Cruise Prospectus
OSNAP Iceland Basin Cruise
R/V Knorr (July 4-30, 2014)

Description of Project: Nature and Objectives

The specific objectives of this cruise are as follows:

1. **To deploy 20 current meter and sound source moorings along a line from west of the Reykjanes Ridge to the coast of Scotland.**
2. **To conduct standard CTD (Conductivity-Temperature-Depth) and Lowered ADCP (Acoustic Doppler Current Profiler) stations at selected sites along the same mooring line.**
3. **To launch an array of acoustically tracked RAFOS floats at a number of sites near the mooring line.**

This research is part of the U.S. led "Overturning in the Subpolar North Atlantic Program (OSNAP), an effort to determine the strength of the meridional overturning circulation and associated heat and freshwater fluxes in the subpolar North Atlantic. It is a collaborative program with scientists from several nations, including the U.K., the Netherlands, Germany, France, and Canada. Scientists from the U.S., the U.K., and the Netherlands will participate in this cruise.

The moorings to be deployed on this cruise are listed in Table 1, and the planned CTD/LADCP stations are listed in Table 2. The mooring locations and planned CTD/LADCP stations are shown in the attached maps (Figs. 1 and 2), along with the planned cruise track. The first leg of the cruise will depart from Reykjavik, Iceland and proceed to deploy the mooring array nominally from west-to-east across the line, and then the ship will reverse course along the line to complete the planned CTD/LADCP stations, before returning to Reykjavik.

All of the moorings to be deployed are taut-wire subsurface moorings. Most of them will have multiple instruments, including internally-recording current meters and temperature/salinity/pressure recorders, while on three of the moorings there will be a single low-frequency sound source for use in tracking the RAFOS floats to be deployed during the cruise. The RAFOS floats are compact, freely drifting subsurface floats that drift at depth for a pre-determined mission length and then surface to transmit their data to satellites. Approximate locations planned for the RAFOS float launches are in Table 3. The precise schedule of the operations at each site is unknown at this time and will be dependent on weather conditions and other factors during the cruise.

Table 1. Moorings to be deployed (see Fig. 1):

Name	Latitude	Longitude	Depth(m)

U.S. Mooring positions in the Iceland Basin:

Name	Latitude	Longitude	Depth(m)
M1	58.85	-30.54	1695
D1	58.73	-30.10	1770
D2	58.53	-29.50	2520
D3	58.28	-28.79	2100
M2	58.00	-28.00	2330
D4	58.00	-27.00	2640
M3	58.00	-24.50	2840
M4	58.00	-21.08	2900

Dutch Mooring positions in the eastern Irminger Basin:

Name	Latitude	Longitude	Depth(m)
IC1	59.14	-33.72	2450
IC2	59.04	-32.69	2110
IC3	58.96	-31.92	1690
IC4	58.89	-31.23	1510

UK Mooring positions in Rockall/Hatton region:

Name	Latitude	Longitude	Depth(m)
RTADCP2	57.29	-9.4	400
RTADCP1	57.22	-9.45	800
RTEB1	57.1	-9.563	1800
RTWB1	57.2	-12.77	1600
RTWB2	57.12	-12.77	1800

WHOI Sound Source moorings:

Name	Latitude	Longitude	Depth(m)
SS-5	59.00	-34.00	2633
SS-6	58.00	-28.00	2326
SS-7	58.00	-23.00	3087

Table 2. Proposed CTD/LADCP Stations (see Fig. 2):

Irminger Basin

Sta.	Latitude	Longitude	Depth(m)	Site Name
01	59.1705	-34.4431	2513	
02	59.1356	-34.0986	2487	
03	59.1007	-33.7544	2393	IC1
04	59.0746	-33.4963	2316	
05	59.0484	-33.2385	2232	
06	59.0223	-32.9808	2182	
07	58.9962	-32.7232	2039	IC2
08	58.9702	-32.4658	1898	
09	58.9441	-32.2086	1713	
10	58.9181	-31.9514	1669	IC3
11	58.8949	-31.7230	1566	
12	58.8718	-31.4947	1461	
13	58.8487	-31.2665	1474	IC4
14	58.8500	-31.0225	1480	
15	58.8500	-30.7754	1399	

Iceland Basin

16	58.85	-30.54	1695	M1
17	58.7757	-30.2993	1600	
18	58.73	-30.10	1770	D1
19	58.6330	-29.8875	1850	
20	58.5711	-29.6860	2000	
21	58.53	-29.50	2520	D2
22	58.4420	-29.2833	2200	
23	58.3460	-29.0360	2280	
24	58.28	-28.79	2100	D3
25	58.1823	-28.5510	2250	
26	58.0760	-28.2764	2380	
27	58.00	-28.00	2330	M2
28	58.00	-27.5075	2300	
29	58.00	-27.00	2640	D4
30	58.00	-24.50	2850	M3
31	58.00	-21.08	2900	M4

Stations off Hatton Bank

32	57.995	-20.750	2000
33	57.916	-20.486	2360
34	57.872	-20.157	1700
34	57.807	-19.770	1290
35	57.733	-19.200	1050
36	57.667	-18.700	600

Rockall Trough

37	57.583	-13.633	130	A
38	57.567	-13.333	210	B
39	57.550	-13.000	330	C
40	57.542	-12.867	1000	D
41	57.533	-12.633	1658	E
42	57.508	-12.250	1817	F
43	57.233	-10.050	2100	N
44	57.150	-9.700	1900	O
45	57.100	-9.417	1050	P
46	57.050	-9.217	350	Q
47	57.000	-9.000	135	R

Table 3. Planned locations for RAFOS float launches

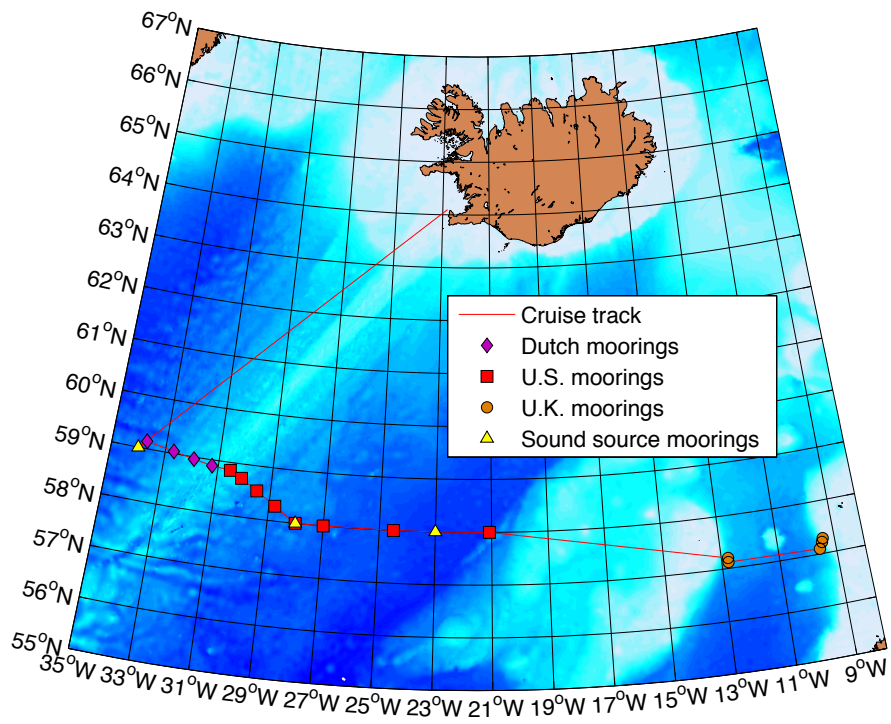| Launch area	Number of floats
58.3°N 29.6°W	6
59.0°N 33.2°W	6

Figure 1. First leg of proposed cruise track, from Reykjavik to Rockall Trough; deploying moorings.
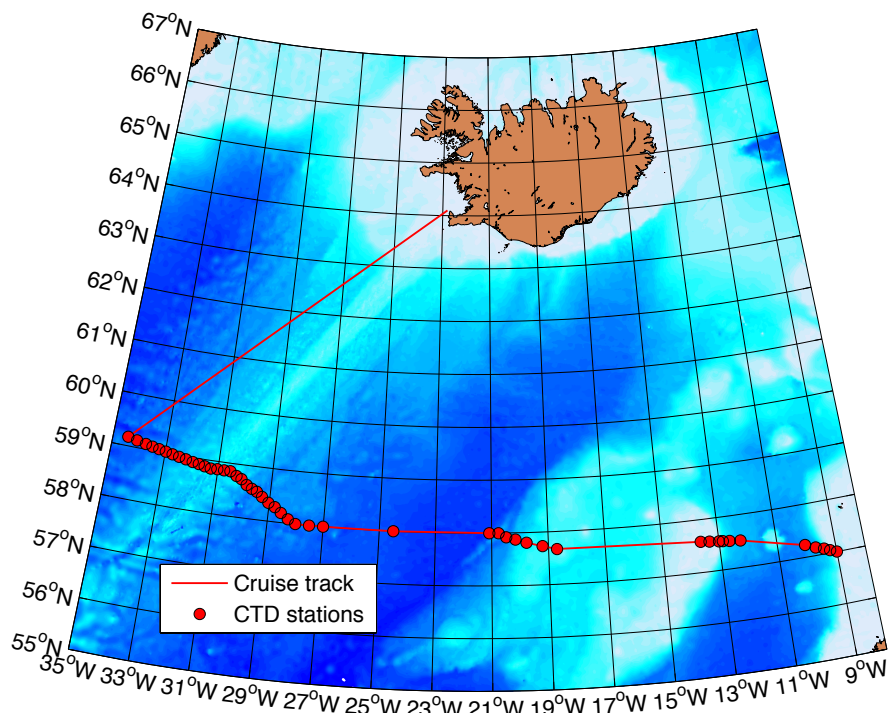
Figure 2. Second leg of proposed cruise track, from Rockall Trough back to Reykjavik, performing CTD/LADCP stations and float launches.