APPLICATION FOR THE CONSENT TO CONDUCT MARINE SCIENTIFIC RESEARCH IN AREAS UNDER NATIONAL JURISDICTION OF THE UK

1. GENERAL INFORMATION

1.1 *CRUISE NAME AND/OR NUMBER:* Magnus Heinason, cruise no. 0554 and 0578

1.2 *SPONSORING INSTITUTION:*

Name: Fiskirannsóknarstovan

Address: P.O Box 3051, Nóatum, FO-110 Tórshavn
Faroe Islands

Telephone:
Telefax:
Name of Director: Stein Hjalti í Jákupsstovu

1.3 *SCIENTIST IN CHARGE OF THE PROJECT:*

Name: Dr. M. Jegen-Kulcsar
Address: Inst. Of Geophysics, ETH
Hoenggerberg
CH-8093 Zurich
Switzerland
Telephone: +41 44 633 3667
Name of Director:
Email:

1.4 *SCIENTIST FROM IRELAND WITH KNOWLEDGE OF THE PROJECT:*

Name: Dr R. Hobbs

Address: Dept. of Earth Sciences
University of Durham
South Road
Durham. DH1 3LE
UK

Telephone:
Telefax:

1.5 *SUBMITTING OFFICER:*

Name: Dr M. Jegen

Address: Inst. Of Geophysics
ETH
Hoenggerberg
CH-29280 Zuitch
Switzerland

Telephone: +41 44 633 3667
Telefax:

2. **DESCRIPTION OF PROJECT**

2.1 *NATURE AND OBJECTIVES OF THE PROJECT:*

Magneto telluric (MT) experiment to detect potentially oil-bearing sediments underneath basalt cover. The experiment is planned to augment existing MT data recorded in 2003 along the FLAR98-10 seismic profile in the framework of the European funded "SIMBA" project. We plan to record low frequency data at selected stations occupied in previous experiment to be able to delineate the base of the geological structure. This project is funded by the Faeroese SINDRI consortium.

2.2 *RELEVANT PREVIOUS OR FUTURE RESEARCH CRUISES:*

2003 – SIMBA cruise on Faeroeres "Magnus Heinason" vessel to record initial MT profile.
2005 – SFB 574 cruise on German "Meteor" research vessel to image methane hydrate concentration on the middle American Shelf.

2.3 *PREVIOUSLY PUBLISHED RESEARCH DATA RELATING TO THE PROJECT:*

Jegen M., Edwards R.N.
"On the physics of marine magneto telluric sounding",
submitted to *Geophys J. Int.* Feb. 2005

Jegen M., Hobbs R.W. and Trinks I. Sub-basalt imaging with joint inversion of gravity, MT and seismic data, accepted at EAEG, Madrid, June 2005.

Jegen M., Hobbs R.W. and Tarrits, P.
"Joint Inversion of Marine MT, Gravity and Seismic Data", Invited Paper. *Abstract*, International Faeroes Exploration Conference, May, 2004.

M.D Jegen, S. Hautot, G. Cairns, and P, Tarits, Using electromagnetics to image sub-basalt, Journal of Conference Abstracts, Cambridge, 7. 154-155, 2002.

Hauror, S., J. Perrot, M.D. Jergen, G. Cairns and P. Tarits, Feasibility study of joint magneto telluric/seismic interpretation for sub-basalt imaging, Journal Jegen M., Edwards R.N. and Tarits P.

"On Marine Natural Source Electromagnetics for 2D and 3D Earth Models".
Abstract EOS Trans. AGU 2001 Fall Meeting Suppl., 2001. Of conference Abstracts, Cambridge, 7, 150-151, 2002.

3. **METHODS AND MEANS TO BE USED**

3.1 *PARTICULARS OF VESSEL:*

Name:	FRV Magnus Heinason
Nationality:	Faroese
Owner:	Føroya Landsstýri
Operator:	Fiskirannsóknarstovan
Overall Length:	44.5m
Maximum draught:	4.8m
Gross tonnage:	455

Propulsion:	Diesel
Maximum speed:	11kn
Call sign:	OW 2252

Method/capability of communication (including telex, frequencies): Radio-telephone

Name of master:	Dánial J. Lydersen
Number of crew:	7
Number of scientists on board:	5

3.2 *AIRCRAFT OR OTHER CRAFT TO BE USED IN THE PROJECT:*

N/A

3.3 *PARTICULARS OF METHODS AND SCIENTIFIC INSTRUMENTS:*

7 seafloor electric and magnetic field receivers to be deployed on the seafloor at 7 stations end of July in a 3 day deployment cruise. The instruments will be recovered at the end of September, i.e. should have a bottom time of about 2 months.

3.4 *INDICATE WHETHER HARMFUL SUBSTANCES WILL BE USED:*

No

3.5 *INDICATE WHETHER DRILLING WILL BE CARRIED OUT:*

No

3.6 *INDICATE WHETHER EXPLOSIVES WILL BE USED:*

No

4. INSTALLATIONS AND EQUIPMENT

DETAILS OF INSTALLATIONS AND EQUIPMENT (DATES OF LAYING, SERVICING, RECOVERY, EXACT LOCATIONS AND DEPTH):

Sea bottom MT stations are standalone and acoustically released instruments about 1.5x0.7x0.7 metres and 20 kg in the water. They will be deployed from the R/V on a 3 day deployment leg and recovered 2 months later on a recovery leg. The 7 stations will be occupied (shown on the chart at the end of the document) along the existing MT profile consisting of 17 stations recorded in 2003.

5. GEOGRAPHICAL AREAS

5.1 *INDICATE GEOGRAPHICAL AREAS IN WHICH THE PROJECT IS TO BE CONDUCTED (WITH REFERENCE IN LATUTIDE AND LONGITUDE):*

7 Magneto telluric (electric and magnetic field) surroundings are planned on positions indicated by green circles on attached chart. They will be equally spaced along a profile running from (61.8˚N, 6˚W) to (61.4˚N, 3˚W).

5.2 *ATTACH CHART(S) AT AN APPROPRIATE SCALE SHOWING THE GEOGERAPHICAL AREAS OF THE INTENDED WORK AND, AS FAR AS PRACTICABLE, THE POSITIONS OF INTENDED STATIONS, THE TRACKS OF SURVEY LINES AND THE LOCATIONS OF INSTALLATIONS AND EQUIPMENT:*

Attached

6. DATES

6.1 *EXPECTED DATES OF FIRST ENTRY INTO FINAL DEPARTURE FROM RESEARCH AREA OF THE RESEARCH VESSEL:*

The ship is expected to be in UK waters for about one day during the deployment and one day for recovery of the MT instruments.
1st Entry at deployment: 28.07.2005

1st Exit at deployment: 30.07.2005
2nd Entry at recovery: 29.09.2005
2nd Exit at recovery: 01.10.2005

6.2 *INDICATE IF MULTIPLE ENTRY IS EXPECTED:*

Twice, first to launch instruments and then to recover them.

7. **PORT CALLS**

7.1 *DATES AND NAMES OF INTENDED PORTS OF CALL IN IRELAND:*

No intended port call

7.2 *ANY SPECIAL LOGISTICAL REQUIREMENTS AT PORTS OF CALL:*

N/A

7.3 *NAMES/ADDRESS/TELEPHONE OF SHIPPING AGENT (IF AVAILABLE):*

N/A

8. **PARTICIPATION**

8.1 *EXTENT TO WHICH IRELAND WILL BE ENABLED (NAME OF COASTAL STATE) TO PARTICIPATE OR TO BE REPRESENTED IN RESEARCH PROJECT:*

Research is part of SINDRI project in which University of Durham (Dr. R. Hobbs) is participating. Additional observers are welcome abroad.

8.2 *PROPOSED DATES AND PORTS FOR EMBARKATION/DISEMBARKATION:*

Tórshavn, Faroe Islands at beginning and end of deployment and recovery cruise.

9. **ACCESS TO DATA, SAMPLES AND RESEARCH RESULTS:**

9.1 *EXPECTED DATES OF SUBMISSION TO IRELAND OF PRELIMINARY REPORTS WHICH SHOULD INCLUDE THE EXPECTED DATES OF SUBMISSION OF THE FINAL RESULTS:*

Six months from conclusion of cruise.

9.2 *PROPOSED MEANS FOR ACCESS BY IRELAND TO DATA AND SAMPLES:*

By cruise report

9.3 *PROPOSED MEANS OF MAKING RESEARCH RESULTS INTERNATIONALLY AVAILABLE:*

In published journals and project report.