

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

GENERAL

Part A

1. **Name of the ship** "Akademik Mstislav Keldysh" Cruise No 71
2. **Dates of cruise** From June 20, 2018 to August 15, 2018
3. **Operation Authority** P.P. Shirshov Institute of Oceanology Russian Academy of Sciences
36, Nakhimovsky prospekt, Moscow 117997, Russia
Telephone (499) 1246196 Telex 411968 OKEAN RU
Fax (499) 124 5983
4. **Owner (if different from para 3)**
5. **Particulars of ship:**

Name	"Akademik Mstislav Keldysh"
Nationality	RUSSIA
Overall length	122.2 m
Height	30.0 m
Beam	17.8 m
Maximum draught	5.9 m
Net tonnage	6340 t
Propulsion	WARTSILA 824TS, 4 x 1070 kW
Call sign	UFJI
No IMO	7811018
No MMSI	273411400
External marking:	Yes, according to XI-I, 3 MK SOLAS 74
Radio facilities	GMDSS system, region A4, STR-2000 250W; SAILOR SYSTEM 5000, USW - Sailor RT-5022 radio IW/SW, 500W, 1.6- 25.8 mHz INMARSAT-C: TLX 581 427300520

Satellite communication INMARSAT – F77: TLF – 870 763477171, FAX - 870 763477174 radioroom
e-mail: crewUFJI@marsatmail.com
6. **Crew**

Name of Master	Yu. Gorbach
Number of crew members	44
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 6142
No. of scientists	30
8. **Geographical area in which ship will operate (with reference in latitude and longitude).**

Hydrographic section between Shetland Islands and Greenland from 60°25' N, 01°55' W to 67° 15.2' N, 32° 22.3' W

Hydrographic section along 59.5°N between 4°36' – 43° W.
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. Geological researches aim to study Holocene - Upper Pleistocene climate and to estimate atmosphere – ocean - lithosphere matter exchange.
10. **Dates and names of planned ports of call.**

Departure:	June 20, 2018	Kaliningrad (Russia)
Arrival:	August 15, 2018	Arkhangelsk (Russia)

11. Any special logistic requirements at port of call

NONE

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Part B

1. **Name of the ship** "Akademik Mstislav Keldysh" Cruise No 71
2. **Dates of cruise** From June 20, 2018 to August 15, 2018
3. **Time of work within the exclusive economical zone of Iceland:** from July 15, 2018 to August 10, 2018

The ship makes 33 hydrographic stations according to the list of stations (Denmark Strait stations will be repeated twice on the way to/from Iceland). The final station is located at 63°29' N, 10° 49'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. 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 volume and heat transport.

Geological researches aim to study Holocene - Upper Pleistocene climate and to estimate atmosphere – ocean - lithosphere matter exchange.

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 specified levels by deployment of a 24-bottle rosette.

Van Veen Bottom Grab and Multi-Corer will be used to take surface sediments at the stations marked as Geological Stations in the Table.

Upper layer (Holocene-Upper Pleistocene) sediments will be collected by Gravity Corer at one station marked in Table.

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:

CTD stations		Geological Researches		
Latitude	Longitude	Multi-Corer	Van Veen Grab	Gravity Corer
65° 35 N	24° 55 W	√	√	
65° 40 N	25° 16 W			
65° 45 N	25° 39 W	√	√	
65° 50 N	26° 00 W			
65° 56 N	26° 29 W	√	√	
66° 01 N	26° 48 W			
66° 05 N	27° 03 W	√	√	√
66° 09 N	27° 15 W			
66° 12 N	27° 30 W	√	√	
66° 15 N	27° 45 W	√	√	
66° 20 N	28° 08 W	√	√	

66° 25 N	28° 31 W			
64° 24 N	14° 03 W	√	√	
64° 17 N	13° 36 W			
64° 14 N	13° 21 W	√	√	
64° 08 N	13° 03 W			
64° 05 N	12° 52 W	√	√	
64° 01 N	12° 38 W	√	√	
63° 57 N	12° 20 W			
63° 50 N	12° 00 W			
63° 44 N	11° 40 W	√	√	
63° 36 N	11° 15 W			
63° 29 N	10° 49 W	√	√	

The measurements at these stations will be carried out from July 15, 2018 to August 10, 2018. After carrying out the last station the ship is following eastward to continue the section.

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

Seawater samples are required for salinity, oxygen, and nutrients analysis. The water samples will be taken at selected pressure levels using 10 L bottles mounted on a rosette.

Surface sediments will be taken using Van-Veen bottom grab in the thirteen geological stations. Sediment core will be taken at one station (66° 05 N, 27° 03 W).

7. Details of moored equipment.

No equipment will be moored during the cruise.

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 can be made 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
SBE 911 plus CTD	YES	YES	NO	NO	YES	YES
SBE 32 rosette system 24 bottles – 10 L	YES	YES	NO	NO	YES	YES
300 kHz Workhorse Monitor ADCP	YES	YES	NO	NO	YES	YES
Thermosalinograph	YES	YES	NO	NO	YES	YES

Приложение 1

Карта станций в экономической зоне Исландии, которые будут выполнены в июне - августе 2018 г
ANNEX 1

The chart of stations located in the Iceland economical zone will be carried out in June-August 2018

