

NOTIFICATION OF PROPOSED RESEARCH CRUISEGENERAL PART A

1. Name of ship **FS 'POSEIDON'**
2. Dates of cruise **07.08.-22.08.2013**
3. Operating Authority **GEOMAR Helmholtz-Zentrum für Ozeanforschung  
Wischhofstr. 1-3  
D-24148 KIEL  
Telephone +49 (0)431- 600 2132/1542  
Telefax +49 (0)431- 600 2680  
e-mail forschungsschiffe@geomar.de**
4. Owner (if different from para 3)
5. Particulars of ship:
- |                 |                                  |
|-----------------|----------------------------------|
| Name            | <b>POSEIDON</b>                  |
| Nationality     | <b>German</b>                    |
| Overall length  | <b>60,80 metres</b>              |
| Maximal draught | <b>4,9 metres</b>                |
| BRT             | <b>1105 BRT</b>                  |
| Propulsion      | <b>Diesel Electric</b>           |
| Call Sign       | <b>DBKV</b>                      |
| IMO no.         | <b>7427518</b>                   |
| MMSI no.        | <b>211204360</b>                 |
| Telephone       | <b>INMARSAT +870 761 651 773</b> |
| Telefax         | <b>INMARSAT +870 600 273 636</b> |
| e-mail          | <b>poseidon-b@skyfile.de</b>     |
6. Crew
- |                |                            |
|----------------|----------------------------|
| Name of Master | <b>Bernhard Windscheid</b> |
| No of Crew     | <b>15</b>                  |
7. Scientific Personnel
- |                     |  |
|---------------------|--|
| Scientist in charge |  |
| Name and address    | <b>Prof. Kaj Hoernle, Prof. Dirk Nürnberg (PIs)<br/>Dr. Reinhard Werner (cruise organizer)<br/>GEOMAR Helmholtz-Zentrum für Ozeanforschung<br/>Wischhofstr. 1-3<br/>D-24148 Kiel<br/>Germany</b> |
| Phone:              | <b>+49 431 600 1416</b>  |
| Fax:                | <b>+49 431 600 2960</b>  |
| e-mail::            | <b>rwerner@geomar.de</b>   |
| No of Scientists:   | <b>10 - 11</b>   |
8. Geographical area in which ship will operate (with reference to latitude and longitude)  
**Waters to the south-west, south and east of Iceland (shelf, slope, and deep sea). The area is defined by the coordinates: 64°40'N, 25°00'W – 64°40'N, 23°00'W – 63°40'N, 23°00'W – 63°40'N, 20°50'W – 63°20'N, 19°30'W – 63°20'N, 18°40'W – 64°10'N, 14°50'W – 64°50'N, 13°20'W – 66°30'N, 13°20'W – 66°30'N, 08°00'W – 62°20'N, 08°00'W – 62°20'N, 25°00'W (see attached chart)**
9. Brief description of purpose of cruise:  
**Marine tephrochronology, volcanology, and Holocene interrelationships between oceanic, continental and atmospheric processes**
10. Dates and names of intended ports of call:  
**Aug. 02<sup>nd</sup> to 09<sup>th</sup>, 2013; Reykjavík, Iceland (currently scheduled for Aug. 04<sup>th</sup> to 07<sup>th</sup>)  
Aug. 20<sup>th</sup> to 27<sup>th</sup>, 2013; Galway, Ireland (currently scheduled for Aug. 22<sup>nd</sup> to 25<sup>th</sup>)**
11. Any special logistic requirement at ports of call: **crew change, loading and unloading of equipment**

## DETAIL

PART B

1. Name of research ship: **POSEIDON** Cruise No. **P457**
2. Dates of cruise from **07.08.2013** to **22.08.2013**
3. Purpose of research and general operational methods.

**R/V POSEIDON cruise P457 aims further development of detailed marine tephrochronology of Iceland in order to improve our knowledge of the spatio-temporal evolution of Icelandic volcanism and related hazards. The history of Icelandic volcanism has been extensively studied on land. However, the marine record of Icelandic volcanism, in particular during the pre-Holocene time period, is not well known but has the potential to extend our knowledge of Icelandic volcanism further back in time with a high temporal resolution. In addition, the marine record contains paleoclimatic information, which may relate recurrent glacier advances and land degradation periods to ocean and atmospheric circulation changes. A minor sub-project aims to contribute to a better understanding of Surtsey volcanism by investigations of marine Surtsey tephra.**

**We intend to deploy gravity cores to recover ultra-high resolution sediment cores from < 200 m to a maximum of ~1000 m water depths from key areas at the south-western, southern and eastern sectors of the Icelandic shelf and slope (see attached map), which were previously not sampled but correspond to the direction of ash transport toward Europe. At all stations we will further deploy a multi corer and/or a box corer in case the upper part of the gravity cores is damaged during coring. Also, core-top sediments from a wide range of water depths will be useful for paleoceanographic proxy calibration studies. Additionally two CTD/rosette water sampling stations will be performed in each working area at a shallow site close to Iceland, and at a deep site further offshore in order to determine the REE distributions and the Nd and Hf isotope compositions of the sea water. In each working area, extensive profiling (multi-beam mapping and sediment echo sounding) is required to identify undisturbed sediment sequences since the area south of Iceland is strongly affected by rivers, jökulhlaups, debris flows, etc.**

**In addition to the scientific goals, career advancement for young scientists and education of students is an important aspect of R/V POSEIDON cruise P457 and the related research project.**

4. Attach chart showing (on an appropriate scale) the geographical area of the intended work, positions of intended stations, tracks of survey lines, positions of moored/seabed equipment.

**See attachment**

5. Types of samples required e.g. Geological/Water/Plankton/Fish/Radioactivity/Isotope

**Geological samples (sediments, tephra) and water samples**

and methods by which samples will be obtained (including/dredging/coring/drilling).

**Gravity corer, multi corer, box corer, CTD with rosette water sampler, sediment echo sounding system, multi-beam echo sounder**

6. Details of moored equipment: **None**
7. Explosives: **None**
- (a) Type and Trade Name
- (b) Chemical content
- (c) Depth of Trade class and stowage

- (d) Size
- (e) Depth of detonation
- (f) Frequency of detonation
- (g) Position in latitude and longitude
- (h) Dates of detonation
8. Detail and reference of
- (a) Any relevant previous/future cruises
- None**
- (b) Any previously published research data relating to the proposed cruise. (Attach separate sheet if necessary)
- None**
9. Names and addresses of scientists of the coastal state in whose waters the proposed cruise takes place with whom previous contact has been made.

**Prof. PhD Jón Eiríksson**  
**Nordic Volcanological Center**  
**Institute of Earth Sciences**  
**University of Iceland**  
**Sturlugata 7**  
**IS-101 Reykjavík, Iceland**  
**Telephone: +354 525 4475**  
**Fax: +354 525 4499**  
**Email: jeir@hi.is**

**Dr. Ármann Höskuldsson**  
**Nordic Volcanological Center**  
**Institute of Earth Sciences**  
**University of Iceland**  
**Sturlugata 7**  
**IS-101 Reykjavík, Iceland**  
**Telephone: +354 525 4215**  
**Fax: +354 525 9767**  
**Email: armh@hi.is**

***Surtsey tephra sub-project:***

**Dr. Sveinn Jakobsson**  
**Icelandic Institute of Natural History**  
**Urridaholtsstraeti 6-8**  
**IS- 212 Gardabaer, Iceland**  
**Telephone: +354 5 900 500**  
**Fax: +354 5 900 595**  
**Email: sjak@ni.is**

10. State:
- (a) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable.
- Yes, visits of scientists to the ship in port are welcome.**
- (b) Whether it will be acceptable to carry on board an observer from the coastal state for any part of the cruise and dates and ports of embarkation/disembarkation.
- If desired an observer from Iceland is welcome to participate in the cruise.**  
**Embarkation: Reykjavík, Iceland (currently scheduled for Aug. 04<sup>th</sup> to 07<sup>th</sup>, 2013)**  
**Disembarkation: Galway, Ireland (currently scheduled for Aug. 22<sup>nd</sup> to 25<sup>th</sup>, 2013)**
- (c) When research data from the intended cruise is likely to be made available to the coastal state and if so by what means.
- Preliminary data report (metadata) and hydroacoustic data (raw): at the end of the cruise (on request)
  - Official Cruise Report three months after finishing the research cruise
  - Bathymetric data will be internationally available from the Federal Maritime and Hydrographic Agency of Germany within three months after the cruise
  - Scientific publications within the following three years
- Further scientific data and research results as well as parts of samples will be provided at no cost to authorities and/or scientists of the coastal state upon request.***

## SCIENTIFIC EQUIPMENT

COASTAL STATE: Iceland

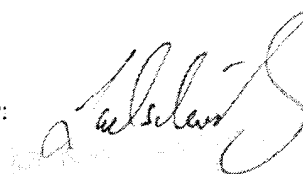
11. Complete the following table - SEPARATE COPY FOR EACH COASTAL STATE  
(INDICATE 'YES' OR 'NO' )

List of all major Marine Scientific Equipment it is proposed to use and indicate waters in which it will be deployed.	Fisheries Research Within Fishing Limits	Research concerning Continental Shelf out to coastal state's margin	DISTANCE FROM COAST (BASELINES)			
			Within 3 NM	Between 3 - 12 NM	Between 12 - 50 NM	Between 50 - 200 NM
a) Gravity corer	No	No	Yes	Yes	Yes	Yes
b) Box corer	No	No	Yes	Yes	Yes	Yes
c) Multi corer	No	No	Yes	Yes	Yes	Yes
d) CTD	No	No	Yes	Yes	Yes	Yes
e) Rosette water sampler	No	No	Yes	Yes	Yes	Yes
f) Swath bathymetry (multi-beam echo sounding)	No	No	Yes	Yes	Yes	Yes
g) Sub-bottom profiling (sediment echo sounding)	No	No	Yes	Yes	Yes	Yes

(On behalf of the Principal Scientist)

Dated: 4/1/2013

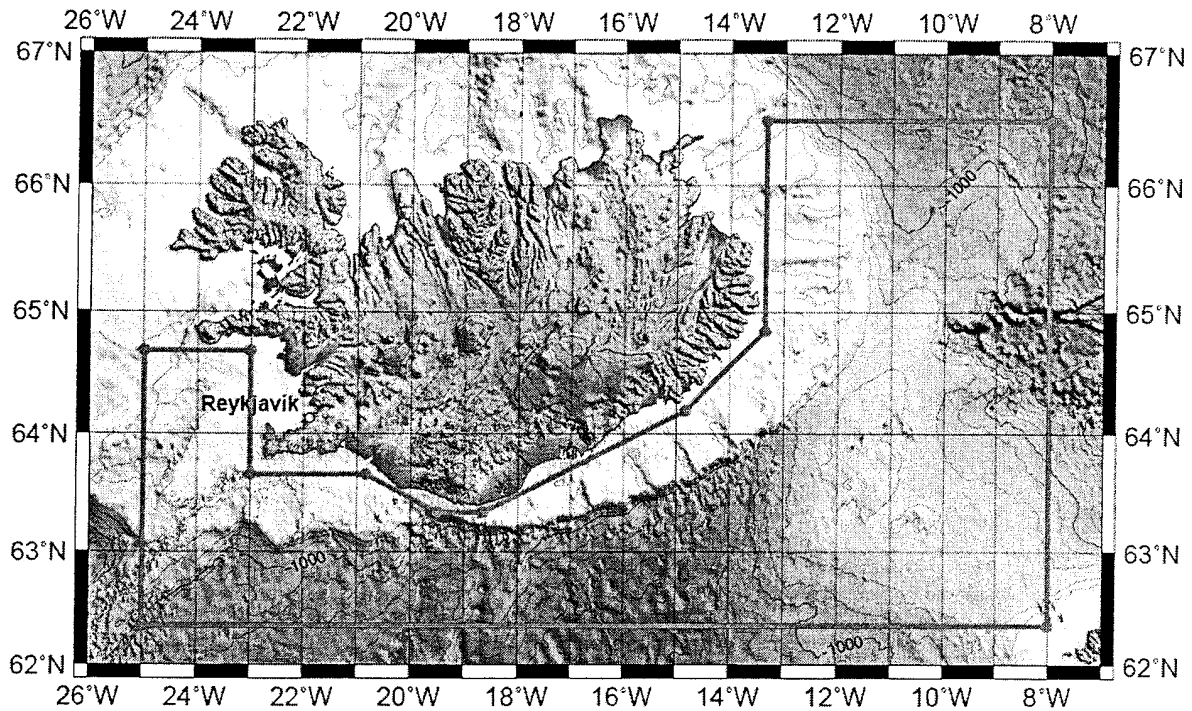
Operating Authority:



N.B. IF ANY DETAILS ARE MATERIALLY CHANGED REGARDING DATES / AREA OF OPERATION AFTER THIS FORM HAS BEEN SUBMITTED THE COASTAL STATE'S AUTHORITIES MUST BE NOTIFIED IMMEDIATELY.

Attachment: Cruise Map

Chart showing the geographical area of the intended work on R/V POSEIDON cruise P457



Key area for sediment, tephra, and water sampling (red line) of the intended R/V POSEIDON cruise P457. The red dots mark the positions (coordinates) given on page 1, section 8 (map based on GEBCO\_08 Grid, version 20091120, <http://www.gebco.net>).

*Please note: The exact ship's track and detailed coordinates of sampling stations cannot be specified at this stage. The exact locations of the sampling stations depend on the results of multi-beam survey and sub-bottom profiling and therefore can be set up only during the P457 cruise.*