NOTIFICATION OF PROPOSED RESEARCH CRUISE

PART A: GENERAL

1. Name of research ship **RV BELGICA** Cruise N° **2015/10**

2. Dates of cruise From **13 April** to **17 April 2015**

3. Operating Authority
Belgian Navy under contract for Belgian Ministry of Science Policy
Royal Belgian Institute for Natural Sciences (RBINS)
Operational Directorate Natural Environment, Measurement Service Ostend
3de & 23ste Linieregimentsplein, 8400 Oostende
☎32(0)59 70 01 31 • 🖷 32(0)59 70 49 35 •✉ bmmost@mumm.ac.be

4. Owner **Belgian state represented by Minister for Science Policy**

5. Particulars of ship

Name	**RV Belgica**	
Nationality	Belgian	
Overall length	51 meters	
Maximum draught	4,5 meters	
Nett tonnage	232 NRT	
Propulsion	Diesel	
Call Sign	ORGQ	
Telephone	INMARSAT	00870 76 218 73 27
Facsimile	INMARSAT	00870 32 052 18 12
Email	belgica@mumm.ac.be	

6. Crew
Name of master **Commander (BeN) Luc VAN TRICHT**
N° of Crew **15**

7. Scientific Personnel
Name and address of scientist in charge :

Dr. Kevin RUDDICK
Royal Belgian Institute of Natural Science 'RBINS'
Operational Directorate Natural Environment
Remote Sensing and Ecosystem Modelling Teal 'REMSEM'
Gulledelle 100
B-1200 Brussels
☎+32 2 773 21 31● 🖷 +32 2 770 69 72● ✉ k.ruddick@mumm.ac.be

N° of scientists **15**

(A nominal roll of all personnel other than nationals of the applicant (flag) state is required)

Kevin Ruddick, UK
Rodney Forster and/or Véronique Creach, UK
David Doxaran, FR

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

Belgian and adjacent Dutch part of the North Sea, including the Scheldt estuary, and the UK continental shelf
Between N 51°55.28', E 1°21.77' and N 51°25.00', E 3°34.20'

9. Brief description of purpose of cruise

Purpose
Acquisition of optical data for the FP7-funded "High Spatial and Temporal Resolution Ocean Colour (HIGROC) coastal water products and services" project

10. Port of Call. Dates. Reasons.

Zeebrugge	**13/04/15**	**Departure from home port. Start of research cruise RV Belgica 2015/10**
Zeebrugge	**17/04/15**	**Arrival in home port. End of research cruise RV Belgica 2015/10**

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

NOTIFICATION OF PROPOSED RESEARCH CRUISE

PART B: DETAIL

1. Name of research ship **RV BELGICA** Cruise N° **2015/10**

2. Date of cruise From **13 April** To **14 April 2015**

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.

   The HIGHROC project will carry out the R&D necessary for the next generation coastal water products and services from ocean colour satellite data. These services are aimed at applications such as monitoring of chlorophyll a and turbidity for the Marine Strategy Framework Directive and monitoring of suspended sediments associated with offshore activities (dredging, wind farms, etc.). HIGHROC will derive coastal water quality parameters from satellites including a) Sentinel-2 (S2) imagery at 10-20m resolution and b) SEVIRI imagery at 15 min resolution. In situ measurements will be carried out on dedicated test sites and used to validate the new S2 and SEVIRI products.

4. Attach chart(s) 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.
   Also attach table with list of positions (geographical reference)

   See annex 1: chart
   See annex 2: Table

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

   Water

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

   Niskin bottles (5 & 10l), in situ measurements (CTD, ...), LISST 100X, Secchi disk, Spectroradiometers, fluorimeter, Hydroscatt backscatter meter.

6. Details of moored equipment : **N.A.**

Dates Laying	Recovery	Description	Latitude	Longitude

7. Explosives : **N.A.**

   (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

   Belgica cruise 2014-09 (7-11.4.2014) and 2014-18 (7-11.7.2014)

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

   None yet (project started 2014)

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

   United Kingdom

   Dr Véronique Créach. CEFAS. Lowestoft Laboratory. UK-Lowestoft NR 33 0HT. E- mail: Veronique.creach@cefas.co.uk

   The Netherlands

   Dr Meinte Blaas, Researcher/advisor aquatic ecology, Deltares, P.O. Box 177, 1277 MH Delft - The Netherlands. E-mail: meinte.blaas@deltares.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 embarkation / disembarkation.

   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 2 months by request to the chief scientist**
   - **Fully processed data (including post-deployment calibration and quality control) within 12 months**

PART C: SCIENTIFIC EQUIPMENT

COASTAL STATE : **UNITED KINGDOM**

INDICATE "YES" OR "NO"

LIST SCIENTIFIC WORK BY FUNCTION EG. MAGNETOMETRY : GRAVITY DIVING : SEISMICS: BATHYMETRY SEABED SAMPLING TRAWLING ECHO SOUNDING : WATER SAMPLING U/W T.V. : MOORED INSTRUMENTS: TOWED INSTRUMENTS:	WATER COLUMN INCLUDING SEDIMENT SAMPLING OF THE SEABED	FISHERIES RESEARCH WITHIN FISHING LIMITS	RESEARCH CONCERNING THE NATURAL RESOURCES OF THE CONTINENTAL SHELF OR ITS PHYSICAL CHARACTERISTICS	DISTANCE FROM COAST		
				WITHIN 12 NMS	BETWEEN 12-200 NMS	CONTINENTAL SHELF WORK ONLY BEYOND 200 NM BUT WITHIN THE CONTINENTAL MARGIN
Water sampling by NISKIN bottles (5 & 10l)	**Yes**		**Yes**	**Yes**	**Yes**	
in situ measurements with SCTD-system, including PAR, OBS)	**Yes**		**Yes**	**Yes**	**Yes**	
in situ optical measurements (LISST 100X, fluorimeter, BB4, TRIOS radiometers, ..)	**Yes**		**Yes**	**Yes**	**Yes**	
vessel's non toxic sea water intake	**Yes**		**Yes**	**Yes**	**Yes**	
Secchi disk	**Yes**		**Yes**	**Yes**	**Yes**	

PART C: SCIENTIFIC EQUIPMENT

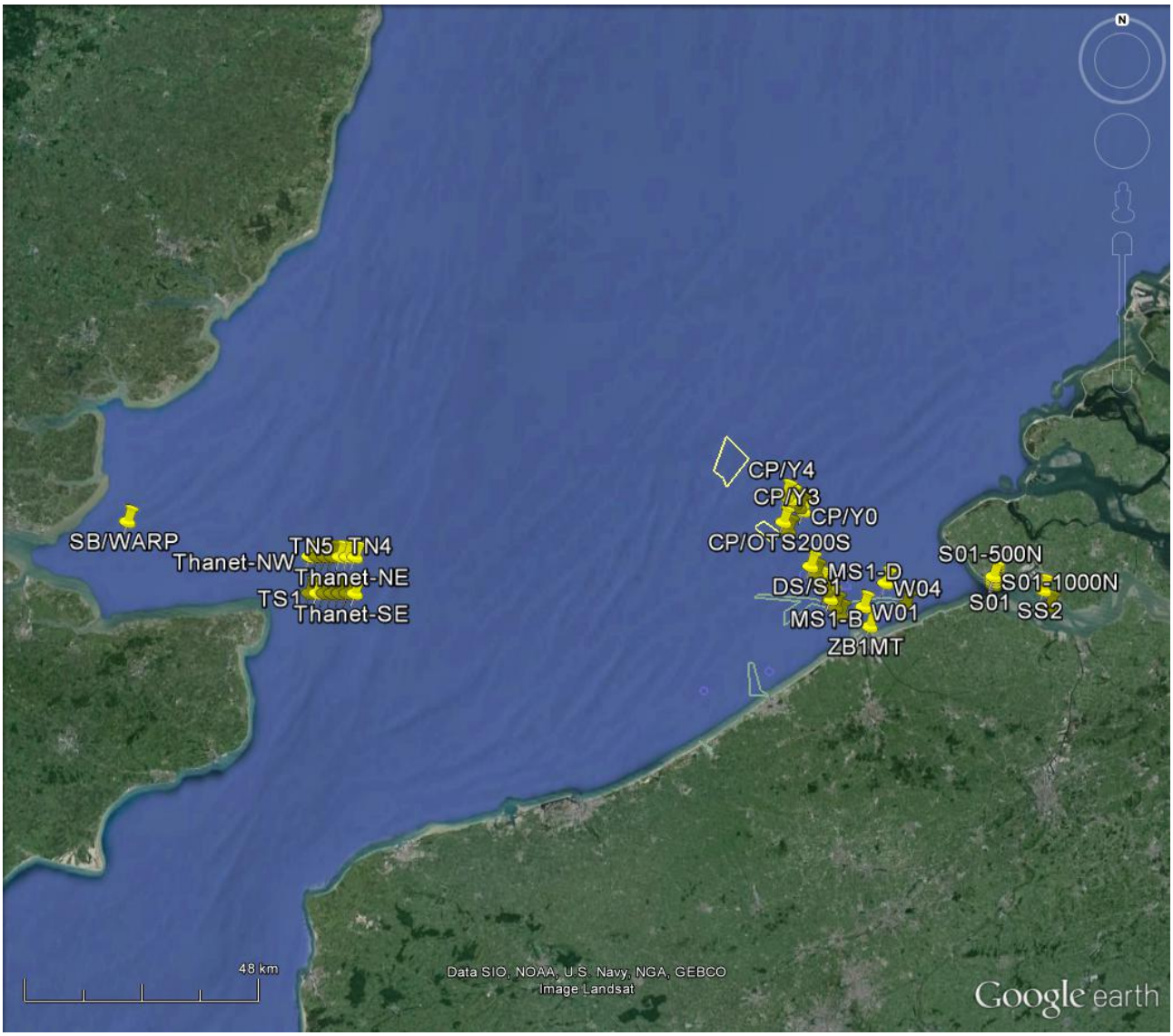
COASTAL STATE : **THE NETHERLANDS**

INDICATE "YES" OR "NO"

LIST SCIENTIFIC WORK BY FUNCTION eg. magnetometry : gravity diving : seismics: bathymetry seabed sampling trawling echo sounding : water sampling u/w t.v. : moored instruments: towed instruments:	water column including sediment sampling of the seabed	fisheries research within fishing limits	research concerning the natural resources of the continental shelf or its physical characteristics	DISTANCE FROM COAST within 12 nms	between 12-200 nms	continental shelf work only beyond 200 nm but within the continental margin
Water sampling by NISKIN bottles (5 & 10l)	**Yes**		**Yes**	**Yes**	**Yes**	
in situ measurements with SCTD-system, including PAR, OBS)	**Yes**		**Yes**	**Yes**	**Yes**	
in situ optical measurements (LISST 100X, fluorimeter, BB4, TRIOS radiometers, ..)	**Yes**		**Yes**	**Yes**	**Yes**	
vessel's non toxic sea water intake	**Yes**		**Yes**	**Yes**	**Yes**	
Secchi disk	**Yes**		**Yes**	**Yes**	**Yes**	

ANNEX 1

RV Belgica research cruise 2015/10: chart



Annex 2: Table

List of priority locations. These positions are suggested as typical of the locations where measurements would be useful. However, the locations may be adapted depending on weather conditions and/or any navigation information received from the captain. In particular, a safety distance of 500m from all offshore installations will be respected, including specifically the Thanet and C-POWER wind farms.

Station Name	Longitude	Latitude	ODASIII	In situ Instrument	Water: Niskin	Sediment: Van Veen
ZB1MT	3° 12.300'	51° 20.350'	X	X	X	
MP/MOW1[1]	3° 07.083'	51° 21.617'	X	X	X	
DS/S1	3° 02.000'	51° 27.000'	X	X	X	
MS1-A	3° 06.236'	51° 22.514'	X	X	X	
MS1-B	3° 05.389'	51° 23.411'	X	X	X	
MS1-C	3° 04.542'	51° 24.308'	X	X	X	
MS1-D	3° 03.694'	51° 25.206'	X	X	X	
MS1-E	3° 02.847'	51° 26.103'	X	X	X	
SB/WARP[1]	1° 01.710'	51° 31.530'	X	X	X	
Thanet-SW[2]	1° 34.000'	51° 24.000'	X	X	X	
Thanet-SE[2]	1° 42.000'	51° 24.000'	X	X	X	
Thanet-NW[2]	1° 34.000'	51° 28.000'	X	X	X	
Thanet-NE[2]	1° 42.000'	51° 28.000'	X	X	X	
TS1[2]	1° 35.333'	51° 24.000'	X	X	X	
TS2[2]	1° 36.667'	51° 24.000'	X	X	X	
TS3[2]	1° 38.000'	51° 24.000'	X	X	X	
TS4[2]	1° 39.333'	51° 24.000'	X	X	X	
TS5[2]	1° 40.667'	51° 24.000'	X	X	X	
TN1[2]	1° 35.333'	51° 28.000'	X	X	X	
TN2[2]	1° 36.667'	51° 28.000'	X	X	X	
TN3[2]	1° 38.000'	51° 28.000'	X	X	X	
TN4[2]	1° 39.333'	51° 28.000'	X	X	X	
TN5[2]	1° 40.667'	51° 28.000'	X	X	X	
W01	3° 11.250'	51° 22.500'	X	X	X	
CP/X0	2° 58.115'	51° 30.898'	X	X	X	
CP/OTS200S[3]	2° 57.294'	51° 31.851'	X	X	X	
CP/Y0[3]	3° 00.749'	51° 33.054'	X	X	X	
CP/Y1[3]	2° 59.993'	51° 33.478'	X	X	X	
CP/Y2[3]	2° 59.237'	51° 33.901'	X	X	X	
CP/Y3[3]	2° 58.481'	51° 34.326'	X	X	X	
CP/Y4[3]	2° 57.725'	51° 34.750'	X	X	X	
702N	3° 18.680'	51° 22.630'	X	X	X	

[1] These are locations of a meetpaal/buoy where continuous measurements are made. HIGHROC measurements should be made close to these locations at a suitable safe distance, e.g. 100m to West, to be discussed with the CO RV Belgica.

[2] These locations are close to the Thanet Wind Farm. Measurement locations may need to be adapted for safety and/or navigation purposes. To be discussed with the CO RV Belgica.

[3] These locations are close to or within the C-Power Wind Farm. Measurement locations may need to be adapted for safety and/or navigation purposes. To be discussed with the CO RV Belgica.

S01[4]	3° 34.200'	51° 25.000'	X	X	X	
S01-500S[4]	3° 34.200'	51° 24.700'	X	X	X	
S01-500N[4]	3° 34.200'	51° 25.300'	X	X	X	
S01-1000N[4]	3° 34.200'	51° 25.600'	X	X	X	
SS2[4]	3° 43.000'	51° 24.000'	X	X	X	
S03[4]	3° 44.000'	51° 22.220'	X	X	X	
W04	3° 15.150'	51° 25.100'	X	X	X	

[4] These locations are in a busy shipping area and potentially close to shallow water. Measurement locations may need to be adapted for safety and/or navigation purposes. To be discussed with the captain.