.95

Table 2.0 - Coordinates for summit (shallowest point) of the proposed *Ffynnon Garw Hill* 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	4354.0m	09 59.428324 N	149 48.774304 W	9.990472	-149.812905	N 9 59 25.70	W 149 48 46.46



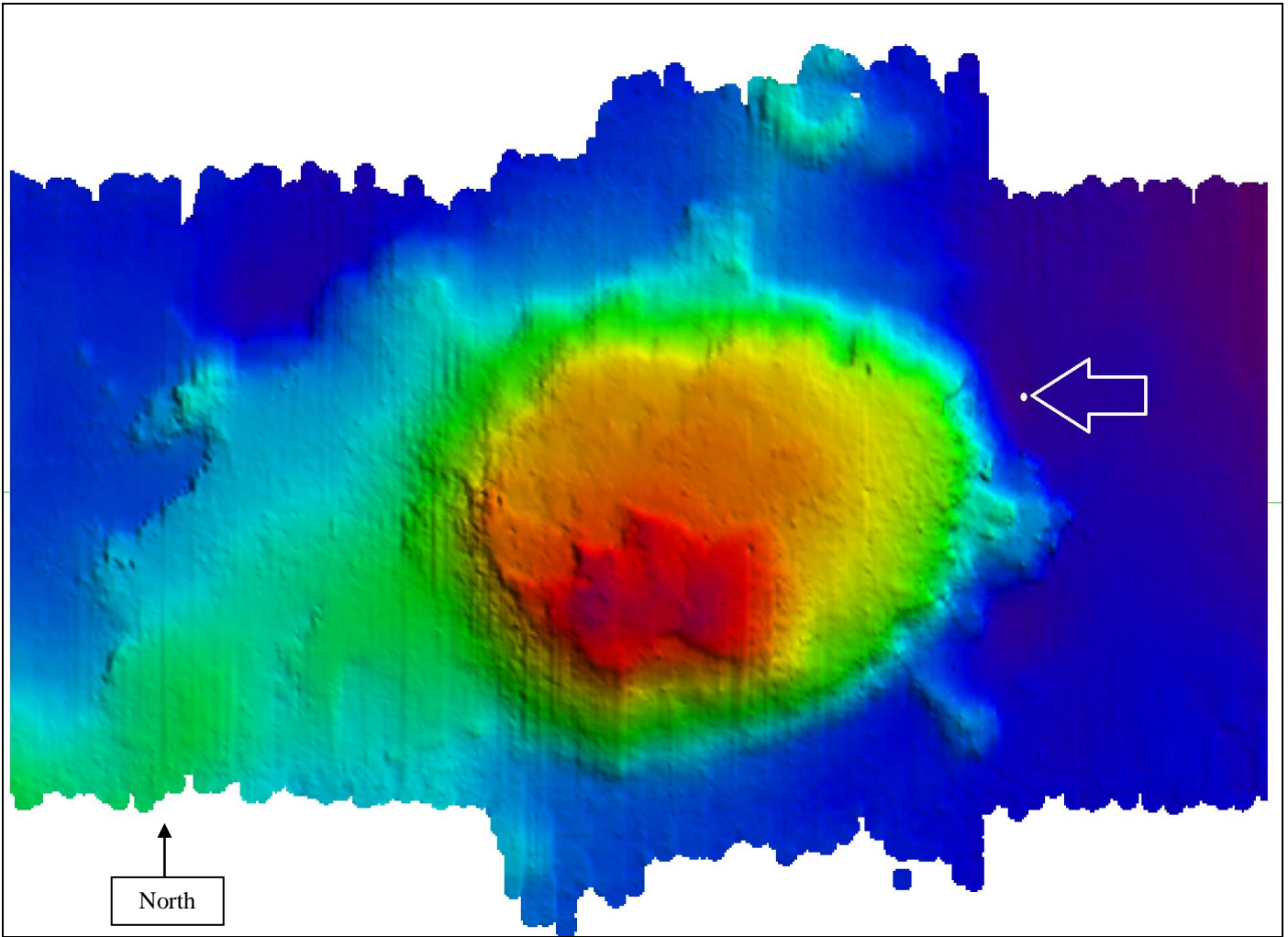
Above: Overview of the proposed *Ffynnon Garw Hill* with arrow indicating the location of the shallowest point measuring 4354m [CARIS]

[\[Supporting image 004.png\]](#)

Table 3.0 - Coordinates for deepest point of the proposed *Ffynnon Garw Hill* feature

	Deepest Point	Lat	Lon	Lat	Lon	Lat	Lon
--	---------------	-----	-----	-----	-----	-----	-----

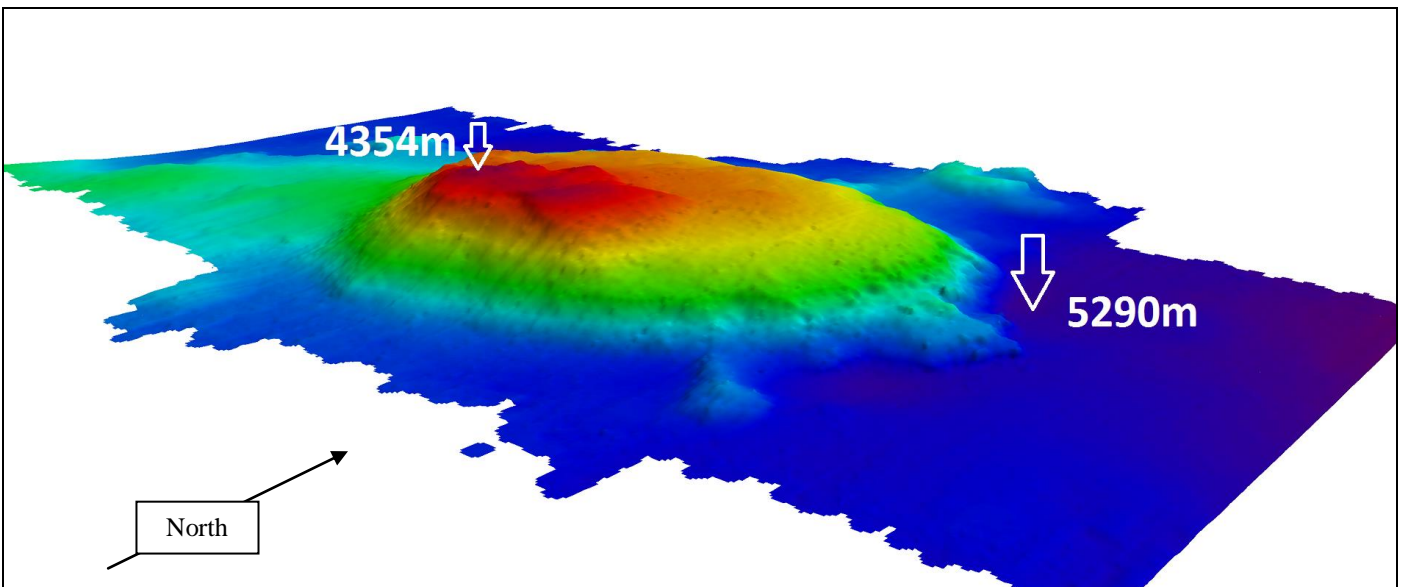
		DD MM.MMM	DD MM.MMM	DD.DDD	DD.DDD	DD MM SS.SS	DD MM SS.SS
Deepest Point	5290m	10 00.541918 N	149 46.357399 W	10.009032	-149.772623	N 10 00 32.52	W 149 46 21.44



Above: Overview of proposed *Ffynnon Garw Hill* with arrow indicating the shallowest point measuring a depth of 4354m [CARIS]
 [Supporting image 005.png]

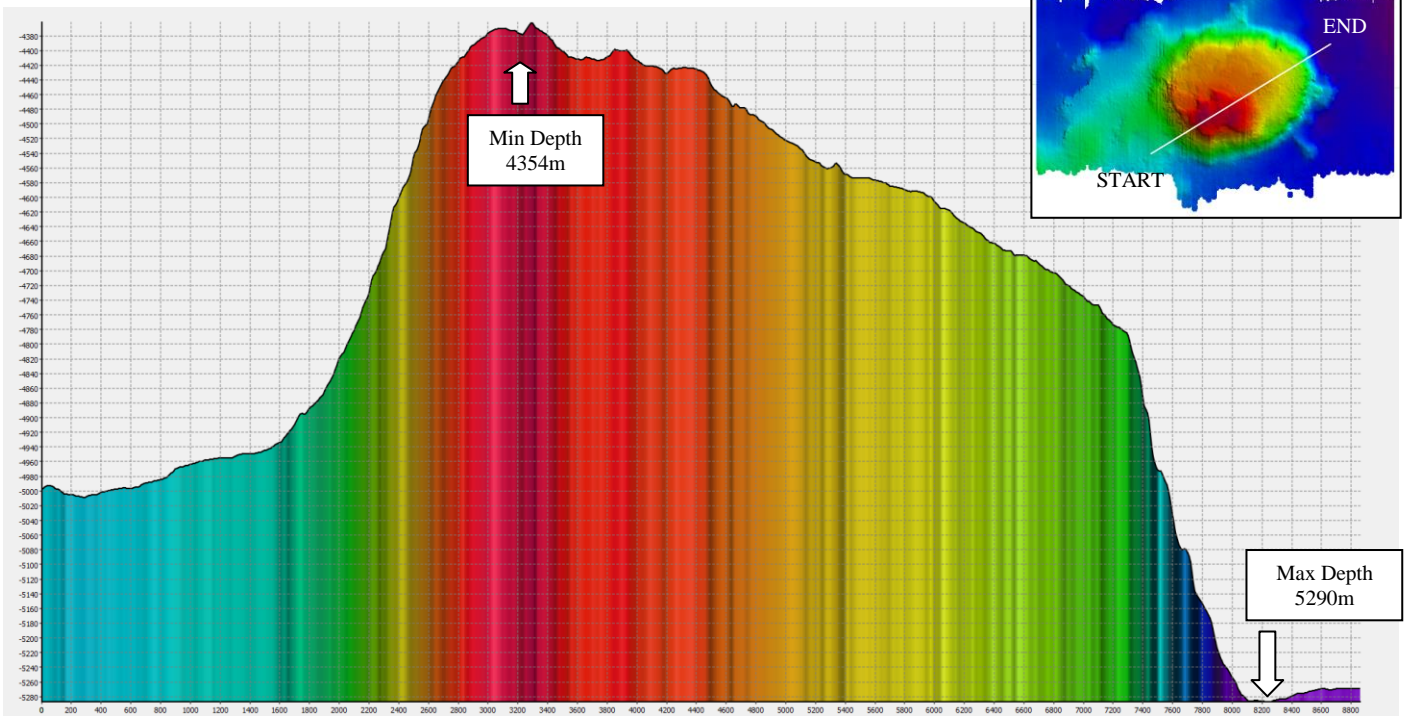
Table 4.0 – Feature Description of Proposed *Ffynnon Garw Hill*

Feature Description:	Maximum Depth:	5290m	Steepness :	See individual profiles
	Minimum Depth :	4354m	Shape :	Irregular
	Total Relief :	936m	Dimension/Size :	10770m x 6680m



Above: 3D Overview of the proposed *Ffynnon Garw Hill* feature with both the summit and deepest location highlighted [CARIS]

[Supporting image 006.tif]

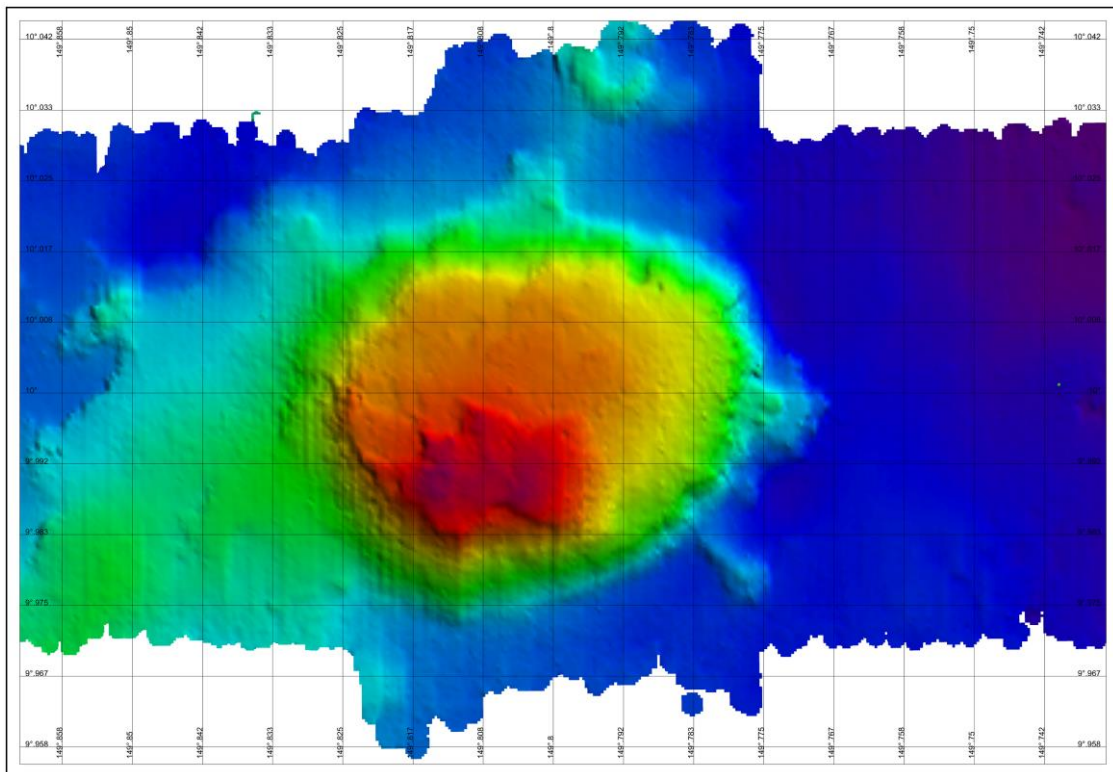


Above: Profile line through both the shallowest and deepest point of the proposed *Ffynnon Garw Hill* feature. [Fladermaus]

[Supporting image 007.tif]

Table 5.0 – Profile line intersecting the shallowest and deepest point of the proposed *Ffynnon Garw Hill*

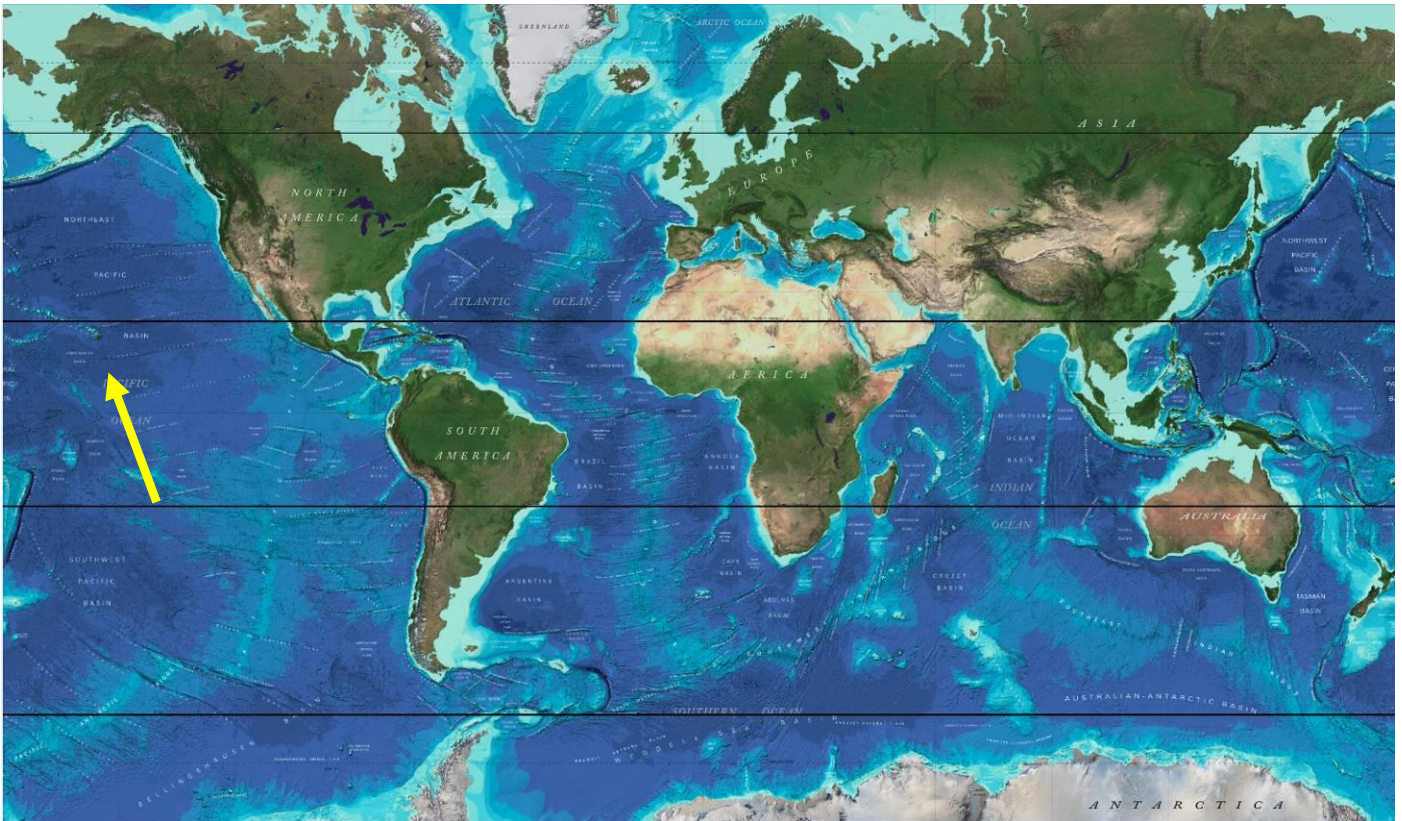
	Length	Start	End	Shallowest Point	Deepest Point	Total Relief
Profile Line Shallow to Deep	8856m	N 9 58.601, W 149 50.368	N 10 00.807 W 149 46.066	4354.0m 09 59.428324 N 149 48.774304 W	5290m 10 00.541918 N 149 46.357399 W	936m



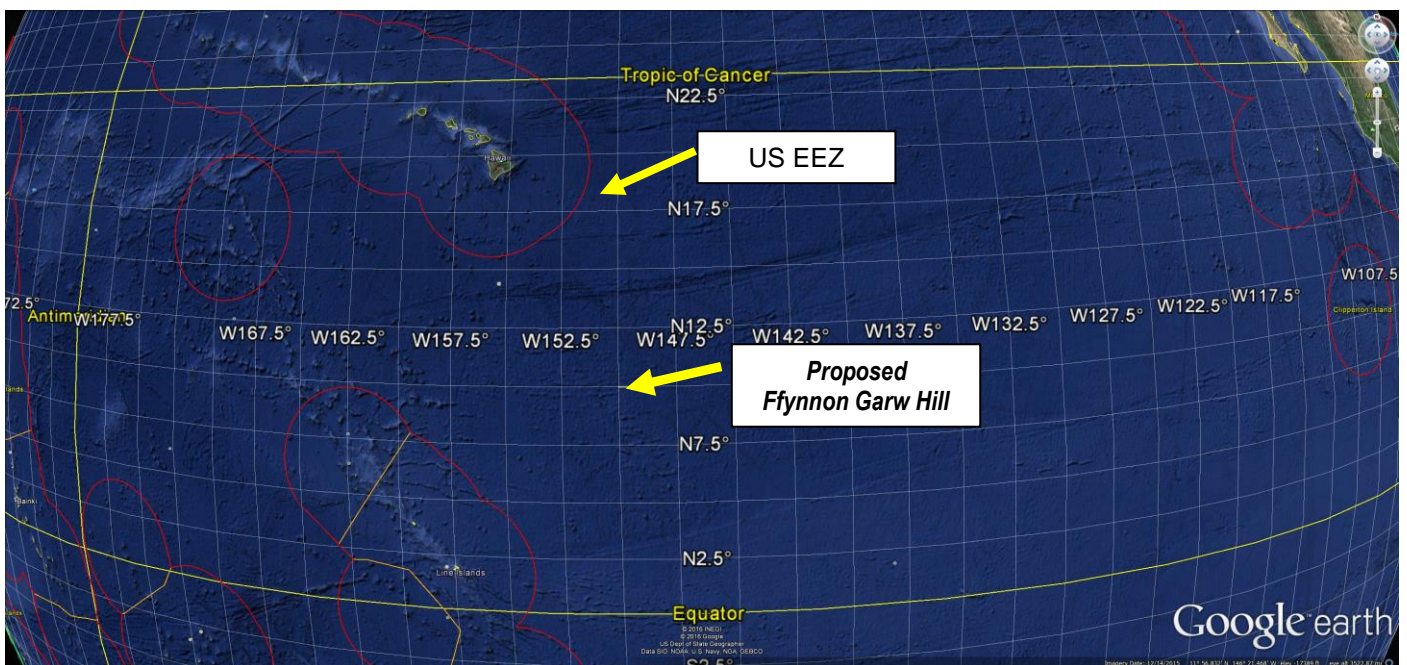
Above: Proposed *Ffynnon Garw Hill* feature with latitude and longitude grid in DD.MM

[Supporting image 008.tif]

Location of proposed *Ffynnon Garw Hill* feature

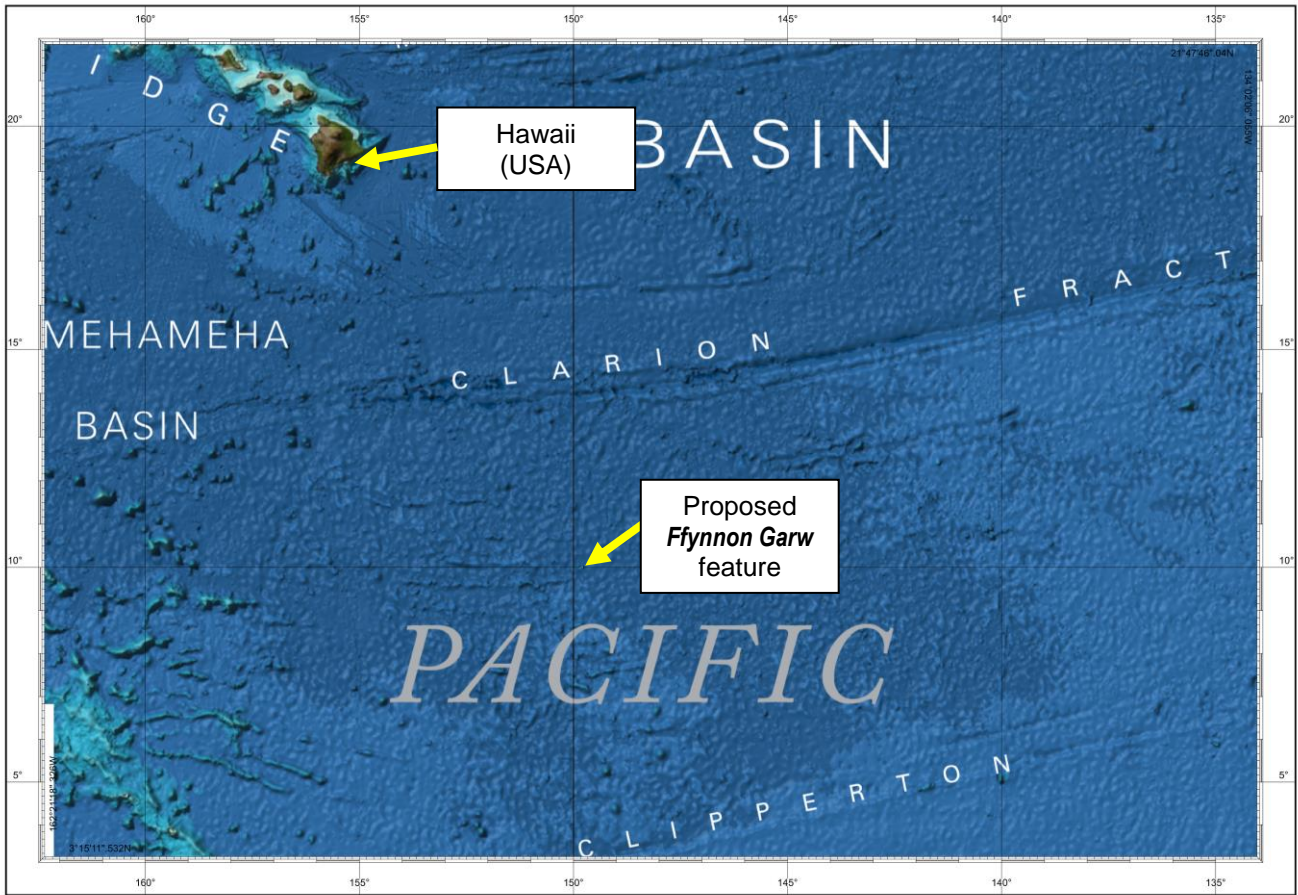


Above: Overview showing the location of proposed *Ffynnon Garw Hill* overlaid on Gebco World Map 2014

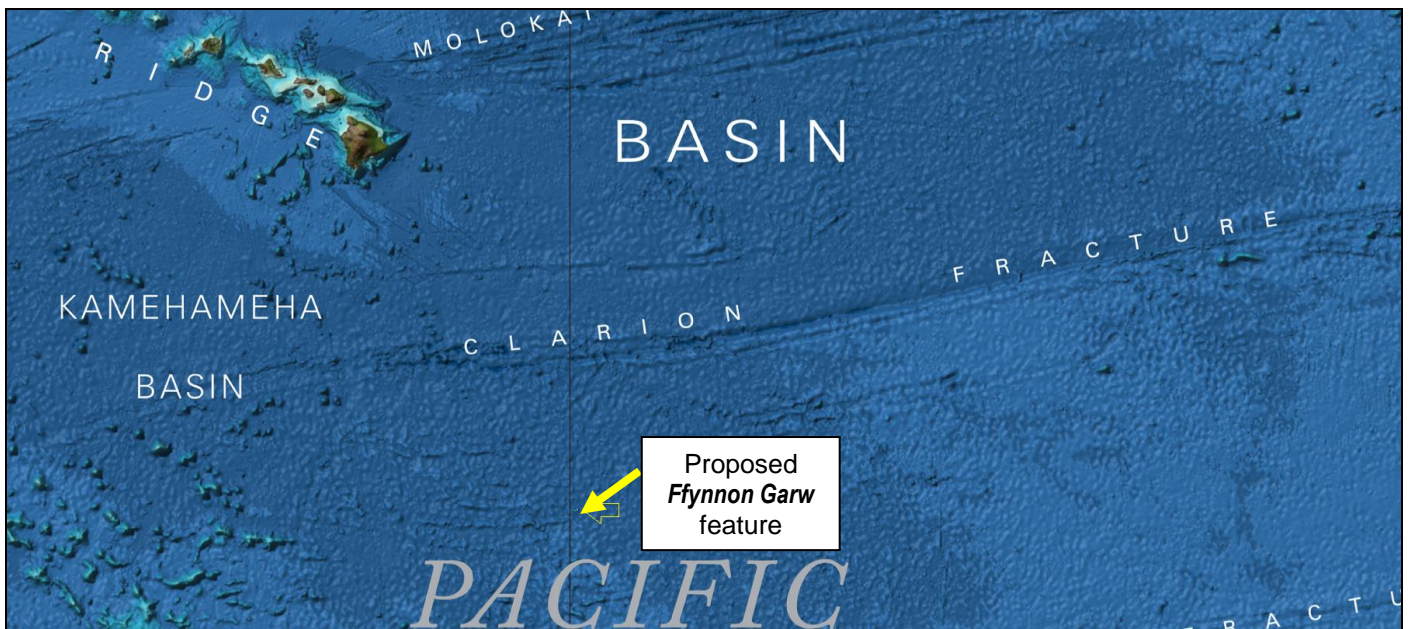


Above: Location of the proposed *Ffynnon Garw Hill*. The nearest EEZ to the feature is approximately 432 nm (bearing 326°) from the proposed feature. The nearest EEZ encompasses the Hawaiian Islands of Hawaii belonging to the United States of America

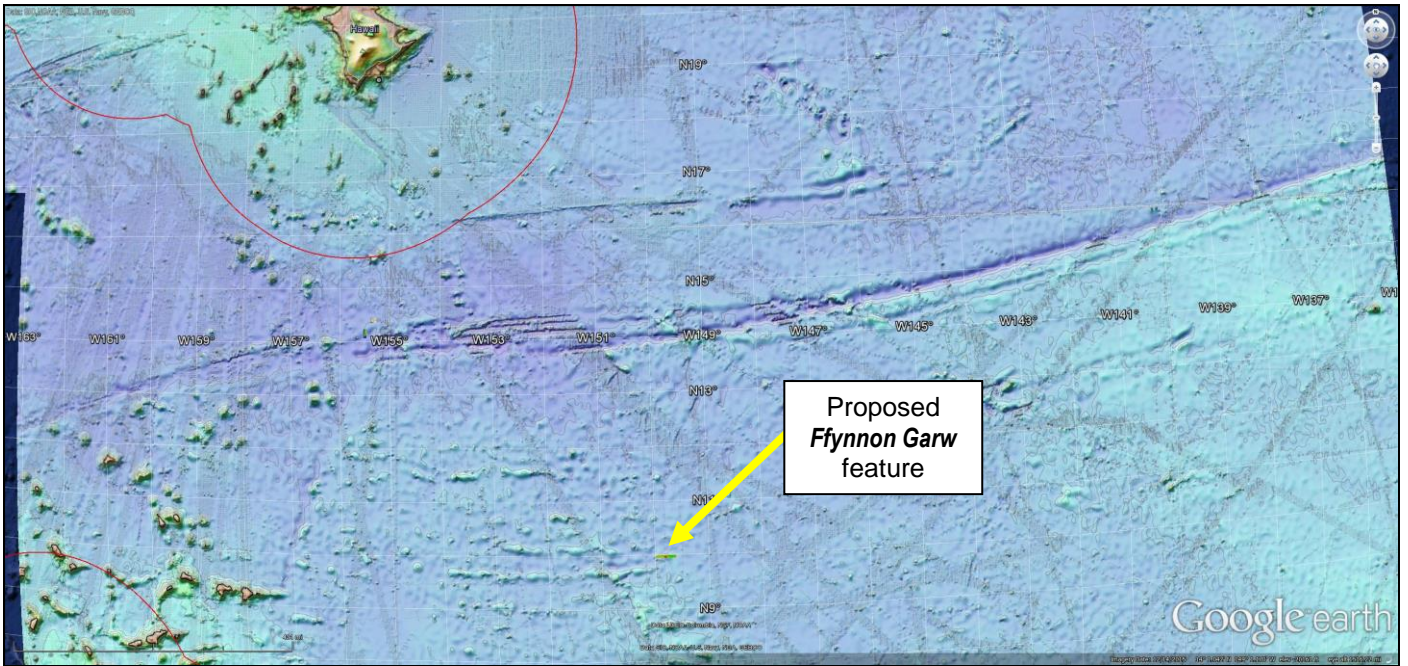
[\[Supporting image 009.jpg\]](#)



Above: GEBCO World Map 2014 showing the location of the proposed *Ffynnon Garw Hill*
[\[Supporting image 010.tif\]](#)



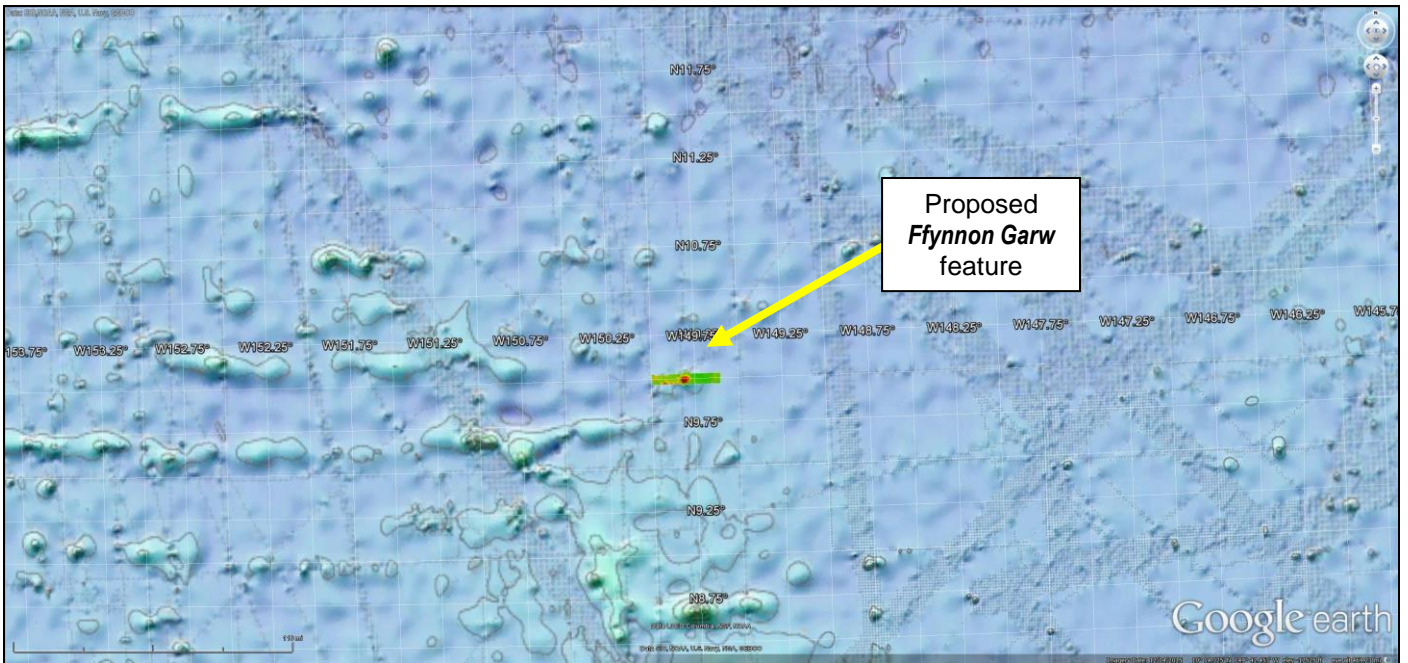
Above: GEBCO World Map 2014 showing the location of the proposed *Ffynnon Garw Hill*
[\[Supporting image 011.tif\]](#)



Above: Location of proposed *Ffynnon Garw Hill* overlaid on SRTM30_PLUS V7 (Global Bathymetry and Elevation Data at 30 Arc Seconds Resolution: SRTM30 PLUS). This particular 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

[Supporting image 012.jpg]

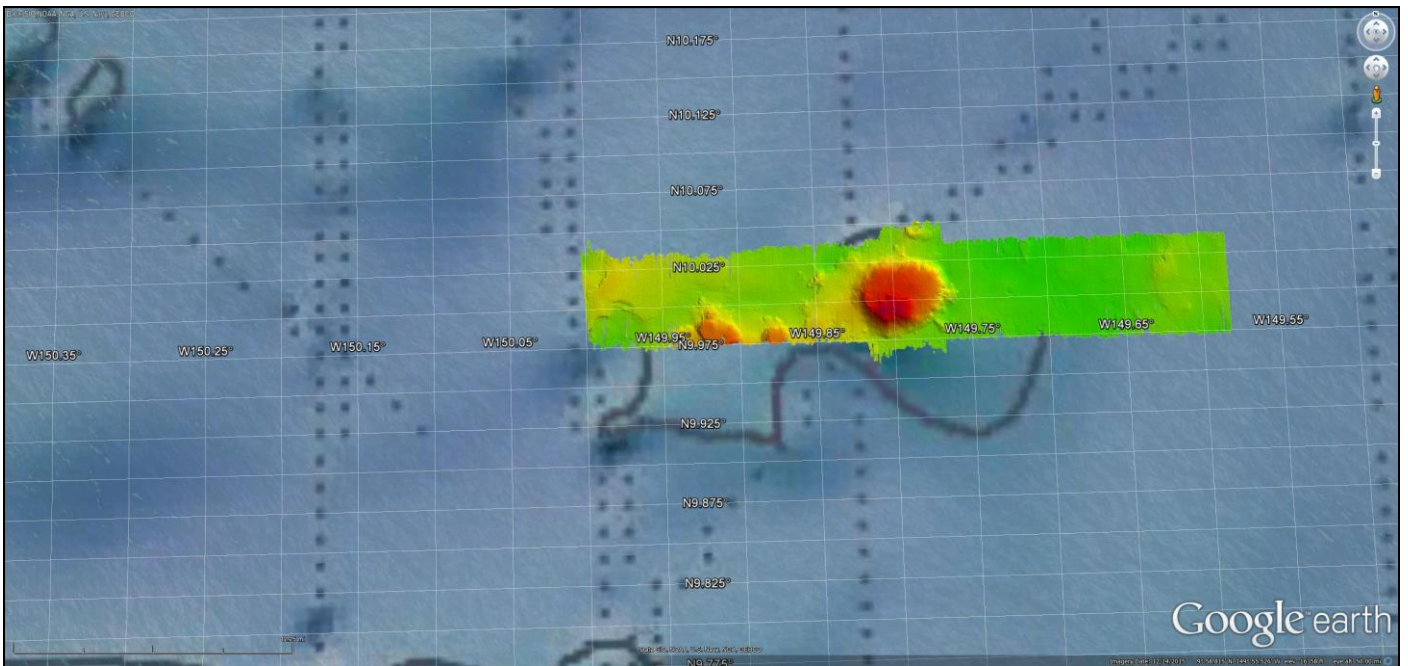


Above: Yellow arrow indicating the location of the proposed *Ffynnon Garw Hill* overlaid on SRTM30_PLUS V7 data

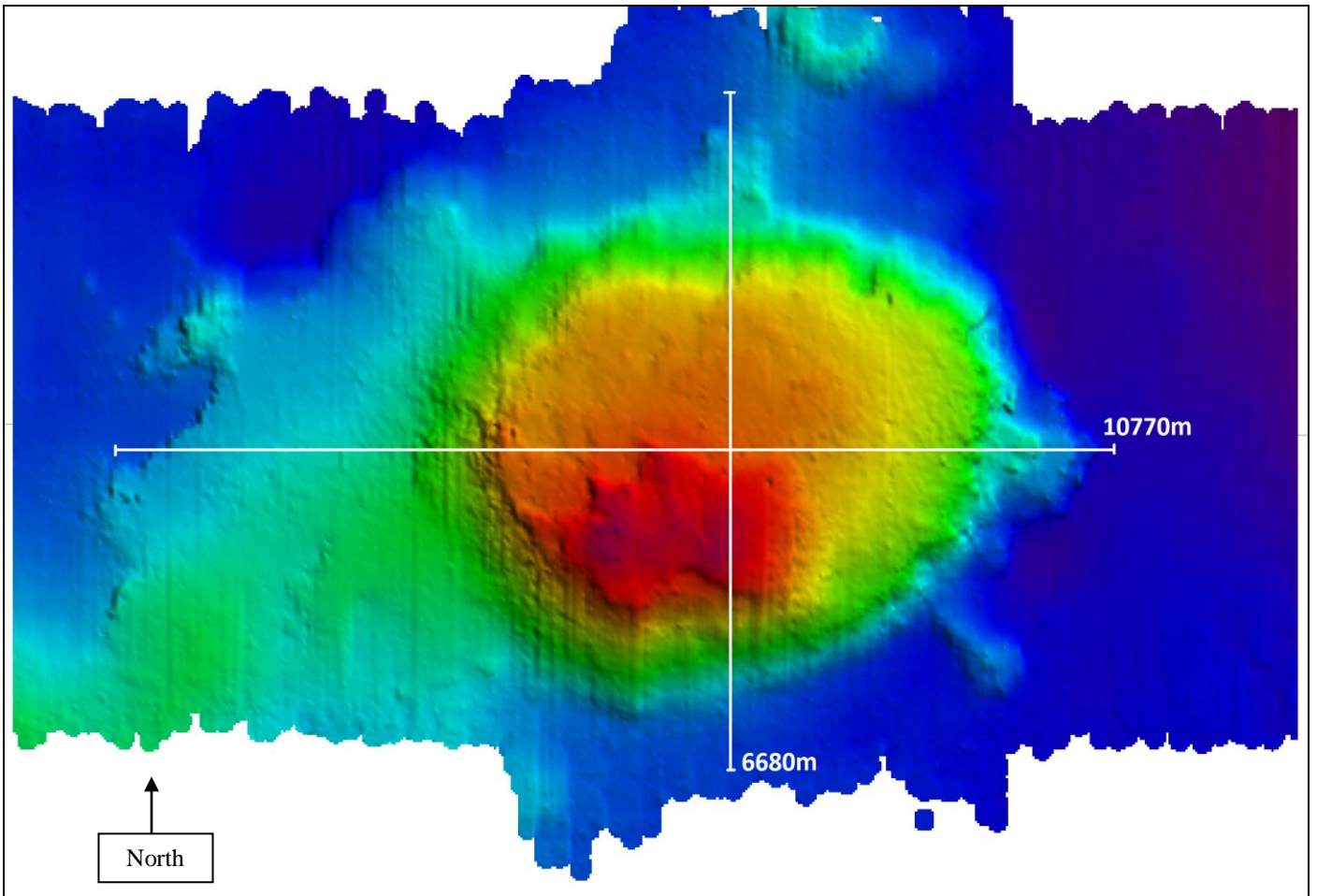
[Supporting image 013.jpg]



Above: Existing data for the area from the SRTM30_PLUS V7 dataset for the area of the proposed *Ffynnon Garw Hill* feature.
 [Supporting image 014.jpg]



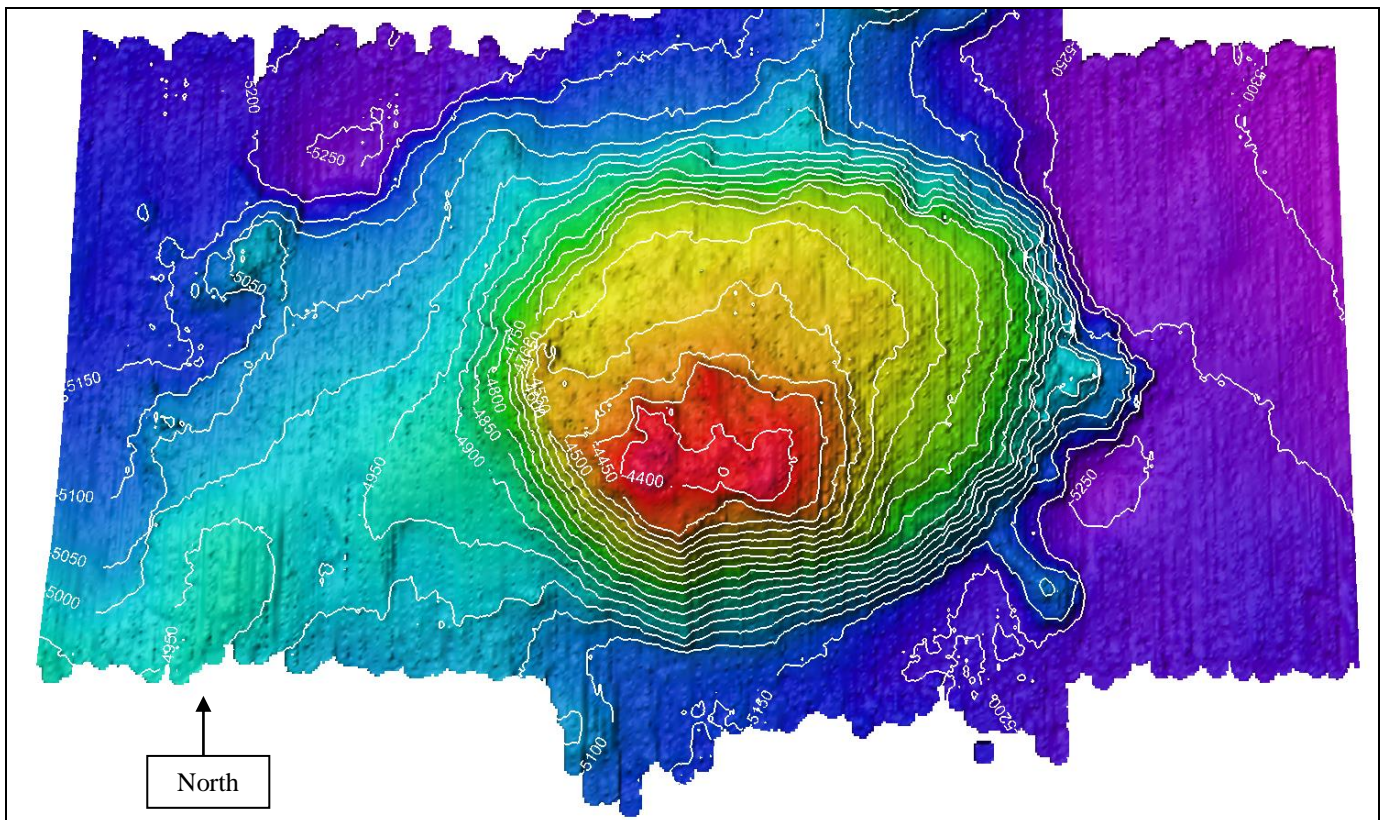
Above: Proposed *Ffynnon Garw Hill* overlaid on SRTM30_PLUS V7 dataset.
 [Supporting image 015.jpg]



Above: Quick reference dimensions for the proposed *Ffynnon Garw Hill* feature

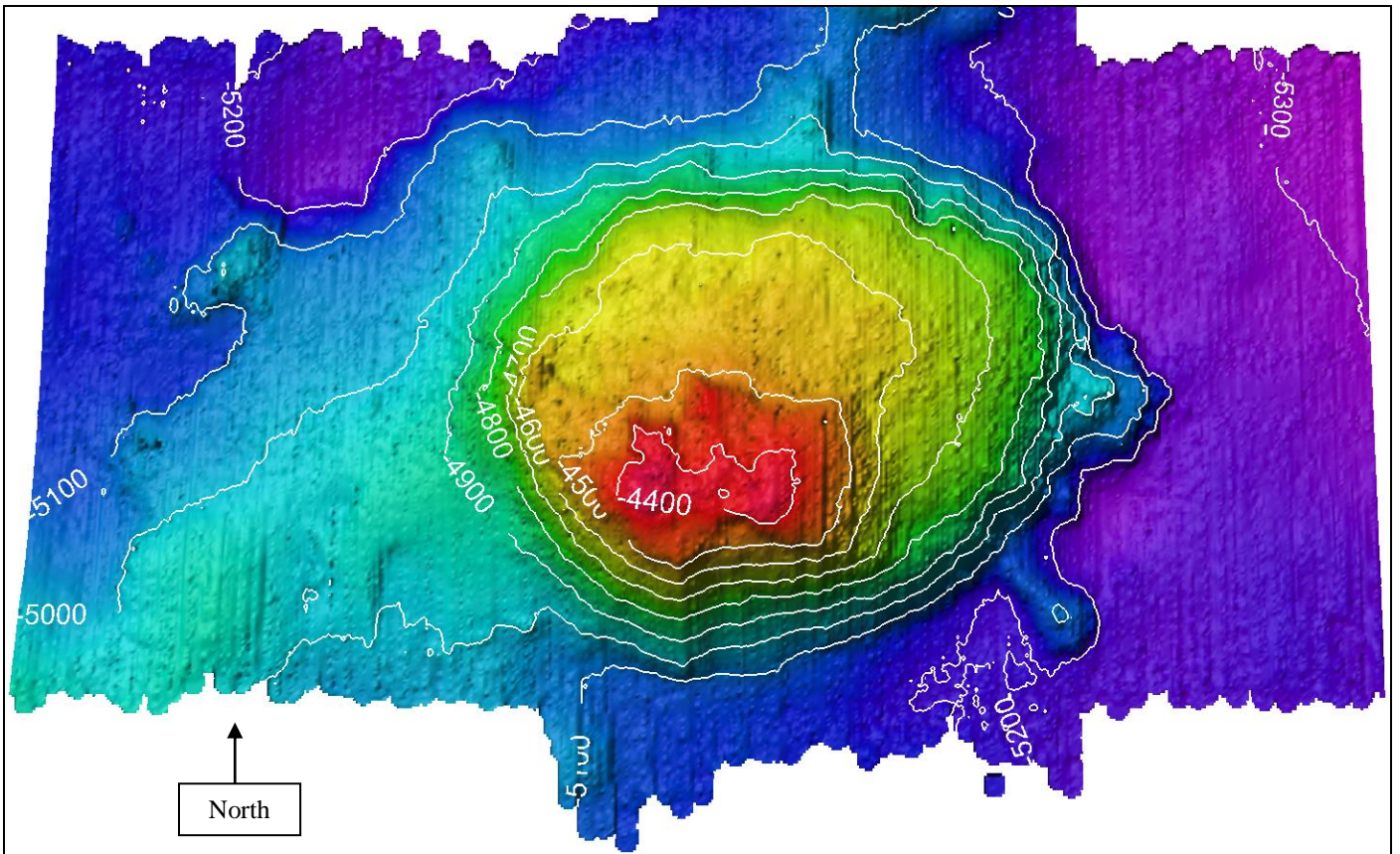
[Supporting image 016.png]

Contour plots of Proposed *Ffynnon Garw Hill* Feature



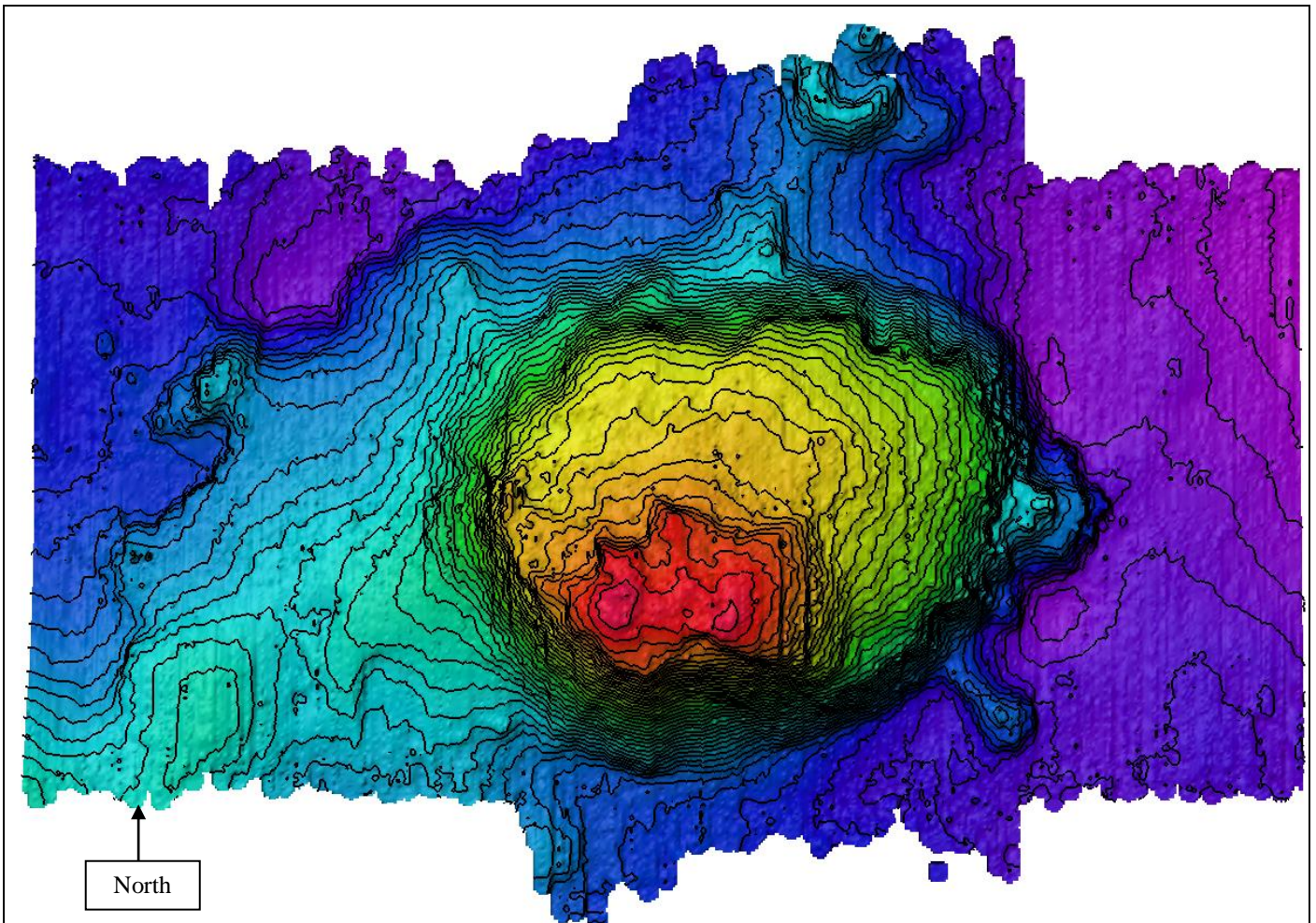
Above: Contour plot of proposed **Ffynnon Garw Hill** with 50m depth spacing between contour lines

[Supporting image 017.tif]



Above: Contour image of proposed **Ffynnon Garw Hill** with 100m depth spacing's between contours

[Supporting image 018.tif]

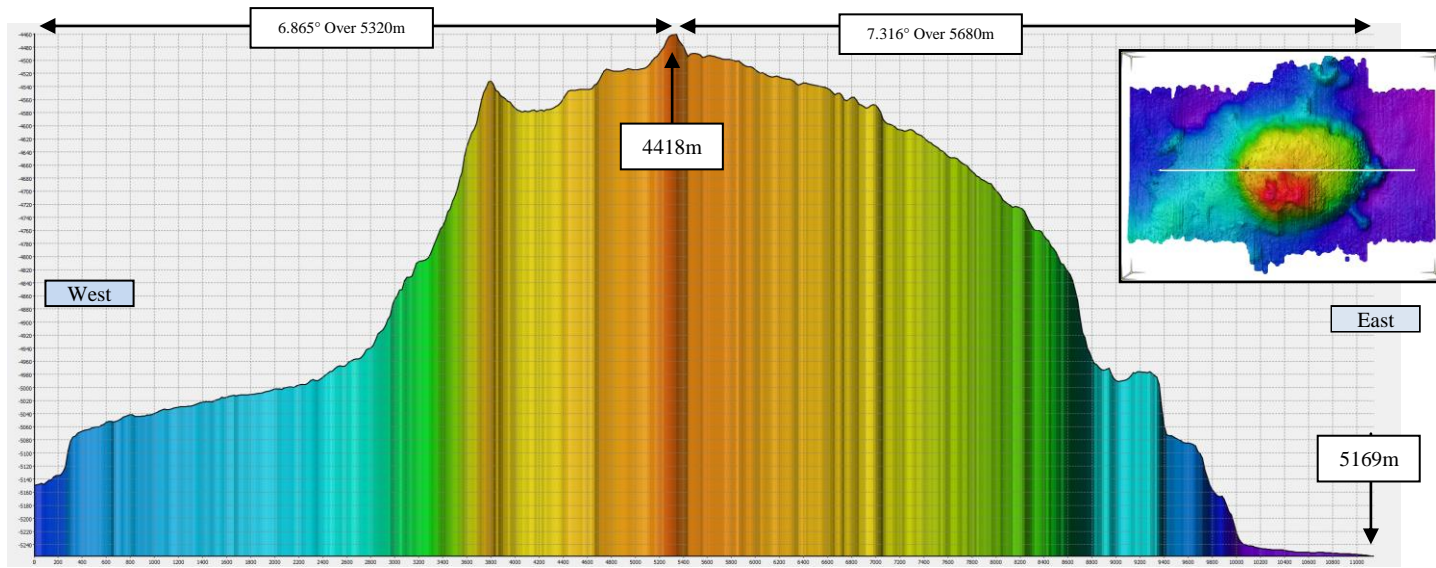


Above: Contour plot (unlabeled) of proposed *Ffynnon Garw Hill* feature with 20m depth spacing between contours.

[Supporting image 019.tif]

Profiles of Proposed *Ffynnon Garw Hill* Feature

Profile 001 – West to East profile line across proposed Ffynnon Garw Hill feature

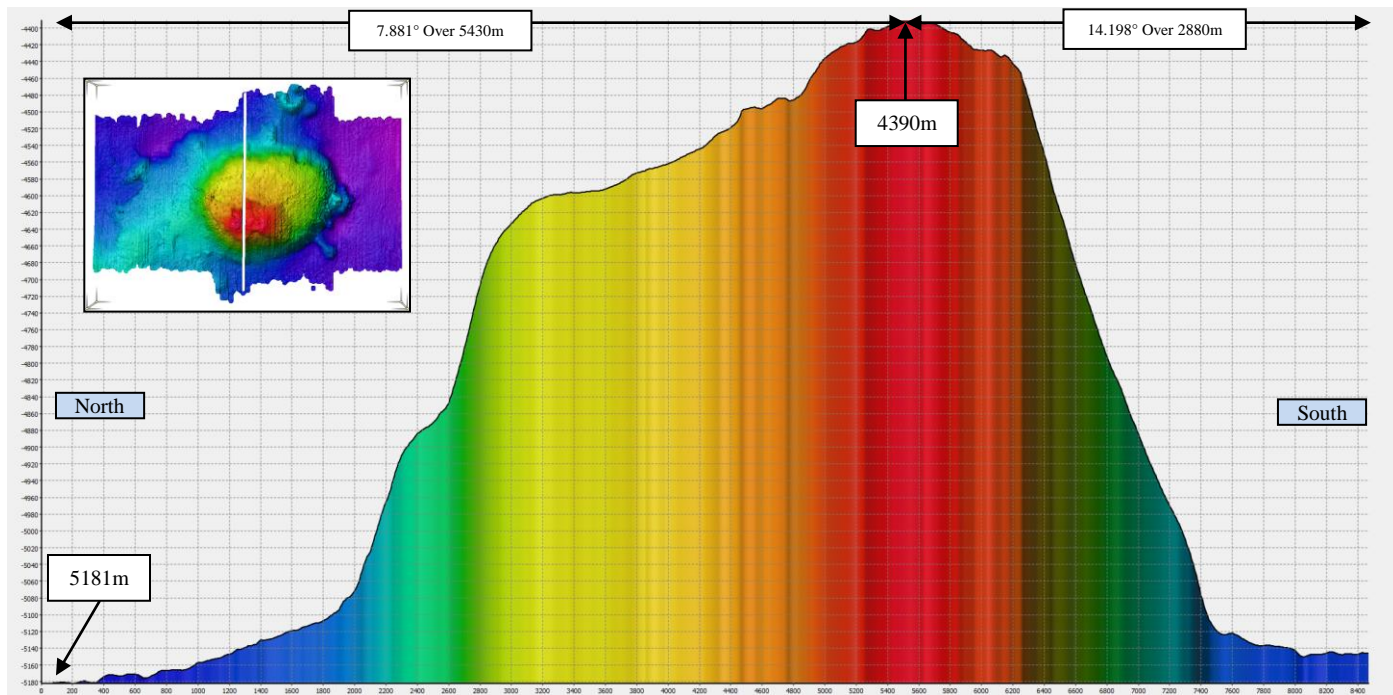


[Supporting image 020.tif]

Table 6.0 – Profile line of proposed Ffynnon Garw Hill from West to East

Profile Length	Profile Start	Profile End	Shallowest Point of Profile Line	Deepest Point of Profile Line	Gradient of Western slope	Gradient (East) of Eastern Slope	Total Relief of profile line
Profile 001 West to East	N 9 57.921 W 149 48.652	N 10 02.143 W 149 48.528	4418m N 9 59.755 W 149 48.598	5169m N 10 02.143, W 149 48.528	6.865 over 5320m	7.316 over 5680m	751m

Profile 002 – North to South profile line proposed Ffynnon Garw Hill feature

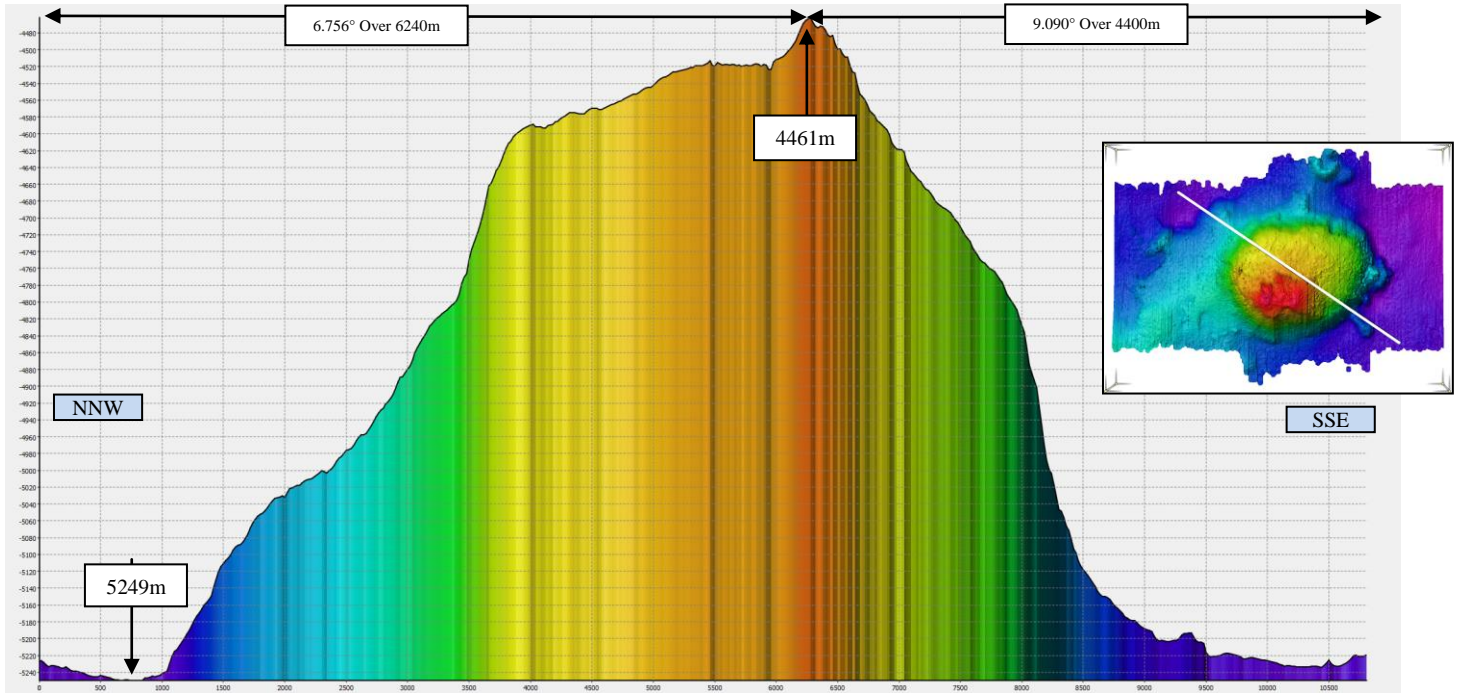


[Supporting image 021.tif]

Table 7.0 – Profile line of proposed Ffynnon Garw Hill from North to South

Profile	Profile Length	Profile Start	Profile End	Shallowest Point of Profile Line	Deepest Point of Profile Line	Gradient of North slope	Gradient of Southern Slope	Total Relief of profile line
Profile 002 North to South	8470m	N 10 02.383 W 149 48.675	N 9 57.794 W 149 48.664	4390m N 9 59.361 W 149 48.668	5181m N 10 02.381 W 149 48.675	7.881 over a distance of 5430m	14.198 over a distance of 2880m	791m

Profile 003 – North-North-West to South-South-East profile line across proposed Ffynnon Garw Hill feature



[Supporting image 022.tif]

Table 8.0 – Profile line of proposed Ffynnon Garw Hill from North-North-West to South-South-East

Profile	Profile Length	Profile Start	Profile End	Shallowest Point of Profile Line	Deepest Point of Profile Line	Gradient of NNW slope	Gradient of SSE Slope	Total Relief of profile line
Profile 003 NNW to SSE	10800m	N 10 01.635 W 149 50.806	N 9 58.412 W 149 45.875	4461m N 9 59.761 W 149 47.938	5249 N 10 01.388 W 149 50.427	6.756° over 6240m	9.090° over 4400m	788m

Profile 003 – South-South-West to North-North-East profile line across proposed Ffynnon Garw Hill feature

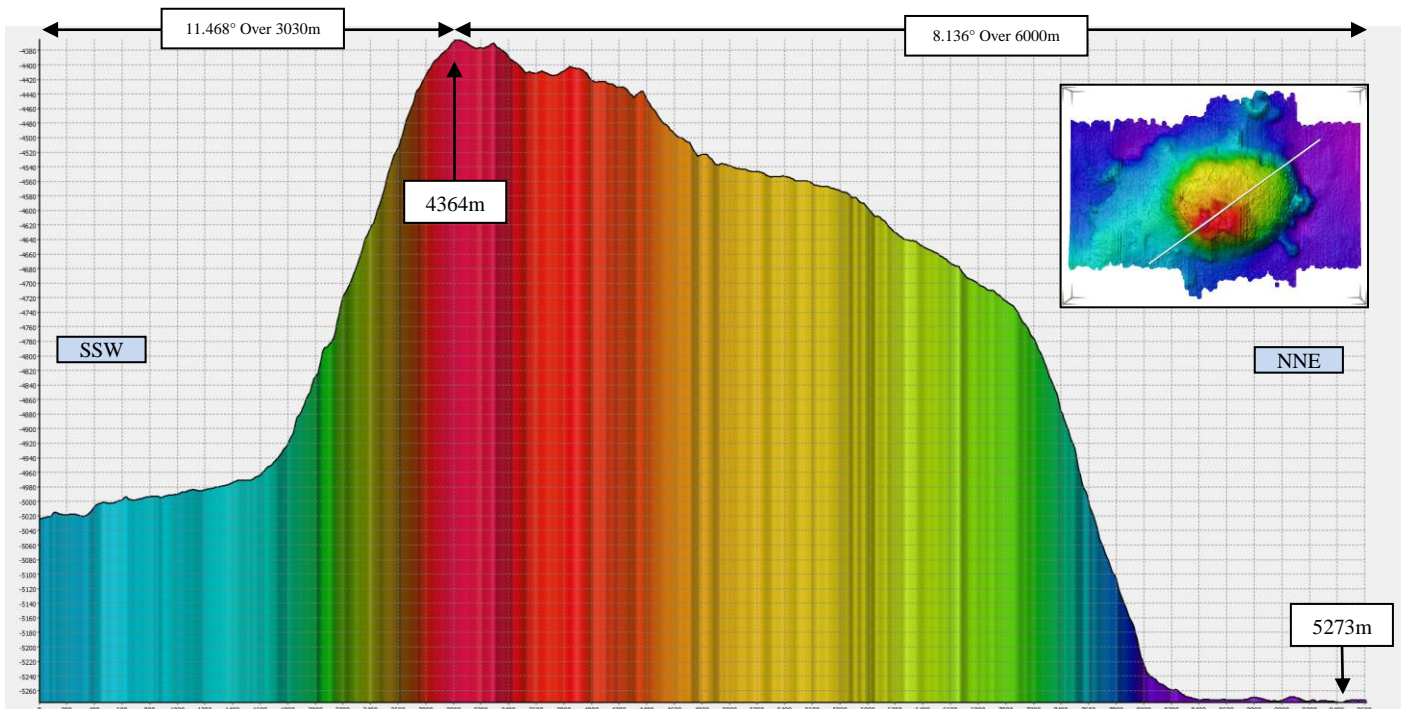
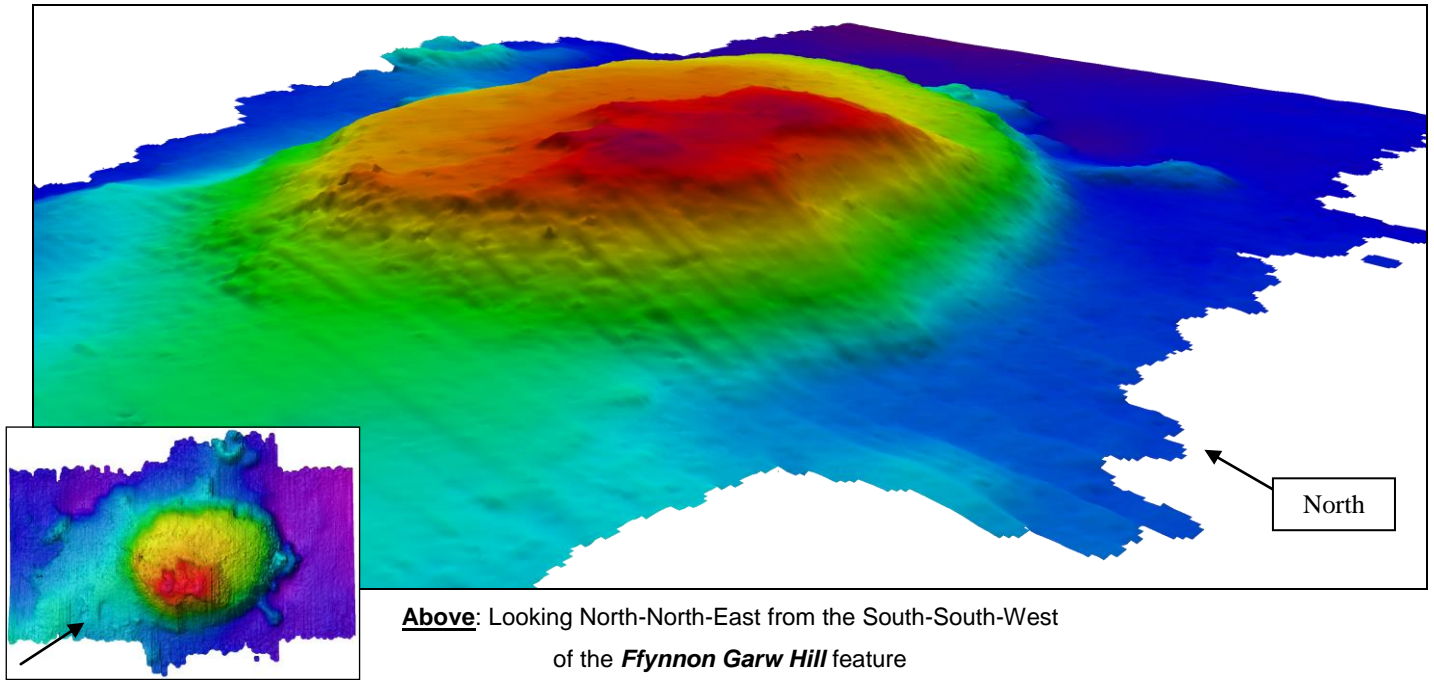


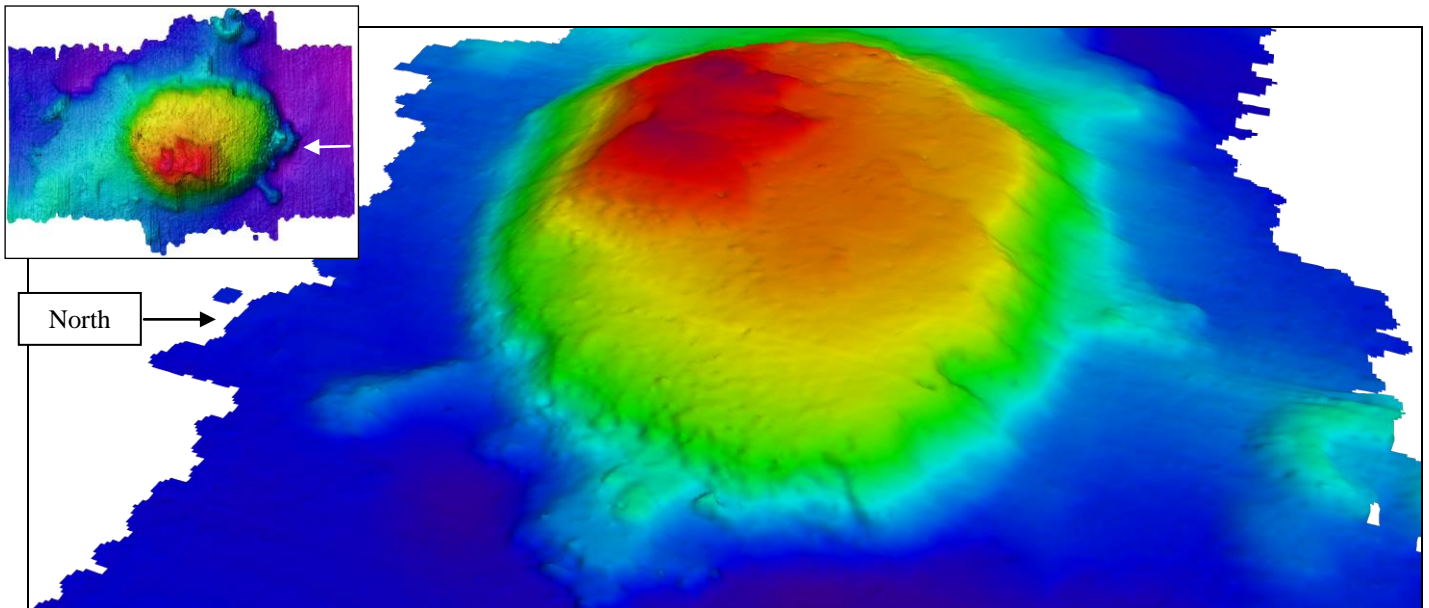
Table 9.0 – Profile line of proposed Ffynnon Garw Hill from South-South-West to north-North-East

Profile Length	Profile Start	Profile End	Shallowest Point of Profile Line	Deepest Point of Profile Line	Gradient of SSW slope	Gradient of NNE Slope	Total Relief of profile line
Profile 004 SSW to NNE	N 9 58.338 W 149 50.188	N 10 01.437 W 149 45.964	N 9 59.315 W 149 48.855 4364m	N 10 01.224, W 149 46.254 5273m	11.468 over 3030m	8.136 over 6000m	909m

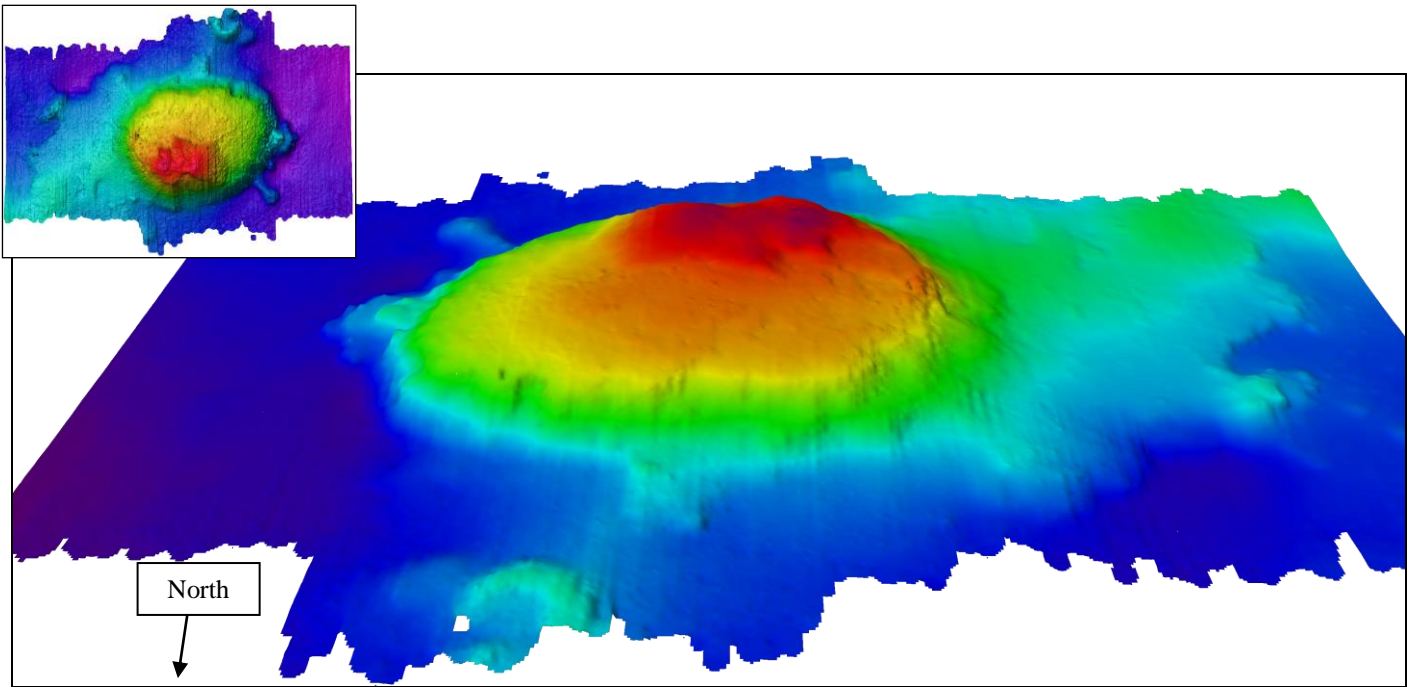
3D Images of Proposed *Ffynnon Garw Hill* Feature



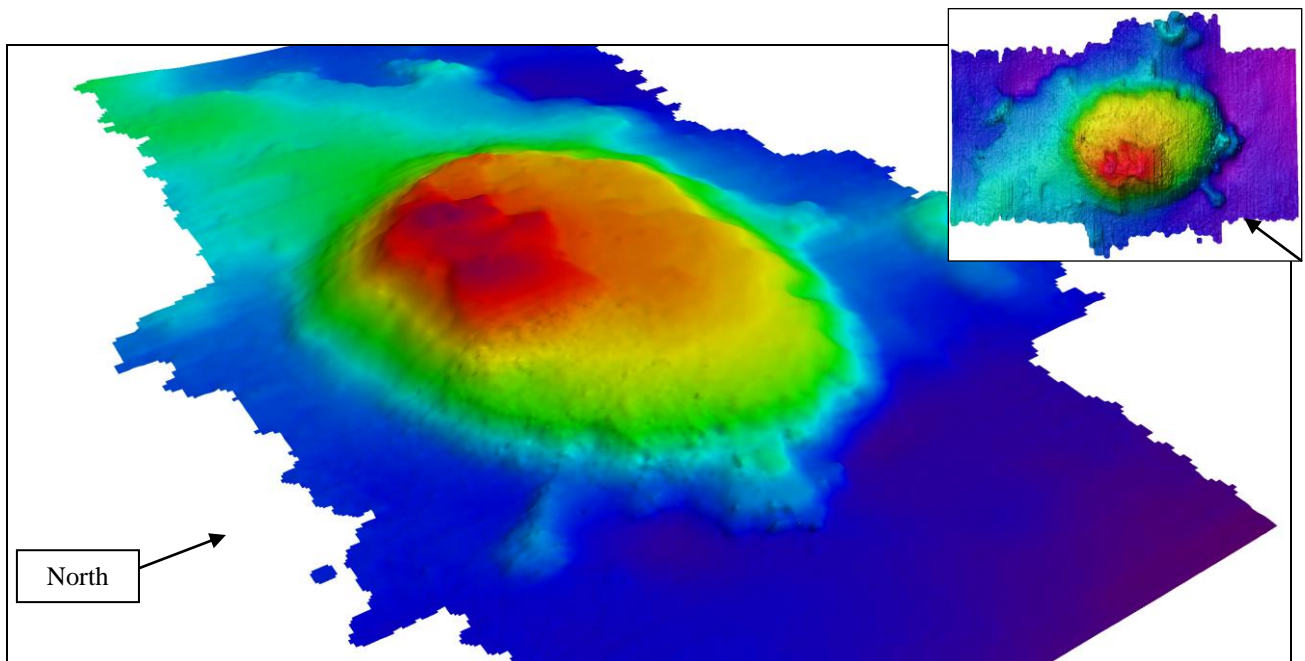
[Supporting image 024.tif]



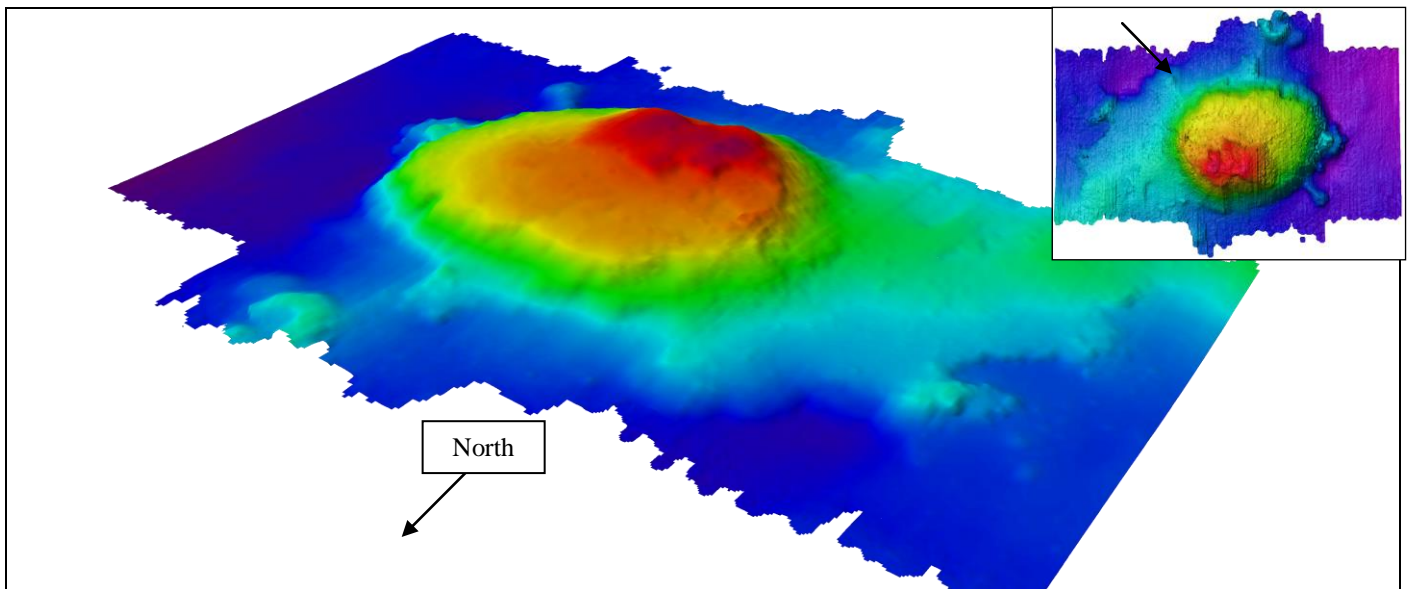
[Supporting image 025.tif]



Above: Looking SOUTH from the NORTH side of the *Ffynnon Garw Hill* feature
[Supporting image 026.tif]



Above: Looking NORTH-NORTH-WEST from the SOUTH-SOUTH-EAST side of the proposed *Ffynnon Garw Hill* feature
[Supporting image 027.tif]



Above: Looking SOUTH-SOUTH-EAST from the NORTH-NORTH-WEST side of the proposed *Ffynnon Garw Hill* feature

Associated Features:

Chart/Map References:	Shown Named on Map/Chart:	No
	Shown Unnamed on Map/Chart:	No
	Within Area of Map/Chart:	

<p>Reason for Choice of Name (if a person, state how associated with the feature to be named):</p>	<p><i>The proposer offers the IHO/SCUFN to affix it's own name to this feature if they have any deemed appropriate for this purpose.</i></p> <p>The name <i>Ffynnon Garw</i> is a fictional hill in the story <i>The Englishman Who Went Up a Hill But Came Down a Mountain</i> by Christopher Monger. A description of the reason for the choice is given below.</p> <p>The proposed feature included in this submission was used as a training exercise for our students participating in science expedition FK160115 (Mak Saito –Woods Hole Oceanographic Institute) onboard the Research Vessel <i>Falkor</i> operated by Schmidt Ocean Institute</p> <p>This training gave the students a basic understanding of the process of naming a seabed feature and preparing the relevant documentation.</p> <p>The process of preparing a submission to SCUFN is a good learning experience as it teaches the students to use all the available software tools (Caris, Fladermaus, FMGT and Qimera) to create a structured product that comprises of profiles, contour plots, 3d images and other necessary documentation to support a submission. The deliverables required for a submission are not standard products that the students normally produce and this exercise had them thinking beyond the normal gridded plot they are tasked with making..</p> <p>Having processed the raw multibeam data the next step is for the student to apply the actual guidelines to define the type of feature. (<i>STANDARDIZATION OF UNDERSEA FEATURE NAMES GUIDELINES PROPOSAL FORM TERMINOLOGY Publication B-6 Edition 4.1.0, September 2013</i>)</p> <p>The students naturally assumed that because a feature appears large in size it is automatically a <i>Seamount</i>. Many assumed that because this feature would be classified as mountain on land it would similarly class as a mountain below the waves. The definition of a terrestrial mountain varies between the nationalities of those undertaking the exercise. For example in the UK the definition of mountain has always been a bit vague and modern legislation requires it to have an elevation of 600m (2000ft). For a short period the US</p>
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applied the term Mountain to anything over 1000ft.

The feature covered by this submission has a relief of **936m**. The definition of a *seamount* as included in B-6 Edition 4.1.0 is “: 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 students were disappointed that after processing the raw data and creating the products the feature’s relief fell short thus it did not qualify as a *seamount*.

The height of the feature more accurately fits the definition of a *hill*. In publication **B-6 Edition 4.1.0** a hill is defined as “A *distinct elevation generally of irregular shape, less than 1000m above the surrounding relief as measured from the deepest isobath that surrounds most of the feature.*”

One of the students’ jokingly suggested that we add a bump to the feature and thus make it a *seamount* instead of a *hill* as nobody would be coming out here to verify the data anytime soon.

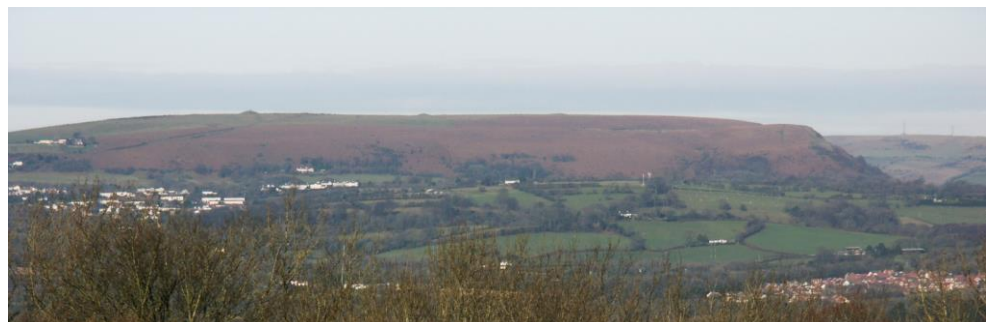
The debate as to whether this was a *hill* or a *seamount* coupled with the suggestion from the student was very similar to the plot line of the film “*The Englishman Who Went Up a Hill But Came Down a Mountain*”

The story (also made into a film) is set in 1917, English surveyors Reginald and George arrive in a small Welsh town to calculate the precise status of **Ffynnon Garw**, proudly described by the locals as “the first mountain in Wales”. Unfortunately, **Ffynnon Garw** s found to be somewhat short of the requisite 1000 feet. This results in a less than ethical attempt by the locals to increase the height of the mountain by building a large earth cairn, and then persuade the surveyors to measure it again.

The students measured the feature from multiple angles to figure out if there was any way this feature could actually be a *seamount* and each time it fell within the definition of *hill*.

Based on this we decided to adapt the name **Ffynnon Garw Hill** as a reminder of the debate and the definition of a *hill* vs a *seamount*.

Ffynnon Garw Hillin “*The Englishman Who Went Up a Hill But Came Down a Mountain*” is loosely based on Garth Hill (usually called The Garth, or Garth Mountain, Mynydd y Garth in Welsh. The hill is situated North of Cardiff and has a number of Bronze age mounds (tumuli) atop the hill. These mounds push the total relief of the hill over 1000ft which many considered made it a *mountain*.

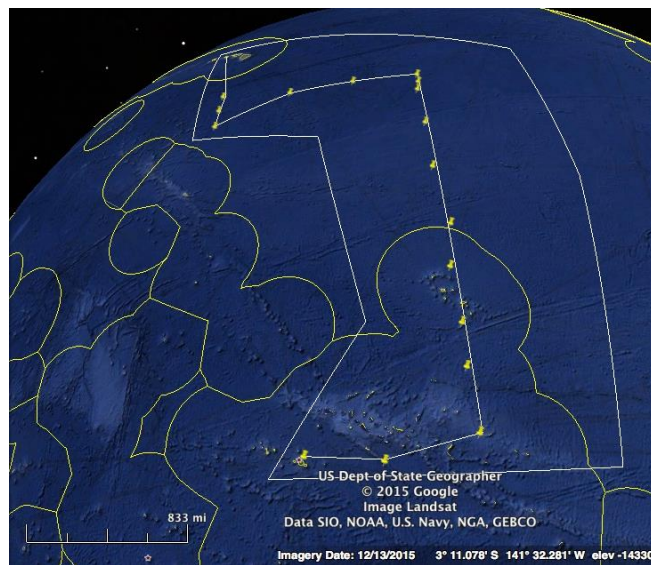


Above: The hill on which the “*The Englishman Who Went Up a Hill But Came Down a Mountain*” is based. Garth mountain, South Wales with Iron age Tumuli visible on the top

Discovery Facts:	Discovery Date:	23 rd January 2016
	Discoverer (Individual, Ship):	Leighton Rolley (Hydrographer) – (Employee of Schmidt Ocean Institute) Onboard Research Vessel Falkor

The discovery of the proposed **Ffynnon Garw Hill** occurred during RV *Falkor* science cruise FK160115 departing Honolulu, Hawaii on the 17th November 2016 and arriving in Tahiti on the 11th February 2016.

This was primarily a physical oceanography cruise studying Oxygen Minimum Zones (a detailed overview from the cruise proposal is given below). This involved the deployment of standard Seabird CTD in addition to a Trace Metal Rosette, Pumps, Net Tows and several Argo floats. As part of Schmidt Ocean Institutes drive to collect additional datasets for the community the multibeam systems was run continuously throughout to cruise from Honolulu to Tahiti by Lead Marine Technician Leighon Rolley and Marine Technician Veit Huehnerbach. During this time multibeam acquisition and processing training was given to student members of the science party to enhance their core skills



Cruise Overview

The oxygen minimum zones (OMZs) of the oceans are critical chemical reactors involved in the cycling of carbon and nitrogen in the oceans and atmosphere. Recent studies have discovered that these regions are undergoing a significant expansion due to climate change. Marine microbial populations have a fundamental role in carbon and nitrogen cycle transformations, yet most of our knowledge of marine microbes comes from the sunlit surface that represents 1% of the total ocean volume, while the microbes in the ocean's interior remains enigmatic. We propose to conduct a field program connecting a suite of biochemical, microbiological, and chemical measurements in the Eastern Tropical North Pacific Ocean to characterize these key biogeochemical processes. Newly developed biomedical quantitative proteomics capabilities would be deployed that directly measure the microbial enzymes conducting key reactions for the first time. This direct detection would allow a diagnostic capability to assess the location and extent of important microbial reactions and would be coupled with chemical rate (nitrogen and mercury species) and nucleic acid analyses of microbial populations. Together this study would provide an important analysis of these natural chemical reactors and lay the foundation for assessing their response to ongoing environmental change. Our expedition track from Hawaii to Tahiti will traverse the oxygen minimum waters that extend from the Eastern Tropical North Pacific. We will sample the mesopelagic for metalloenzymes and biogeochemical parameters (nutrients, nitrogen cycle reaction rates, oxygen, nitrous oxide) and microbial diversity.

The multibeam line incorporating the the proposed *Ffynnon Garw Hill* feature is **Line 0117 and Line 0118**

Survey File Name:

STATISTICS FOR SURVEY FK160115, line 0117_20160123_180102

First position N10°00'03.56" W149°59'44.27"

Last position N9°59'59.90" W149°49'56.11"

First date 2016.01.23 and time 18:01:03

Last date 2016.01.23 and time 19:01:05

Number of positions 3603

Total distance 17930 m

Average speed 4.98 m/sec.,9.68 kn

Average time between pos. 1.00 sec.

Average heading 90.09 deg.

Direction sailed 90.36 deg.

First ping date 2016.01.23 time 18:01:21 and pingNo 16477

Last ping date 2016.01.23 time 19:00:47 and pingNo 16854

Duration of logging 00:59:26 (h:m:s)

No. of pings 361

No. soundings 155952

Valid soundings 155952

% valid 100.00

Total coverage 132888806 m2

Average swath width 6224.93 m

Max depth 6402.51 m

Min depth 4281.09 m

Average depth 5067.22 m

Average time between pings 9.9 sec.

STATISTICS FOR SURVEY FK160115, line 0118_20160123_190106

First position N9°59'59.90" W149°49'55.94"

Last position N9°59'59.79" W149°39'58.96"

First date 2016.01.23 and time 19:01:06

Last date 2016.01.23 and time 20:01:09

Number of positions 3604

Total distance 18192 m

Average speed 5.05 m/sec.,9.81 kn

Average time between pos. 1.00 sec.

Average heading 89.91 deg.

Direction sailed 90.01 deg.

First ping date 2016.01.23 time 19:00:57 and pingNo 16855

Last ping date 2016.01.23 time 20:00:50 and pingNo 17215

Duration of logging 00:59:53 (h:m:s)

No. of pings 359

No. soundings 155088

Valid soundings 155088

% valid 100.00

Total coverage 170143984 m2

Average swath width 7047.78 m

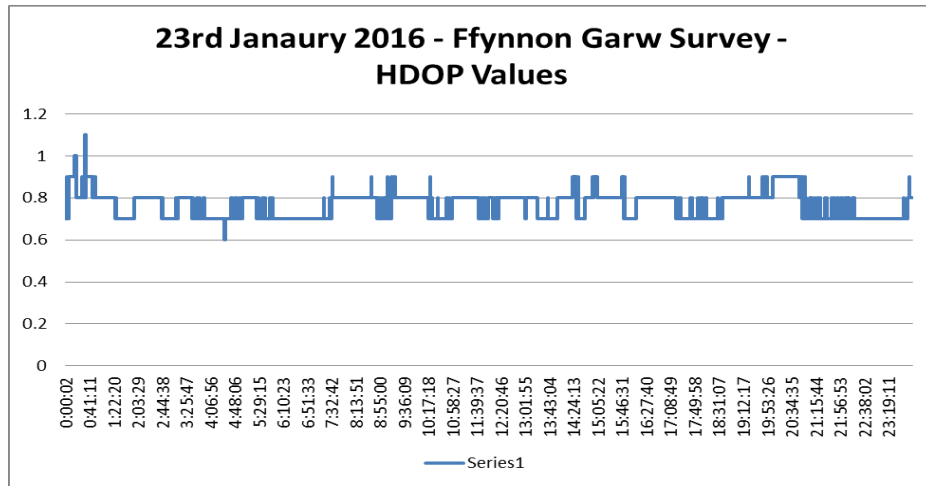
Max depth 5671.84 m

Min depth 4322.46 m

Average depth 5171.50 m

Average time between pings 10.0 sec.

<p>Supporting Survey Data, including Track Controls:</p>	<p>Date of Survey:</p>	<p>17th January 2016 to 11th February 2016</p>
	<p>Survey Ship:</p>	<p>Vessel: R/V <i>Falkor</i> Call Sign: ZCYL5 IMO: 7928677 MMSI: 319005600 Home Port: George Town, Gran Cayman Class: GL Operator: Schmidt Ocean Institute</p>
	<p>Sounding Equipment:</p>	<p>Kongsberg EM302 Multibeam 1x0.5</p> <p>Serial No: 105 Survey ID: FK160115 SIS Version: 4.1.3 Build: 14 DB Version: 24.0</p> <p>Post Processing: Caris Hips & Sips 8.1.6 Build 2014 02 20 22 35 19</p>
	<p>Type of Navigation:</p>	<p>DGPS was utilized for the entire duration of the survey.</p> <p>Seapath 320 Primary Science S/W Version 1.02.01 MRU 5 S/N 7834</p> <p>POS MV – Secondary Science GPS Fully Surveyed: 08/2014</p> <p>DGPS Corrections Model: C NAV 3050 S/N: 12380 SW Version: 3.00 Build 165 Alignment Survey: 08/2014</p> <p>NTP S350 Timing Sync Server</p>
	<p>Estimated Horizontal Accuracy (nm):</p>	<p>The vessel average survey speed during the survey line across the proposed feature was 9.02kts Average time between pings during this survey line was 9.5 seconds giving a horizontal resolution of roughly 40m</p> <p>HDOP (Horizontal Dilution of Precision) throughout the survey of proposed Ffynnon Garw Hill was 0.8-0.9</p> <p>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</p> <p>In addition CTD's were conducted down to 1000m each day</p>



Above: Primary GPS used throughout survey showing a maximum HDOP of 1.1 throughout day and 0.9 during survey period

Survey Track Spacing: A single survey line crossed this feature as part of the transit survey

Multibeam Data Processed and Display with:

Caris HIPS and SIPS 9.0.17
Build: 2015 08 10 08 25 46

Flederamus 3D renderings produced using

Flederamus Version 7.4.4b
64 Bit Edition
Build 120, jul 15 2015 05:52:14
EPSG Database Version 7.9

Futher:

A EM302 calibration was conducted prior to this expedition on the 25th September 2015 off Honolulu, Hawaii with third party verification from Paul Johnson, University of New Hampshire

Proposer(s):	Name(s):	Leighton Rolley 156 St. Fagan's Road Fairwater, Cardiff Wales, UK CF5 3EU Tel: UK (+44) 07886784890 Landline: UK (+44) 2920560389
	Date:	31 st January 2016
	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):	<p> 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 </p> <p> Principle Scientist Mak Saito, Woods Hole Oceanographic Institution, msaito@whoi.edu, 1 </p> <p> Captain R/V Falkor Bernd Buchner C/O Schmidt Ocean Institute 555 Bryant Street, #374 Palo Alto, CA 94301 Phone: (415) 975 4080 Fax: (415) 975 4081 </p>
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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 <u>Principality of MONACO</u> Fax: +377 93 10 81 40 E mail: info@ihb.mc	Intergovernmental Oceanographic Commission (IOC) UNESCO Place de Fontenoy 75700 PARIS <u>France</u> Fax: +33 1 45 68 58 12 E mail: info@unesco.org
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Supporting Documentation