

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

**GENERAL**

**Part A**

1. **Name of the ship** "Akademik Mstislav Keldysh" Cruise No 77
2. **Dates of cruise** From August 7, 2019 to September 15, 2019
3. **Operation Authority** Shirshov Institute of Oceanology of 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:**

<b>Name</b>	"Akademik Mstislav Keldysh"
<b>Nationality</b>	RUSSIA
<b>Overall length</b>	122.2 m
<b>Height</b>	30.0 m
<b>Beam</b>	17.8 m
<b>Maximum draught</b>	5.9 m
<b>Net tonnage</b>	6340 t
<b>Propulsion</b>	WARTSILA 824TS, 4 x 1070 kW
<b>Call sign</b>	UFJI
<b>No IMO</b>	7811018
<b>No MMSI</b>	273411400
<b>External marking:</b>	Yes, according to XI-I, 3 MK SOLAS 74
<b>Radio facilities</b>	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](mailto:crewUFJI@marsatmail.com)
6. **Crew**

<b>Name of Master</b>	Yu. Gorbach
<b>Number of crew members</b>	44
7. **Scientific Personnel**

<b>Name and address of Scientist in charge</b>	Dr. S.V. Gladyshev, Academy of Sciences of Russia, P.P. Shirshov Institute of Oceanology, Nakhimovsky pr., 36, 117997, Moscow, Russia
<b>Tel/telex/Fax</b>	(499) 124 6142/ 411968 OKEAN RU/ (499) 124 6142
<b>No. of scientists</b>	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.**

<b>Departure:</b>	August 7, 2019	Arkhangelsk (Russia)
<b>Arrival:</b>	September 15, 2019	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 77
2. **Dates of cruise** From August 7, 2019 to September 15, 2019
3. **Time of work within the exclusive economical zone of Iceland:** from August 25, 2019 to September 10, 2019

*The ship makes 23 hydrographic stations according to the list of stations. 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 Shirshov Institute of Oceanology of 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.*

*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	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 August 25, 2019 to September 10, 2019. 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 5-10 L bottles mounted on a rosette.

Sediment core will be taken at two stations 64° 24 N, 14° 03 W and 63° 29 N, 10° 49 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 SBE21	YES	YES	NO	NO	YES	YES
Vessel mounted OS 75 kHz	YES	YES	NO	YES	YES	YES

Gravity Corer, 1 x d127 mm x 8 m	YES	YES	NO	NO	YES	YES
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Active Director



A.V.Sokov

Приложение I

Карта станций в экономической зоне Исландии, которые будут выполнены в августе-сентябре 2019 г.  
ANNEX I

The chart of stations located in the Iceland economical zone will be carried out in August-September 2019

