APPLICATION FOR OCEANOGRAPHIC MEASUREMENTS IN THE ECONOMIC ZONE OF ICELAND

GENERAL

Part A

1. **Name of the ship** *"Akademik Mstislav Keldysh"* *Cruise No 62*
2. **Dates of cruise** *From July 19, 2015 to August 20, 2015*
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. A.V. Sokov, 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
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:	*July 19, 2015*	*Kaliningrad (Russia)*
Call:	*August 6-7, 2015*	*Torshavn (Faroe Islands)*
Arrival:	*August 20, 2015*	*Arkhangelsk (Russia)*

11. **Any special logistic requirements at port of call** *NONE*

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GENERAL

Part B

1. **Name of the ship** *"Akademik Mstislav Keldysh"* *Cruise No 62*
2. **Dates of cruise** *From July 19, 2015 to August 20, 2015*
3. **Time of work within the exclusive economical zone of Iceland**: *from July 25, 2015 to August 15, 2015*

   The ship makes 33 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 P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences. The cruise is financed by the Ministry Economical Development of Russia. 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 specified levels by deployment of a 24-bottle rosette. The measurements are made without touching the bottom.
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:

Latitude	Longitude
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° 15 N	27° 45 W
66° 20 N	28° 08 W
66° 25 N	28° 31 W
66° 25 N	28° 31 W
66° 20 N	28° 08 W
66° 15 N	27° 45 W
66° 09 N	27° 15 W
66° 05 N	27° 03 W
66° 01 N	26° 48 W
65° 56 N	26° 29 W
65° 50 N	26° 00 W
65° 45 N	25° 39 W
65° 40 N	25° 16 W

65° 35 N	24° 55 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 25, 2015 to August 15, 2015. 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.**
Only seawater 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.**
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 – 5 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*

Deputy Director A.V.Sokov

ANNEX I

The chart of the station located in the Iceland economic zone carried out in July-August of 2015