NOTIFICATION OF PROPOSED RESEARCH CRUISE

GENERAL
ORGANISATION
PART A

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1. Name of research ship SIMON STEVIN Cruise No 19-570

2. Dates of cruise From 2 September To 13 September 2019

3. Operating Authority **Flemish Government – Department Fleet**
in cooperation with Flanders Marine Institute (VLIZ)
Wandelaarkaai 4, 8400 Oostende, Belgium
Tel. 059/34.21.30 Tlfax 059/34.21.31
E-mail : info@vliz.be

4. OWNER **BELGIAN STATE REPRESENTED BY FLEMISH GOVERNMENT**

5. Particulars of ship

Name	**SIMON STEVIN**
Nationality	BELGIAN
Overall length	36 metres
Maximum draught	3,5 metres
Nett tonnage	137 NRT
Propulsion	Electric
Call Sign	ORBS

6. Crew

Name of Master	**Norman Daems**
No of Crew	**9**

7. Scientific Personnel Name and address of applicant :

Dr. Tine Missiaen
Flanders Marine Institute
Wandelaarkaai 7
8400 Oostende, Belgium
Tine.missiaen@vliz.be

8. Geographical area in which ship will operate (with reference in latitude and longitude).

The survey will be carried out across the British and Dutch continental shelves; in between geographic longitudes 1°58'E – 3°52' and latitudes 52°26'N – 54°32'N (see Table 1 and Figure 1 in part B).

9. Brief description of purpose of cruise

This cruise is taking place in the framework of the collaborative project "Deep History: Revealing the palaeo-landscape of the southern North Sea" aimed at a reconstruction of the late Quaternary palaeolandscape in the southern North Sea (palaeo-fluvial system, proglacial lake, Holocene drowning) and the relation to possible prehistoric human occupation. In April 2018 a first seismic reconnaissance survey was carried out in the larger Brown Bank area which resulted in a unique dataset of unprecedented quality. The main aim of this 2019 Simon Stevin campaign is to take shallow vibrocores on a number of well-chosen locations. In view of the high accuracy and resolution of the seismic data dynamic positioning during coring is crucial. In addition to the vibrocores, also seismic data (sparker, SES Quattro) will be recorded (possibly also simultaneous with multibeam).

10. Port of Call; Dates; Reasons. **as proposed by the applicant**

None

11. Any special logistic requirements at ports of call (other than water, fuel provisions, etc.).

None

NOTIFICATION OF PROPOSED RESEARCH CRUISE

DETAIL
PART B

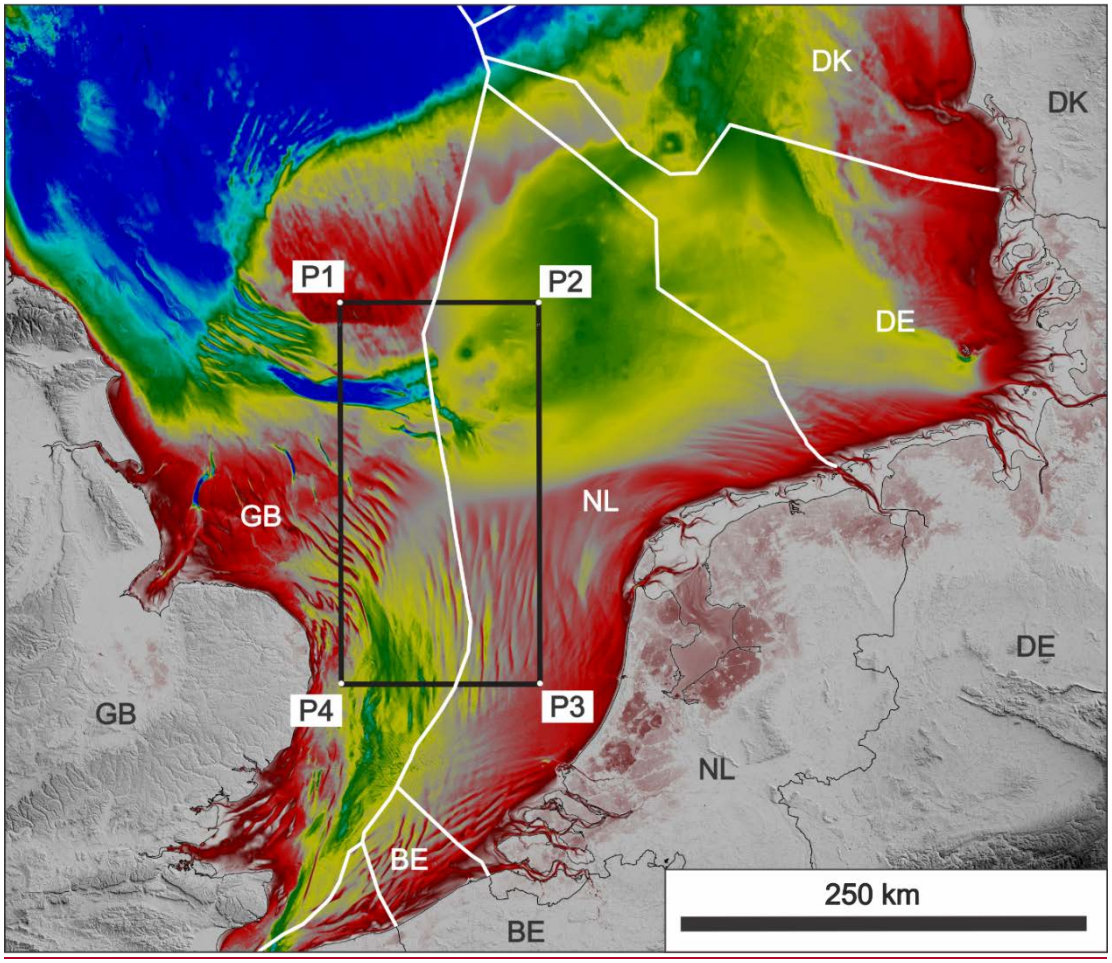
1. Name of research ship SIMON STEVIN Cruise No 19-570

2. Dates of cruise From 2 September To 13 September 2019

3. Purpose of research and general methods. (If the research work is being taken on behalf of a research institution of a third state, it is the responsibility of that state to obtain prior permission; it is essential that written confirmation that this has been done is obtained and quoted in this application.)

   This cruise is taking place in the framework of the collaborative project “Deep History: Revealing the palaeo-landscape of the southern North Sea” aimed at a reconstruction of the late Quaternary palaeolandscape in the southern North Sea (palaeo-fluvial system, proglacial lake, Holocene drowning) and the relation to possible prehistoric human occupation. In April 2018 a first seismic reconnaissance survey was carried out in the larger Brown Bank area which resulted in a unique dataset of unprecedented quality. The main aim of this 2019 Simon Stevin campaign is to take shallow vibrocores on a number of well-chosen locations. In view of the high accuracy and resolution of the seismic data dynamic positioning during coring is crucial. In addition to the vibrocores, also seismic data (sparker, SES Quattro) will be recorded (possibly also simultaneous with multibeam).

4. Attach chart(s) showing (on an appropriate scale) the geographical area of the intended work:



Overview of the study area (black box)

Corner	LONG (dd°mm.mm')	LAT (dd°mm.mm')	LONG (dd.dd)	LAT (dd.dd°)
P1	1° 57.78' E	54° 31.98' N	1.96° E	54.53° N
P2	3° 51.84' E	54° 31.98' N	3.86° E	54.53° N
P3	3° 51.84' E	52° 26.39' N	3.86° E	52.43° N
P4	1° 57.78' E	52° 26.39' N	1.96° E	52.43° N

Table 1: Geographic coordinates of corners defining the survey area proposed for this study.

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

Geophysical (high-resolution seismic profiling (sparker sources, single channel streamer, parametric echo sounder source), multibeam bathymetry)

Geological (vibrocore)

6. Details of moored equipment:

No moorings will be deployed

7. Explosives : **None**

(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) Dates of detonation

8. Details and reference of

(a) Any relevant previous/future cruises

(b) Any previously published research date relating to the proposed cruise (Attach separate sheet if necessary)

García-Moreno, 2017. Origin and geomorphology of Dover Strait and southern North Sea palaeovalleys and palaeo-depressions. PhD thesis, Ghent University, Ghent, Belgium.

Gupta, S., Collier, J.S., García-Moreno, D., Oggioni, F., Trentesaux, A., Vanneste, K., De Batist, M., Camelbeeck, T., Potter, G., Van Vliet Lanoe, B., and Arthur, J.C.R., 2017. Making Britain: Two-stage catastrophic opening of the Dover Strait. Nat. Commun. 8, doi: 10.1038/ncomms15101.

Sejrup, H. P., Clark, C. D., and Hjelstuen, B. O., 2016. Rapid ice sheet retreat triggered by ice stream debuttressing: Evidence from the North Sea. Geology. 44, 355–358.

Toucanne, S., Zaragosi, S., Bourillet, J. F., Marieu, V., Cremer, M., Kageyama, M., Van Vliet-Lanoë, B., Eynaud, F., Turon, J-L, and Gibbard, P. L., 2010, The first estimation of Fleuve Manche palaeoriver discharge during the last deglaciation: evidence for Fennoscandian ice sheet meltwater flow in the English Channel ca 20–18ka ago, Earth and Planetary Science Letters, v. 290, v. 459–473.

Toucanne, S., Soulet, G., Freslon, N., Jacinto, R. S., Dennielou, B., Zaragosi, S., Eynaud, F., Bourillet, J-F., and Bayon, G., 2015. Millennial-scale fluctuations of the European Ice Sheet at the end of the last glacial, and their potential impact on global climate. Quaternary Science Reviews, 123, 113-133.

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.

UK: Prof. Vince Gaffney & Dr. Simon Fitch, School of Archaeological Sciences, University of Bradford, Richmond Road, Bradford BD7 1DP, UK (V.Gaffney@bradford.ac.uk; S.Fitch@bradford.ac.uk)
Netherlands: Dr. Sytze van Heteren, Dutch Geological Survey (TNO), Princetonlaan 6
3584 CB Utrecht, sytze.vanheteren@tno.nl

10. State :

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

Yes

(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 embarkment / disembarkment.

Yes, cfr. part A § 10

(c) When research data from intended cruise is likely to be made available to the coastal state and if so by what means. (If the final report is likely to be delayed beyond 12 months, interim progress reports are required.

Cruise report within 1 month by request to the chief scientist

PART C: SCIENTIFIC EQUIPMENT

COASTAL STATE: **UNITED KINGDOM**

11. Complete the following table naming the coastal state.
A separate copy of each state is required.
(Indicate "YES" or "NO")

List all major marine scientific equipment, including scientific sonar other than standard navigational echo sounders, it is proposed to use and indicate waters in which it will be deployed	In territorial waters	On continental shelf (between 12-200 nms)
Sparker source and single-channel streamer	NO	YES
Parametric echosounder	NO	YES
Multibeam	NO	YES
Vibrocorer	NO	YES

PART C: SCIENTIFIC EQUIPMENT

COASTAL STATE: **THE NETHERLANDS**

11. Complete the following table naming the coastal state.
A separate copy of each state is required.
(Indicate "YES" or "NO")

List all major marine scientific equipment, including scientific sonar other than standard navigational echo sounders, it is proposed to use and indicate waters in which it will be deployed	In territorial waters	On continental shelf (between 12-200 nms)
Sparker source and single-channel streamer	NO	YES
Parametric echosounder	NO	YES
Multibeam	NO	YES
Vibrocorer	NO	YES