

**UNDERSEA FEATURE NAME PROPOSAL**

(Sea NOTE overleaf)

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

<b>Name Proposed:</b>	Vulcano di fango Tergeste	<b>Ocean or Sea:</b>	Ross Sea (Antarctica)
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<b>Geometry that best defines the feature (Yes/No) :</b>						
Point	Line	Polygon	Multiple points	Multiple lines*	Multiple polygons*	Combination of geometries*
yes						

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

<b>Coordinates:</b>	Lat. (e.g. 63°32.6'N)	Long. (e.g. 046°21.3'W)
	75° 56' 50.00" S	165° 24' 58.00" E

<b>Feature Description:</b>	Maximum Depth:	700 meter	Steepness :	Average steepness 6° (from 2° to 8°)
	Minimum Depth :	641 meter	Shape :	elliptical
	Total Relief :	59 meter	Dimension/Size :	2000 x 750 meter

<b>Associated Features:</b>	<p>The feature is a mud volcano, close to the "Vulcano di fango lulia" and belongs to the area OGS Explora Mounds.</p> <p>The mud volcanoes are generated by the presence of overpressure fluids and gas, mixed with sediment that seeps along fractures up to the sea floor. The gas and fluids enter in the water column, and the deposition of the sediment, mainly mud, produces the cone feature of the mud volcano. In the sediment are present gas hydrates. These frozen gas, constituted mainly by methane, and water, form at low temperature and high pressure. Below the gas hydrate, due to the increase of temperature from the geothermal gradient, the gas are free, and leak along fractures up to the sea floor. These volcanoes lie on a tectonically active fault system, which fractures provide the gas and fluids leaking.</p>
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<b>Chart/Map References:</b>	Shown Named on Map/Chart:	See figures
	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):	Tergeste is the latin name of the town of Trieste (Italy), where is the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), the owner of the R/V OGS Explora, used during the Ross Sea cruises that provided the discovery of the feature.
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<b>Discovery Facts:</b>	Discovery Date:	15-16 January 2006
	Discoverer (Individual, Ship):	Martina Busetti and Riccardo Geletti

<b>Supporting Survey Data, including Track Controls:</b>	Date of Survey:	31 December 2005 – 6 March 2006
	Survey Ship:	OGS Explora

Sounding Equipment:	Multibeam Reson Seabat 8111 Multibeam Reson Seabat 3150 Benthos Chirp II
Type of Navigation:	IXSEA Phins
Estimated Horizontal Accuracy (nm):	0.00162 nm (from 0.5 to 3 meter)
Survey Track Spacing:	About 1800 meter, but also irregular due to sea ice coverage
Supporting material can be submitted as Annex in analog or digital form.	

<b>Proposer(s):</b>	Name(s):	Martina Busetti
	Date:	20 June 2012
	E-mail:	mbusetti@inogs.it
	Organization and Address:	Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) Borgo Grotta Gigante 42/c 34010 Sgonico (TS) Italy
	Concurrer (name, e-mail, organization and address):	

<b>Remarks:</b>	<p>The name was submitted to the Italian Committee for the Antarctic Names in 2007 and accepted and then communicated to the SCAR Gazetteer in 2008. The Italian name Vulcano di fango Tergeste was used according to the rules of the Italian Committee for the Antarctic Names.</p> <p>The name was already used in scientific papers.</p> <p>The evidence of the Vulcano di fango Tergeste occurred during the XXI Antarctic Italian Expedition (2006), among the Italian National Antarctic Program (PNRA), on the basis of the swath bathymetric data.</p> <p>The first evidence came from the multichannel data collected in 1990, among the PNRA, by the OGS Explora.</p> <p>In the 2005, reprocessing the data, we hypothesized the occurrence of the mud volcano correlated to gas and gas hydrate occurrence in the area (See: Geletti, R., and Busetti M., 2011. A double bottom simulating reflector in the western Ross Sea, Antarctica, J. Geophys. Res., 116, B04101, doi:10.1029/2010JB007864).</p>
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**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: <a href="mailto:info@ihb.mc">info@ihb.mc</a>	Intergovernmental Oceanographic Commission (IOC) UNESCO Place de Fontenoy 75700 PARIS <u>France</u> Fax: +33 1 45 68 58 12 E-mail: <a href="mailto:info@unesco.org">info@unesco.org</a>
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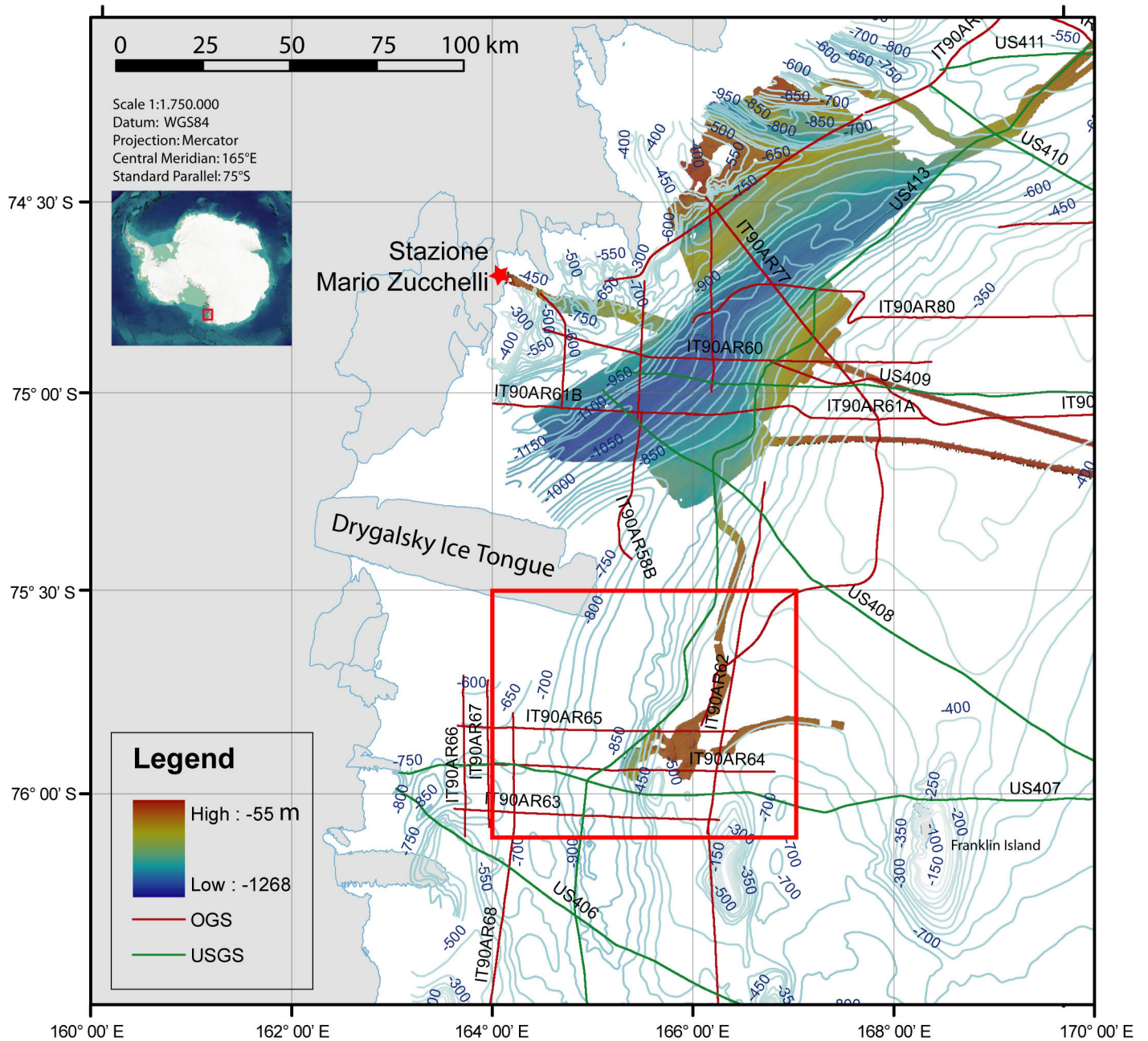


Figure 1 - Chart of the western Ross Sea with the location of the swath bathymetry acquired in 2006 and the multichannel seismic lines acquired in 1990 by the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) (red lines) and in 1984 by the United States Geological Survey (USGS) (green lines). The red rectangle defined the location of figure 2. Bathymetric contour from Davey, 2004.

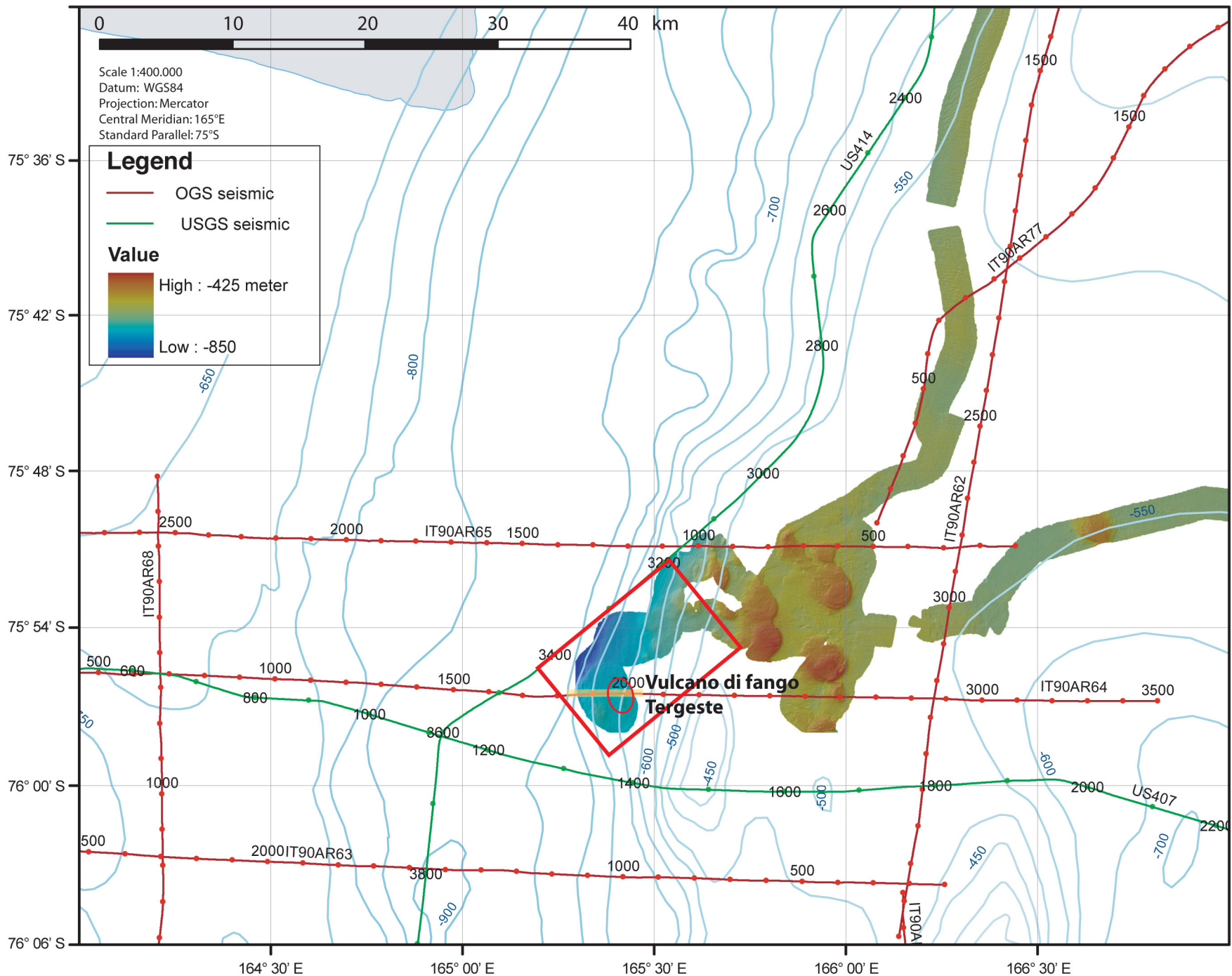


Figure 2 - Location of the Vulcano di fango Tergeste (red ellipse). Swath bathymetry acquired by OGS in 2006, multichannel seismic profiles acquired by OGS in 1990 (red lines) and by United States Geological Survey (USGS) in 1984 (green lines). The red rectangle indicate the area in figure 3, the yellow line is the seismic profile in Figure 4. Bathymetic contour from Davey, 2004.

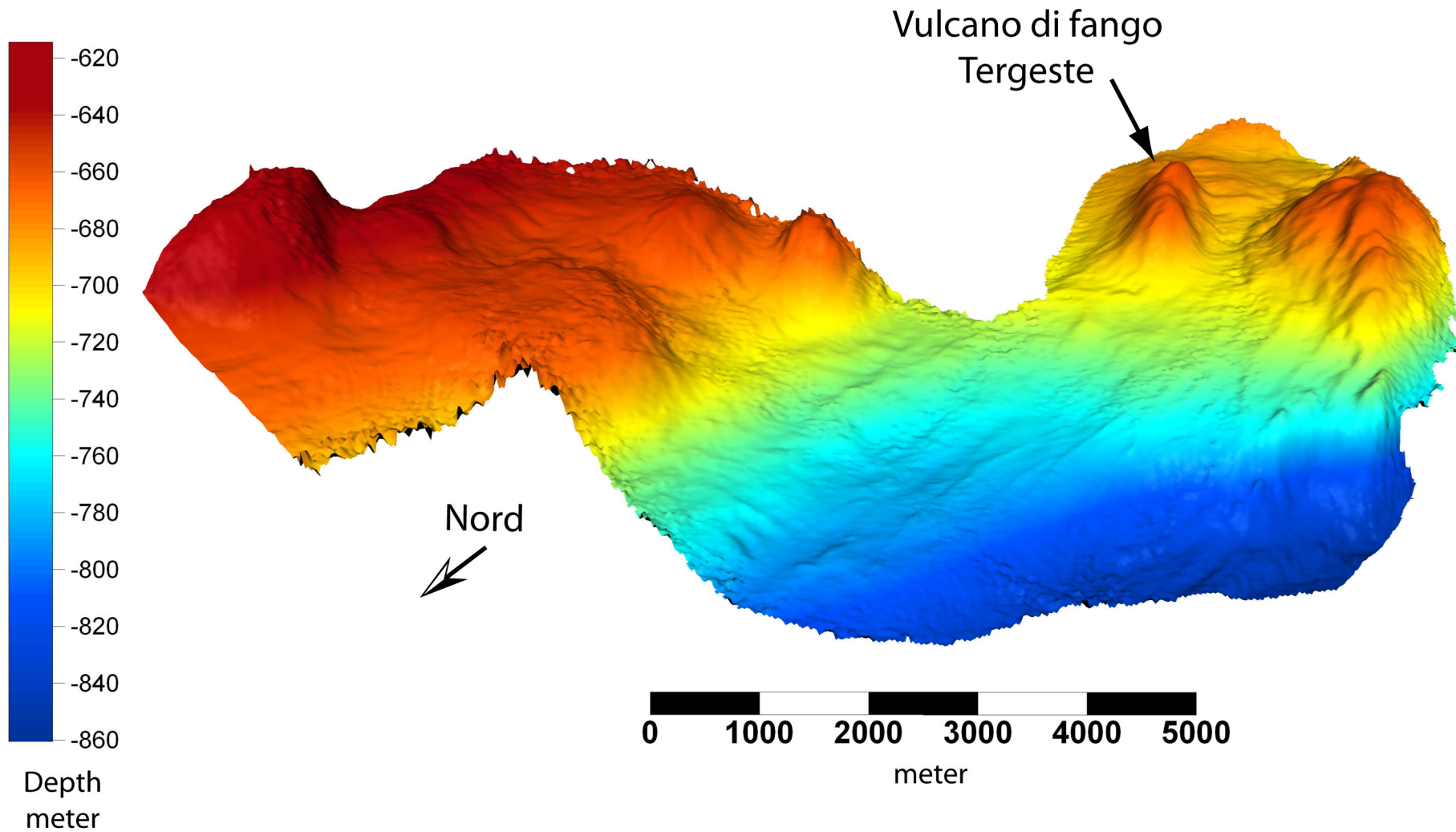


Figure 3 - 3D swath bathymetry with the occurrence of the relief of the Vulcano di fango Tergeste.

# Vulcano di fango Tergeste

1000 meter

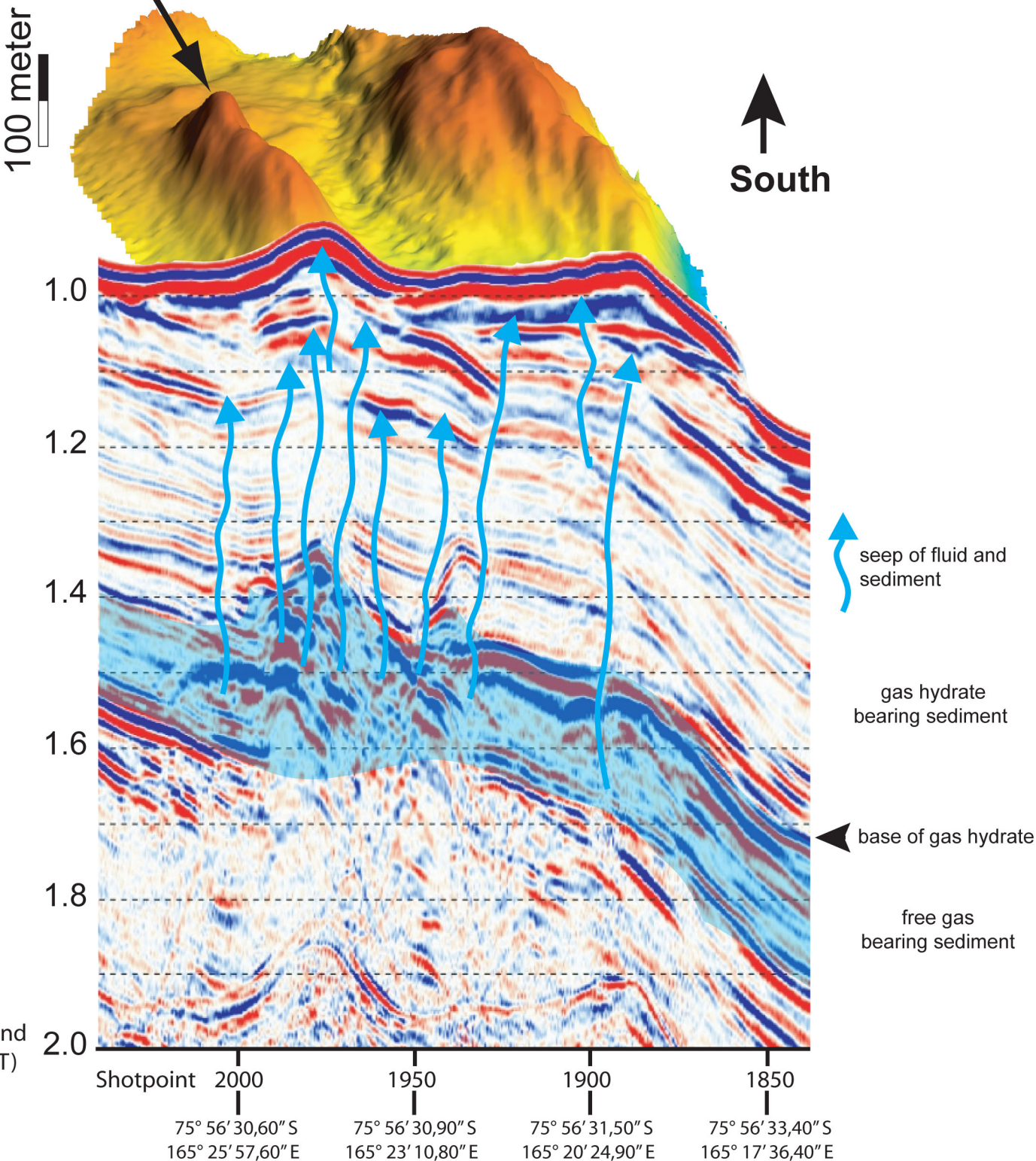


Figure 4 - Multichannel seismic section and swath bathymetry acquired in the area of the Vulcano di fango Tergeste, by OGS (see Figure 2 for location).

The mud volcanoes are generated by the presence of overpressure fluids and gas, mixed with sediment that seep along fractures up to the sea floor. The gas and fluids enter in the water column, and the deposition of the sediment, mainly mud, produces the cone feature of the mud volcano. In the sediment are present gas hydrates. These frozen gas, constituted mainly by methane, and water, form at low temperature and high pressure. Below the gas hydrate, due to the increase of temperature from the geothermal gradient, the gas are free, and leak along fractures up to the sea floor. These volcanoes lie on a tectonically active fault system, which fractures favour the gas and fluids leaking.

In the seismic profile the vertical section is in Two Way Travel-time (TWT). Approximately 1 second correspond to about 750 meter below sea level, while 2 seconds corresponds to about 1000 meter below sea floor.

**ESTRATTO**  
**DEL GIORNALE NAUTICO**  
**LIBRO SECONDO**

Della N/R OGS EXPLORA di tonnellate di stazza lorda 1408  
 e netta 422 iscritta al n° 764 di matricola del  
 Compartimento Marittimo di Trieste e comandata  
 dal Cap.L.C. Franco SEDMAK .

A Pag. 119 leggesi:  
 Lunedì 16/01/06

.....OMISSIS.....  
 Dalle 20:30 del giorno 15 gennaio 2006 alle ore 22:00 odierne, durante l'acquisizione dei dati scientifici, nell'ambito del progetto PNRA denominato Salvini/Busetti, a mezzo ecoscandaglio multibeam, nella zona compresa fra 75° 48',0 S e 75° 58',0 S di latitudine e fra 165° 10',0 E e 166° 10',0 E di longitudine corrispondente ad un' area di circa 10 x 20 Km, sono stati identificati, per la prima volta nel Mar di Ross molteplici rilievi sottomarini di forma circolare, probabilmente vulcani di fango, di diametro fino a 5 Km e altezza fino a 80 metri. Considerando la peculiarità dell'area, la responsabile scientifica Dottoressa Martina Busetti d'accordo con il capo missione Sig. Maurizio Grossi, il personale tecnico scientifico dell'OGS presente a bordo e l'equipaggio della nave, propone che la zona venga identificata come " OGS EXPLORA MOUND FIELD ", come dedica alla nave dell'OGS già più volte protagonista nel Mare di Ross. Inoltre, poiché dalle evidenze dei dati "multibeam" e dei dati sismici precedentemente acquisiti dall'OGS, il rilievo presente nell'area con coordinate 75°56'S e 165°22'E a forma ellittica di circa 1 X 2 km e circa 50 metri di altezza è sicuramente un vulcano di fango, viene proposto per tale rilievo, dal Dott. Riccardo GELETTI e dal sottoscritto, sempre d'accordo con la responsabile scientifica Dottoressa Busetti, il Capo Missione, l'equipaggio e il personale tecnico – scientifico il nome di "TERGESTE MUD VOLCANO", quale dedica alla città di Trieste, della quale la nostra Nave ne è fiera portabandiera in questi gelidi Mari antartici.....  
 .....OMISSIS.....

Bordo, 23 Gennaio 2006



IL COMANDANTE  
 Cap.L.C. Franco SEDMAK

A handwritten signature in black ink, appearing to read "Franco Sedmak".