

## NOTIFICATION OF PROPOSED RESEARCH CRUISE

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## GENERAL

Part A

01. Name of research ship: **MARIA S. MERIAN** Cruise No. **MSM85**
02. Dates of cruise from **St. John's, 20 July 2019** to **Longyearbyen, 10 August 2019**
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**
04. Owner (if different from para 3) **Federal State Mecklenburg-Vorpommern, Germany**
05. 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>         |
06. Crew
- |                |                       |
|----------------|-----------------------|
| Name of master | <b>Ralf Schmidt</b>   |
| No. of crew    | <b><u>max. 23</u></b> |
07. Scientific personnel:
- |   |  |
|---|--|
| Name and address of scientist in charge | <b>Dr. Christian Mertens</b><br><b>Universität Bremen</b><br><b>Otto-Hahn-Allee 1</b><br><b>D-28359 Bremen</b> |
| Tel./Fax/Telex No.                      | <b>+49 421 218 62147 (Tel.)</b><br><b>+49 421 218 62165 (Fax)</b>  |
| No. of scientists                       | <b><u>max.23</u></b>   |
08. Geographical areas in which ship will operate (with reference in latitude and longitude)

**Labrador Sea, Irminger Sea, Denmarkstrait, Iceland Sea, Greenland Sea (45°N – 80°N, 50°W – 5°E)**

09. Brief description of purpose of cruise

**Physical and chemical oceanography studies of the circulation on the Shelf and in the deep ocean, transports of fresh water and glacial melt water, distributions of noble gases, oxygen, nutrients and trace elements.**

10. Dates and names of intended ports of call  
**No portcall in Iceland is planned.**
11. Any special logistic requirements at ports of call

## DETAIL

Part B

01. Name of research ship **MARIA S. MERIAN** Cruise No. **MSM 85**
02. Dates of cruise from: **St. John's, 20 July 2019** to **Longyearbyen, 10 August 2019**
03. Purpose of research and general operational methods
- 1) Quantification of fresh water and glacial melt water transports from hydrography (temperature, salinity, oxygen), anthropogenic tracers (SF6, CFCs), noble gases (He, Ne) and current measurements.
  - 2) Carbonate chemistry to study the role of meltwater for ocean acidification and air-sea-ice CO2 exchange in the waters of the East Greenland Current.
  - 3) Study the (micro-) nutrient supply by melting glaciers using chemical measurements of trace elements and nutrients.
  - 4) Analysis of nitrous oxide and DNA analysis of key molecular markers for nitrogen cycling.

Types of samples and data	Methods to be used	Instruments to be used
Temperature, Salinity, Oxygen	Vertical profiling	Conductivity-temperature-depth probe (CTD)
Current velocity	Vertical profiling and continuous sampling with vessel mounted instruments	Acoustic Doppler current profilers (ADCPs)
Salinity, O2, CFCs, SF6, He, Ne, nutrients, CO2, nitrous oxide, DNA	Analysis of water samples	10L bottles attached to rosette water sampler
Trace elements	Pumping of surface water	Tow fish
Water depth	Echo sounding	Multibeam echo sounder
Surface temperature and salinity	Continuous sampling along ship's track	Thermosalinograph
Standard meteorological measurements	Continuous sampling along ship's track	Meteorological sensors

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.

***see attachment***

05. Types of samples required, e.g. Geological / Water / Plankton / Fish / Radio-activity / Isotope

***water, hydroacoustic data, in-situ sensor data***

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

***pumping, hydroacoustic measuring, probing with sensors, collecting water samples***

06. Details of moored equipment: ***no moored equipment***

D a t e s		Description	Latitude	Longitude
Laying	Recovery			

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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  
 Polarstern 100, 18-July-2016 to 6-September-2016  
 Polarstern 109, 17-September-2017 to 21-October-2017  
 Maria S. Merian 76, 11-August-2018 to 11-September-2018

- (b) Any previous published research data relating to the proposed cruise.

(Attach separate sheet if necessary.)

**Rhein, M., R. Steinfeldt, O. Huhn, J. Sültenfuß, and T. Breckenfelder (2018),**  
Greenland submarine melt water observed in the Labrador and Irminger Sea,  
*Geophy. Res. Lett.*, 45.

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.

10. State:

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

Yes, after prior consultation with the chief scientist.

(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 prior consultation with the chief scientist.

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

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

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

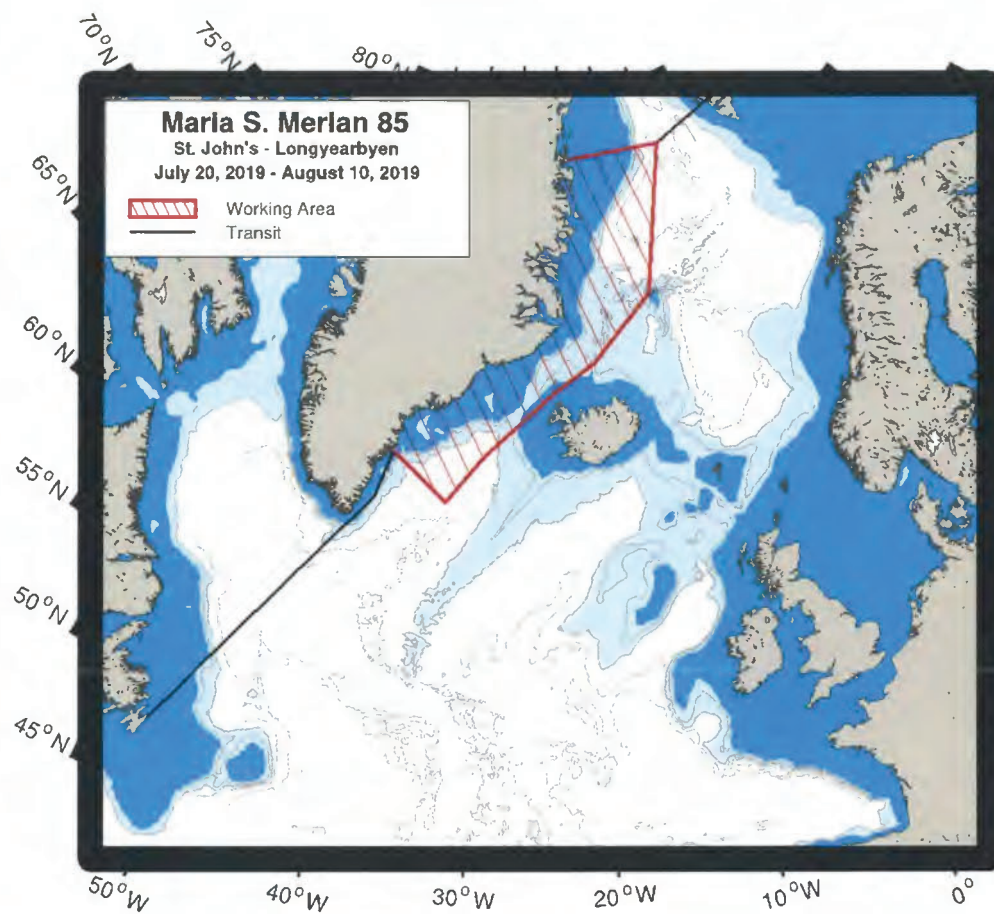
COASTAL STATE: **Iceland**SCIENTIFIC EQUIPMENT

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 multibeam)	No	Yes	Yes	Yes	Yes	Yes
permanent surface water sampling / pumping (incl. Thermosalinograph)	No	Yes	Yes	Yes	Yes	Yes
Meteorological sensors, disdrometer, sun photometer, cloud camera.	No	Yes	Yes	Yes	Yes	Yes
b) mobile equipment: Rosette sampler with CTDO2, LADCP, Niskin bottles	No	Yes	Yes	Yes	Yes	Yes
Tow fish	No	Yes	Yes	Yes	Yes	Yes



Intended cruise track and working area for *Maria S. Merlan* cruise MSM85 from St. John's, Newfoundland (July 20, 2019) to Longyearbyen/Svalbard (August 10, 2019). A total of 140 CTDO2/LADCP casts is planned in the working area.