



RV Aranda

## CRUISE PLAN

### INTEGRAL\_WINTER\_2019, 4/2019

28.2. - 11.3.2019

#### Description of the cruise

The aim of the INTEGRAL winter cruise is to study the wintertime spatial variation of greenhouse gas concentrations and carbon chemistry in the northern parts of the Baltic Sea. The cruise is a part of the BONUS INTEGRAL, an integrated project funded within BONUS Blue Baltic Call. Project web site: <https://www.io-warnemuende.de/integral-home.html>.

#### Scientific staff:

<b>Chief scientist:</b>	Heidi Pettersson	1725	
CTD chief:		1725	
Chief chemist:		1104	
IT chief:		1725	
		3076	28.02.2019 - 11.03.2019
		1725	28.02.2019 - 11.03.2019
		2947	28.02.2019 - 11.03.2019
		1725	28.02.2019 - 11.03.2019
		195	28.02.2019 - 11.03.2019
		1725	28.02.2019 - 11.03.2019
		195	28.02.2019 - 11.03.2019
		1725	28.02.2019 - 11.03.2019
		3076	28.02.2019 - 11.03.2019
		3076	28.02.2019 - 11.03.2019
		1725	28.02.2019 - 11.03.2019

Altogether 14 persons in scientific staff.

**Departure from:** Helsinki  
**Departure time:** Thursday 28.02.2019 at 10:00 LT

Cruising speed: 10.0 knots  
 Average station time: 1 h 30 min.

**Arrival to:** HELSINKI  
**Arrival time:** Monday 11.03.2019 at 14:57 LT

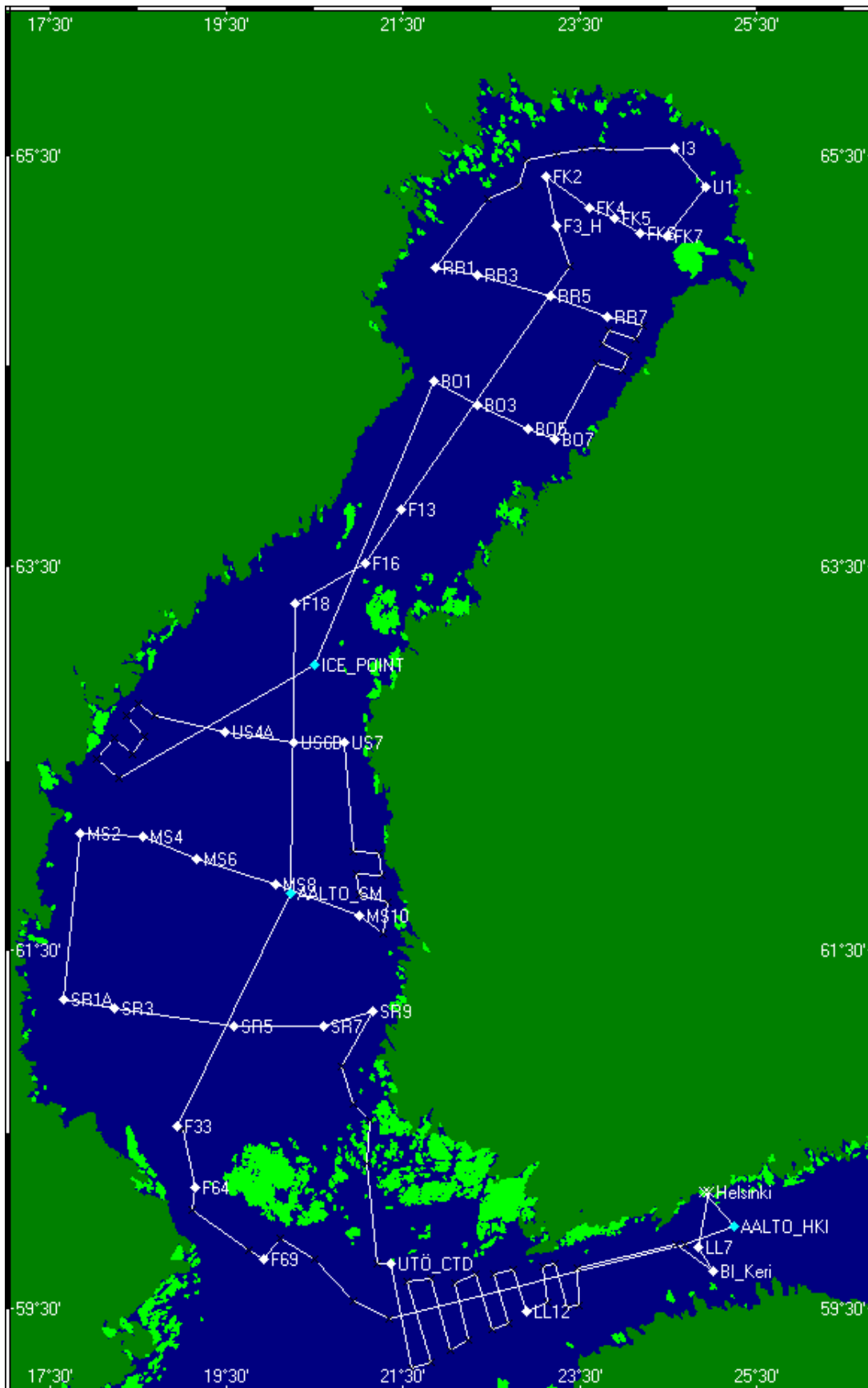
Duration of the cruise: 11 days 4 h 57 min  
 Length of the cruise: 1964.64 nautical miles  
 Number of stations 42. Points with name "P" are just route points without observations.

## Route:

Nro	Station	Lat.	Lon.	Depth [m]	Arrival		Duration hh:mm	
					hh:mm	day dd.mm.yyyy		
0	Helsinki	60°10.00'	24°57.00'	0	10:00	Th 28.02.2019	0:00	S
1	LL7	59°50.79'	24°50.27'	100	11:57	Th 28.02.2019	1:30	S
2	BI_Keri	59°43.05'	25°00.90'	101	14:23	Th 28.02.2019	1:30	S
3	P	59°51.90'	24°35.05'	-	17:27	Th 28.02.2019	0:00	S
4	P	59°44.01'	23°28.04'	-	20:55	Th 28.02.2019	0:00	S
5	P	59°31.01'	23°29.13'	-	22:13	Th 28.02.2019	0:00	S
6	P	59°30.63'	23°20.96'	-	22:38	Th 28.02.2019	0:00	S
7	P	59°45.38'	23°13.01'	-	00:10	Fr 01.03.2019	0:00	S
8	P	59°44.26'	23°04.49'	-	00:36	Fr 01.03.2019	0:00	S
9	P	59°32.15'	23°08.23'	-	01:50	Fr 01.03.2019	0:00	S
10	LL12	59°29.01'	22°53.81'	82	02:38	Fr 01.03.2019	1:30	S
11	P	59°43.13'	22°44.27'	-	05:37	Fr 01.03.2019	0:00	S
12	P	59°42.00'	22°31.54'	-	06:16	Fr 01.03.2019	0:00	S
13	P	59°24.93'	22°42.03'	-	08:04	Fr 01.03.2019	0:00	S
14	P	59°22.64'	22°30.04'	-	08:43	Fr 01.03.2019	0:00	S
15	P	59°41.62'	22°18.81'	-	10:42	Fr 01.03.2019	0:00	S
16	P	59°38.97'	22°05.33'	-	11:26	Fr 01.03.2019	0:00	S
17	P	59°19.20'	22°14.32'	-	13:27	Fr 01.03.2019	0:00	S
18	P	59°15.38'	22°02.34'	-	14:11	Fr 01.03.2019	0:00	S
19	P	59°40.49'	21°48.86'	-	16:47	Fr 01.03.2019	0:00	S
20	P	59°39.35'	21°32.39'	-	17:37	Fr 01.03.2019	0:00	S
21	P	59°11.55'	21°48.86'	-	20:31	Fr 01.03.2019	0:00	S
22	P	59°09.63'	21°35.38'	-	21:14	Fr 01.03.2019	0:00	S
23	UTÖ_CTD	59°45.29'	21°21.99'	?	00:52	Sa 02.03.2019	1:30	S
24	P	59°45.38'	21°12.77'	-	02:50	Sa 02.03.2019	0:00	S
25	P	60°19.16'	21°05.64'	-	06:14	Sa 02.03.2019	0:00	S
26	P	60°33.76'	21°07.12'	-	07:42	Sa 02.03.2019	0:00	S
27	P	60°39.11'	20°56.00'	-	08:27	Sa 02.03.2019	0:00	S
28	P	60°51.85'	20°48.18'	-	09:47	Sa 02.03.2019	0:00	S
29	SR9	61°10.01'	21°09.79'	42	11:53	Sa 02.03.2019	1:30	S
30	SR7	61°05.01'	20°35.79'	78	15:06	Sa 02.03.2019	1:30	S
31	SR5	61°05.00'	19°34.78'	126	19:33	Sa 02.03.2019	2:00	S
32	SR3	61°11.00'	18°13.80'	72	01:30	Su 03.03.2019	1:30	S
33	SR1A	61°14.00'	17°39.79'	61	04:40	Su 03.03.2019	1:30	S
34	MS2	62°07.00'	17°50.78'	72	11:30	Su 03.03.2019	1:30	S
35	MS4	62°06.06'	18°33.12'	86	14:59	Su 03.03.2019	1:30	S
36	MS6	61°59.02'	19°09.81'	72	18:20	Su 03.03.2019	1:30	S
37	MS8	61°51.01'	20°03.31'	129	22:29	Su 03.03.2019	1:30	S
38	MS10	61°41.01'	20°59.79'	54	02:50	Mo 04.03.2019	1:30	S
39	P	61°35.16'	21°16.86'	-	05:20	Mo 04.03.2019	0:00	S
40	P	61°45.06'	21°19.47'	-	06:20	Mo 04.03.2019	0:00	S
41	P	61°47.53'	20°59.91'	-	07:17	Mo 04.03.2019	0:00	S
42	P	61°54.29'	20°58.61'	-	07:58	Mo 04.03.2019	0:00	S
43	P	61°53.68'	21°15.56'	-	08:46	Mo 04.03.2019	0:00	S
44	P	62°01.04'	21°12.95'	-	09:31	Mo 04.03.2019	0:00	S
45	P	62°01.65'	20°56.00'	-	10:19	Mo 04.03.2019	0:00	S
46	US7	62°36.01'	20°49.78'	23	13:46	Mo 04.03.2019	1:30	S
47	US6B	62°36.01'	20°15.78'	83	16:49	Mo 04.03.2019	1:30	S
48	US4A	62°39.00'	19°29.41'	136	20:29	Mo 04.03.2019	1:30	S
49	P	62°44.14'	18°41.23'	-	00:15	Tu 05.03.2019	0:00	S
50	P	62°47.77'	18°29.70'	-	00:53	Tu 05.03.2019	0:00	S
51	P	62°44.14'	18°21.78'	-	01:24	Tu 05.03.2019	0:00	S
52	P	62°37.53'	18°34.74'	-	02:17	Tu 05.03.2019	0:00	S
53	P	62°31.89'	18°26.10'	-	02:59	Tu 05.03.2019	0:00	S
54	P	62°37.20'	18°13.85'	-	03:45	Tu 05.03.2019	0:00	S
55	P	62°30.89'	18°01.60'	-	04:36	Tu 05.03.2019	0:00	S

56	P	62°24.56'	18°17.45'	-	05:34	Tu	05.03.2019	0:00	S
57	ICE_POINT	63°00.00'	20°30.00'	68	12:36	Tu	05.03.2019	8:00	S
58	BO1	64°25.02'	21°50.77'	83	05:50	We	06.03.2019	1:30	S
59	BO3	64°18.12'	22°20.59'	109	08:47	We	06.03.2019	1:30	S
60	BO5	64°11.02'	22°54.77'	51	11:56	We	06.03.2019	1:30	S
61	BO7	64°08.02'	23°12.78'	24	14:17	We	06.03.2019	1:30	S
62	P	64°30.52'	23°41.59'	-	18:21	We	06.03.2019	0:00	S
63	P	64°28.27'	23°58.54'	-	19:07	We	06.03.2019	0:00	S
64	P	64°32.76'	24°02.46'	-	19:36	We	06.03.2019	0:00	S
65	P	64°36.12'	23°45.51'	-	20:24	We	06.03.2019	0:00	S
66	P	64°40.03'	23°49.42'	-	20:49	We	06.03.2019	0:00	S
67	P	64°37.24'	24°07.67'	-	21:39	We	06.03.2019	0:00	S
68	P	64°41.14'	24°12.89'	-	22:06	We	06.03.2019	0:00	S
69	RR7	64°44.02'	23°48.77'	39	23:10	We	06.03.2019	1:30	S
70	RR5	64°50.02'	23°09.77'	69	02:26	Th	07.03.2019	1:30	S
71	RR3	64°56.02'	22°20.76'	96	06:06	Th	07.03.2019	1:30	S
72	RR1	64°58.02'	21°51.76'	84	08:51	Th	07.03.2019	1:30	S
73	P	65°17.73'	22°27.28'	-	12:49	Th	07.03.2019	0:00	S
74	P	65°21.57'	22°48.31'	-	13:47	Th	07.03.2019	0:00	S
75	P	65°28.68'	22°53.57'	-	14:31	Th	07.03.2019	0:00	S
76	P	65°30.55'	23°14.21'	-	15:24	Th	07.03.2019	0:00	S
77	P	65°31.57'	23°31.02'	-	16:06	Th	07.03.2019	0:00	S
78	P	65°31.95'	23°40.89'	-	16:31	Th	07.03.2019	0:00	S
79	P	65°31.81'	23°52.13'	-	16:59	Th	07.03.2019	0:00	S
80	I3	65°32.02'	24°33.77'	41	18:42	Th	07.03.2019	1:30	S
81	U1	65°21.02'	24°55.77'	37	21:38	Th	07.03.2019	1:30	S
82	FK7	65°07.02'	24°28.77'	16	00:56	Fr	08.03.2019	1:30	S
83	FK6	65°07.75'	24°11.20'	32	03:10	Fr	08.03.2019	1:30	S
84	FK5	65°12.02'	23°53.77'	49	05:31	Fr	08.03.2019	1:30	S
85	FK4	65°15.02'	23°36.76'	56	07:48	Fr	08.03.2019	1:30	S
86	FK2	65°24.02'	23°06.76'	88	10:50	Fr	08.03.2019	1:30	S
87	F3_H	65°10.00'	23°14.00'	71	13:46	Fr	08.03.2019	1:30	S
88	P	64°58.48'	23°23.02'	-	16:29	Fr	08.03.2019	0:00	S
89	F13	63°47.01'	21°28.77'	65	01:10	Sa	09.03.2019	1:30	S
90	F16	63°31.01'	21°03.77'	45	04:37	Sa	09.03.2019	1:30	S
91	F18	63°18.86'	20°16.36'	105	08:34	Sa	09.03.2019	1:30	S
92	AALTO_SM	61°48.00'	20°13.98'	110	19:09	Sa	09.03.2019	1:30	S
93	F33	60°31.99'	18°56.26'	135	05:08	Su	10.03.2019	1:30	S
94	P	60°31.02'	19°00.13'	-	06:50	Su	10.03.2019	0:00	S
95	F64	60°11.34'	19°08.55'	285	08:51	Su	10.03.2019	1:30	S
96	P	60°03.65'	19°06.48'	-	11:08	Su	10.03.2019	0:00	S
97	P	59°49.93'	19°45.59'	-	13:31	Su	10.03.2019	0:00	S
98	F69	59°47.00'	19°55.80'	189	14:07	Su	10.03.2019	1:30	S
99	P	59°54.02'	20°06.48'	-	16:30	Su	10.03.2019	0:00	S
100	P	59°46.87'	20°29.79'	-	17:52	Su	10.03.2019	0:00	S
101	P	59°32.48'	20°55.69'	-	19:49	Su	10.03.2019	0:00	S
102	P	59°26.56'	21°20.29'	-	21:12	Su	10.03.2019	0:00	S
103	P	59°51.90'	24°41.57'	-	07:40	Mo	11.03.2019	0:00	S
104	AALTO_HKI	59°57.90'	25°14.10'	62	09:25	Mo	11.03.2019	4:00	S
105	HELSINKI	60°09.71'	24°54.09'	0	14:57	Mo	11.03.2019	0:00	S

Route map:



Cruise plan is printed at 13.02.2019 at 15:29.