

UNDERSEA FEATURE NAME PROPOSAL
(Sea NOTE overleaf)

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

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|-----------------------|--------------------|----------------------|-----------------------|
| Name Proposed: | OGS Explora Mounds | Ocean or Sea: | Ross Sea (Antarctica) |
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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.

| | | |
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| Coordinates: | Lat. (e.g. 63°32.6'N) | Long. (e.g. 046°21.3'W) |
| | from 75° 46' 00,00" S to 76° 02' 30,00" S | from 165° 13' 00,00" E to 166° 42' 30,00" E |

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| Feature Description: | Maximum Depth: | 860 meter | Steepness : | From 0 to 24° Singular features are asymmetric, with a steep side with maximum steepness of 24°, and a gentle side with steepness of 2-10°. The intra-feature seafloor is almost flat. |
| | Minimum Depth : | 418 meter | Shape : | Group of subcircular - elliptical features |
| | Total Relief : | The singular features have relives of about 50 meter | Dimension/Size : | From 700 to 2500 meter of maximum axis |

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| Associated Features: | In the area OGS Explora Mounds, have been identified at least 15 reliefs (mounds). These reliefs are from sub-circular to elliptical in shape, with the maximum axis from 700 to 2500 meter. The total relief of the features is about 50 meter. It is the first time that these features are discovered in the Antarctic Seas. Similar features occur in the world oceans, and the most studied are those of the Northern Seas, which have a biogenic origin. |
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|------------------------------|-----------------------------|-------------|
| Chart/Map References: | Shown Named on Map/Chart: | See figures |
| | 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): | The name OGS Explora Mounds is dedicated to the R/V OGS Explora. The ship belongs to the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS), and went 10 times in the Antarctic seas and 6 times |
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in the Ross Sea. The data collected during these cruises permit to discover these features.

The dedication to the ship of area with similar relieves is a tradition in the North Sea (Belgica Mounds, Logachev Mounds, Viking Mounds, etc.) Also in the western Ross Sea several geological structures (as the Terror Rift and the Discovery Graben) were dedicated to ships that explored the Antarctica: the Terror of J. Ross in 1839, and the Discovery of R. Scott in 1901 and 1904. The Lee Arch was dedicated to the R/V S.P. Lee used for the first geophysical survey in the 1984, in the western Ross Sea.

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| Discovery Facts: | Discovery Date: | 15-16 January 2006 |
| | Discoverer (Individual, Ship): | Martina Busetti and Riccardo Geletti |

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|--|---|----------------------------------|
| Supporting Survey Data, including Track Controls: | 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. | | |

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|---------------------|---|--|
| Proposer(s): | Name(s): | Martina Busetti |
| | Date: | 18 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): | |
| | | |

Remarks:

The name was submitted to the Italian Committee for the Antarctic Names in 2007, accepted and then communicated to the SCAR Gazetteer in 2008. The name was already used in scientific papers.

The evidence of the OGS Explora Mounds occurred during the XXI Antarctic Italian Expedition (2006), among the Italian National Antarctic Program (PNRA), on the basis of the swath bathymetric data.

The first evidence came from the multichannel data collected in 1990, among the PNRA, by the OGS Explora.

In the 2005, reprocessing the data, we hypothesized the occurrence of the mounds, and during the survey in 2006 the swath bathymetric data confirmed the presence of these features (See also: 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).

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 |
|---|---|

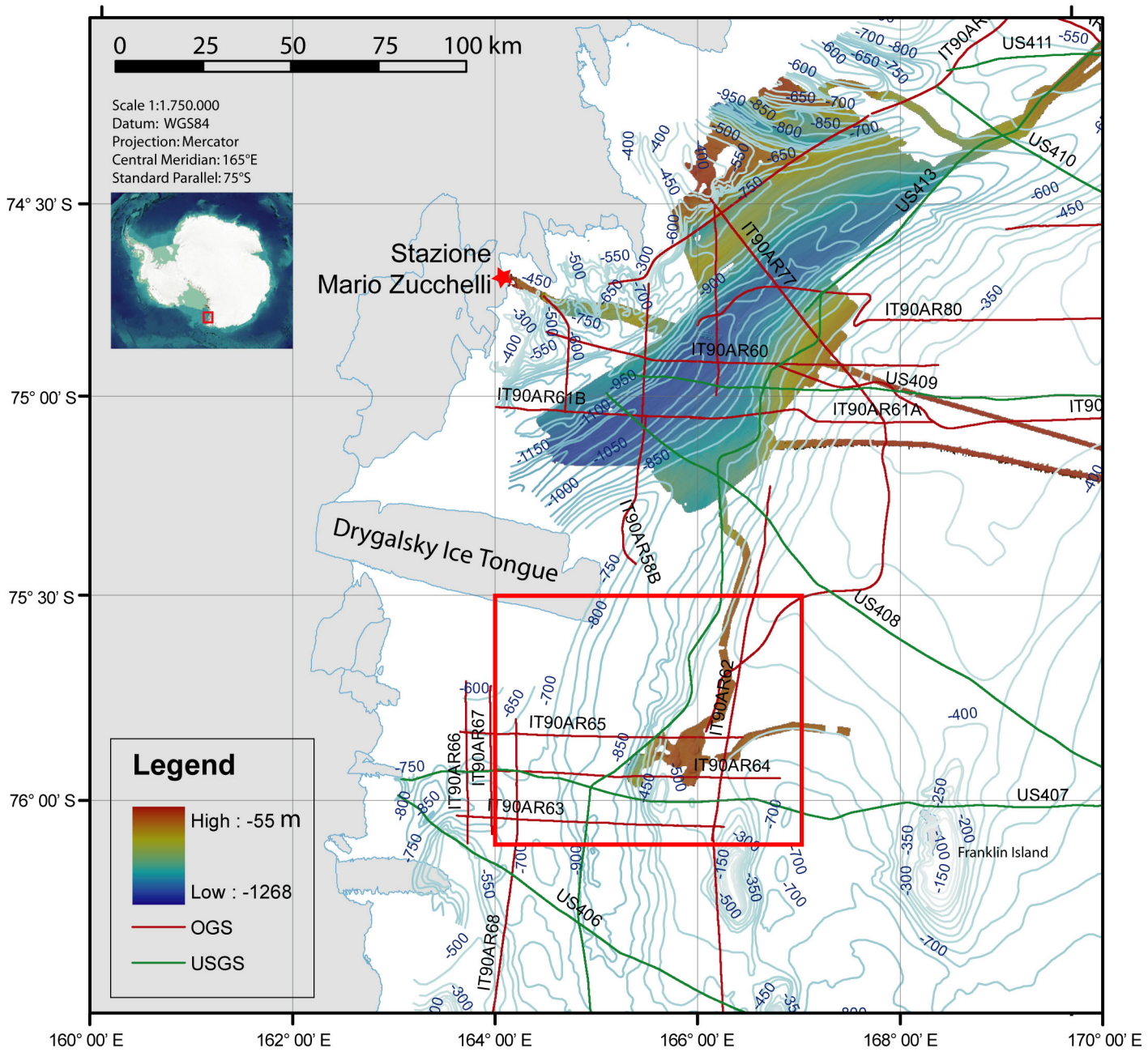


Figure 1 - Chart of the western Ross Sea with the location of the swath bathymetry acquired in 2006 and the multichannel seismic lines acquired in 1990 by the Istituto Nazionale di Oceanografia e di Geofisica Sperimentale (OGS) (red lines) and in 1984 by the United States Geological Survey (USGS) (green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

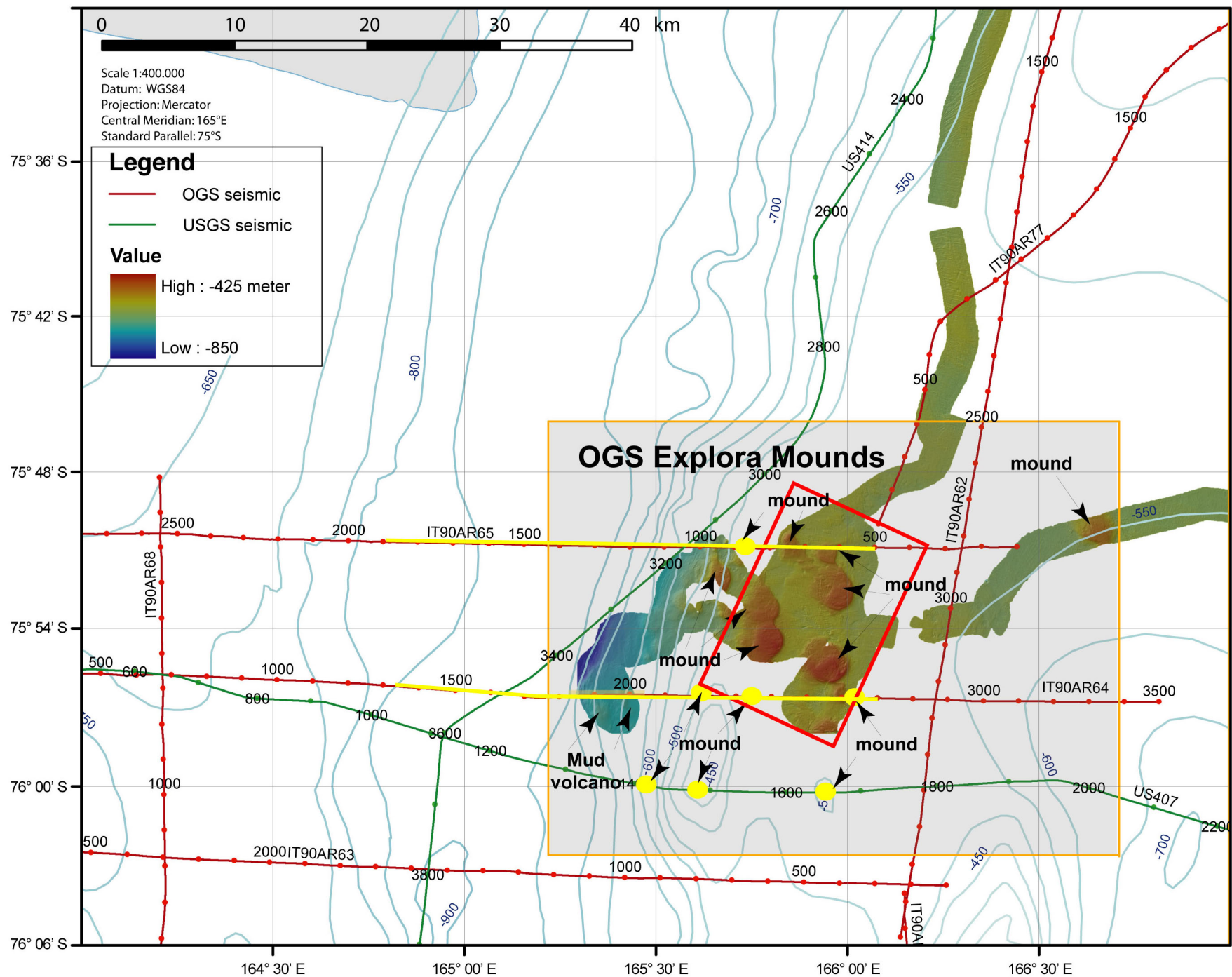


Figure 2 - Location of the dell'area "OGS Explora Mounds" (grey rectangle). The mounds are highlighted by the swath bathymetry as subcircular reliefs (red colour), while in yellow are indicated the mounds present in the multichannel seismic profiles. The red rectangle indicate the location of figure 3, yellow lines indicate the seismic profiles in figure 4. Bathymetric contour from Davey, 2004.

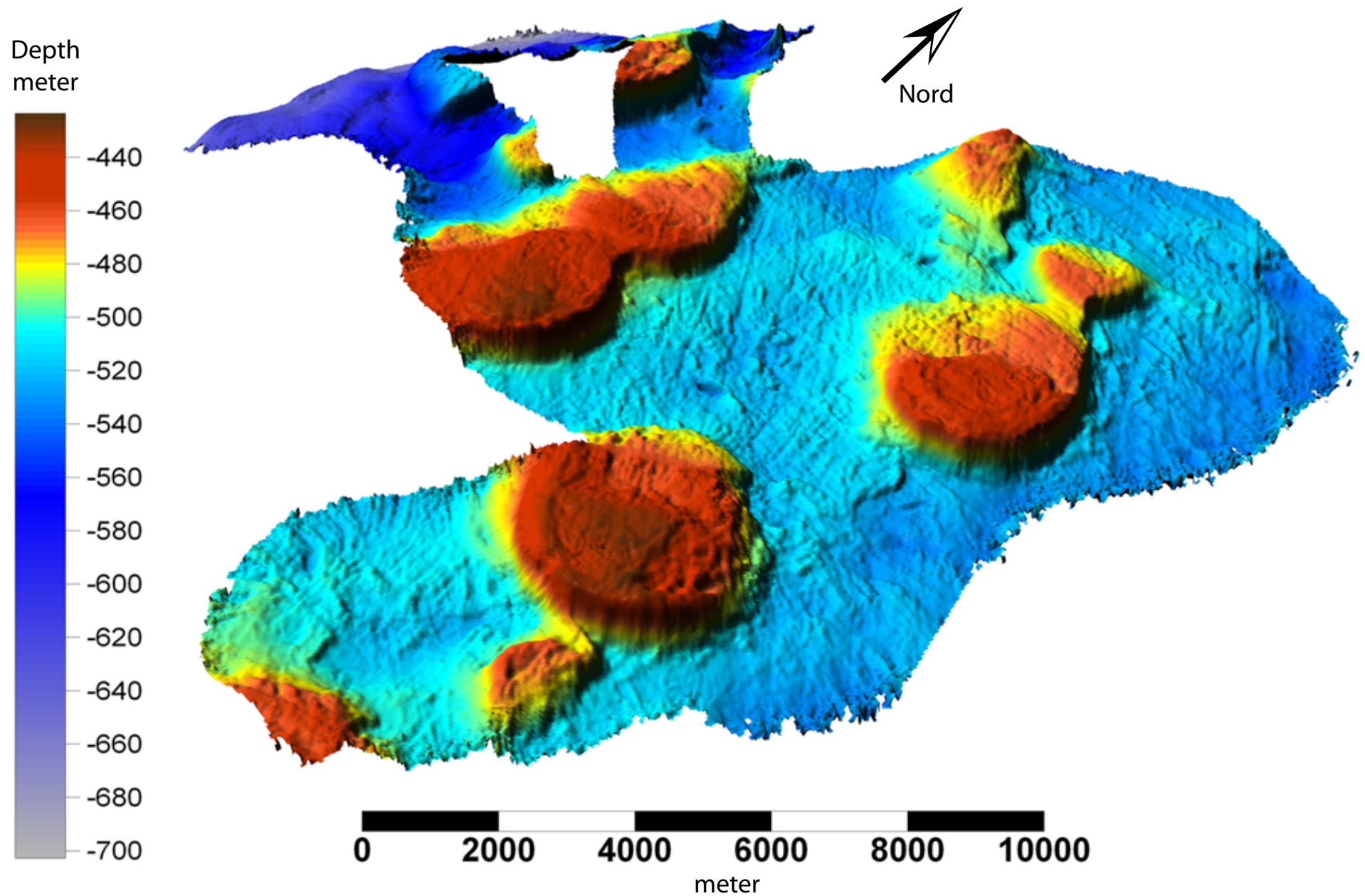


Figure 3 - 3D of swath bathymetry with the morphological evidence of the subcircular mounds.

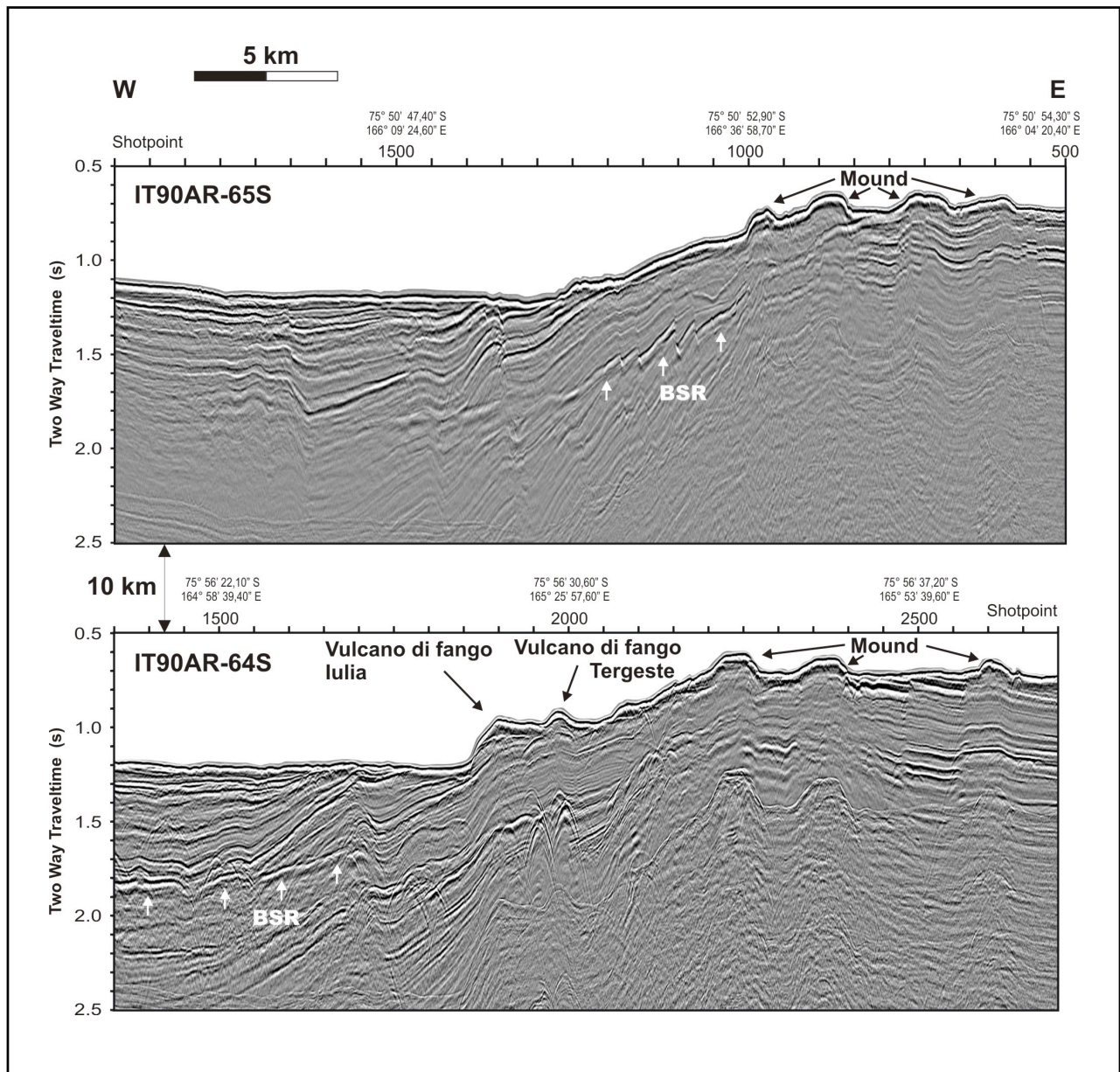


Figure 4 – Multichannel seismic profiles acquired by OGS, with the R/V OGS Explora among the PNRA in 1990. The profiles show the evidence of the mounds and the mud volcanoes (in italian *vulcani di fango*) (see figures 1 e 2 for the location of the profiles).

The area is tectonically active, with faults and folds. The mounds are located on a structural high, and their morphology is not concordant with the tectonic structure below. The sub-circular shape, as documented by the swath bathymetry (see figures 1, 2 and 3), resembles similar biogenic reliefs present in other seas and oceans, in particular in the northern seas.

The mounds are located in an area where both free gas and gas hydrate occur. Gas seeping along faults, could trigger the occurrence of chemio-synthetic ecosystem, that provide the hardground on which colonies of bioconstructor organisms develop.

BSR (Bottom simulating reflector) is the seismic horizon that geophysical defined the base of the gas hydrate occurrence in the sediment. Below the BSR is present free gas that could seeps along fractures and faults.

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