

NOTIFICATION OF PROPOSED RESEARCH CRUISE

GENERAL

Part A

01. Name of research ship: **METEOR** Cruise **M164**
02. Dates of cruise **Germany, 13.06.2020** to **Lisbon, 20.07.2020**
03. Operating Authority **Institut für Geologie / University of Hamburg**
Bundesstr. 55, D-20146 Hamburg, Germany
Tel.: +49-40-42838-3640 - Fax: +49-40-42838-46 44
leistelle.ldf@uni-hamburg.de
04. Owner (if different from para 3) **Federal Ministry of Education and Research**
-
05. Particulars of ship:
- | | |
|-----------------|------------------------|
| Name | METEOR |
| Nationality | German |
| Overall length | 97,5 metres |
| Maximum draught | 5,6 metres |
| Nett tonnage | 1284.0 NT |
| Propulsion | Diesel Electric |
| Call sign | D B B H |
06. Crew
- | | |
|----------------|-------------------------|
| Name of master | Rainer Hammacher |
| No. of crew | <u>max. 33</u> |
07. Scientific personnel:
- | | |
|---|---|
| Name and address of scientist in charge | Saskia Brix
Senckenberg am Meer (DZMB)
c/o Biocenter Grindel
Martin-Luther-King-Platz 3
201246 Hamburg |
| Tel./Fax/ | 040 42838 5642 |
| E-Mail | <u>sbrix@senckenberg.de</u> |
| No. of scientists | <u>29</u> |
08. Geographical areas in which ship will operate
(with reference in latitude and longitude)
The working area includes two depth transects in the North Atlantic (Iceland Basin) and Nordic Seas (Norwegian Basin). Position of first station: 66° 43.128' N 003° 06.278' E;
Position of last station: 52° 23.086' N 026° 28.195' W.

GENERAL

09. Brief description of purpose of cruise

With M164 (IceAGE3), we will add deep stations South and North of Iceland along two transects between 4000 and 1000m depth to the IceAGE sampling grid, connect IceAGE samples to related international projects and link the sampling to previous IceAGE expeditions revisiting stations at the southern and northern slope (see map in Part B, 04.). The marine environment at all depths (bathymetric gradient) and all different marine habitats along the border between North Atlantic and Arctic waters (latitudinal species diversity gradient: LSDG) will be used as a proxy to be compared with North American and North European continental slopes and deep-sea basins in regard of the connectivity of the fauna with focus on samples below 3000m water depth. Analyzing the samples will be approached using a combination of classical taxonomic methods with different aspects of modern biodiversity research.

10. Dates and names of intended ports of call

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11. Any special logistic requirements at ports of call

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DETAIL

Part B

01. Name of research ship **METEOR** Cruise No. **M164**
02. Dates of cruise from: **Germany, 13.06.2020** to **Lisbon, 20.07.2020**

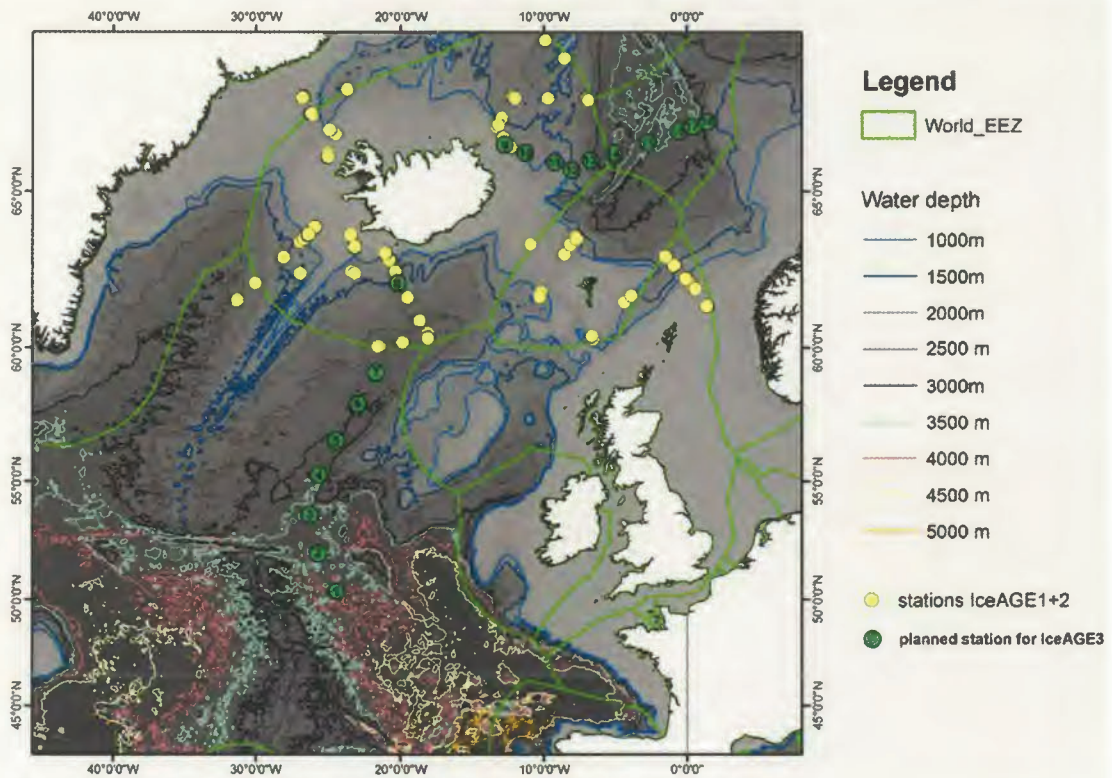
03. Purpose of research and general operational methods

IceAGE3 expands the sampling grid of BIOICE and IceAGE1&2 building up on two decades sampling (1992 – 2013) aiming at long-term observatory/monitoring selected stations. Most important aim of the expedition “IceAGE3” is to collect deep stations below 3000m depth along two depth gradients. The sampling design of IceAGE1 shows gaps in the deeper areas and although we have continuous samples along four transect between 150 and 2850m depth, it is necessary to reach North as well as South of the GIS Ridge below the 3000m line known as “diversity turn over” from the literature. We will

- describe the sampled habitats and present their characterization by video surveys (AUV);
- explore in detail the biodiversity of the Nordic Seas and the northernmost North Atlantic;
- compare the biodiversity of the Nordic Seas and the North Atlantic below 3000m depth;
- define biodiversity hot spots in the region and establish observatory stations to be revisited in future expeditions;
- define biogeographic regions using all records of species known and species distribution models

Thus, we will deploy the AUV Abyss for scanning the seafloor and for sampling the seafloor epibenthic sledges (EBS), triangle dredge (TAD), grabs (VanVeen, box corer) and Multicorer (MUC) and in the water column with (shipboard) CTD and Multinet (MLT).

04. 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.



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

water, plankton, sediment

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

dredging (using towed gear like EBS), coring (Multicorer, grabs)

06. Details of moored equipment:

Dates				
Laying	Recovery	Description	Latitude	Longitude

NOT APPLICABLE

07. Explosives: ***no explosives***
- (a) Type and Trade name
 - (b) Chemical content
 - (c) Dept 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

08. Detail and reference of

- (a) Any relevant previous ~~future~~ cruises
M85/3, POS456 and MSM75

- (b) Any previous published research data relating to the proposed cruise.
(Attach separate sheet if necessary.)

Stationlists of IceAGE can be found here: Brix, S.; Devey, C.W.; (2019); Stationlist of the IceAGE project (Icelandic marine Animals: Genetics and Ecology) expeditions. Marine Data Archive. <https://doi.org/10.14284/349>.

All publications of the project are available in Special Issues in *Polish Polar Research* (35:2 in 2014), *Marine Biodiversity* (Volume 48, Issue 2, June 2018 "Biodiversity of Icelandic Waters" with Issue Editors: Karin Meißner, Saskia Brix, Kenneth M. Halanych, Anna M. Jazdzewska, ISSN: 1867-1616) and *Zookeys* (731 in 2018: Amphipoda from the IceAGE-project (Icelandic marine Animals: Genetics and Ecology) edited by Saskia Brix, Anne-Nina Lörz, Bente Stransky, Jörundur Svavarsson).

09. Names and addresses of scientists of the coastal state in whose waters the proposed cruise takes place with whom previous contact has been made.

Jörundur Svavarsson, Prof.
Institute of Biology, University of Iceland,
Aragata 9, 101 Reykjavík, Iceland
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Hrönn Egilsdóttir, PhD
Sérfræðingur / Research specialist
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Guðmundur Guðmundsson, PhD
 staðgengill forstjóra
 (Deputy Director General and Curator of Marine Invertebrates)
 Náttúrufræðistofnun Íslands (Icelandic Institute of Natural History)
 Urriðaholtsstræti 6-8 (Urridaholtsstraeti 6-8)
 IS-210 Garðabær (IS-210 Gardabaer)
 Ísland (Iceland)

Halldór Pálmar Halldórsson, PhD
 University of Iceland's Research Centre in Sudurnes, Garðvegi 1, 245 Sandgerði, Iceland

Viggó Þór Marteinsson, Prof.
 Mátis ohf. / Icelandic Food and Biotech R&D
 Vínlandsleið 12, 113 Reykjavík - www.matis.is

René Groben, PhD
 Sérfræðingur / Research Scientist
 Rannsóknir og nýsköpun / Research & Innovation
 Beint / Direct: (+354) 422 5104

10. State:

- (a) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable.

Yes, after discussion

- (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.

Yes, after discussion

- (c) When research data from intended cruise is likely to be made available to the coastal state and if so by what means.

Data will be shared with collaborating researchers of the coastal state directly from board of the vessel.

- **Cruise Report** three months after finishing the research cruise

- **Scientific publication** within the following three years

COASTAL STATE: Iceland

SCIENTIFIC EQUIPMENT

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	Within 3 NM	Between 3 - 12 NM	Between 12 - 50 NM	Between 50 - 200 NM
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a)						
vessel mounted systems:						
Hydroacoustic mapping / measuring (incl. ADCP, Parasound and Kongsberg echosounder)	NO	YES	NO	YES	YES	YES
Permanent surface water sampling / pumping (incl. Thermosalinograph)	NO	NO	NO	NO	NO	NO
CTD	NO	YES	NO	YES	YES	YES
b) mobile equipment:						
AUV	NO	YES	NO	YES	YES	YES
TAD	NO	YES	NO	YES	YES	YES
GRAB	NO	YES	NO	YES	YES	YES
EBS	NO	YES	NO	YES	YES	YES
MUC	NO	YES	NO	YES	YES	YES
MLT	NO	NO	NO	YES	YES	YES
Meteorological sensors	NO	NO	NO	YES	YES	YES