

Application for Consent to conduct  
Marine Scientific Research

Date: 13.02.2018

1. General Information

1.1 Cruise name and/or number: <b>HE 517</b>
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1.2 Sponsoring Institution(s):	
Name:	<b>Alfred-Wegener-Institute for Polar- and Marine Research</b>
Address:	<b>Am Handelshafen 12 27570 Bremerhaven Germany</b>
Name of Director:	<b>Prof. Dr. Antje Boetius</b>

1.3 Scientist in charge of the Project:	
Name:	<b>Dr. Rüdiger Röttgers</b>
Country:	<b>Germany</b>
Affiliation:	<b>Helmholtz-Zentrum Geesthacht</b>
Address:	<b>Max-Planck-Str. 1, D-21502 Geesthacht</b>
Telephone:	<b>+49 4152 87 1575</b>
Fax:	<b>+49 4152 87 1596</b>
Email:	<b>rroettgers@hzg.de</b>
Website (for CV and photo):	<b><a href="http://www.hzg.de/institutes_platforms/coastal_research/operational_systems/remote_sensing/staff/046456/index.php">http://www.hzg.de/institutes_platforms/coastal_research/operational_systems/remote_sensing/staff/046456/index.php</a></b>

1.4 Entity(ies)/Participant(s) from coastal State involved in the planning of the project:	
Name:	<b>Matthew Palmer</b>
Affiliation:	<b>National Oceanography Centre</b>
Address:	<b>Joseph Proudman Building; 6 Brownlow Street Liverpool; L3 5DA; United Kingdom</b>
Telephone:	<b>+44 (0)151 795 4967</b>
Fax:	<b>+44 -</b>
Email:	<b>rolm@noc.ac.uk</b>
Website (for CV and photo):	<b><a href="http://noc.ac.uk/people/rolm">noc.ac.uk/people/rolm</a></b>

2. Description of Project

2.1 Nature and objectives of the project: <b>Biological, chemical and physical oceanography.</b> <b>Collection of water samples and measurements in the water column.</b> <b>Continuous measurements with ferry-box systems.</b> <b>Research is related to optical remote sensing validation in coastal waters.</b>
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2.2 If designated as part of a larger scale project, then provide the name of the project and the Organisation responsible for coordinating the project: <b>Not applicable</b>
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2.3 Relevant previous or future research projects:

**Not applicable**

2.4 Previous publications relating to the project:

Ina Lefering, Rüdiger Röttgers, Christian Utschig, and David McKee (2017) Uncertainty budgets for liquid waveguide CDOM absorption measurements, Applied Optics 56 (22): 6357-6366

Wollschläger J., Röttgers R., Petersen W. & Wiltshire K.H (2014): Performance of absorption coefficient measurements for the in situ determination of chlorophyll-a and total suspended matter. Journal of Experimental Marine Biology and Ecology, 453C, 138-147 (doi.org/10.1016/j.jembe.2014.01.011)

Röttgers, R., Dupouy, C., Taylor, B.B., Bracher, A., & Wozniak, S.B. (2014): Mass-specific light absorption coefficients of natural aquatic particles in the near-infrared spectral region. Limnol. Oceanogr., 59(5), 1449-1460

Xi, H., Larouche, P., Tang, S., & Michel, C. (2014): Characterization and variability of particle size distributions in Hudson Bay, Canada. Journal of Geophysical Research: Oceans. 119(6): 3392–3406

Rüdiger Röttgers, David McKee, and Christian Utschig (2014): Temperature and salinity correction coefficients for light absorption by water in the visible to infrared spectral region. Optics Express, Vol. 22, Issue 21, pp. 25093-25108

Rüdiger Röttgers, Kerstin Heymann, and Hajo Krasemann (2014): Suspended matter concentrations in coastal waters: methodological improvements to quantify individual measurement uncertainty. Estuarine, Coastal and Shelf Science (in print) DOI: 10.1016/j.ecss.2014.10.010.

### 3. Geographical Areas

3.1 Indicate geographical areas in which the project is to be conducted (with reference in Latitude and longitude in decimal degrees, including coordinates of cruise/track/way points/sampling stations). Please provide coordinates in a separate excel spreadsheet.

Northern North Sea/North Atlantic  
North of Scotland, and around Shetland islands, deeper waters to shelf areas.  
See attached maps.

3.2 Attach chart(s) at an appropriate scale (1 page, high-resolution) showing the geographical Areas of the intended work and, as far as practicable, the location and depth of sampling Stations, the tracks of survey lines, and the locations of installations and equipment.

**See Attachment**

### 4. Methods and means to be used

4.1 Particulars of vessel:

Name:	<b>HEINCKE</b>
Type/Class:	<b>RV</b>
Nationality (Flag State):	<b>GERMAN</b>
Identification Number (IMO/Lloyds No.):	<b>8806113</b>
Owner:	<b>Federal Ministry of Education and Research, German Government</b>

Operator:	<b>Alfred-Wegener-Institute for Polar- and Marine Research</b>
Overall length (meters):	<b>55,20</b>
Maximum draught:	<b>3,95</b>
Displacement/Gross Tonnage:	<b>1000</b>
Propulsion:	<b>Diesel Electric</b>
Cruising & maximum speed:	
Call sign:	<b>DBCK</b>
INMARSAT number and method and capability of communication (including emergency frequencies):	<b>INMARSAT +870-764-140-491 IRIDIUM +881-631-815-155</b>
Name of Master:	<b>Haye Diecks</b>
Number of Crew:	<b>12</b>
Number of Scientists on board:	<b>12</b>

<b>4.2 Particulars of Aircraft:</b>	
Name:	<b>Not applicable</b>
Make/Model:	
Nationality (flag State):	
Website for diagram & Specifications:	
Owner:	
Operator:	
Overall Length (meters):	
Propulsion:	
Cruising & Maximum speed:	
Registration No.:	
Call Sign:	
Method and capability of communication (including emergency frequencies):	
Name of Pilot:	
Number of crew:	
Number of scientists on board:	
Details of sensor packages:	
Other relevant information:	

<b>4.3 Particulars of Autonomous Underwater Vehicle (AUV):</b>	
Name:	<b>Not applicable</b>
Manufacturer and make/model:	
Nationality (Flag State):	
Website for diagram & Specifications:	
Owner:	
Operator:	
Overall length (meters):	
Displacement/Gross tonnage:	
Cruising & Maximum speed:	
Range/Endurance:	
Method and capability of communication (including emergency frequencies):	
Details of sensor packages:	
Other relevant information:	
Operator:	

4.4 other craft in the project, including its use:  
 RC – Drone (DJI Magic Pro Platinum) - for aerial photographs  
 Specifications: <https://www.dji.com/mavic-pro-platinum/info#specs>

Details:  
 diagonal max. 0,55 m, 743 gr (incl. flight battery), 3 m/s and 5 m/s (65 kph without wind), max. abt. 7km / 30 min. without wind flight range planned 500m, max. 1000m, altitude according to national rules, RC over 2,4 Ghz or WLAN (short range), emergency procedures for loss of signal either automatic return to home or hover, optical camera, 12,71 MP, FOV 78,8°, 28mm (35mm equivalent), video 4K

4.5 Particulars of methods, full description of scientific instruments to be used (for fishing gear specify type and dimension) and location

Types of samples and Measurements:	Methods to be used:	Instruments to be used:	To be carried out within 12nm (yes or no):
<b>Meteorological measurements</b>		<b>Miscl.</b>	<b>yes</b>
<b>Water sampling</b>	<b>Water collection bottles</b>	<b>CTD frame</b>	<b>yes</b>
<b>Sea currents</b>	<b>hydro-acoustics</b>	<b>ADCP</b>	<b>yes</b>
<b>Water measurements</b>	<b>CTD, temperature, salinity,</b>	<b>Ferrybox, Temp. / salinity sensors, Thermosalinograph, SVP/T sensor</b>	<b>yes</b>
<b>Surface photography</b>	<b>photography</b>	<b>AUV camera</b>	<b>no</b>
<b>Remote sensing</b>	<b>radiometry</b>	<b>Radiometers</b>	<b>yes</b>

4.6 Indicate nature and quantity of substances to be released into the marine environment:  
**None**

4.7 Indicate whether drilling will be carried out. If yes, please specify:  
**None**

4.8 Indicate whether explosives will be used. If yes, please specify type and trade name, Chemical content, depth of trade class and stowage, size, depth of detonation, frequency of Detonation, and position in latitude and longitude:  
**None**

5. Installations and Equipment

Details of installations and equipment (including dates of laying, servicing, method and Anticipated timeframe for recover, as far as possible exact locations and depth, and Measurements):  
**Not applicable**

6. Dates

6.1 Expected dates of first entry into and final departure from the research area by the research vessel and/or other platforms:  
**20.08.2018 - 01.09.2018**

6.2 Indicate if multiple entries are expected:
<b>Yes</b>

7. Port Calls

7.1 Dates and Names of intended ports of call:
Arrival: Bremerhaven 19.08.2018
Departure: Lerwick 28.08.2018, 17:00 h
Arrival: Lerwick 28.08.2018, 17:00 h
Departure: Bergen 05.09.2018
Arrival:: Bergen 08.09.2018

7.2 Any special logistical requirements at ports of call:
<b>No</b>

7.3 Name/Address/Telephone of shipping agent (if available):
<b>Not applicable</b>

8. Participation of the representative of the coastal State

8.1 Modalities of the participation of the representative of the coastal State in the research Project:
<b>Possible</b>

8.2 Proposed dates and ports for embarkation/disembarkation:
<b>Not applicable</b>

9. Access to Data, Samples and Research Results

9.1 Expected dates of submission to coastal State of preliminary report, which should include The expected dates of submission of the data and research results:
<b>6 months after the end of the cruise</b>

9.2 Anticipated dates of submission to the coastal State of the final report:
<b>12 months after the end of the cruise</b>

9.3 Proposed means for access by coastal State to data (including format) and samples:
<b>Via Internet, through the Cosyna database accessible at <a href="http://www.cosyna.de/">http://www.cosyna.de/</a></b>

9.4 Proposed means to provide coastal State with assessment of data, samples and Research results:
<b>Results are published in papers and in international scientific journals.</b>

9.5 Proposed means to provide assistance in assessment or interpretation of data, samples And research results:
<b>Data including documentation and contact details of the responsible scientists are available through the Cosyna database accessible at <a href="http://www.cosyna.de/">http://www.cosyna.de</a></b>

9.6 Proposed means of making results internationally available:

**Results are published in papers and in international scientific journals.**

10. Other permits Submitted

10.1 Indicate other types of coastal state permits anticipated for this research (received or Pending):

Similar notification to all coastal states en route

11. List of Supporting Documentation

11.1 List of attachments, such as additional forms required by the coastal State, etc.:

- Attachment I: Map
- Attachment II: List of estimated Waypoints

Signature:

13.02.2018, 

Alfred-Wegener-Institut  
Helmholtz-Zentrum für  
Polar- und Meeresforschung  
Logistik und Forschungsplattformen  
Am Alten Hafen 26  
27568 Bremerhaven

(On behalf of the chief scientist)

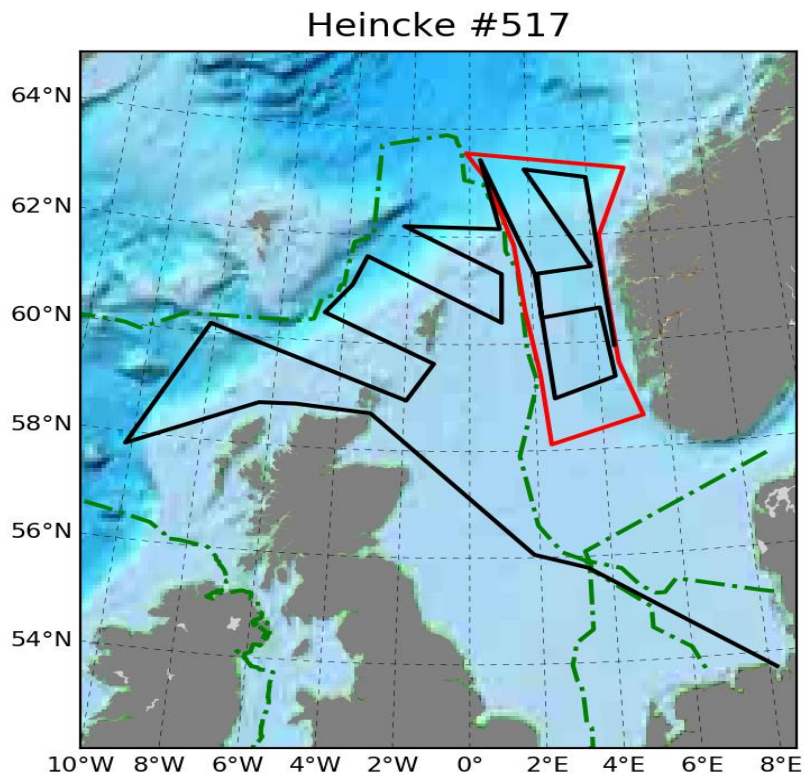
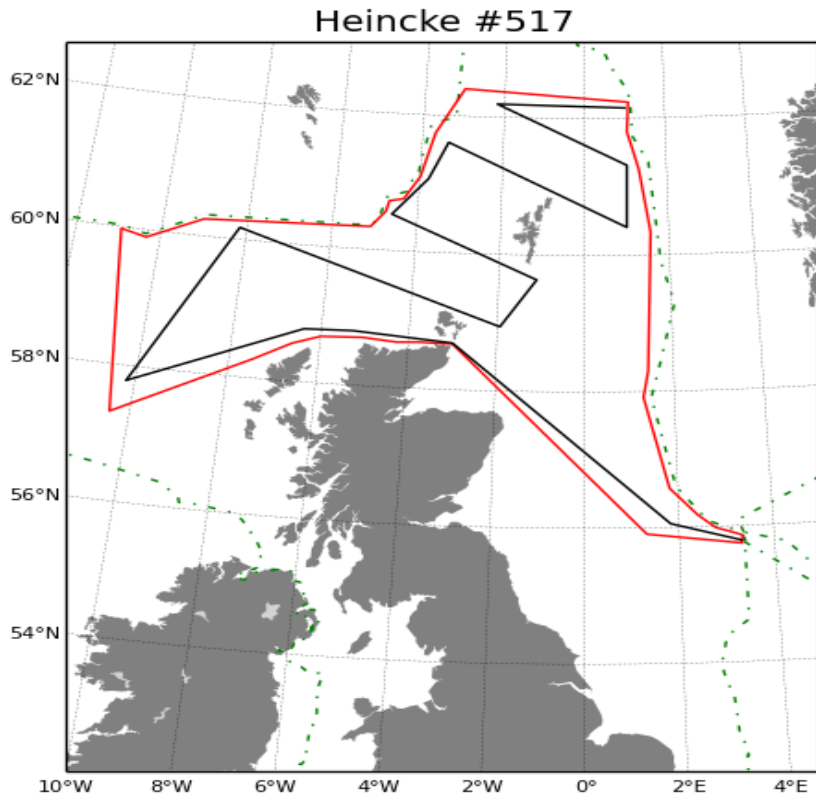
Contact information of the focal point:

Name: Marius Hirsekorn  
Country: Germany  
Affiliation: Alfred Wegener Institute  
Operations Research Vessels

Telephone: +49-(0)471-4831-2241  
Email: schiffskoord@awi.de  
Address: Am Alten Hafen 26

**Attachment I.**

(map cruise part in British waters, working area (in red), estimated cruise track (in black)).



Attachment II. (List of estimated waypoints)

EXCEL

**HE INCKE Expedition HE 517**

**Alfred Wegener Institut**

**Estimated Waypoints**

<b>Longitude</b>	<b>Latitude</b>
3° 18.78' E	55° 47.04' N
1° 49.56' E	56° 03.18' N
3° 00.00' W	58° 41.04' N
5° 17.04' W	58° 47.82' N
6° 23.52' W	58° 46.62' N
10° 11.64' W	57° 46.80' N
8° 10.20' W	60° 10.44' N
1° 56.16' W	58° 56.46' N
1° 06.96' W	59° 38.16' N
4° 36.48' W	60° 31.80' N
3° 47.16' W	61° 04.26' N
3° 20.94' W	61° 36.66' N
1° 00.42' E	60° 24.30' N
1° 02.04' E	61° 18.66' N
2° 11.10' W	62° 11.34' N
1° 00.00' E	62° 08.76' N