

**NOTIFICATION OF PROPOSED RESEARCH CRUISE****PART A: GENERAL**

1. NAME OF RESEARCH SHIP: **R.V. MARIA S. MERIAN** CRUISE NO. **MSM111**
2. DATES OF CRUISE **from 2<sup>nd</sup> September 2022, Reykjavik**  
**to 4<sup>th</sup> October 2022, St. John's**
3. OPERATING AUTHORITY **Institute for Geology / University of Hamburg**  
**Bundesstr. 55, D-20146 Hamburg, Germany**  
**Tel.: +49-40-42838-3640 - Fax: +49-40-4273-10063**
4. OWNER (if different from n. 3) **Federal State Mecklenburg-Vorpommern,**  
**Germany**
5. PARTICULARS OF SHIP

Name	<b>MARIA S. MERIAN</b>
Nationality	<b>German</b>
Overall length	<b>94.8 metres</b>
Maximum draught	<b>6.5 metres</b>
Nett tonnage	<b>1671 NT</b>
Propulsion	<b>Diesel Electric</b>
Call sign	<b>D B B T</b>
6. Crew

Name of master	<b><u>Ralf Schmidt</u></b>
Number of crew	<b><u>max. 23</u></b>
7. SCIENTIFIC PERSONEL

Name and address of scientist in charge:	<b>Prof. Dr. Michal Kucera</b> <b>MARUM – Center for marine</b> <b>environmental sciences</b> <b>University of Bremen</b> <b>Leobener Straße 8</b> <b>28359 Bremen</b> <b>Germany</b>
Tel.:	<b>+49 (0) 421 21865970</b>
Fax:	<b>+49 (0) 421 2189865970</b>
E-Mail:	<b>mkucera@marum.de</b>
Number of scientists:	<b><u>max.23</u></b>

8. GEOGRAPHICAL AREAS IN WHICH SHIP WILL OPERATE (with reference in latitude and longitude)  
**Irminger Sea, 63.86738N, 28.94631W and 63.25826N, 28.25113W**  
*(see also attached map)*
9. BRIEF DESCRIPTION OF PURPOSE OF CRUISE  
**To study paleo-ecology and paleo-oceanography of the North Atlantic Ocean and its interaction with climate change on a range of time scales (decadal-millennial) going back to the Last Interglacial (Marine Isotope Stage 5).**
10. DATES AND NAMES OF INTENDED PORTS OF CALL  
**Reykjavik (Iceland) for five days between 26<sup>th</sup> August 2022 and 5<sup>th</sup> September 2022 (planned from 29<sup>th</sup> August 2022 to 2<sup>nd</sup> September 2022).**
11. ANY SPECIAL REQUIREMENTS AT PORTS OF CALL  
**Crew change; unloading/loading of equipment; logistics; bunkering.**

**NOTIFICATION OF PROPOSED RESEARCH CRUISE****PART B: DETAILS**

1. NAME OF RESEARCH SHIP      **R.V. *MARIA S. MERIAN***  
CRUISE NO.                      **MSM111**
2. DATES OF CRUISE              **Reykjavik, 02.09.2022 to St. John's, 04.10.2022**
3. a) **PURPOSE OF RESEARCH**

The principle aim of the cruise is to recover a continuous sediment sequence from the central Baffin Bay, allowing a reconstruction of the chronology of changing oceanic conditions and terrigenous sediment supply from Greenland and Arctic ice sheets during MIS5 and MIS11. Collectively, the material will be used to establish GIS collapse chronology and its link with Baffin Bay oceanography during the MIS5 and MIS11 warm intervals.

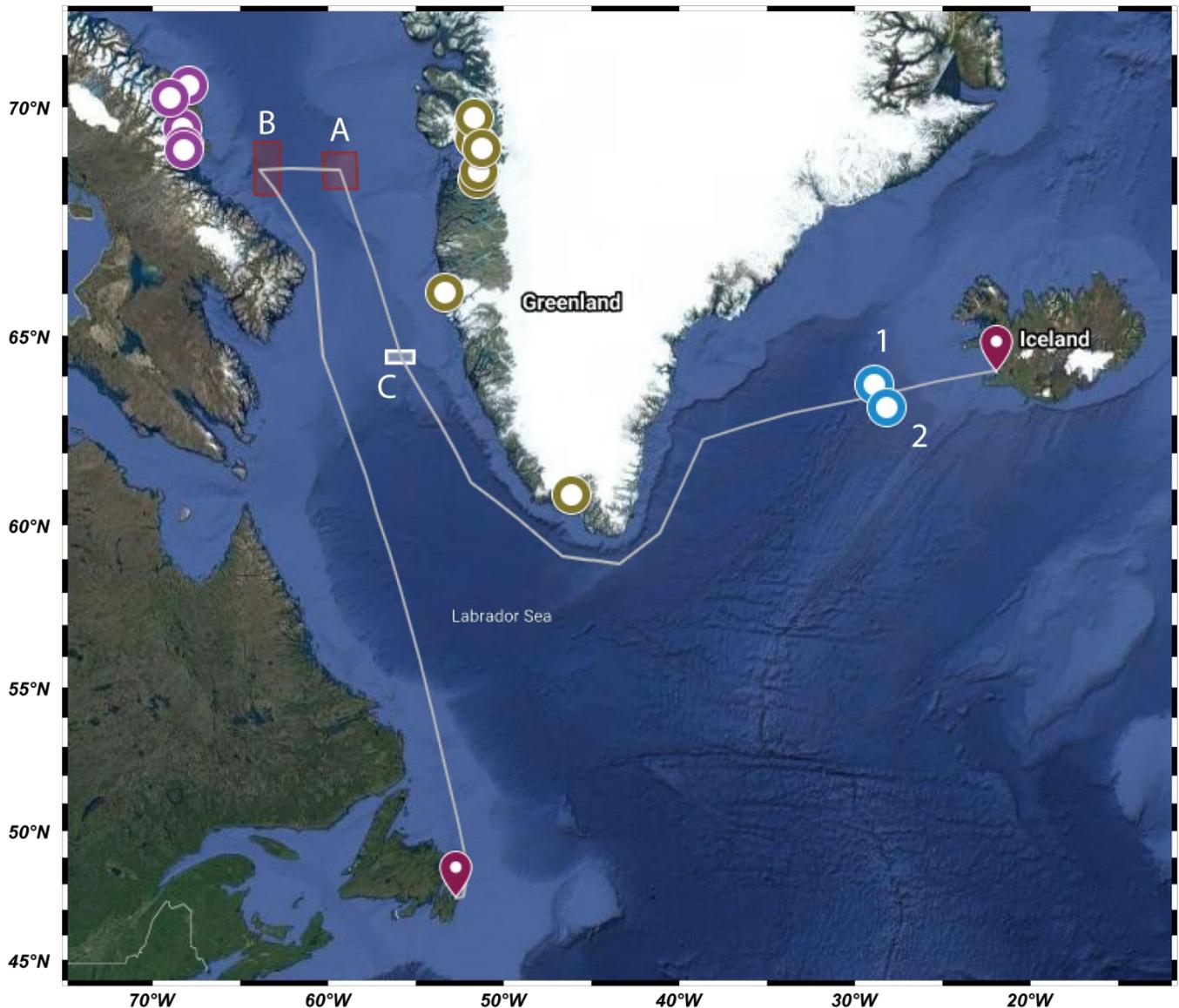
Since the cruise begins in Iceland, we have been asked by our Danish and Icelandic colleagues from the ROCS center (see below) for assistance with obtaining sediment samples. Considering the favorable location of the envisaged sampling site we will likely be able to collect these samples and we thus added an additional ancillary aim to the cruise program:

The ancillary aim of the cruise is to study paleo-ecology and paleo-oceanography of the North Atlantic Ocean and its interaction with climate change on a range of time scales (decadal-millennial) going back to the Last Interglacial (Marine Isotope Stage 5). Specifically, we intend to:

- **Revisit previous sediment coring locations to obtain new sediment cores by means of surface sediment sampling (multicorer) and gravity coring for the calibration of organic and inorganic geochemical proxies and environmental DNA for sea-ice extent, productivity and water mass distribution. The core locations are constrained by previous ROCS surveys, but the positions will have to be confirmed by hydroacoustic measurements.**

This research takes place within the international Queen Margrethe's and Vigdís Finnbogadóttir's Interdisciplinary Research Centre on Ocean, Climate, and Society (ROCS). The center aims to quantify and analyse the historical relationships between ecosystem structure and climate development in marine and terrestrial environments in and around Iceland. This enables a new understanding of how the Icelandic population has been impacted by changes in ecosystem services caused by climate change as well as how this change has been recognised in the society and how human interference has impacted ecosystems around them. For more information, see: <https://rocs.ku.dk/research/>

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.



The locations 1 and 2 indicate intended sediment coring location in Icelandic waters using a gravity and multicorer. Grey line is the main cruise track from Reykjavik (Iceland) to St John's (Canada). Boxes and circles in the Baffin Bay area indicate the principle working area of the research cruise.

5. a) TYPES OF SAMPLES REQUIRED  
(e.g. geological/ water/ plankton/ fish/ radionuclide)

**Samples: Geological: sediment cores**

**Data: Geological: hydroacoustics (to confirm the core position)**

b) METHODS OF OBTAINING SAMPLES (e.g., dredging/coring/drilling/fishing, etc. When using fishing gear, indicate fish stocks being worked, quantity of each species required, and quantity of fish to be retained on board).

**Samples: multicorer, gravity corer**

***No seismic work during this cruise.***

6. DETAILS OF MOORED EQUIPMENT*no moored equipment*7. ANY HAZARDOUS MATERIALS (chemicals/ explosives/ gases/ radionuclides, etc.)  
(Use separate sheet if necessary)a) Type and trade name:b) Chemical content (and formula):c) IMO IMDG Code (reference and UN no.):d) Quantity and method of storage on board:e) If explosives give dates of detonation**NO EXPLOSIVES**

Method of detonation

Position of detonation

Frequency of detonation

Depth of detonation

Size of explosive charge in kg.

8. DETAIL AND REFERENCE OFa) Any relevant previous / future cruises

**High-resolution seismic and multibeam bathymetry data were recently collected in the area of the two proposed coring locations during the R/V Arni Fridriksson cruise in 2021 by the ROCS center. These data are the basis for the identification of the coring locations to be sampled during this cruise.**

b) Any previously published research data relating to the proposed cruise

**Bianchi, G.G. & McCave, I.N. (2000). Hydrography and sedimentation under the deep western boundary current on Björn and Gardar Drifts, Iceland Basin. *Marine geology* 165, 137-169.**

**Knutz, P. C., Jones, E. J. W., Austin, W. E. N., & van Weering, T. J. C. (2002). Glacimarine slope sedimentation, contourite drifts and bottom current pathways on the Barra Fan, UK North Atlantic margin, *Marine Geology*, 188, 129-146.**

**Lacasse, C., Sigurdsson, H., Carey, S., Paterne, M., & Guichard, F. (1996). North Atlantic deep-sea sedimentation of Late Quaternary tephra from the Iceland hotspot. *Marine Geology* 129, 207-235.**

**McCave, I.N. & Tucholke, B.E. (1986). Deep current-controlled sedimentation in the western North Atlantic. In: Vogt, P.R. & Tucholke, B. E. (Eds), *Geology of North America: The Western North Atlantic Region*, Geol. Soc. Am.**

**Nielsen, T., Knutz, P. C., & Kuijpers, A. (2008). Seismic Expression of Contourite Depositional Systems. In: Rebesco, M., and Camerlenghi, A. *Contourites, Developments in Sedimentology* 60, 301-321.**

9. NAMES AND ADDRESSES OF SCIENTISTS OF THE COSTAL STATE(S) IN WHOSE WATERS THE PROPOSED CRUISE TAKES PLACE WITH WHOM PREVIOUS CONTACT HAS BEEN MADE

**Esther Ruth Guðmundsdóttir, Professor in geology, University of Iceland, estherrg@hi.is, +354 5254255**

10. STATE

a) Whether visits to the ship in port by scientists of the coastal state concerned will be acceptable (Yes/No)

**Yes.**

b) Participation of an observer from the coastal state for any part of the cruise together with the dates and the ports for embarkation and disembarkation

**Generally possible, but not planned for this expedition, as all scientific berths are firmly occupied.**

c) When research data from the intended cruise are likely to be made available to the coastal state and by what means

- ***Cruise Report* three months after finishing the research cruise**
- ***Scientific publication* within the following three years**

**PART C: SCIENTIFIC EQUIPMENT**

Complete the following table

Coastal state **Iceland**Port of call**Reykjavik, Iceland**Dates**5 days port call between 26.08.2022 and 05.09.2022**

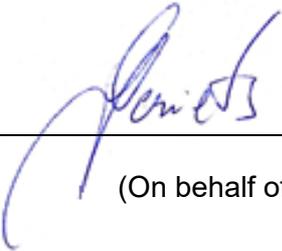
Indicate "YES" or "NO"

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
<b>a) vessel mounted systems:</b>						
Hydroacoustic mapping / measuring (incl. ADCP, Parasound and multibeam EM712, EM122)	NO	NO	NO	NO	YES	YES
Permanent surface water sampling / pumping (incl. Thermosalinograph)	NO	YES	NO	NO	YES	YES
<b>b) mobile equipment:</b>						
Meteorological sensors, disdrometer, sun photometer, cloud camera.	NO	NO	NO	NO	YES	YES
CTD/Water sampler	NO	NO	NO	NO	NO	NO
Boxcorer	NO	NO	NO	NO	NO	NO
Multicorer	NO	NO	NO	NO	NO	YES
Gravity corer (18 m)	NO	NO	NO	NO	NO	YES
MeBo 200 drilling rig	NO	NO	NO	NO	NO	NO

Hamburg, 08.02.2022

Dated

(On behalf of the Principal Scientist)

  
**Universität Hamburg**  
 CEN Centrum für Erdsystemforschung und Nachhaltigkeit  
 Leitstelle Deutsche Forschungsschiffe  
 Bundesstr. 55  
 D-20146 Hamburg  
 - Germany -

NB IF ANY DETAILS ARE MATERIALLY CHANGED REGARDING DATES/AREA OF OPERATION AFTER THIS FORM HAS BEEN SUBMITTED, THE COASTAL STATE AUTHORITIES MUST BE NOTIFIED IMMEDIATELY