

**APPLICATION FOR OCEANOGRAPHIC MEASUREMENTS IN THE
ECONOMIC ZONE OF ICELAND**

GENERAL

Part A

1. **Name of the ship** "Akademik Ioffe" Cruise No 57
2. **Dates of cruise** From June 01, 2021 to July 10, 2021
3. **Operation Authority** Academy of Sciences of Russia,
P.P. Shirshov Institute of Oceanology
Nakhimovsky pr., 36
Telephone (499) 1246196 Telex 411968 OKEAN RU
Fax (499) 124 5983
4. **Owner (if different from para 3)**
5. **Particulars of ship:**
- | | |
|--------------------------|---|
| Name | "Akademik Ioffe" |
| Nationality | RUSSIA |
| Overall length | 117.1 m |
| Height | 41.0 m |
| Beam | 18.2 m |
| Maximum draught | 5.9 m |
| Net tonnage | 6600 t |
| Propulsion | PIELSTIK 6 ChN 40/46, 2 x 2576 kW |
| Call sign | UAUN |
| No IMO | 8507731 |
| No MMSI | 273413400 |
| External marking: | Yes, according to XI-I, 3 MK SOLAS 74 |
| Radio facilities | «Brig», 1.5 KVt, Frequency 1.6 – 25.8 MHz
GMDSS system, region A3 "SEA"
radio IW/SW, 300 Vt, 1.6- 25.8 MHz
INMARSAT-C: TLX – 427310287 |
- Satellite communication** INMARSAT – F77: TLF – 763477113, 763477121, FAX - 763477114
e-mail: crew600372345@marsatmail.com
6. **Crew**
- | | |
|-------------------------------|--------------|
| Name of Master | L.V. Sazonov |
| Number of crew members | 35 |
7. **Scientific Personnel**
- | | |
|--|---|
| Name and address of Scientist in charge | Dr. S.V. Gladyshev, Academy of Sciences of Russia, P.P. Shirshov Institute of Oceanology, Nakhimovsky pr., 36, 117997, Moscow, Russia |
| Tel/telex/Fax | (499) 124 6142/ 411968 OKEAN RU / (499) 124 5983 |
| No. of scientists | 30 |
8. **Geographical area in which ship will operate (with reference in latitude and longitude).**
Four hydrographic sections between Shetland Islands and Greenland from 60°31' N, 02°16' W to 67° 19.8' N., 32° 44.0' W.
Hydrographic section from 59°30' N 04°36' W to 59°57' N, 43°00' W.
Hydrographic survey in the southern part of Irminger Sea.
9. **Brief description of purpose of cruise**
The cruise is part of the CLIVAR International program, which is the continuation of the International World Ocean Circulation Program. Specific goals of the cruise are to provide the description of thermohaline ocean structure; to monitor the spatiotemporal changes of transatlantic meridional water and heat transport, to investigate and evaluate the exchange in the northern part of the Atlantic Ocean.

10.Dates and names of planned ports of call.

Departure: June 01, 2021

Kaliningrad (Russia)

Arrival: July 10, 2021

Kaliningrad (Russia)

11.Any special logistic requirements at port of call

NONE

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GENERAL

Part B

1. **Name of the ship** "Akademik Ioffe" Cruise No 57
2. **Dates of cruise** From June 01, 2021 to July 10, 2021
3. **Time of work within the exclusive economic zone of the Iceland:** from June 12, 2021 to July 3, 2021.

The ship enters the economic zone of Iceland on June 12, 2021 at 00:00 GMT. The ship makes 35 hydrographic stations according to the list of stations. The final station is located at 63 28.2 N - 10 49.7 W. After the final station, the ship goes eastward to continue the section.

4. **Purpose of research and general operational methods.**

The research work will be carried out by the P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences (RAS). The cruise is financed by the Russian Ministry of Science and High Education and RAS. The cruise is part of the International Climate Variability Program (CLIVAR). Specific goals of the cruise are to provide the description of thermohaline ocean structure; to monitor the spatiotemporal changes of transatlantic and meridional water and heat transport.

The operational methods to be used for the research include measurements of ocean water physical (temperature, salinity, currents) and chemical (oxygen, nutrients) properties at hydrographic stations. The full depth vertical profiles of temperature, salinity and currents will be obtained by profiling with oceanographic CTD/LADCP (conductivity/temperature/depth – lowered acoustic current profiler) instruments. The chemical properties will result from on board analyses of water samples collected at the specified levels by deployment of a 24-bottle rosette. The measurements are made without touching the bottom. The surface waves will be measured with wave buoy after each CTD station from the drifting ship 150-200 m way during 0.5-1 hours.

5. **A chart showing (on an appropriate scale) the geographical area of the work and position of planned stations is attached.**

The navigation is performed by means of the GPS satellite navigation system.

The position of hydrographic stations within the exclusive economical zone of Iceland:

N	Latitude	Longitude
section along Reykjanes Ridge		
1	61° 00.0 N	27° 39.5 W
2	61° 12.0 N	27° 10.5 W
3	61° 30.0 N	26° 41.4 W
4	61° 48.0 N	26° 12.3 W
5	62° 06.0 N	25° 43.3 W
6	62° 24.0 N	25° 14.2 W
7	62° 42.0 N	24° 45.1 W
8	63° 00.0 N	23° 55.0 W
section in the Denmark Strait		
9	65° 36.4 N	25° 00.6 W
10	65° 40 N	25° 16 W
11	65° 45 N	25° 39 W
12	65° 50 N	26° 00 W
13	65° 56 N	26° 29 W
14	66° 01 N	26° 48 W

15	66° 05 N	27° 03 W
16	66° 09 N	27° 15 W
17	66° 12 N	27° 30 W
18	66° 15 N	27° 45 W
19	66° 20 N	28° 08 W
20	66° 25 N	28° 31 W
section along Iceland Faroe Ridge		
21	65° 02.8 N	12° 42.7 W
22	64° 49.3 N	12° 30.3 W
23	64° 38.7 N	12° 20.8 W
24	64° 28.0 N	12° 07.7 W
25	64° 19.1 N	11° 57.5 W
26	64° 11.2 N	11° 47.8 W
27	64° 02.8 N	11° 39.8 W
28	63° 52.6 N	11° 27.0 W
29	63° 44.3 N	11° 16.4 W
30	63° 36.4 N	11° 03.0 W
31	63° 28.2 N	10° 49.7 W
32	63° 20.8 N	10° 23.6 W
33	63° 13.2 N	10° 00.4 W

The measurements at these stations will be carried out from June 12, 2021 to July 3, 2021.

6. Type of samples required, and methods by which samples will be obtained.

Sea water samples are required for salinity, oxygen, and nutrients analysis. The water samples will be taken at selected pressure levels using 5 L bottles mounted on a rosette. The measurements are made without touching the sea bottom.

7. Details of moored equipment *NONE.*

8. Explosives. *NONE*

9. Radioactive compounds. *NONE*

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. Any ports and dates mentioned in para 10 of Part A are acceptable.

(c) When research data from intended cruise is likely to be made available to the coastal state and if so by what means.

The raw data will be available after the end of the cruise from the chief scientist by means of the INTERNET.

SCIENTIFIC EQUIPMENT

11. Complete the following table - SEPARATELY COPY FOR EACH COASTAL STATE.
(INDICATE "YES" OR "NO")

List of all Major Marine equipment planned to use and indicate waters in which it will be deployed	Within Fishing Limits	On Continental Shelf	DISTANCE FROM COAST			
			Within 3 NM	Between 3-12 NM	Between 12-50 NM	Between 50-200 NM
<i>SBE 911 plus CTD</i>	<i>YES</i>	<i>YES</i>	<i>NO</i>	<i>YES</i>	<i>YES</i>	<i>YES</i>

<i>SBE 32 rosette system 24 bottles – 5 L</i>	<i>YES</i>	<i>YES</i>	<i>NO</i>	<i>YES</i>	<i>YES</i>	<i>YES</i>
<i>300 kHz Workhorse Monitor (Sentinel) ADCP</i>	<i>YES</i>	<i>YES</i>	<i>NO</i>	<i>YES</i>	<i>YES</i>	<i>YES</i>
<i>TRDI OS 75 kHz ship mounted current profiler</i>	<i>YES</i>	<i>YES</i>	<i>NO</i>	<i>YES</i>	<i>YES</i>	<i>YES</i>
<i>Wave buoy Spotter V2 150-200 m away from the drifting ship</i>	<i>YES</i>	<i>YES</i>	<i>NO</i>	<i>YES</i>	<i>YES</i>	<i>YES</i>

Director

A.V. Sokov

R/V Akademik Ioffe station location in June - July 2021

