SENCKENBERG

Report on the 2017 Dogger Bank cruise with FK Senckenberg

17. 07. – 27. 07. 2017

DR. MORITZ SONNEWALD
Senckenberg Research Institute and Natural History Museum

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Frankfurt a. M., July 2018

1. Aims and setting

The interannual variability of the epibenthic fauna of the Dogger Bank is a long term project of the Senckenberg Research Institute since 1991. This project aims at gathering basic data which is used for understanding presumed environmental changes. Therefore the study refers to 37 stations (see map in Annex) that are, whenever possible, sampled on a yearly basis in the same season with the same gear. The fauna is recorded quantitatively from each sample in order to allow studies on relative abundance. Additionally, temperature and current parameters are recorded to correlate with faunal composition and species abundances.

The present cruise forms the 24th of the series and gets the suffix DOG-X. All former cruises were labelled after the alphabet with one letter starting with DOG-A in 1992. The first in 1991 was called DOG without any suffix.

This cruise was conducted by the Department for Marine Zoology at the Senckenberg Institute in Frankfurt am Main.

2. Narrative

The cruise started on Monday, July 17, 2017. At 11:45 CEST (UTC+1), the vessel left the shipyard and headed towards the main working area, the Doggerbank.

Station 14 (see station map) at british waters was reached on July 18, 2017 at 15:00 CEST. At this and the following stations, the following technique was used: First, a CTD probe was used to measure temperature and salinity of the water column. Afterwards, a standardized endo- and epibenthic three-minutes sampling with the Ring Dredge was performed. Subsequently, one sample with a 2 m beam-trawl was taken, towed for 2 kn of speed on a length of one nautical mile (for more information see methods, chapter 3). These procedures successfully took place on all stations (see station map, chapter 4). On Wednesday, July 19, we received bad weather conditions and had to stop working until Thursday, July 20.

Thus, sampling at the Dogger Bank was finished on July 26, 2016 at 11:00 CEST. FK Senckenberg headed back to Wilhelmshaven. The vessel was moored at Wilhelmshaven port on July 27, 2016 at 11:50 CEST.

The exact sequence of stations sampled can be seen at the station list (annex 1).

3. Methods:

Standard endobenthic sampling was performed with the Ring Dredge, being towed over the ground for approximately three minutes per station. The samples were recorded qualitatively on board ship, only few material was preserved for later analysis.

For the measurement of the temperature and salinity of the sea bottom, a CTD probe was lowered to the seafloor, continuously recording while being hauled again.

Epibenthos was collected with a 2m beam trawl with a tickler chain and a chain in the bottom rope. The minimum mesh size in the cod-end was 1 cm², so that animals above that size were collected quantitatively. The trawl was towed for 1 nautical mile at a speed of 2 knots. The sample was secured quantitatively (as far as possible) and washed through a set of sieves with 1 cm maximum and 1 mm minimum mesh size, respectively. The 1 cm-fraction was identified and counted on board the vessel, organisms not readily identifiable were pre-

served and taken back to the home laboratory. The smaller fractions were also preserved and taken back for qualitative analysis.

4. Station map

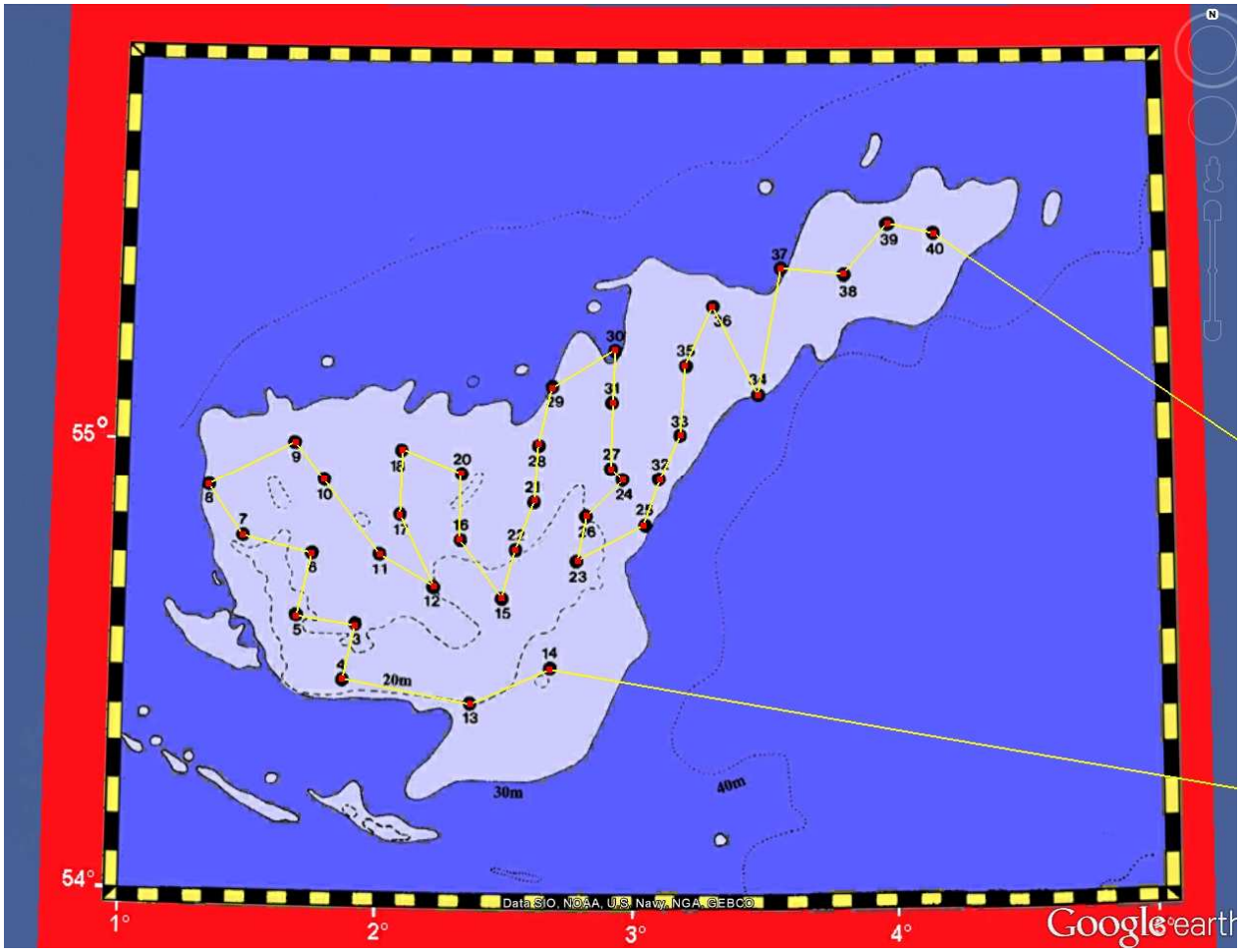

Fig. 1 Station map. Black dots: stations. Yellow line: ship course.

Annex 1: Stations of Dogger Bank Summer Cruise, July 2017 (DOGX) with R.V. SENCKENBERG. All times UTC+1.

Abbreviations:

Bt = 2 m beam trawl
Rd = ring dredge

Date	Station	Device	Time	Event	Lat	Long	Depth [m]
20.07.2017	DOGX-03	Bt	10:34:06	BK End	54° 35,437'N	1° 55,238'E	25,00
20.07.2017	DOGX-03	Bt	10:01:23	BK Start	54° 36,374'N	1° 54,641'E	25,00
20.07.2017	DOGX-03	Rd	09:42:26	RD End	54° 36,196'N	1° 54,733'E	23,00
20.07.2017	DOGX-03	Rd	09:33:26	RD Start	54° 36,370'N	1° 54,530'E	24,00
20.07.2017	DOGX-04	Bt	08:29:34	BK End	54° 29,163'N	1° 51,931'E	19,00
20.07.2017	DOGX-04	Bt	08:01:19	BK Start	54° 29,669'N	1° 50,437'E	19,00
19.07.2017	DOGX-04	Rd	08:32:53	RD End	54° 29,466'N	1° 51.587'E	21,00
19.07.2017	DOGX-04	Rd	08:25:44	RD Start	54° 29,385'N	1° 51,471'E	21,00
20.07.2017	DOGX-05	Bt	13:34:11	BK End	54° 37,513'N	1° 41,602'E	24,00
20.07.2017	DOGX-05	Bt	13:01:24	BK Start	54° 36,532'N	1° 41,535'E	24,00
20.07.2017	DOGX-05	Rd	12:03:50	RD End	54° 37,458'N	1° 41,710'E	24,00
20.07.2017	DOGX-05	Rd	11:54:50	RD Start	54° 37,546'N	1° 42,097'E	24,00
20.07.2017	DOGX-06	Bt	15:38:24	BK End	54° 45,505'N	1° 41,991'E	29,00
20.07.2017	DOGX-06	Bt	15:04:40	BK Start	54° 45,433'N	1° 43,948'E	29,00
20.07.2017	DOGX-06	Rd	14:40:27	RD Start	54° 45,462'N	1° 44,052'E	25,00
20.07.2017	DOGX-06	Rd	14:50:01	RD Stop	54° 45,466'N	1° 43,557'E	25,00
20.07.2017	DOGX-07	Bt	18:02:08	BK End	54° 47,151'N	1° 25,467'E	27,00
20.07.2017	DOGX-07	Bt	17:25:27	BK Start	54° 47,935'N	1° 26,766'E	29,00
20.07.2017	DOGX-07	Rd	17:09:29	RD End	54° 47,768'N	1° 26,245'E	31,00
20.07.2017	DOGX-07	Rd	17:00:23	RD Start	54° 47,840'N	1° 26,637'E	29,00
21.07.2017	DOGX-08	Bt	09:14:57	BK End	54° 53,874'N	1° 20,564'E	31,00
21.07.2017	DOGX-08	Bt	08:41:52	BK Start	54° 54,125'N	1° 18,874'E	31,00
21.07.2017	DOGX-08	Rd	08:00:41	RD Start	54° 54,088'N	1° 18,776'E	31,00
21.07.2017	DOGX-08	Rd	08:07:54	RD Stop	54° 54,114'N	1° 19,079'E	31,00
21.07.2017	DOGX-09	Bt	11:37:56	BK End	54° 59,109'N	1° 39,322'E	30,00
21.07.2017	DOGX-09	Bt	11:11:32	BK Start	54° 59,250'N	1° 37,592'E	30,00
21.07.2017	DOGX-09	Rd	10:53:46	RD End	54° 59,257'N	1° 37,943'E	30,00
21.07.2017	DOGX-09	Rd	10:45:33	RD Start	54° 59,227'N	1° 37,495'E	30,00
21.07.2017	DOGX-10	Bt	13:42:24	BK End	54° 55,434'N	1° 47,908'E	26,00
21.07.2017	DOGX-10	Bt	13:11:59	BK Start	54° 55,040'N	1° 46,148'E	26,00
21.07.2017	DOGX-10	Rd	12:48:27	RD Start	54° 55,273'N	1° 46,454'E	27,00
21.07.2017	DOGX-10	Rd	12:56:08	RD Stop	54° 55,376'N	1° 46,842'E	25,50
21.07.2017	DOGX-11	Bt	16:39:43	BK End	54° 45,672'N	2° 01,788'E	32,00
21.07.2017	DOGX-11	Bt	16:05:26	BK Start	54° 45,174'N	1° 59,899'E	36,00
21.07.2017	DOGX-11	Rd	15:45:01	RD End	54° 45,345'N	2° 00,720'E	32,50

Date	Station	Device	Time	Event	Lat	Long	Depth [m]
21.07.2017	DOGX-11	Rd	15:37:13	RD Start	54° 45,252'N	2° 00,298'E	34,00
21.07.2017	DOGX-12	Bt	18:39:29	BK End	54° 42,157'N	2° 13,803'E	27,00
21.07.2017	DOGX-12	Bt	18:07:58	BK Start	54° 41,721'N	2° 12,242'E	27,00
21.07.2017	DOGX-12	Rd	17:41:25	RD Start	54° 41,658'N	2° 12,137'E	28,00
21.07.2017	DOGX-12	Rd	17:50:19	RD Stop	54° 41,773'N	2° 12,594'E	25,00
18.07.2017	DOGX-13	Bt	18:48:50	BK End	54° 27,438'N	2° 16,583'E	18,00
18.07.2017	DOGX-13	Bt	18:21:35	BK Start	54° 26,792'N	2° 15,204'E	18,00
18.07.2017	DOGX-13	Rd	17:57:52	RD End	54° 27,290'N	2° 16,105'E	18,00
18.07.2017	DOGX-13	Rd	17:52:10	RD Start	54° 27,174'N	2° 15,901'E	18,00
18.07.2017	DOGX-14	Bt	16:08:07	BK End	54° 30,167'N	2° 38,570'E	25,00
18.07.2017	DOGX-14	Bt	15:36:12	BK Start	54° 30,814'N	2° 40,296'E	24,50
18.07.2017	DOGX-14	Rd	15:26:34	RD End	54° 30,955'N	2° 40,475'E	25,00
18.07.2017	DOGX-14	Rd	15:17:37	RD Start	54° 30,968'N	2° 40,433'E	25,00
23.07.2017	DOGX-15	Bt	08:43:52	BK End	54° 39,741'N	2° 27,279'E	24,00
23.07.2017	DOGX-15	Bt	08:16:07	BK Start	54° 39,870'N	2° 28,985'E	24,00
23.07.2017	DOGX-15	Rd	07:56:10	RD Start	54° 39,877'N	2° 29,024'E	25,00
23.07.2017	DOGX-15	Rd	08:04:36	RD Stop	54° 39,723'N	2° 28,911'E	25,00
22.07.2017	DOGX-16	Bt	16:32:41	BK End	54° 47,718'N	2° 21,206'E	24,00
22.07.2017	DOGX-16	Bt	15:59:33	BK Start	54° 47,553'N	2° 19,320'E	25,00
22.07.2017	DOGX-16	Rd	15:45:17	RD End	54° 47,667'N	2° 19,320'E	24,00
22.07.2017	DOGX-16	Rd	15:37:35	RD Start	54° 47,616'N	2° 18,928'E	24,00
22.07.2017	DOGX-17	Bt	09:14:10	BK End	54° 51,313'N	2° 06,488'E	24,00
22.07.2017	DOGX-17	Bt	08:49:04	BK Start	54° 51,009'N	2° 04,842'E	24,00
22.07.2017	DOGX-17	Rd	08:21:00	RD Start	54° 51,048'N	2° 05,072'E	24,00
22.07.2017	DOGX-17	Rd	08:28:27	RD Stop	54° 51,199'N	2° 05,431'E	24,00
22.07.2017	DOGX-18	Bt	11:25:33	BK End	55° 00,145'N	2° 07,096'E	28,00
22.07.2017	DOGX-18	Bt	10:52:04	BK Start	54° 59,473'N	2° 05,534'E	28,00
22.07.2017	DOGX-18	Rd	10:39:38	RD End	54° 59,344'N	2° 05,529'E	28,00
22.07.2017	DOGX-18	Rd	10:31:19	RD Start	54° 59,251'N	2° 05,206'E	28,00
22.07.2017	DOGX-20	Bt	14:20:03	BK End	54° 56,214'N	2° 21,650'E	27,00
22.07.2017	DOGX-20	Bt	13:44:39	BK Start	54° 56,211'N	2° 19,729'E	28,00
22.07.2017	DOGX-20	Rd	13:22:52	RD Start	54° 56,249'N	2° 19,661'E	27,00
22.07.2017	DOGX-20	Rd	13:30:30	RD Stop	54° 56,265'N	2° 19,989'E	28,00
23.07.2017	DOGX-21	Bt	14:49:42	BK End	54° 53,470'N	2° 35,952'E	24,00
23.07.2017	DOGX-21	Bt	14:19:06	BK Start	54° 52,359'N	2° 36,174'E	24,00
23.07.2017	DOGX-21	Rd	14:03:50	RD End	54° 52,760'N	2° 36,163'E	24,00
23.07.2017	DOGX-21	Rd	13:56:54	RD Start	54° 52,546'N	2° 36,128'E	24,00
22.07.2017	DOGX-22	Bt	18:28:57	BK End	54° 46,069'N	2° 34,394'E	25,00
22.07.2017	DOGX-22	Bt	17:59:51	BK Start	54° 46,207'N	2° 32,650'E	25,00
22.07.2017	DOGX-22	Rd	17:31:14	RD Start	54° 46,224'N	2° 32,538'E	25,00
22.07.2017	DOGX-22	Rd	17:39:17	RD Stop	54° 46,208'N	2° 33,018'E	25,00
23.07.2017	DOGX-23	Bt	10:56:44	BK End	54° 44,163'N	2° 45,725'E	21,00

Date	Station	Device	Time	Event	Lat	Long	Depth [m]
23.07.2017	DOGX-23	Bt	10:30:39	BK Start	54° 45,174'N	2° 45,761'E	21,00
23.07.2017	DOGX-23	Rd	10:20:36	RD End	54° 45,065'N	2° 45,475'E	21,00
23.07.2017	DOGX-23	Rd	10:13:45	RD Start	54° 45,177'N	2° 45,368'E	21,00
24.07.2017	DOGX-25	Bt	14:55:03	BK End	54° 50,416'N	3° 02,897'E	30,00
24.07.2017	DOGX-25	Bt	14:21:12	BK Start	54° 49,213'N	3° 03,399'E	30,00
24.07.2017	DOGX-25	Rd	13:59:40	RD Start	54° 49,291'N	3° 03,435'E	30,00
24.07.2017	DOGX-25	Rd	14:07:55	RD Stop	54° 49,425'N	3° 03,454'E	30,00
23.07.2017	DOGX-26	Bt	12:58:04	BK End	54° 51,509'N	2° 47,857'E	21,00
23.07.2017	DOGX-26	Bt	12:28:02	BK Start	54° 50,413'N	2° 47,766'E	21,00
23.07.2017	DOGX-26	Rd	12:06:07	RD Start	54° 50,712'N	2° 47,749'E	20,00
23.07.2017	DOGX-26	Rd	12:13:43	RD Stop	54° 50,941'N	2° 47,835'E	20,00
24.07.2017	DOGX-27	Bt	12:42:36	BK End	54° 57,720'N	2° 53,353'E	25,00
24.07.2017	DOGX-27	Bt	12:01:54	BK Start	54° 57,063'N	2° 54,119'E	25,00
24.07.2017	DOGX-27	Rd	11:50:44	RD End	54° 57,181'N	2° 53,747'E	25,00
24.07.2017	DOGX-27	Rd	11:43:09	RD Start	54° 57,268'N	2° 53,926'E	25,00
23.07.2017	DOGX-28	Bt	16:38:10	BK End	55° 01,279'N	2° 38,228'E	29,00
23.07.2017	DOGX-28	Bt	16:07:34	BK Start	55° 00,211'N	2° 37,569'E	29,00
23.07.2017	DOGX-28	Rd	15:44:24	RD Start	55° 00,266'N	2° 37,559'E	29,00
23.07.2017	DOGX-28	Rd	15:52:53	RD Stop	55° 00,476'N	2° 37,715'E	29,00
23.07.2017	DOGX-29	Bt	18:25:01	BK End	55° 07,216'N	2° 39,339'E	29,00
23.07.2017	DOGX-29	Bt	17:56:59	BK Start	55° 07,823'N	2° 40,759'E	29,00
23.07.2017	DOGX-29	Rd	17:33:46	RD Start	55° 07,753'N	2° 40,587'E	29,00
23.07.2017	DOGX-29	Rd	17:42:11	RD Stop	55° 07,607'N	2° 40,912'E	29,00
24.07.2017	DOGX-30	Bt	08:57:43	BK End	55° 11,255'N	2° 55,094'E	33,00
24.07.2017	DOGX-30	Bt	08:22:51	BK Start	55° 12,281'N	2° 55,390'E	33,00
24.07.2017	DOGX-30	Rd	08:11:34	RD End	55° 12,184'N	2° 55,827'E	33,00
24.07.2017	DOGX-30	Rd	08:03:07	RD Start	55° 12,259'N	2° 56,019'E	33,00
24.07.2017	DOGX-31	Bt	10:43:50	BK End	55° 04,609'N	2° 53,361'E	28,00
24.07.2017	DOGX-31	Bt	10:12:51	BK Start	55° 05,629'N	2° 53,619'E	28,00
24.07.2017	DOGX-31	Rd	09:52:58	RD End	55° 05,385'N	2° 53,623'E	28,00
24.07.2017	DOGX-31	Rd	09:46:36	RD Start	55° 05,506'N	2° 53,636'E	28,00
24.07.2017	DOGX-32	Bt	16:37:15	BK End	54° 56,625'N	3° 06,000'E	25,00
24.07.2017	DOGX-32	Bt	16:05:07	BK Start	54° 55,490'N	3° 06,341'E	25,00
24.07.2017	DOGX-32	Rd	15:44:31	RD Start	54° 55,486'N	3° 05,999'E	25,00
24.07.2017	DOGX-32	Rd	15:52:06	RD Stop	54° 55,646'N	3° 05,917'E	25,00
24.07.2017	DOGX-33	Bt	18:10:27	BK End	55° 02,254'N	3° 09,136'E	25,00
24.07.2017	DOGX-33	Bt	17:40:40	BK Start	55° 01,262'N	3° 09,871'E	25,00
24.07.2017	DOGX-33	Rd	17:28:34	RD End	55° 01,029'N	3° 10,193'E	25,00
24.07.2017	DOGX-33	Rd	17:21:06	RD Start	55° 00,906'N	3° 10,068'E	25,00
25.07.2017	DOGX-34	Bt	09:27:32	BK End	55° 06,367'N	3° 27,036'E	30,00
25.07.2017	DOGX-34	Bt	08:55:07	BK Start	55° 06,720'N	3° 28,685'E	30,00
25.07.2017	DOGX-34	Rd	08:35:45	RD Start	55° 06,712'N	3° 28,704'E	30,00

Date	Station	Device	Time	Event	Lat	Long	Depth [m]
25.07.2017	DOGX-34	Rd	08:45:07	RD Stop	55° 06,656'N	3° 28,400'E	30,00
25.07.2017	DOGX-34	VV1	08:10:49	VV Grund	55° 06,696'N	3° 28,590'E	
25.07.2017	DOGX-34	VV2	08:16:30	VV Grund	55° 06,701'N	3° 28,598'E	
25.07.2017	DOGX-34	VV3	08:22:33	VV Grund	55° 06,704'N	3° 28,627'E	
25.07.2017	DOGX-35	Bt	11:39:11	BK End	55° 10,445'N	3° 10,476'E	30,00
25.07.2017	DOGX-35	Bt	11:06:38	BK Start	55° 10,280'N	3° 12,222'E	30,00
25.07.2017	DOGX-35	Rd	10:55:21	RD End	55° 10,225'N	3° 12,368'E	30,00
25.07.2017	DOGX-35	Rd	10:46:37	RD Start	55° 10,188'N	3° 12,551'E	30,00
25.07.2017	DOGX-36	Bt	14:14:49	BK End	55° 18,756'N	3° 17,213'E	29,00
25.07.2017	DOGX-36	Bt	13:42:31	BK Start	55° 18,779'N	3° 19,089'E	29,00
25.07.2017	DOGX-36	Rd	13:19:48	RD Start	55° 18,681'N	3° 19,696'E	29,00
25.07.2017	DOGX-36	Rd	13:28:53	RD Stop	55° 18,660'N	3° 19,289'E	29,00
25.07.2017	DOGX-37	Bt	17:00:00	BK End	55° 23,676'N	3° 32,351'E	32,00
25.07.2017	DOGX-37	Bt	16:28:44	BK Start	55° 23,254'N	3° 33,212'E	32,00
25.07.2017	DOGX-37	Rd	16:13:03	RD End	55° 23,150'N	3° 33,933'E	32,00
25.07.2017	DOGX-37	Rd	16:05:15	RD Start	55° 23,066'N	3° 34,281'E	32,00
25.07.2017	DOGX-38	Bt	19:16:03	BK End	55° 23,602'N	3° 46,306'E	28,00
25.07.2017	DOGX-38	Bt	18:46:17	BK Start	55° 22,685'N	3° 47,020'E	28,00
25.07.2017	DOGX-38	Rd	18:25:26	RD Start	55° 22,493'N	3° 46,621'E	28,00
25.07.2017	DOGX-38	Rd	18:33:05	RD Stop	55° 22,656'N	3° 46,453'E	28,00
26.07.2017	DOGX-39	Bt	08:56:41	BK End	55° 29,399'N	3° 56,626'E	30,00
26.07.2017	DOGX-39	Bt	08:21:37	BK Start	55° 28,946'N	3° 58,281'E	30,00
26.07.2017	DOGX-39	Rd	08:08:29	RD End	55° 28,955'N	3° 58,129'E	30,00
26.07.2017	DOGX-39	Rd	08:00:16	RD Start	55° 28,890'N	3° 58,353'E	30,00
26.07.2017	DOGX-40	Bt	10:43:08	BK End	55° 26,124'N	4° 06,397'E	31,00
26.07.2017	DOGX-40	Bt	10:11:22	BK Start	55° 26,915'N	4° 07,482'E	31,00
26.07.2017	DOGX-40	Rd	09:51:55	RD Start	55° 27,165'N	4° 07,310'E	31,00
26.07.2017	DOGX-40	Rd	10:01:21	RD Stop	55° 26,972'N	4° 07,131'E	31,00