

## **BGS Rockall Consortium**

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The Rockall Consortium was established in January 1992. The aims were (1) to extend the coverage of the BGS offshore regional mapping programme west of Scotland and (2) to gain regional geological knowledge that may be useful in the exploration for hydrocarbons in the area. Initially eight companies agreed to co-fund (with BGS) a three-year work programme concentrating on the UK deep-water designated area west of Scotland (the 'Rockall' area) where, due to very little previous exploration, the existing data coverage was sparse and the geological understanding incomplete. This programme was so successful that more companies joined the consortium and it now continues on a year-by-year basis. BGS acts as operator for the consortium and either undertakes all the work itself (planning, acquisition, interpretation and reporting) or commissions contractors if necessary. BGS curates the data and has ownership rights after specified periods of confidentiality which vary according to the data type.

The work of the consortium is monitored and controlled by the Management Steering Committee (MSC) which comprises a single voting representative from each member company and two from BGS. However, companies are not restricted to a single delegate at the meetings. BGS convenes, chairs and hosts these meetings, up to four times per year, in BGS offices in Edinburgh. The MSC confirms the work programme for each year which in turn determines the financial contribution required from each member. The MSC receives progress reports throughout the year and final presentations, hard copy and digital products (as appropriate) at the year's end.

Since 1992 companies have contributed over £7m to the Rockall Project and in return gained unprecedented knowledge of this frontier area. BGS continues to support the consortium work programme through its Science Budget contributions. In recent years this has facilitated analyses and interpretation of data from geophysics and sea-bed sampling cruises using NERC ships. Recent cruises have taken place in 2006 and 2007. More are planned for 2009 and 2010.

The consortium has acquired a large amount of geological and geophysical survey data resulting in new analyses, strategic compilations, interpretations, maps and reports. Some data and reports are subject to confidentiality constraints for specific periods. After this, ownership reverts to BGS and information can be incorporated into published maps, reports and technical papers. The results from the work undertaken for the Rockall Consortium have greatly increased the understanding of this part of the UK Atlantic Margin.

The current consortium database includes:

- Over 26000km of seismic data most with coincident gravity, magnetic and bathymetry data (Figure 1).
- Approximately 150 gravity cores (taken for organic geochemical analysis)
- Approximately 150 short sea-bed cores
- Fourteen continuously-cored shallow boreholes (max depth 209.65m)
- A total of 102 reports (by January 2008) covering all aspects of the consortium's work

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The work programme has included a wide variety of projects including :

- Seismic data acquisition, interpretation, reprocessing and trading
- Acquisition of long-offset, synthetic aperture 2-ship seismic data
- Investigation of sub-basalt imaging using converted shear waves
- Merging of satellite, airborne or shipborne potential field data (as appropriate) to produce multi-image gravity and magnetic atlases
- Gravity and magnetic modelling
- Study of the distribution, age, palaeomagnetism, geochemistry and isotopic characteristics of the igneous rocks within the area
- Chronology and isotopic geochemical studies of basement rocks
- Petrological, heavy mineral and biostratigraphical analyses
- Identification of potential source rock / reservoir characteristics from drill core
- Distribution of natural hydrocarbon seepages using satellite SAR technology
- Numerous geological data compilations

Some of the principal projects and conclusions are summarised below :

### *Structure*

Identification of major NW-SE basement lineaments (and a terrane boundary) which cross the Hatton and Rockall Basins and which have affected the evolution (e.g. sediment thickness) within these basins.

Major differences have been noted between the structural composition of Hatton Bank and Rockall Bank.

Numerous Cenozoic compressional structures in the region have been identified (Figure 2).

### *Stratigraphy*

The establishment of a mega-stratigraphy for the Cenozoic of the Hatton and Rockall Basins. This has already been extended into the Irish, West Shetland and Norwegian sectors of the Atlantic Margin and will form the basis for any formal stratigraphical nomenclature for the region in the future.

### *Igneous geology*

Many new central igneous complexes have been identified and named.

The distribution of the Palaeogene lavas across the Rockall Basin and Plateau has been mapped for the first time.

Geochemical, isotopic, dating and polarity studies of the lavas have yielded information about the evolution of this volcanic passive margin.

### *Hydrocarbon-related studies*

These include lithological core logging (including a Core Workshop), source and reservoir rock evaluation, apatite fission track analysis, palaeogeographic reconstructions, uplift and heavy mineral studies, sub-basalt imaging, understanding of shelf-margin processes.

Identification of numerous potential hydrocarbon trapping styles (tilted fault blocks, compressional structures, Eocene fans/deltas, pinch-outs etc).

BGS anticipates renewed interest in the Hatton-Rockall area after completion of the current Strategic Environmental Assessment (SEA7). Awards for the next (25<sup>th</sup>)

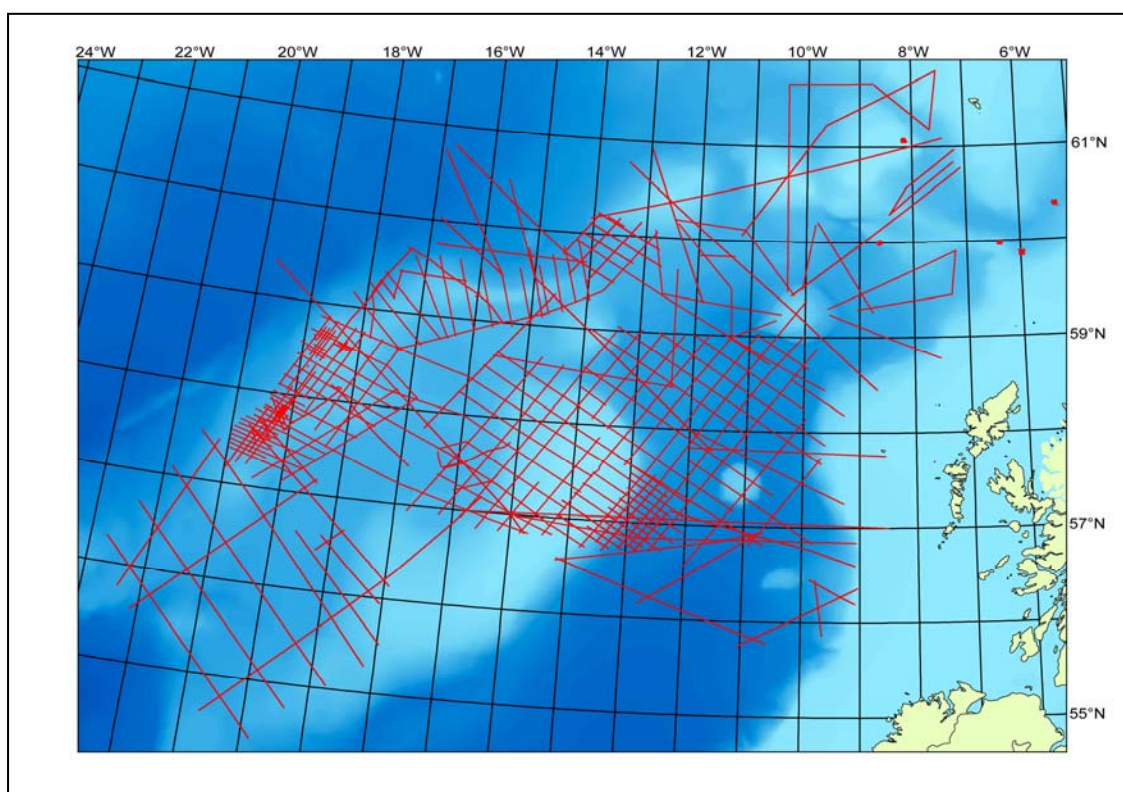
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offshore hydrocarbon licensing round, which includes the Rockall Basin area, are scheduled to be announced in Summer 2008.

### Opportunities For Membership

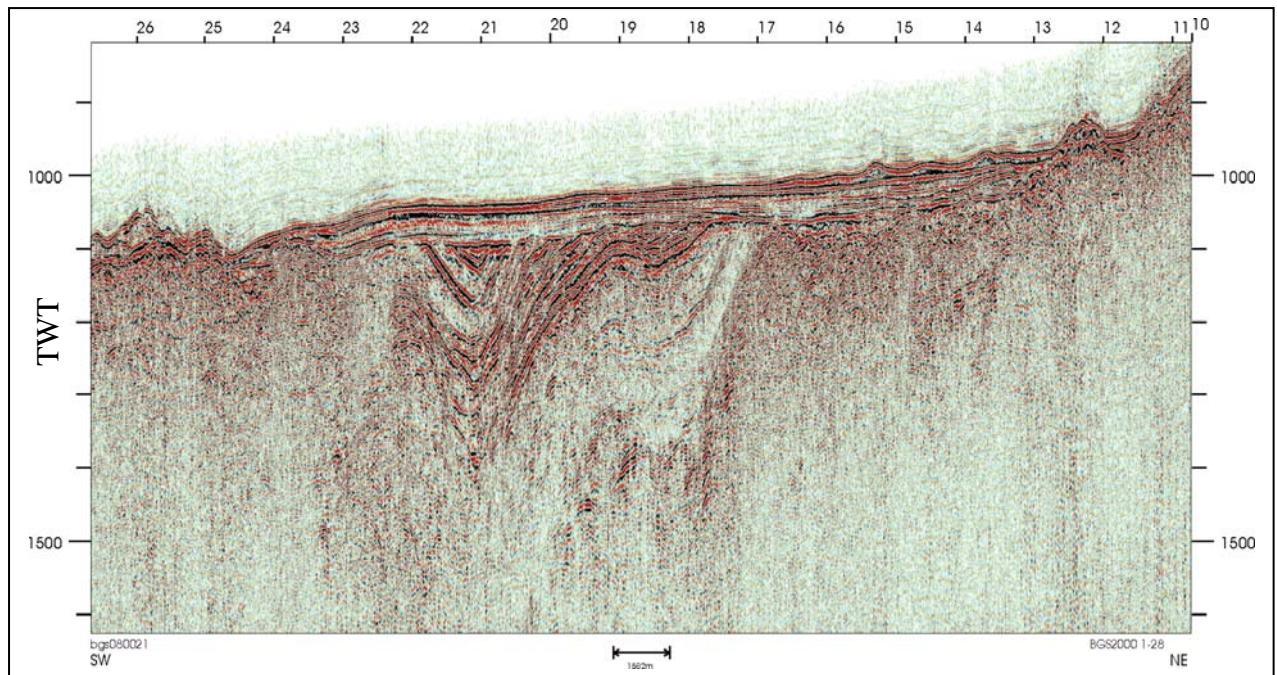
Current membership of the consortium in 2008 comprises Chevron, ENI, Marathon, Shell, Statoil and the BERR (government).

For details of membership opportunities, please contact [Ken Hitchen](#) or [Robert Gatliff](#) at BGS (Edinburgh).



**Figure 1**

Location of survey lines within the Rockall Consortium database. Most lines have coincident seismic, gravity, magnetic and bathymetry data.



**Figure 2**

Example of a high-resolution seismic line from the Hatton Bank area. Uplifted, folded and eroded Mesozoic strata, within a small basin, are unconformably overlain by thin veneer of near-horizontal Neogene sediments. The basin is flanked by Palaeogene lavas which mask seismic reflections from the deeper geology.