Aleksandr A. Lentarev
Organizational provisions for ice navigation in Canada’s Arctic sector ........ 4
Sergei A. Ogai, Victoria F. Rychkova, Sergei M. Zatepyakin
Modern institutional environment for seaports development in Primorsky Krai, Russian Federation ......................................................... 14
Saangkyun Yi
The map trade and the discovery of Dokdo in the Far East in the 19th century ... 25
Peter Yu. Samoylenko
The image-making problems of Arctic development and Russia’s national interests at the present stage .................................................. 42
Anna A. Sharapova
Legal regulations of the Northern Sea Route: current state of the problem .... 52
Boris I. Tkachenko
International and legal aspects of delimitation of marine economic possessions in the Arctic ................................................................. 62.
Aleksandr N. Vrazhkin
Evaluation of the quality of forecasts for the wind-induced waves in the Sea of Japan and the Sea of Bering ....................................... 80
Life and Work in the Ice .............................................................. 89
Nadezhda K. Kharlampieva
Arctic maritime transport system: history, status and perspective ............. 90
Vladislav V. Kupchik
Cold injury and hypothermia ...................................................... 104
Maria L. Lagutina
The prospects for participation of the BRICS countries in the Arctic cooperation.
Legal regulations of the Northern Sea Route: current state of the problem .... 110.
Natalya A. Vasilyeva
Specifies in interaction in BRICS format ......................................... 115.
Dmitrii G. Zubarev
Value and meaning orientations of naval officers as a factor of preparation to dangerous situations in cold environment ......................... 122
Contributors .............................................................. 130
Article abstracts in Russian ...................................................... 133
Abstract: This paper presents the system of ensuring the navigational safety in the polar regions of Canada. The system of shipping in arctic ice conditions named Arctic Ice Regime Shipping System (AIRSS) is discussed. It is shown that AIRSS served the basis for risk indexing system when assessing operational restrictions for polar waters (POLARIS system – Polar Operational Limit Assessment Risk Indexing System) which was approved by the IMO Maritime Safety Committee (MSC) as one of the possible variants for meeting the requirements of Section 1.5 of the Polar Code.

Keywords: vessel, ice class, Coast Arctic waters, Zone/Date system, Arctic Ice Regime Shipping System (AIRSS), ice navigator, ice number

In compliance with the Arctic Waters Pollution Prevention Act – AWPPA as adopted in 1970 the Canadian government is imposed a duty to provide for monitoring over shipping in polar waters for the purpose of preservation and protection of the particularly sensitive ecosystem of the area. The Act served the basis for working out Arctic Shipping Pollution Prevention Regulations – ASPPR which put a special shipping scheme in the area often referred to as “Zone/Date system” into effect.

Under the system all the adjoining Canadian coast arctic waters are divided into 16 shipping safety zones arranged according to the principle: «the smaller the number of the zone, the more intricate ice conditions within» (Fig. 1). Correspondingly, the most complex ice conditions are observed in zone 1. When dividing the polar waters into the shipping safety management zones long-time average annual ice conditions data for the area were used. The navigation season for each zone is bounded by specific time limits and is governed by a vessel’s characteristics (Canada’s law during these years stipulated for 8 arctic ice classes and 5 types of ship – A, B, C, D and E) (Table1). For details of navigation seasons within Canada’s polar
waters as governed by “Zone / Date system” go to the Canadian Coast Guard web-site http://www.ccg-gcc.gc.ca.

Table 1
Navigation seasons within shipping safety management zones

<table>
<thead>
<tr>
<th>Zone category</th>
<th>Arctic class 10</th>
<th>Arctic class 1</th>
<th>Type A</th>
<th>Type E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td>Year round</td>
<td>...</td>
<td>Not allowed</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not allowed</td>
<td>Not allowed</td>
</tr>
<tr>
<td>Zone 2</td>
<td>Year round</td>
<td>...</td>
<td>Not allowed</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Not allowed</td>
<td>Not allowed</td>
</tr>
<tr>
<td>Zone 3</td>
<td>Year round</td>
<td>...</td>
<td>Not allowed</td>
<td>From August 20 till September 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not allowed</td>
</tr>
<tr>
<td>Zone 9</td>
<td>Year round</td>
<td>...</td>
<td>From August 10 till October 31</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>From August 1 till November 20</td>
<td>...</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>From August 20 till October 15</td>
</tr>
<tr>
<td>Zone 16</td>
<td>Year round</td>
<td>From June 20 till November 15</td>
<td>From June 20 till November 20</td>
<td>From July 1 till October 31</td>
</tr>
</tbody>
</table>

Despite its simple and logical basis “Zone / Date system” features a considerable drawback resulting from the fact that actual ice conditions can be significantly different from long-time average annual ice conditions data. Therefore there might arise such a situation where the track is completely free from ice while the time limits as approved by the “Zone / Date system” prohibit sailing within the zone. And, conversely, extremely heavy ice conditions can be encountered during the permitted navigation season.
In order to eliminate such a drawback of the “Zone / Date system” a competing system of shipping in arctic ice conditions named Arctic Ice Regime Shipping System – AIRSS was developed, designed to eventually replace the “Zone / Date system”. Newly-developed AIRSS ensures a more flexible approach to navigation possibilities in the arctic zones taking into account the actual ice conditions and ship’s characteristics. Implementation of this approach requires enhanced responsibility of the Master for ensuring ship’s safety, specialized icegoing training of navigating officers and more scrupulous preliminary passage planning accounting all the data available and ice situation.

Operation of AIRSS covers vessels meeting the requirements to all the five types and arctic ice classes 3 and 4. Currently ice classification as adopted in Canada has changed, and instead 10 ice classes 4 classes have been introduced, and vessels of ice class 1 and ice class 2 include icebreakers and other vessels with strengthened hull that are allowed to enter any zone any time of the year. Vessels of all the five categories are permitted to sail through first-year ice only.
Furthermore, in compliance with ASPPR rules when navigating in ice vessels shall mandatorily carry a specially trained professional – «ice navigator».

An ice navigator can be any person aboard the vessel, including its Master, meeting the requirements of section 26(3) (b) of ASPPR regulations, which can be summarized as follows:

- holding a certificate of training in special program approved by the Canadian Coast Guard;
- availability of 50-day experience of work as a Master or an officer in charge of navigational watch on vessels operated under such ice conditions that a) require icebreaker assistance, or b) require maneuvering necessary for the avoidance of contact with the ice exceeding structural strength of the vessel hull;
- 30 days of the above-mentioned 50 must pertain to work in the arctic zone under ice conditions.

One of the basic notions of the AIRSS is that of the «ice regime», which is understood as a definite area (water area), featuring comparatively homogenous ice conditions as far as ice characteristics, distribution and concentration. Rapid changes of ice conditions witness a transit to another ice regime. The size of the ice regime has no minimum or maximum limits depending exclusively on the ice conditions and may vary: from several hundred square meters to many square kilometers. A channel ice track behind an icebreaker is an ice regime different from the surrounding ice cover. The degree of complexity of an ice regime is determined by the so called «ice number», which is calculated as the sum of productions of the specific ice concentration (in tenths) by the ice factor, i.e.

\[ IV = C_1 \cdot IF_1 + C_2 \cdot IF_2 + \ldots + C_N \cdot IF_N, \]

where IV is ice number; \( C_N \) – concentration of the ice of \( N \) type; \( IF_N \) – ice factor depending on the vessel category or arctic class and ice type (Table 2). It should be noted that the total concentration of the ice of all types must be equal to one. For instance, if it has been established that within this zone concentration of \( N \) type ice is experienced, equal to 0.6 (or 6 in tenths), then the rest 0.4 fraction should be considered to be open sea. When calculating the ice number it is also advised to reduce ice numbers by one, if old multi-year, second-year, and medium and thick first year ice are at the stage of
melting, and to be increases by one, should such ice be covered with barriers of ice ridges.

Table 2

<table>
<thead>
<tr>
<th>Ice code (World Meteorological Organization WMO Sea Ice Nomenclature)</th>
<th>Types of ice, thickness</th>
<th>Ice factor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Vessel category</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E</td>
</tr>
<tr>
<td>7* or 9*</td>
<td>Old multi-year ice</td>
<td>-4</td>
</tr>
<tr>
<td>8*</td>
<td>Second-year ice</td>
<td>-4</td>
</tr>
<tr>
<td>6 or 4*</td>
<td>Thick first-year ice (&gt; 120cm)</td>
<td>-3</td>
</tr>
<tr>
<td>1*</td>
<td>Medium first-year ice, (70-120cm)</td>
<td>-2</td>
</tr>
<tr>
<td>7</td>
<td>Thin first-year ice, (30-70cm)</td>
<td>-1</td>
</tr>
<tr>
<td>9</td>
<td>Thin first-year ice, second stage (50-70cm)</td>
<td>-1</td>
</tr>
<tr>
<td>8</td>
<td>Thin first-year ice, first stage (15-30cm)</td>
<td>-1</td>
</tr>
<tr>
<td>3 or 5</td>
<td>Grey-white ice (15-30cm)</td>
<td>-1</td>
</tr>
<tr>
<td>4</td>
<td>Grey ice (10-15cm)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Nilas (&lt; 10cm)</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>Young ice (&lt; 10cm)</td>
<td>2</td>
</tr>
<tr>
<td>-</td>
<td>Open sea</td>
<td>2</td>
</tr>
</tbody>
</table>
Thus, ice number is a quantitative measure on which basis a decision on possibility or impossibility of sailing of a given vessel in given ice conditions is made. Consequently, for vessels of different categories and classes the same ice conditions correspond to different ice regimes featuring different ice numbers. Whatever the case, if calculations for any vessel result in a negative ice number, navigation of the vessel in question is impermissible. If ice number is null or positive, then navigation under such conditions is permissible, but the final decision rests with the Master.

To have the ice number calculated it is most convenient to use those ice charts where ovoid symbol contains explicit information on the ice type, its distribution and concentration (Fig. 2). Information derived from other sources may require additional processing on the part of the ice navigator.

The responsibility of ice number calculation lies with the ice navigator. Information on ice type and concentration needed for calculation can be obtained by visual observations of ice situation. Such information can also be obtained from the following sources:

– Northern Canada Vessel Traffic Service (NORDREG), which covers all the 16 shipping safety management zones. Compliance with NORDREG advice and requirements has been mandatory since 2010;

– ice charts (plotting, diurnal, weekly prognostic), provided by Canadian Ice Service, incorporated into the Canadian Coast Guard. Symbols on these charts are in agreement with the World Meteorological Organization’s manual «WMO Sea Ice Nomenclature»;

– reports from shore-based meteorological or ice stations and from other ships in the given area of navigation;
– data of helicopter reconnaissance by icebreakers in vicinity;
– photos from surface remote sensing satellite or aeronautical systems or images from meteorological radars.

For detailed list of ice information sources and types, as well as services rendered, see the Canadian Ice Service manuals «Catalogue of Ice Information Products and Services» and «Arctic Ice Information Manual».

Furthermore, by means of NAVTEX equipment a vessel can receive facsimile ice charts, operational information from ice reconnaissance aircraft, text messages on ice distribution and ice warnings. Procedures for obtaining such information throughout various areas of the Arctic sector are given in corresponding volumes of manual «Radio Aids to Marine Navigation». To have ice information disseminated vessels also make use of Canadian regional satellite system MSAT (Mobile SATellite), which is geostationary earth orbit satellite based.

When planning the voyage two constituent parts are separated: a) strategic, which is constant and must be carried out on a compulsory basis (navigation outside areas featuring ice conditions), and b) tactical, which is applied to navigation in ice conditions and is liable to change. When selecting the route ice should be avoided as long as possible. Should one or more ice regimes along the intended route have negative ice numbers, an alternate route should be chosen.
It is essential to give consideration to possible changes in weather conditions that may entail diminishing ice numbers to negative ones. In this case of special benefit can be recommendations on route selection, provided by NORDREG system. Whatever the case, it is the choice made by the ice navigator that plays a decisive role.

Under ice-bound conditions vessels may resort to the services rendered by icebreakers. All the relevant information pertaining to icebreaker assistance to ships is given in the Canadian Coast Guard manual «Ice Navigation in Canadian Waters».

Having selected the route the ship Master is to forward via NORDREG in the name of the Regional Ice Operations Director a special message containing the following information:

– vessel’s name, callsign and IMO number;
– data on the vessel’s ice strengthening (category, ice class, etc.);
– date, time, present position, course and speed;
– port of destination and intended route;
– a list of ice regimes and corresponding ice numbers;
– ice information sources;
– name of the icebreaker rendering assistance (if applicable);
– last name of the ice navigator carried aboard the vessel.

When operating within NORDREG coverage zones all vessels use two more types of messages: a) a general message on entering the zone (so called NORDREG message), which all details are given in Notices to Mariners, and b) a message to Coast Guard requesting icebreaker assistance, which details are given in Section 2.7.2 of manual «Ice Navigation In Canadian Waters».

Within 30 days upon completion of voyage the ship Master is to Transport Canada. The report includes the following information:

– vessel’s name, callsign and IMO number;
– data on the vessel’s ice strengthening (category, ice class, etc.);
– description of the route covered, including ice regimes encountered and their ice numbers, speed of movement;
– copies of ice information used;
– data on icebreaker assistance (duration of icebreaker assistance, characteristics of channel ice track behind the icebreaker, its ice regime);
– visibility, weather conditions, and other relevant information.
Reports of the kind may prove useful regarding future development of AIRSS system and overall safety of shipping within Canadian Arctic Sector.

Many of the procedures stipulated for in AIRSS system are completed with the use of special software. Among these procedures are, for instance, voyage planning (Voyage Planner function), maintaining the ice observation log-book (Voyage Log function) and its corrections (Review Log function), compiling reports to the Regional Ice Operations Director (Routing Message function) and report on voyage (After Action function) (Fig. 3). This software is executed in bi-lingual version (the English and French languages).

AIRSS has served the basis for risk indexing system when assessing operational restrictions for polar waters (POLARIS system – Polar Operational Limit Assessment Risk Indexing System), which was approved on 6 June 2016 as through adopting a Circular by the IMO Maritime Safety Committee (MSC), MSC.1/ Circ.15. MSC has proposed POLARIS system as one of the possible variants for meeting the requirements of Section 1.5 of the Polar Code, in compliance with which the procedure for assessing vessel’s capabilities and restrictions under ice conditions should be introduced into the Polar waters operating manual.
REFERENCES


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MODERN INSTITUTIONAL ENVIRONMENT FOR
SEAPORTS DEVELOPMENT IN PRIMORSKY
KRAI, RUSSIAN FEDERATION

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Abstract: The need for this review is caused by the renewed interest to the revival of the activities of Primorsky Krai (Territory) Marine Council, under the Governor. Seaports are one of the main factors in the development of Primorsky Krai. This factor has a historical, regional, economic justification. Six operating sea ports and terminals represent the cornerstone of maritime transport system in Primorsky Krai. We have presented the main legislative acts of the Russian Federation that affect the sea port industry and determine its current development trends. Gross production indicators of port activities have positive dynamics. However, an analysis of the composition of port facilities, the state of the port infrastructure and the structure of freight turnover indicate the existence of serious problems that can be solved only by joint efforts of federal and regional authorities as well as business enterprises. The solution of sea ports development problems today is determined not only by industry parameters, but also by social, environmental and other aspects inevitably accompanying the progress of seaports in the maritime region.

Keywords: seaport, Primorsky Krai, seaport infrastructure, Marine Council under Governor, institutional environment

The historical facts characterizing the origin of seaports in Primorsky Krai have a great meaning in the context of our research. In our case the beginning of the "Axis of History" were the words of Count Nikolai Muravyev-Amursky, Governor-General of Eastern Siberia, delivered in June 1859 aboard the corvette "America", which carried out a survey on the southern coast of the Ussuri region: "A magnificent port! From here and own the East! ". Later (May 10,
1896), Emperor Nicholas II committed an act that materialized the emotional exclamation of his subject Governor-General by approving the Regulations on the construction of the port with the formulation: "To build a commercial port in Golden Horn Bay ... to the south, to Cape Egersheld." [1]

To establish the historical orientation of regional seaports development let us turn to the ‘National Maritime Policy of Russia’, whose contemporaries we are. The Concept forms the shipping policy of the Russian Federation as necessary "... maintaining the fleet assets and coastal-port infrastructure at a level guaranteeing economic independence and national security of the state, reducing transport costs, increasing the volume of foreign trade and transit traffic through the country" [2; section III, part 1 “Sea transportation”].

In our opinion, this historical digression shows the permanency of national motives and goals, subjected only to natural modernity. Therefore, the progressive development of the regional ports which has stood up to the pressure of the “winds of History” is regarded as the basis of our research approach. We believe the overall development of the Asia-Pacific region as the primary regional mission for commercial seaports today.

Table 1. Composition of seaports in Primorsky Krai

<table>
<thead>
<tr>
<th>Sea port</th>
<th>Port / Terminal</th>
<th>Connected settlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seaport Vladivostok</td>
<td>Port of Vladivostok</td>
<td>Vladivostok (city)</td>
</tr>
<tr>
<td></td>
<td>Bolshoi Kamen’ terminal</td>
<td>Bolshoi Kamen’ (township)</td>
</tr>
<tr>
<td>Seaport Zarubino</td>
<td>Port of Zarubino</td>
<td>Zarubino (township)</td>
</tr>
<tr>
<td>Seaport Olga</td>
<td>Olga port</td>
<td>Olga (township)</td>
</tr>
<tr>
<td></td>
<td>Plastun Terminal</td>
<td>Plastun (village)</td>
</tr>
<tr>
<td></td>
<td>Rudnaya Pristan Terminal</td>
<td>Rudnaya Pristan (village)</td>
</tr>
<tr>
<td></td>
<td>Svetlaya Terminal</td>
<td>Svetlaya (village)</td>
</tr>
<tr>
<td>Seaport Posiet</td>
<td>Port of Posiet</td>
<td>Posiet (village)</td>
</tr>
<tr>
<td></td>
<td>Slavyanka Terminal</td>
<td>Slavyanka (township)</td>
</tr>
<tr>
<td>Vostochny seaport</td>
<td>Port Vostochny</td>
<td>Wrangel (village)</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Kozmino Bay Terminal</td>
<td>Kozmino (village)</td>
<td>Nakhodka (town)</td>
</tr>
<tr>
<td>Sea port Nakhodka</td>
<td>Novitzky Bay Oil Terminal</td>
<td>South Liflyandia (village)</td>
</tr>
<tr>
<td>Andreeva Bay Fish Terminal</td>
<td>Moryak-Rybolov (village)</td>
<td>Putyatin Island</td>
</tr>
<tr>
<td>Nazimova Bay Fish Terminal</td>
<td>Nakhodka (town)</td>
<td>Podyapolsky (village)</td>
</tr>
<tr>
<td>Nakhodka Bay Fish Terminal</td>
<td>Mysovoy (village)</td>
<td>Preobrazheniye (village)</td>
</tr>
<tr>
<td>Podyapolsk Bay Fish Terminal</td>
<td>Yuzhno-Morskoy (village)</td>
<td>Kamenka (village)</td>
</tr>
<tr>
<td>Five Hunters Bay Fish Terminal</td>
<td>Yuzhno-Morskaya Bay / Gaidamak Bay Fish Terminal</td>
<td></td>
</tr>
<tr>
<td>Sokolovskaya Bay Fish Terminal</td>
<td>Oprichnik River Estuary Fish Terminal</td>
<td></td>
</tr>
<tr>
<td>Nakhodka Bay Terminal</td>
<td>Nakhodka (town)</td>
<td></td>
</tr>
</tbody>
</table>

Port facilities and infrastructure, as well as the level of its organizational and technical capacity represent the basis of seaport commercial activities.

In accordance with the Russian definition, port infrastructure is "buildings, structures, ships, devices and equipment located on the territory of the seaport and used for carrying out activities for the purposes of commercial navigation, including for the provision of services" [3; Para. 1, Art. 4, 2], in other words - the material and technical base of the port.

A more detailed terminology approach has been established in the foreign maritime industry: *infrastructure* is understood as the basic, capital-intensive means of the port (berths, approach channels, enclosing structures, etc.); *superstructure* - lifting equipment, office
and storage facilities, vehicles; *superstructure plus* - covering the technological area of the quay, cranes, industrial power supply equipment, connections to utility networks [4; p. 85, 113].

It can be assumed, as was specified by BA Nosov more than 10 years ago [5, p. 39] that new definitions will be introduced in the Russian regulatory environment that differentiate the generalized term “*port infrastructure*” to a level corresponding to the perception of a hypothetical foreign investor. In this article we prefer to stay within the framework of Russian legislation.

The development of the ports of the PC is directly related to the capabilities of the port and transport infrastructure. The direction of the evolution of national port facilities is set by the existing institutional environment, legally defined by the following principal regulatory acts:

- "The Maritime Doctrine of the Russian Federation for the Period to 2020" (approved by the President of the Russian Federation on July 27, 2001);
- List of instructions of the President of the Russian Federation on the results of the meeting of the Presidium of the State Council of the Russian Federation and the Marine Board (April 2007);
- "Strategy for the development of maritime activities of the Russian Federation until 2030" (RF Government Decree No. 2205-r dated 08.2.2010);
- Federal Law "On the seaport of Vladivostok" (No. 212-FZ of July 13, 2015);
- Presidential Decree "On the approval of the fundamentals of the state policy of the Russian Federation in the field of naval activities for the period until 2030" (No. 327 of July 20, 2017);
- Resolution of the Government of the Russian Federation "On the Federal Target Program "Development of the Transport System of Russia (2010-2021)" (dated December 5, 2001 No. 848 (as amended on September 20, 2017);
- Resolution of the Government of the Russian Federation "On approval of the state program of the Russian Federation "Development of the transport system" (dated April 15, 2014 N 319);
- Resolution of the Government of the Russian Federation "On approval of the Federal Target Program "Economic and Social Development of the Far East and the Baikal Region for the Period
until 2018” (dated April 04, 1996, No. 480 (as amended on 02.06.2016);
• "Transport Strategy of the Russian Federation" (Order of the Government of the Russian Federation No. 1734-r of 22.11.2008 (as amended on 11.06.2014 No. 1032-r);
• "On the approval of the Transport Strategy of the Russian Federation for the period until 2020" (Order of the Ministry of Transport of the Russian Federation No. 45 of 12.05.2005);

These normative acts define the state guidelines for development of port infrastructure in connection with the tasks of socio-economic progress of the Russian Far East. The acts ensuring the daily operation of port facilities by enterprises of different forms of ownership and organization are listed below:

We emphasize that we have presented an incomplete list of official acts that form the vector of industry development in Russia. Multiple factors, sometimes difficult to enumerate - requirements of international conventions, national Labor and Ecology legislature, etc. affect the image of the maritime industry and seaports.

The system of initiatives of business structures (port operators, ship owners, freight forwarders, etc.) and the regulatory impact of government bodies creates opportunities for the development of PK ports and its infrastructure. Balancing of port operation and development opportunities in the environment of opportunities and restrictions on the part of the state, regional (PK Administration) and industry (Ministry of Transport, Ministry of Agriculture, Ministry of Natural Resources and others) executive authorities, the capacity of local government bodies, seaports management structures, investors, ships and port infrastructure operators’ interests opens a "window of opportunity" for seaport development today.

To fully characterize the complexities of regional maritime development the existence of the competitive relations between
enterprises inside the ports and, actually between the ports as well should be mentioned [6].

The gross production indicators of the regional ports are characterized by a favorable trend:

<table>
<thead>
<tr>
<th>Year</th>
<th>Tankers</th>
<th>Dry Cargo</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>10 039</td>
<td>40 275</td>
</tr>
<tr>
<td>2010</td>
<td>25 623</td>
<td>42 780</td>
</tr>
<tr>
<td>2011</td>
<td>25 664</td>
<td>46 620</td>
</tr>
<tr>
<td>2012</td>
<td>27 823</td>
<td>52 286</td>
</tr>
<tr>
<td>2013</td>
<td>34 184</td>
<td>54 042</td>
</tr>
<tr>
<td>2014</td>
<td>38 443</td>
<td>63 497</td>
</tr>
<tr>
<td>2015</td>
<td>43 391</td>
<td>63 819</td>
</tr>
<tr>
<td>2016</td>
<td>43 472</td>
<td>72 557</td>
</tr>
</tbody>
</table>

Fig. 1. Freight turnover in PK seaports (thousand tons), Source: federal statistics, 27/01/2018

Detailed analysis of the results of PK port activities unveils one specific feature. According to official reports, the cargo turnover achieved in 2016 amounts to 94.5% of the total capacity of the Primorsky ports [7] declared by the Ministry of Transport of the Russian Federation, which actually indicates the absence of reserve space in port capacity. This fact can be treated in two ways. On the one hand, it indicates a high operational load ratio of port facilities. On the other hand, the absence of reserve capacity is unfortunate since it reduces the capabilities to smooth the market requirements (for example, seasonal) on the regional cargo traffic market. Even more significant is the availability of a port performance reserve for servicing the paradigm about the advanced development of seaport infrastructure as necessary precondition for economic growth, both on
regional and national levels.[8]. It can be assumed that Primorsky ports will not be able to support the public expectations of economic growth unless radical improvement of port infrastructure is achieved.

PK ports are characterized with obvious disproportion - the difference between inbound and outbound cargo traffic. We focus on 4.9% of cargoes imported to Russia through PK ports, while the rest in the 2016 turnover structure (out of 116.028 million tons) falls on export goods.

![Volume of cargo processed in PK seaports in 2016](image)

Fig. 2. Volume of cargo processed in PK seaports in 2016 (EMISS - State statistical data as of January, 2018)

The existing imbalance testifies to the contemporary specialization of PK ports mostly for servicing export freight turnover. It is a logical consequence of the export orientation of the Russian economy in general, which is reflected in ‘Sea Gates’ activities. This characteristic feature of seaports economic activities indicates the "hypertrophy of the raw material industry" in Russian economy, rather than the problem of seaports itself [9, p. 1].

The operation of PK port infrastructure is associated not only with the problems of cargo structural disproportions, but also with a number of diverse problems, in particular the following:

- Accelerated tempo of port infrastructure technical aging;
- Widespread public opinion in the port settlements that business systematically opposes the ecological issues in the areas of its operation (coal transshipment in the ports of Vladivostok,
Nakhodka, Vostochny, Posiet) and in new project design solutions (petrochemical complex in Vostok Bay, coal terminal in Maltsev Cape in Slavyanka, etc.):

- Conflict of business and ecology in the field of bunkering activities in PK ports and adjacent water areas;
- Violation of the traditional specialization of port berth operators (coal, metal and other cargo transshipment at "fish" berths in the ports of Vladivostok, Nakhodka, Zarubino);
- Insufficient development of coastal fish-receiving port facilities;
- Constrained situation with the development of access communications infrastructure in the ports (road and rail) (Vladivostok, Nakhodka, Posiet, Olga);
- Uncoordinated development (mutual territorial constraints) of the seaport and host city (Vladivostok, Nakhodka).

Judging from this limited list of current problems associated with the activities of regional ports, one can see the challenging reality. The institutional environment described in the first part of this article may possibly be deemed sufficient, but if its components are organized at the federal level, the problems, in their notable part, are manifested at the regional level. Almost each of these problems has an everyday effect on the population of the coastal regions, both on those who linked their fate to the sea or simply residing in the maritime region.

We will try to illustrate the introduction of marine activities in the social and economic aspects of life in Primorsky Krai in this article and, to approach the idea of the need for modern maritime activities to be developed by modern institutionalized ways, not limited to federal or industry means alone. It is appropriate to identify the understanding of the institutional environment that we use in this article, in a broad sense, "including cognitive and regulatory structures and activities that ensure the stability and importance of social behavior. Institutions are transferred through culture, structures and procedures and operate at multiple levels of jurisdiction" or, using another citation as "a cluster of rules, norms and behaviors" [10, p. 3, 411].

Maritime community expectations associated with a sense of the need for interaction between "Authorities", "Business" and
“Public” were realized in the organization of a specialized Maritime Public Council.

The first Maritime Council of the subject of the federation in Russia was established exactly in Primorsky Krai by the Governor’s resolution No. 733 of September 27, 2001. Most likely this was facilitated by the Russian President's Order No. PR-1384 of 27/07/2001 on the implementation of the National Maritime Policy, the Maritime Doctrine and the Marine Collegium of the Russian Federation. Although this could be a local initiative of the Governor Sergei Dar’kin, who had a higher maritime engineering education and constantly interacted with marine community.

Later Maritime Councils in the form of "councils for maritime activities" began to be formed in other subjects of the Federation in pursuance of the instruction of the Chairman of the Government of the Russian Federation N 3911p-P26 of 27/07/2004 "On improving the management of maritime activities in the Russian Federation" and the decision of the Maritime Board (Arkhangelsk) under the Government of the Russian Federation N-1of 16/07/2004. The purpose of the Council is the effective implementation by the subjects of the Federation of the national maritime policy of the Russian Federation. Thus, by the resolution of the PK Governor N-271 of 06/10/2004, the Maritime Council was reorganized into the Council for Maritime Activities under the Governor of Primorsky Krai, with subsequent changes introduced by resolutions N-216-pg (07/12/2005), N-68-pg (02/04/2007), N-20- pg (28/02/2008).

Table 3. Evolution of PK Maritime Council mission

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<td>&quot;To define a development strategy, to implement a unified regional policy in the field of maritime transport, to prepare proposals and draft legislative and regulatory acts that contribute to improving the economic, defense, environmental protection capacity and</td>
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<tr>
<td>“To create conditions for the implementation in Primorsky Krai of the national policy of the Russian Federation and the state policy in the field of maritime activities pursued in Primorsky Krai.&quot;</td>
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22
The activities of the Maritime Council imply the mutual interest of "Authorities" and "Society". When one side of this formula lacked any interest in cooperation, the action of the Maritime Council under the Governor had stopped in 2008. It resumed November 17, 2017 as a result of the meeting of marine community representatives with the provisional governor of the Primorsky Krai Andrei Tarasenko, who took office only 2 weeks before.

At present, we are again witnessing the formation of PK Maritime Council structure, its goals and means of activities. Structurally, the Maritime Council is divided into professional sections: maritime transport activities; legal support of marine economic activity; maritime education and youth policy; fisheries management and mariculture; port operations and coastal infrastructure development; ship repair; naval activities; interaction with public organizations; science and research; boats and yachts. In fact, a new public institution for the interaction of maritime community in Primorsky Krai and the regional administrative body is being formed at the time of writing this article.

The updated PK Maritime Council is has to be integrated or incorporated into the regional institutional environment, apparently. Its mission and goals and tasks will sound in a new way, too. The productivity of the Council largely depends on the motivation of "Authorities" and "Business" with both demonstrating mutual interest so far. Once again, there is an opportunity to establish channels for interaction on maritime issues at the local level and to deliver the regional initiatives vertically, to the Marine Collegium of the Russian Federation. We are far from idealizing the capacity of the Maritime Council or see it as the final missing link in the system of "Power – Business - Competition" relations. At the same time, a working Maritime Council under the Governor is a good evolutionary instrument for the development of Primorsky Krai.
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THE MAP TRADE AND THE DISCOVERY OF DOKDO IN THE FAR EAST IN THE 19TH CENTURY

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Abstract: This study aims to demonstrate if Japan's territorial claim to Dokdo is reasonable by looking into the recognition of Dokdo in the external world in the 19th century reflected in the map trade and map making. This paper is structured on analyses of the aspects of the map trade and map making through contact and exchange among actors of various nationalities on the spatial stage of the Far East, the influence of exchange among them on map making, and characteristics of the territories or the boundaries reflected on maps. As a result, Japan actively adopted Western cartographic traditions and techniques, including Britain, in the process of world mapping, in which Japan made a fatal error in omitting Dokdo from the map. For example, after the Far East exploration of the British probe Argonaut, in the process of copying the questionable island that was wrongly represented on the map, Japan took a false step by presuming Takeshima (Ulleungdo) as Argonaut, and Matsushima (Dokdo) as Dagelet (Ulleungdo). To sum up, Japan made a mistake in omitting Dokdo from the map during the 19th century.

Keywords: Far East, History of Map making, Dokdo, Liancourt, Ulleungdo, Argonaut, Dagelet, Nihon henkai ryakuzu (Japan's Boundary Map), Map of the East Coast of Korea

1. Introduction
Dokdo, with Ulleungdo, has belonged to the territory of the Korean people and has been recognized as a living space of the Korean people. On the contrary, Japanese government authorities consistently maintained that Ulleungdo and Dokdo belong to the territory of Korea, although there was a case where a small number of civilians living in Shimane Prefecture illegally crossed to Ulleungdo. Nonetheless, the Japanese government today insists on Dokdo being Japanese indigenous territory, increasing the level of the Dokdo provocation steadily.
Today Japan is claiming sovereignty over Dokdo. If the decisive circumstances are detected, however, that Japan recognized Dokdo as Joseon's territory during the 19th century, or that it did not have a correct understanding of the island, it would be hard for Japan to continue for long such provocative behaviors so far.

If so, is the issue of Dokdo limited only between the two parties, Korea and Japan? Or is it a special theme that is limited to the Far East? Korea and Japan respectively have continued to argue their positions on Dokdo or refuted the other's arguments in the Korea-Japan bilateral framework. However, it is suggested that they should take a step back from the bilateral framework between Korea and Japan and look at Dokdo from the perspective of the outside world.

How did Westerners express Ulleungdo and Dokdo on the maps when they made the maps of the Far East? This paper studies the geographical and territorial characteristics of Ulleungdo and Dokdo in the eyes of third parties by examining aspects of the map trade and the map making for the Far East in the 19th century.

Why does this paper pay attention to the 19th century? Mapping of the Far East, which had been pushed forward with devotion by Westerners, was completed in the mid-19th century. In addition, the 19th century is the closest past to our modern society, and also a pathway connecting traditional and modern societies as well as the Western and East Asian worlds. Therefore, if the situations of the Far East in the 19th century could be grasped properly, some clues about the Dokdo issue might be found.

The previous studies on the map trade are largely limited to the trading activities of buying and selling maps within bounds of a specific country or city, mainly by geographer, plate makers, printers, and map vendors [1]. This paper, however, intends to incorporate in the map trade all activities related to the collection, dissemination, and exchange of various types of geographical information including maps, among actors of various nationalities, in the third space where Westerners were interested, such as the Far East (East Asia), beyond the scope of a specific country or city.

Therefore, this study aims to demonstrate if Japan's territorial claim to Dokdo is reasonable by looking into the recognition of Dokdo in the external world in the 19th century reflected in the map trade and map making. This paper is structured on analyses of the aspects of the map trade and map making through contact and
exchange among actors of various nationalities on the spatial stage of the Far East, the influence of exchange among them on map making, and characteristics of the territories or the boundaries reflected on maps.

2. Interest in the Far East and Map Making of it in the Western World

The marine space encompassing Ulleungdo and Dokdo had soon become an object of western interest. Not only as milestones on the sea routes, but also in the aspects of geopolitics, the significance and value of it has stood out more and more, and also has been reflected heavily in making world maps.

Information on the islands in the East Sea of the Korean Peninsula was reflected in the Huangyu quan lan tu (皇輿全覽圖; Map of the Chinese Empire in the Kangxi Era, 1717) made in the Qing Dynasty, and the map was disseminated to France. Twenty years later, in 1735, it was reflected in the map by d'Anville made by the French royal family [2]. Subsequently, it was translated into languages of other countries and distributed among the people involved in map making in Europe and all over the world (figure 1) [3].

Figure 1. A Case of the Map Trade between China and France
In the latter half of the 18th century, maritime powers such as Britain and France set out on a full-scale exploration of the Far East based on geographical information about the Far East, which was acquired through China. Geographical information that had not been included in the existing maps was newly added to the map after exploration, and islands that had been represented on the maps but did not actually exist were deleted. Thus, geographical information about the Far East became gradually more and more completed in the 19th century (Figure 2). In this process, geographical information about the Far East was circulated mainly in countries such as Britain, France, Germany, Russia, and the United States, and the testimonies of the explorers was immediately reflected in map making.

The map figure 2 shows the sea route of the French explorer La Pérouse on the east coast of the Korean Peninsula. La Pérouse fleet found Ulleungdo and named it Dagelet. On the other hand, the island named Fanling tao, which was already marked in the map, was
Ulleungdo in its Chinese name, which was introduced to France through China in the early 18th century.

It is necessary here to examine the map trade about the Far East, especially the explorers and cartographers involved in the exchange of geographic information related to Ulleungdo and Dokdo. Chapters 3 and 4 look at the aspects of the map trade in terms of the intellectual curiosity of individual actors and the state-led map making, respectively.

3. The Intellectual Curiosity of Individual Actors and the Map Trade

In Chapter 3, we study the aspects of the map trade among individual actors of various nationalities and the recognition of Ulleungdo and Dokdo reflected in each map. In Japan, a full-scale map making began in the second half of the 18th century, and it reached the stage of making a world map in the 19th century. Here, the analyses are conducted about the situation in the latter half of the 18th century, when the Hayashi Shihei's map was made, to the mid-19th century [4].
Figure 3. A Case of the Map Trade among Joseon Dynasty, Japan and Germany

Source: (Left) Hayashi Shihei, 1785, *Chosen hachido no zu* (朝鮮八道之圖; Map of the Eight Provinces of Korea); (Right) Philipp Franz Jonkheer Balthasar van Siebold, 1840, *Map of the Eight Provinces of Korea*.

*Joseonpaldojido* (朝鮮八道地圖; Map of the Eight Provinces of Korea), which was supposed to have been transmitted from Joseon Dynasty to Japan between the 16th to 18th centuries, was replicated by Japanese geographer Hayashi Shihei in 1785 [5], and again it is reproduced in Western Europe by a German naturalist, Philipp Franz Jonkheer Balthasar van Siebold [6]. Thus, *Joseonpaldojido* is a good case showing the process of the map trade starting from Korea leading to Japan and to Germany. On this map, Ulleungdo is bigger, with its location marked much closer to the land than it actually is, and the other name of it, *Usanguk* is marked together [7]. It is believed that this map had a considerable impact on map making related to Joseon Dynasty in Japan at the time.

The next case is *Sangoku tsuran yochi rotei zenzu* (三國接壤之図; the Map for the General Overview of the lands and Roads of Three Countries) (1785) made by Hayashi Shihei in Japan, contained in the book called *Sangoku tsuran zusetsu* (三國通覽圖說). In Japan, before this map was drawn, maps were made with an individual country as a target scope, as in the map of Japan or the map of Joseon Dynasty, but the scale was enlarged to making maps of the neighboring countries and the world map. *Sangoku tsuran yochi rotei zenzu* by Hayashi Shihei was re-published in 1832 in Paris, France by Julius Klaproth. This map can be seen as an example of the map trade between Japan and France (Figure 4).
Figure 4. A Case of the Map Trade between Japan and France
Source: (Left) Hayashi Shihei, 1785, *Sangoku tsuran yochi rotei zenzu* (三国接壤之圖; the Map for the General Overview of the lands and Roads of Three Countries); (Right) Julius Klaproth, 1832, *Carte des Trois Royaumes*.

In the map *Sangoku tsuran yochi rotei zenzu*, Ulleungdo was drawn twice, but Dokdo was not drawn [8]. In other words, both Ulleungdo (Usanguk) that Joseon recognized, and Takeshima (Ulleungdo) that Japan knew of were expressed on the single map, so Hayashi did not seem to recognize that Ulleungdo and Takeshima are the same island at the time. It seems that the part of the Korean Peninsula in Hayashi’s *Sangoku tsuran yochi rotei zenzu* referred to the Map *Joseonpaldojido*, which was previously looked at. Although *Sangoku tsuran yochi rotei zenzu* is not perfect in the cartographic aspect, it is meaningful in the map-trading point of view as it was published in French in Paris, France in 1832 by Julius Klaproth, the German orientalist.
Figure 5. A Case of the Map Trade between Japan and Germany

Source: (Top) Takahashi Kageyasu, 1809, *Nihon henkai ryakuzu* (日本邊界略圖; Japan's Boundary Map); (Bottom) Philipp Franz von Siebold, 1832, *Japan's Boundary Map*.

In the next case, a genius geographer Takahashi Kageyasu of Japan made the map *Nihon henkai ryakuzu* (日本邊界略圖; Japan's Boundary Map) in 1809. This map is slightly larger in scale than the
Map *Sangoku tsuran yochi rotei zenzu*. As the name of the map suggests, it is a map of Japan's marine boundaries. The boundaries of Japan is not clearly expressed on the map, but on the sea between the Korean Peninsula and the Japanese Archipelago, the name of the Joseon Sea is marked close to the east coast of the Korean Peninsula, which allows guessing the purpose of making this map.

In this map, Takeshima (Ulleungdo) and Matsushima (Dokdo), which were recognized in Japan, were not expressed on the East Sea of the Korean Peninsula. Instead, the Ulleungdo and Usando were drawn on the East Sea of the Korean Peninsula, as they were recognized in the Korean peninsula. Therefore, this map reflects the territorial consciousness of Japan at the time, that they recognized Ulleungdo and the annexed island as the territory of Joseon.

On the other hand, the German doctor Siebold, staying in Dutch trading post in Nagasaki, published the German version of the map *Nihon henkai ryakuzu* in 1832, in which he replicated *Nihon henkai ryakuzu* by Takahashi Kageyasu in 1809 [9]. The map Siebold copied was included in Volume 1 of the *Nippon* series (Figure 5). In the process of converting the map by Kageyasu (1809) into the German version, Siebold labeled Korea as Korai or Tsjo-sjon, and added the name Kanaal van Korai (the Korea Straits) to the marine boundaries between Korea and Japan, and the name is still in use today (Figure 6).
Figure 6. A case of Maine Boundaries Expressed between Korea and Japan

Source: Philipp Franz von Siebold, 1832, *Nihon Henkai Ryakuzu* (日本邊界略圖; Sketch Map of the Limits of Japan), the Sectional Map of the Korean Peninsula.

The Korean Straits being in the center, there are two islands drawn in the Korean marine territory. The island above is Matsushima, and the one below is Takeshima. These are Japanese names that refers to Ulleungdo and Dokdo, which were not found on the map by Takahashi Kageyasu. It is significant in terms of history of cartography development in that marine boundaries that were not on the map of Takahashi Kageyasu are newly added and Ulleungdo and Dokdo are described close to their actual locations. Siebold's map of Korea and Japan was regarded as a very reliable source of data at that time in Europe, and it was replicated in various versions and was heavily referred to in making other maps.

4. The State-led Map Making and the Map Trade

In Japan, the world map began to be made in earnest from the beginning of the 19th century. Map making was mainly led by government agencies or the state. At that time, the map-making authorities seems to have had no clear understanding of Ulleungdo and Dokdo on the East Sea of the Korean Peninsula, but to have been more interested in geopolitical aspects such as the movements of the continental forces including the Korean Peninsula and the Western forces.

In the mid-19th century, Katsu Kaishu, a naval officer in Japan, published *Dai Nihon Kok Uen Kai Ryaku Zu* (大日本國沿海略図: Map of Japan's Coastal Area), which copied the hydrographic chart almost exactly, made by the British Navy four years ago (Figure 7). In the map by Britain, the questionable island Argonaut is drawn by a dotted line, Ulleungdo is marked as both Daslee and Matsushima, and Dokdo is marked with every name of it, such as Roches de Liancourt, *etc.*, named then by Britain, France, Russia, *etc.*
Figure 7. A Case of the Map Trade between Britain and Japan
Source: (Top) British Navy hydrographic chart, 1863, Japan-Nipon & Sikok and part of Korea; (Bottom) Katsu Kaishu (勝 海舟), 1867, Dai Nihon Kok Uen Kai Ryaku Zu (大日本国沿海略図: Map of Japan's Coastal Area).

In the map Dai Nihon Enkai Yochi Zenzu, Argonaut is labeled as Takeshima (竹島), which used to refer to Ulleungdo in Japan in the past, and Ulleungdo is labeled as Matsushima (松島), which
refers to Dokdo. Interestingly, Dokdo is labeled as Lianko do(りゃんこ 島), a Japanese pronunciation of the original French name "Roches de Liancourt", named after the French whaling vessel Liancourt (Figure. 8).

Figure 8. The Sectional Maps of Ulleungdo in Hydrographic Charts of Britain and Japan
In the mid-19th century, in the process of replicating British Navy hydrographic chart, Japanese Navy made some mistakes consequentially; not only the technical errors of cartography but also the regression of Dokdo recognition. In other words, the name of Takeshima (Ulleungdo), which had been traditionally recognized in Japan, became the name of the questionable island Argonaut, and the name of Matsushima (Dokdo) was written on Ulleungdo [10]. In short, in the process of copying the map by Britain in 1867, although the real Dokdo was represented on the map, the Japanese own name Matsushima, which used to refer to Dokdo, was attached to another island (Ulleungdo), and the name for Dokdo became Lianko do (りゃんこ島), which borrowed French pronunciation into Japanese style.

Finally, a case of the map trade between Russia and Japan will be examined. Yevfimy Vasilyevich Putyatin (1803-1883), the Russian Naval Admiral, led the Pallada in April 1854 and discovered Dokdo in the course of surveying the east coast of the Korean Peninsula and the west coast of the Japanese Archipelago. He named the western and eastern islands of Dokdo as Olivoutza and Menelai, respectively. The results of his exploration were reflected in the Map of the East Coast of Korea published by the Russian Navy in 1857, and Dokdo was expressed on the East Sea of Korea.

The Map of the East Coast of Korea made in Russia in 1857 was copied in Japan in 1862(Figure 9). There was no difference between the maps made in Japan and in Russia. Ulleungdo and Dokdo are precisely represented, while the questionable island, Argonaut is still expressed in dotted lines. In particular, the shape of Dokdo has been depicted in various angles, which reflects the strategic importance of Dokdo.
Figure 9. A Case of the Map Trade between Russia and Japan
Source: (Left) the Russian Navy, 1857, \textit{the Map of the East Coast of Korea}; (Right) the Japanese Navy, 1857, \textit{Chyosen higashikaiganzu} (朝鮮東海岸圖; the Map of the East Coast of Korea).

5. Conclusion

It is interesting to study aspects of the map trade about the Far East in order to grasp the existence and meaning of Dokdo in the view of the outside world in the 19th century, when the map making of the Far East was being completed. In particular, the marine space including Ulleungdo and Dokdo has long been an object of interest among geographers, explorers and cartographers of various nationalities, and has been reflected in detail in the mapping process. Also, it is possible to find traces of geographic information exchange with the Western world in the course of map making in Japan in the 19th century, and it is considered a fresh approach to study Japanese map making and Japan's recognition of Dokdo through the viewpoint of the map trade.
In the latter half of the 18th century, maritime powers of the West, including Britain and France, began exploring the Far East in earnest with geographical information about the Far East acquired through China. During the 19th century, geographic information about the Far East grew more and more complete, as geographical information, which was not included in existing maps, was newly added to the maps through exploration and islands that were on the maps but do not actually exist are removed from the maps.

Japan actively adopted Western cartographic traditions and techniques, including Britain, in the process of world mapping, in which Japan made a fatal error in omitting Dokdo from the map. For example, after the Far East exploration of the British probe Argonaut, in the process of copying the questionable island that was wrongly represented on the map, Japan took a false step by presuming Takeshima (Ulleungdo) as Argonaut, and Matsushima (Dokdo) as Dagelet (Ulleungdo). As a result, Japan made a mistake in omitting Dokdo from the map during the 19th century, and this situation lasted until 1905. Today, the Japanese government is arguing for a indigenous territorial claim to Dokdo, which is simply defined as not only an unwillingness to settle colonialism but also another form of the act of invasion of neighboring countries.

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7. Usanguk is a name of the Kingdom that existed on Ulleungdo Island in ancient times, it was subjected to the Silla Dynasty in A.D. 512.

8. In the early stages of the map trade, it is a common pattern that the same objects are represented redundantly on a single map.

9. In April 1826, Siebold had a chance to visit Edo (today's Tokyo) by accompanying the Chief of Dutch trading post. During his stay in Edo, he met several Japanese scholars, and among them, Takahashi Kageyasu(高橋景保), a court astronomer, gave him several maps such as 'Dai Nihon Enkai Yochi Zenzu' (大日本沿海輿地全図: Map of Japan's Coastal Area), 'Shin Tei Ban Koku Zenzu' (新訂萬國全圖: New World Map), and 'Nihon Henkai Ryakuzu' (日本邊界略圖: Sketch Map of the Limits of Japan), etc. In return, he presented his book, titled Voyage Round the World by the
Russian explorer Krusenstern (1770-1846), as a gift. However, the scholarly fellowship between Siebold and Japanese scholars had given rise to a big incident. That is, in September 1828, when he tried to return to his home country, he was caught having maps of Japan in his belongings, which was the famous Siebold Incident. Because of this case, several Japanese scholars were executed or imprisoned, and Takahashi, who gave Siebold maps, died in prison. (Klinghoffer, A. J., 2006, *The Power of Projections: how maps reflect global politics and history*, Praeger, 30-31).

10. In this situation, the "Pacific Ocean Map Collection" by the Russian explorer Adam Johann von Krusenstern (1770-1846) was published in 1827, and it is interesting to note the following statement in the book "Takeshima (竹島) in Japan should be Argonaut, and Matsusima (松島) should be Dagelet." In fact, Krusenstern is supposed to have spent six months in Japan from October 1804 to survey Japanese coast and to interact with Japanese cartographers at that time. Although Krusenstern was a third party not directly involved in the map trade between Britain and Japan, he is believed to have helped the two following systems to correspond mechanically; 1) the two-island system of Argonaut and Dagelet, commonly known by Western cartographers, and 2) the two-island system of Takeshima and Matsushima, which Japan had recognized (Saangkyun Yi, op. cit., 22).
THE IMAGE-MAKING PROBLEMS OF ARCTIC DEVELOPMENT AND RUSSIA’S NATIONAL INTERESTS AT THE PRESENT STAGE

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Abstract: Article deals with the problems of image-making support of Arctic projects in the interests of Russian foreign policy. Author analyses main questions that are mentioned in mass-media: problems of Northern Sea Route, protection of Russian national interests in logistics, trade and other forms of cooperation. As well author pays attention to other aspects of Russian Arctic policy and the role of Russian Far East in its implementation.

Keywords: Arctic zone, Russian Arctic policy, Northern Sea route, image making of arctic projects, Asia-Pacific, mass-media, Russian national interests

Currently the problems of implementation of the Arctic projects are under active discussion. In this case the above mentioned question appears as the complex of interlinked challenges – ranging from military-strategic and ending with the issues of merchant shipping, development of coastal infrastructure and use of the Northern Sea Route (NSR) as an alternative to Eurasian trade routes across the Indian Ocean [1].

In the questions of Arctic development Russia has both evident advantages and significant problem areas. It is obvious that adequate information support of the Arctic projects’ implementation should lead to the strengthening and protection of Russia’s positions and national interests, first of all in international cooperation.

Today Russian undeniable advantages in the Arctic development are the following:
- The existence of the icebreaker fleet including nuclear icebreaker fleet – unique in the world;
- The existence of conditions for military buildup in the region in order to ensure the security of cargo transporting, to provide anti-terrorist protection and to solve the other problems of international security;
The existence of “strong points” – sea ports along the coast of NSR, which can be renovated into the modern logistic hubs but are not actively working yet.

“Weak points” are the following:

- The low level of port and technical support infrastructure in the areas of NSR;
- Still insufficient level of Russian military presence in the Arctic zone;
- Relatively weak component of the specialized fleet (auxiliary, supporting, etc.) necessary for implementation of Arctic projects on permanent basis;
- The need for meteorological and hydrographic surveys in the waters of Arctic seas on a regular basis;
- The uncertainty of prospects for stable cargo transportation along NSR. Therefore, the reimbursement of expenses for the whole system of infrastructure is also “under the question” [9]

In addition to the above, the obvious problem is the formation of the image of the Russian Arctic projects at the present stage. There is a need to create a single information image, characterizing the goals, objectives and overall philosophy of the Russian presence in the Arctic region. By the way, just within the framework of image components many directions of Russian Arctic policy (directly related not only to the Arctic area, but to the Russian Far East) may be developed.

Today a number of large economies of Asia-Pacific region, in particular Japan, China and South Korea, in different forms declare claims on Arctic development. However, it is evident that due to geographic, economic and historical reasons the above-mentioned states do not possess the necessary potential, which may be compared with Russian possibilities [2]. Therefore, it looks promising if Russia combines her efforts with these countries with the aim to reach mutually beneficial (or “synergic”, in economic language) effect [7].

Given the above (historical experience in Arctic development, natural and human resources) Russia can carry out actions in following directions:

- Strengthening of measures for the development of the Arctic region and NSR, the continued implementation of the complex military, hydrographic, marine, technical and other necessary activities;
- Expansion of cooperation with interested states of Asia-Pacific region in issues of Arctic development in line with national interests of Russia;
- Achievement of synergic effect from the use of NSR due to the orders for the domestic industry, attraction of foreign investments, the capitalization of cooperation’s advantages – educational services, historic experience of hydrographic surveys, etc.
- Formation of modern Russia’s image as an Arctic power.

It should be noted that the significant role in the above processes may belong not only to Russian Northern regions but also to the Far East areas. It is here today the potential Asian investors have “entry point” to the Russian territory. In addition, trade sea routes from Asia-Pacific region to the Europe through NSR also begin in the Far East.

As for information and image support it’ll be an essential condition for the success of such projects with international participation, since the evaluation of references of projects in the media space and public position of the authorities is one of the significant evaluation criteria for investors.

The researchers point out that after 2010 the "Arctic theme" is much more likely to appear in mass-media. However, it should be noted that today the “Arctic theme”, as a whole, and conservation of the unique Arctic ecosystem, in particular, is largely speculative for Russian press and is often actively covered only after attention from the first persons of the country [8].

The analysis of mass-media highlight six important topics most commented by the press in the context of the Arctic region’s development: the extraction of national resources, climate and ecology, geopolitics, Northern Sea Route, national security, indigenous and small peoples of the North [8].

The comparison of topics in Russian and foreign mass-media defines the following tendencies:

- Problems of ecology, the extraction of natural resources and geopolitical claims are on the first three positions as in Russian as in foreign mass-media;
- Russian press writes more about the development of Arctic natural resources (28% of total publications, 23% in foreign press), and foreign mass-media is more interested in geopolitical issues (33% of total publications, 17% in Russian newspapers);
Problems of climatic changes and preservation of Arctic ecology are equally often discussed in Russian and foreign press (22% and 24% of total publications) [8]

The figures below characterize levels of this problem’s reference in Russian and foreign media [8].

![Graph of References to Arctic problems in Russian media](image1)

![Graph of References to Arctic problems in English-speaking media](image2)

The same concern is also evident in Russian and foreign press in relation to the increasing wishes and efforts of China, India and Indonesia to participate in the development of the Arctic territories. Geopolitical interest from
these countries is caused by global warming, which has made the Arctic region more achievable for extraction of natural resources and the development of NSR.

As a result of the analysis of Russian and foreign press it becomes possible to allocate several information trends, connected with the issue of Arctic development (from the point of view of environmental safety):

- Foreign press writes about Russia as one of the countries, which gains the most profit from global climate changes due to less stringent environmental requirements, obligatory for mining companies;
- Despite the interest of abroad companies and their participation in joint projects to develop Arctic resources there is a prevailing view in foreign media that the development and even search for minerals (and perhaps, overall, the development of the Arctic) have to be stopped;
- Russian media writes more about the prospects of development of the Arctic mineral resources and the economic benefits which can be gained from using of Northern Sea Route and the release of the Arctic ice [8].

In this connection the analysis of mass-media in Russian Primorsky Region and the Far East as a whole shows that today the issues of Arctic projects are not wide-spread. The main reason of this is caused probably by the fact that the most of Arctic topics in the press are based on federal level. As for regional agenda such news is very little or maybe the regional authorities and organizations connected with the sea have no interest to create them.

Quantity indicators show that as a whole the number of such publications is quite low and changes mainly due to significant informational occasions [10].
Distribution of materials in accordance with the topics is shown in the diagram below [10]
In general, Far Eastern press has the tendency similar to federal media – the amount of sporadically published materials about Arctic issues is small enough. The reason for such publications is usually an event dedicated to these issues at the federal level.

As an illustration we’ll examine the “target group” of the media: papers and magazines which are specialized in political, economic and foreign trade problems and are thematically close to the issues of Arctic exploration.

For example, the business weekly “Zolotoi Rog” (Golden Horn) and the magazine “Dalnevostochniy kapital” (Far Eastern capital) had published last year only three materials about Arctic. However, none of them is related to the strategic peculiarities of this region’s development and Russian interests as a whole. The first material covers the problems of the Republic of Sakha (Yakutia), the second – the problems of tourism, the third – the questions of development of oil and gas projects on the shelf of Sakhalin [11]. And none of the materials described the current problems of Arctic development and Russia’s national interests.

Business weekly “Konkurent” had published at the above mentioned period one material on the Arctic topics, again concerning the “local” problem – the situation in one of the largest transport companies of the region [12]. Before that, the analytical article about strengthening the Russian military-strategic positions in the Arctic was published in “Konkurent” almost three years ago [12].

The analysis of references of the Arctic topics in Far-Eastern regional mass-media indicates the narrowness of the topics and aspects, which are being discussed here. For example, only few materials refer to the ecological safety of the Arctic basin, using of Northern Sea Route for cargo transit from Europe to Asia-Pacific region, and, partly, the military security of Russia in the polar areas. Moreover, the questions which connect the Arctic projects with Russian Far East are mentioned very seldom, for example, such promising issues as the working possibilities for shipping companies, educational structures etc.

As the most promising there may be considered the information steps aimed at the attraction of attention of all interested partners to the process of Russian work in the Arctic. Such priority measures should be implemented first and foremost.
- To show to all probable partners the Russian participation in the Arctic development – the regular pilotage of transport ships along NSR, the construction of ice-class vessels on Far-Eastern shipbuilding plants etc. (the significant role may be played here by large companies with dominant state participation, such as “Sovcomflot” and “Rosneft”);

- To highlight regularly the Arctic problems in mass-media with the invitation of the regional scientific community;

- To promote through media resources the issues of Arctic development in connection with Far-Eastern questions, including logistic possibilities, the problems of maritime education, port infrastructure, bunkering, etc.

At the moment the above mentioned strategy is virtually non-existent, the coverage of Arctic issues in the media is accidental, connected with the concrete situation.

Therefore, speaking of today, it may be pointed out that image moments of the Arctic projects have been studied rather poorly. Media resources which could participate in the coverage of these issues in reality almost never deal with them.

This is a serious problem because it reveals some weakness and inconsistency of Russian policy concerning these issues. It should be noted that there is a serious potential to create “information reasons” for the Arctic not only at the federal level but also at the regional level. The Author believes that one of the first steps for promoting Russian national interests in the Arctic should be the elaboration of informational concept of the maintenance of Arctic projects aimed not only at Russian but also at foreign audience. Otherwise, the using of Arctic seas will occur only as incidental episodic steps connected with concrete information events but out of a deliberate purposeful concept, as it often happens today.
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LEGAL REGULATION OF THE NORTHERN SEA ROUTE: CURRENT STATE OF THE PROBLEM

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Abstract: The use of the Northern Sea Route (NSR) is the most discussed issue of all scientific and political debates on the Arctic. NSR is of interest both for the scientific community and shipping companies. It has become urgent topic due to the close attention of the government, expressed in the adoption of a number of policy documents, as well as international community's interest in navigating from Europe to Asia via alternative route. The Comprehensive Project for the Development of the Northern Sea Route for the period from 2015 to 2030 was developed in May 2015, to become the final regulatory act in a number of sources regulating NSR in the Russian Federation. The present article analyzes existing regulatory and legal acts in this area, concludes on their compliance with the RF obligations under international law, and identifies the problems and prospects of the NSR development.

Keywords: Northern Sea Route, international shipping, transit, Russian legislation, UN Convention on the Law of the Sea.

Opportunities of reducing time of delivery via the Northern Sea Route and cost of transportation services in comparison with transportation through the Suez Canal attract the attention of cargo owners and shippers. According to the estimates of 2014, the savings on shipping for the foreign shipper amounted to 500 thousand USD. The cost of autonomous navigation of a container ship via the NSR is on average 13% lower than transportation via the southern route [1]. The process of ice melting and time of navigation increase adds to the attractiveness of this route.

The purpose of our presentation is to describe the peculiarities of the legal regulation of the NSR and its possible prospects.

Similar to the Northwest Passage (Canada), the NSR runs along the seas, partially or completely covered with ice. However, in recent years due to global warming, the ice conditions changed. The report "Climate change and its consequences for the territory of the Russian Federation", prepared by Roshydromet in 2014, states that the rate of
warming in the territory of the Russian Federation was two and a half times higher than the rate of global warming [2]. Climate change scenarios indicate the possibility of even a complete cleansing of the Arctic Ocean in the second half of the XXI century at the end of the summer season, that is, the Arctic ice may become annual. However, drifting ice will preserve in the water area of the Northern Sea Route for more than half of the year, so the danger of strong ice compressions will persist, and heavy ice will continue to hamper the navigation during the cold period of the year. But the period of ice-free navigation will increase, and the zone with easy and medium ice conditions will expand. At the same time, according to the information of the Arctic and Antarctic Research Institute, the warming is cyclical process, and the increase of thickness of the ice cover of the Arctic is possible by 2035 [3]. Thus, the seasonality of navigation determines the main feature of the use of the NSR for shipping, and no changes are expected in this area in the short term. Summer navigation lasts no more than 5 months, respectively, for cargo owners the change in the year-round delivery scheme is unpromising, even for the sake of reducing the cost of transportation, especially since it is difficult to guarantee compliance with the delivery deadline – the most important condition in arctic ice conditions.

It is worth noting that the norms specifically devoted to the legal regulation of the NSR were developed relatively recently in our legislation. After signing the UN Convention on the Law of the Sea on December 12, 1982, the Government of the USSR, by resolution No. 565 of June 1, 1990, proposed to the Ministry of Sea Fleet to approve, in coordination with interested ministries and departments, the Rules of navigation of vessels and other floating facilities along the Northern Sea Route and adjacent areas. These Rules were approved by the Ministry of Sea Fleet of the USSR on September 14, 1990 and published by the Main Navigation and Oceanography Directorate of the Ministry of Defense in 1991 [4]. Then, after the demise of the Soviet Union, the Russian Federation ratified the Convention of 1982 on February 26, 1997 [5] and included article 14 in the Federal Law "On Internal Sea Waters, Territorial Sea and Contiguous Zone of the Russian Federation" of July 31, 1998 No. 155-FZ [6]. According to this article navigation along the Northern Sea Route, historically established national unified transport
communication of the Russian Federation in the Arctic, including the Vilkitsky, Shokalsky, Dmitry Laptev and Sannikov straits, is carried out in accordance with this Federal Law, other federal laws, international treaties of the Russian Federation and rules of navigation along the Northern Sea Route approved by executive bodies authorized by the Government of the Russian Federation and published in the "Notices to the Mariners".

After the adoption of the Fundamentals of the State Policy of the Russian Federation in the Arctic for the period till 2020 and further prospects on September 18, 2008, where the use of the Northern Sea Route as national unified transport communication of the Russian Federation in the Arctic was identified as one of the main objectives, Russian legislation was supplemented with norms directly aimed at the legal regulation of the NSR [7]. Thus, Federal Law No. 132-FZ of July 28, 2012 "On Amendments to Certain Legislative Acts of the Russian Federation Regarding the State Regulation of Merchant Shipping in the Water Area of the Northern Sea Route" [8] changed the Article 14 of the Federal Law N 155-FZ of July 31, 1998 "On Internal Sea Waters, Territorial Sea and the Contiguous Zone of the Russian Federation", which defined the NSR as "historically established national transport communication of the Russian Federation", and definition of the NSR waters, rules of navigation and procedure for their approval was given in paragraph 1 of Art. 5.1 of the Code of Merchant Shipping of the Russian Federation. Thus, the gap in the national legal regulation of the NSR status was filled.

Canada carried out similar activities much earlier, including the Northwest Passage into its internal waters by the Arctic Waters Pollution Prevention Act (AWPPA) of 1985 and establishing a notification procedure for crossing the passage, unlike Russia where the permissive system of passing through the waters of the NSR is applied [9].

Since the purpose of our study is not analysis of the NSR legal status, we will not justify the legitimacy of including the waters of contiguous zone and exclusive economic zone in the territory covered by the shipping rules of the Russian Federation (although the 1982 United Nations Convention on the Law of the Sea does not establish such competences for coastal states). We shall indicate only that according to Art. 33 of the 1982 United Nations Convention on the Law of the Sea, a coastal state may exercise control in the zone
adjacent to its territorial sea, necessary to prevent violations of customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea. The coastal state has the right to establish a contiguous zone only to monitor compliance with the legislation in respect of these areas of activity [10].

As for the Exclusive Economic Zone (EEZ), according to the Article 58 of the 1982 Convention, «In the exclusive economic zone, all States, whether coastal or land-locked, enjoy... the freedoms of navigation and overflight and of the laying of submarine cables and pipelines, and other internationally lawful uses of the sea related to these freedoms, such as those associated with the operation of ships, aircraft and submarine cables and pipelines, and compatible with the other provisions of this Convention». As we see, the coastal state is not empowered to establish shipping rules in the EEZ. However, the Russian Federation exercises its powers in accordance with Article 234 of the United Nations Convention on the Law of the Sea of 1982: «Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance». Moreover, despite the absence of the definition of the concept of "ice-covered areas" in this article, the view that it is the whole Arctic is widely spread in the world doctrine and practice [9]. Thus, the validity of Canadian and Russian national regulations related to navigation in the NWP and NSR from the point of view of their compliance with the norms of international maritime law is beyond doubt.

In pursuance of the Fundamentals of the State Policy of the Russian Federation in the Arctic for the period until 2020, the Strategy for Development of the Arctic Zone of the Russian Federation and Ensuring National Security for the Period to 2020 were developed and signed by the President of the Russian Federation in 2013. These documents define the main mechanisms, methods and means for achieving strategic goals and the priorities of sustainable
development of the Arctic zone (including the Northern Sea Route) and ensuring national security.

Further regulation was carried out through the adoption of by-laws. So, the Order of the Ministry of Transport No. 7 "On the approval of the rules of navigation in the water area of the Northern Sea Route" dated January 17, 2013, was adopted; by the order of the Government of the Russian Federation of March 15, 2013 No. 358-r on the basis of paragraph 3 of Article 5.1 of the Federal Law No. 81-FZ of April 30, 1999 "Code of Merchant Shipping of the Russian Federation" state public institution "Administration of the Northern Sea Route" was established for the organization of navigation of vessels in the water area of the Northern Sea Route; Order of the Federal Tariff Service dated March 4, 2014 №45-t/2 approved tariffs for icebreaking in the waters of the Northern Sea Route; Government Decree dated August 15, 2014 № 811 approved the Rules of transfer of data on the location of vessels that repeatedly cross the state border of the Russian Federation, to the border authorities. “The adopted laws significantly simplified the procedure for admission of vessels to the NSR in terms of document circulation and the time needed to obtain a permit. At the same time, all the basic requirements for safety of navigation and environmental protection are provided ... In general, the summer-autumn navigation season of 2013 showed the effectiveness of the application of the new Navigation Rules in practice”[3].

Pursuant to Presidential Decree No. 50 "On the State Commission for the Development of the Arctic" of February 3, 2015, the Government Decree No. 228 of March 14, 2015 approved the Regulations on the State Commission for the Development of the Arctic, which defined the purpose and main tasks of the Commission, the issues it addresses, as well as the procedure for its formation and activities. The official information indicates that this decision "will allow to organize interaction between federal and regional executive authorities and local self-government bodies and other state bodies and organizations in solving social, economic and other problems related to the development of the Arctic zone of the Russian Federation and ensuring national security" [11 ].

The expert community discussed the problem of the lack of a clear plan for implementation of the Strategy of development of the Arctic zone of the Russian Federation, adopted back in 2013. It is
pointed out that it only sets the vector for the development of the Arctic and the Northern Sea Route in particular, and it is necessary to formulate a comprehensive Strategy for the development of the NSR and corresponding state program that defines the goals, objectives, terms (stages) of implementation, funding and responsible executors [12]. The Chairman of the Government of the Russian Federation approved the Plan for the implementation of Strategy for the Development of the Arctic Zone of Russia and National Security on August 30, 2016 [13]. The plan includes 80 events in six areas:
- comprehensive social and economic development of the region;
- development of science, high technologies and innovations;
- development of information and telecommunications infrastructure;
- protection of the environment and ensuring environmental safety;
- development of international cooperation;
- ensuring military security and protection of the state border.

The implementation of the plan, in particular, provides for improving operating conditions for Russian companies on the Arctic shelf, preserving and developing fishing industry and Russian icebreaking fleet, creating new port-production complexes and modernizing Arctic ports, developing transport links (including small aircraft and its service system, railway and the main road network), which, of course, is directly related to the development of the NSR. It is also planned to create comprehensive information and reference and scientific "National Atlas of the Arctic".

In pursuance of the instruction of the President of the Russian Federation, the Ministry of Transport in cooperation with interested federal executive authorities developed a Comprehensive Project for the Development of the Northern Sea Route for the period from 2015 to 2030 in May of 2015. The complex project provides for the main improvement measures: hydrographic and hydrometeorological support of navigation in the water area of the Northern Sea Route, emergency rescue services for shipping, development of seaports, ensuring defense in the water area of the NSR, as well as the development and construction of marine equipment, systems and tools. As reported on the official website of the Government of the Russian Federation, “the implementation of the comprehensive
project is expected to improve the safety of navigation… and promote protection of the marine environment against pollution, and will also enhance the reliability of transport including that of hydrocarbons from deposits on the Arctic coast and the continental shelf of the Russian Federation”. [14].

Thus, we can conclude that the Arctic and Northern Sea Route as its part are significant directions of development of the state. One of the priorities is restoration of the transport infrastructure of the NSR. The government moved from the program documents (Fundamentals, Strategy) to the adoption of detailed plans of measures developed in the form of subordinate legal acts, indicating ultimate goals and persons responsible for their implementation. Moreover, despite the fact that the single law regulating NSR has not been adopted, we are observing the work aimed at implementing strategic tasks related to the development of transport communications, including Comprehensive Project for the Development of the Northern Sea Route. Moreover, very ambitious plans are declared: to increase the volume of transported goods to more than 80 million tons for 15 years, that is, to increase transportation volumes 20 times by measures including attracting foreign fleets [15].

Currently, this transport corridor is used for domestic transportation, the share of foreign vessels is small, and, according to experts, this situation will continue in the long term [16].

Basically, the transportation activity is concentrated on the internal freight traffic, while the transit traffic makes up no more than one third. After a slight increase of this indicator in 2011-2013, the transit decreased in 2014-2015 due to severe ice conditions and the lack of icebreakers necessary for ice wiring [16]. Of the 18 vessels that transited 10 were Russian, 2 - Chinese, 1 – Dutch and 1 was Swedish. High tariffs are no longer justification for a small share of transit vessels, since with the current ratio of rouble and dollar rates, the cost of icebreaking services for foreign vessels has fallen more than twice. According to experts, the peculiarities of the NSR infrastructure (first of all, the ports), as well as specifics of icebreaking (lack of vessels, low qualification of crews, risks of changing weather conditions) continue to remain constraining factors [17]. Raw materials – oil products and iron ore, as well as coal and
LNG (liquefied natural gas) and primarily extracted in the Arctic region – remain the main transported cargo.

Nevertheless, Russia, as stated in the program documents mentioned above, has begun integration of the Northern Sea Route into the world transport system as an independent Euro-Asian transport corridor. However, at the present time, the mineral resource base of the Arctic shelf of Russia has a relatively low investment attractiveness, which is explained, among other things, by poor infrastructure for extraction and transportation of resources of the Arctic shelf. The implementation of industrial extraction of hydrocarbons on the Arctic shelf creates a risk of disturbance of ecological balance in the areas of operations and petroleum transportation routes. This is exacerbated by the fact that the Arctic seas are characterized by low intensity of natural biological purification, which, in case of emergency oil spills, can lead to long-term environmental pollution. The increased level of risk during the development of the Arctic shelf deposits exposes increased requirements to the vessels providing operation of extractive platforms, tankers transporting hydrocarbons, and Arctic marine transport system as a whole [17].

Taking into account the measures taken at the level of legislation and law enforcement, aimed, among other things, at ensuring safety of navigation and environmental protection, we can conclude that the goal – to improve reliability of transit and transportation of hydrocarbons from deposits on the Arctic coast and continental shelf of the Russian Federation – will be achieved. The Polar Code entry into force on January 1, 2017 will facilitate unification of requirements for ships, crews, search and rescue in order to ensure the safety of Arctic navigation.

It is premature to say that the Northern Sea Route will become an alternative to the transit flow going through the Suez Canal. NSR, playing its important role for the national economy, can become attractive for international navigation in the long term, if all development indicators announced at high governmental level are achieved.
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INTERNATIONAL AND LEGAL ASPECTS OF DELIMITATION OF MARINE ECONOMIC POSSESSIONS IN THE ARCTIC

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Abstract: The article studies international legal aspects of delimitation of maritime economic areas in the Arctic in connection with the current norms of international maritime law. It is proposed to consider the maritime area of the Russian Arctic sector as historic waters, and the Northern Sea Route as historical national internal sea route of Russia.

Keywords: Arctic, international law, Arctic sector, polar maritime boundaries, historic waters and ways.

The attention to the Arctic region has increased significantly in the beginning of the 21st century conditioned by new geopolitical situation in the world implying struggle for resources and aspirations for the Arctic internationalization.

The main goal of the geopolitical strategy of many countries, not just Arctic ones (Russia, Canada, Norway, the USA, Denmark, Iceland, Finland and Sweden) in continuing division of the Arctic is economic competition for future development resources – oil, gas, and transport communications of the Arctic. It should be borne in mind that the USA relies on military approach in ongoing struggle for resources.

One of the tools of the continuing struggle for the Arctic territory redistribution is the implementation of internationalization, the regime of general international use, based on the experience of the Spitsbergen archipelago internationalization. The idea is increasingly promoted abroad in the 21st century, that jurisdiction over the northern territories, including islands and archipelagoes of the Arctic Ocean is possible only if there is a permanent population with high density and intense social and economic activities. If there is no population, any other state can claim these territories. It is clear that the internationalization of Arctic continental shelf, hydrocarbon fields and sea transport routes reflects only the desire of world powers and transnational corporations to redistribute development resources to
their own advantage, using their economic, political and military superiority, advances technologies and financial resources. The claims to resources and territories of the Russian Arctic made by other states under the guise of internationalization in the 21st century should be viewed as the most important globalization challenge to Russia, which has about 40-60% of the world's natural resources and only 2% of the world's population. Aspirations of individual countries for the Arctic internationalization reflect the tendency to establish control over the available resources of the Arctic, the North and Northern Sea Route.

Russian Federation ratified United Nations Convention on the Law of the Sea of 1982 (UNCLOS) and Agreement of July 29, 1994 on the implementation of the UNCLOS Part XI related to the international seabed area and its resources in 1997. In fact, by ratifying UNCLOS, Russia voluntarily renounced special rights of ownership of the Arctic, provided by the Decree of the Presidium of the Central Executive Committee dated April 15th, 1926, and lost sovereign rights to 1.7 million square km of its Arctic sector. In fact, in the end of the 21st century, Russia began giving up its positions in the Arctic, losing its historical rights, accumulated through the centuries of exploration of the Arctic. This geopolitical trend is continuing in the 21st century. Meanwhile, the US, unlike Russia, has not yet ratified UNCLOS, relying rather on force than international law. The claims of Norway to the Arctic intensified. Canada strengthens its presence in the Arctic, including military one. Other strong actors, first of all, China and Japan, emerge in the Arctic claiming internationalization of natural resources and NSR.

Nowadays Russia exercises state sovereignty over those parts of the Arctic Ocean that make up territorial seas and internal waters, as well as so-called "historic" gulfs and waters (paragraph 6, Article 10 of the 1982 UNCLOS) [1]. The issue of legal regime of each of the Arctic seas is solved for each particular sea, on the basis of existing international legal norms, established and recognized long-term order, considerations of geography, defense, policy, economy and others, which determine the legal regime of a particular Arctic sea area.

There is a fairly influential point of view spread in Russian legal science among the specialists on international maritime law. It reflects the position of supporters of the priority of human values over national interests of their own country and concludes that all the
norms of international law related to the legal classification of maritime areas, their status and regime (primarily the norms of the 1982 UNCLOS) are applicable to the maritime areas of the Russian Arctic [2].

However, long-term actual differentiation of the rights and interests of the Arctic zone states (USSR, Canada, USA, Denmark and Norway) and recognition of their priority in researching and developing various regions of the Arctic have led to creation of Arctic sectors system. In accordance with this system, the Arctic is divided into five sectors, where base lines are the northern borders of the states, two sides are defined by meridians, and the summit is the North Pole. All lands and islands located within each sector are part of the territory of the contiguous states, that is, the sovereignty of that state extends over them. This demarcation concept received universal international recognition and was enshrined in international law by the beginning of the 20th century. The usual norm of international law, which provides for division of Arctic territories into sectors according to the principle of their gravitation toward the coasts of the circumpolar states, was finally formed in the 1920s.

Resolution of the Council of People's Commissars of the USSR No. 331-12 of April 17, 1925, declared the Kara and Yugorsky straits, Matochkin Shar, the Vilkitsky, Shokalsky and Red Army straits territorial waters of the Soviet Union, and the waters of the Laptev and Sannikov straits – historically belonging to the USSR.

The issue of the Soviet Arctic zone was settled exhaustively by the Decree of the Presidium of the Central Executive Committee dated April 15th, 1926, “On the Declaration of Soviet land and island territories located in the Arctic Ocean”. The Decree states that: “All lands and islands, both discovered and which may be discovered in the future, which do not comprise at the time of publication of the present decree the territory of any foreign state recognized by the Government of the USSR, located in the Northern Arctic Ocean, north of the shores of the Union of Soviet Socialist Republics up to the North Pole between the meridian 32° 04' 35" E. long. from Greenwich, running along the eastern side of Vaida Bay through the triangular marker on Cape Kekurski, and the meridian 168° 49' 30" W. long. from Greenwich, bisecting the strait separating the Ratmanov and Kruzenstern Islands of the Diomede group in the Bering Sea, are proclaimed to be territory of the USSR” [3].
provision of the internal Soviet legislation in relation to the eastern boundary of the polar domains of the USSR, from the middle of the Bering Strait to the North Pole, was based on a bilateral international agreement – U.S. - Russia Convention of 1867 – and international historical practice. The USSR officially joined the Svalbard Treaty of 1920 in 1935, establishing that the western boundary of polar domains passes along the meridian 32º 04' 35", skirting the Spitsbergen area from the east along the meridian 35º of the east longitude between 74º and 81º of the north latitude. Russia's ownership of these territories was not formally disputed for decades by any of the Arctic countries, i.e., it was recognized in accordance with international legal order and norms of international law. Customary rule of international law is a source of international law, an international custom, recognized by all or some of the States, expressed either in the form of specific actions, or by refraining from action, i.e. tacitly recognized. The total area of the USSR polar possessions amounted to 5.842 million square km.

The purpose of the sectoral division of the Arctic was a well-founded desire of Arctic states to give special status to their coastal regions, sharing the same geographical and climatic characteristics, and to exclude them from the general rules of international law. On the one hand, the Arctic Ocean can be regarded as an open sea with a customary international legal status. On the other hand, the Arctic Ocean in its considerable part is a continuous ice surface. So it can be considered as a special kind of state territory of the five Arctic countries that have divided this ocean into polar sectors, and all lands and islands, as well as ice surfaces within the polar sector of a country, are parts of the state territories.

This conventional norm establishes that the sector is under the jurisdiction of the Arctic state, and the islands and lands in this sector are subject to the sovereignty of this state. The Arctic sector of each of the states is the area, the basis of which is the coast of this state, and lateral lines are the meridians from the North Pole to the eastern and western borders of this state [4].

No objections were expressed by non-Arctic states in the process of sectoral division of the Arctic on the basis of national legal acts, i.e., it was tacitly acknowledged and de facto adopted. Thus, the sectoral division of the Arctic has become a legal norm of customary international law as a legal custom. Although sectoral division of the
Arctic has not received legal provision as a rule of conventional international law in the UNCLOS of 1982, the Convention notes the peculiarity of Arctic territories. The provisions of the Convention do not deny sectoral division of the Arctic, moreover, its Article 234 provides for special rights of coastal states “to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone…” [5]. At the same time in terms of contemporary international law, lines indicating the lateral limits of the polar sector are recognized as national boundaries. Thus, an apparent contradiction occurred between the rules of customary and conventional international laws related to the Arctic zone.

It should be noted that the Arctic was not the object of special consideration of the 3rd Conference on the Law of the Sea, since the legal regime of the Arctic had been formed long before the adoption of the 1982 Convention, and the essence of this regime is general international law and customary norms (international customs), formed as a result of the international community’s acceptance of practice and national legislation of the Arctic states.

USSR did not consider ice-covered Arctic high-latitude regions as a subject of negotiations within the framework of the 3rd UN Conference on the Law of the Sea and the object of international legal regulation in accordance with the 1982 UNCLOS since historically the legal status of the Arctic and its legal regime had been formed not on the basis of international treaty law, but on the basis and by virtue of customary international law long before 1982 and were regulated over the centuries by national legislations of the Arctic states, primarily on the basis of national legislations of the USSR and Canada, having the most extended Arctic coast lines. With tacit consent to the implementation of national legislative regulation in the Arctic sectors of Russia and Canada with respect to economic activities, primarily for the environment protection and for ensuring compliance with the measures of this regulation, the majority of interested states of the world ascertained the fact of the formation of the corresponding international custom.

Thus, the maritime boundaries in the Arctic up to the North Pole should be established taking into account the special circumstance resulted from the sectoral division of the Arctic between the five Arctic countries, which is the norm of customary
international law, but also in accordance with the modern norms of international maritime law – the Convention on the Territorial Sea and the Contiguous Zone of 1958 Article 4, paragraph 4 related to the Arctic States boundaries of the territorial sea, paragraph 6 of Article 7 – on the so-called "historical" bays, involving all Arctic states (Russia, Canada, USA, Norway and Denmark)[6], paragraph 7 of the Article 10, not joined by the USA [7] and 1982 UNCLOS paragraph 5 of Article 7, which states: “account may be taken, in determining particular baselines, of economic interests peculiar to the region concerned, the reality and the importance of which are clearly evidenced by long usage”.

It should be borne in mind that the 1982 United Nations Convention on the Law of the Sea did not abolish the Convention on the Territorial Sea and the Contiguous Zone of 1958, which entered into force in 1965 [8]. The Convention Preamble states that “matters not regulated by this Convention continue to be governed by the rules and principles of general international law” [9].

The ratification of the UNCLOS of 1982 by the Russian Federation in 1997 was a legitimate legal act. However, it should be recognized that, when ratifying, it was necessary to make an important legal stipulation that the Russian Federation would be guided by a customary rule of international law with regard to the Russian Arctic sector, according to which Russia had special rights of ownership and resources within its Arctic sector. However, the Russian Federation can make such a stipulation at any time.

Similarly, the USSR did not unilaterally abolish in 1960 the Joint Soviet-Japanese Declaration of 1956, an intergovernmental agreement ratified by the parliaments of two states. Its government made an official statement only on the additional condition for the implementation of the part two of Article 9, transfer of islands of Habomai and Shikotan to Japan in addition to the signing peace treaty between the USSR and Japan. Official statements clarifying and specifying the positions of the parties, made in the process of signing important intergovernmental or interstate documents or subsequently, are generally accepted norms of diplomatic practice.

The internationalization of high-latitude regions in the Russian Arctic sector beyond the 200-mile limit does not meet national interests of Russia. In our opinion, the logical and legal conclusion is that the legal regime of the Arctic Ocean should not be equated with
the regime of any other region of the World Ocean. The provisions of the 1982 UNCLOS also confirm this. The areas covered by ice are specially emphasized in Article 234. The 1982 Convention in relation to the Arctic, indeed, should not dominate over other sources of international law.

First of all, it is necessary to proceed from sharp and qualitative differences of the Arctic marine areas from other regions of the World Ocean. Northern polar regions are considered as areas in which coastal states have special interests and rights. It is based on the practice of exploration and development of the Arctic by these states for a long time, measured by centuries, and huge investments allocated by them for equipping navigation routes in Arctic waters. The Northern Sea Route of the Russian Federation, the Indreleia navigational route, lying along the Norwegian coast and the Northwest Passage of Canada are all historical national internal sea routes of these states [10]. These areas do not fall under the regime of the high seas, which provides for freedom of passage by naval and merchant ships under any flag, regardless of the competence of the coastal state.

Water area of the Northern Sea Route is considered as water area adjacent to the northern coast of the Russian Federation, covering internal sea waters, territorial sea and exclusive economic zone of the Russian Federation, including the Kara and Yugorsky straits, Matochkin Shar, the Vilkitsky, Shokalsky, Red Army, Dmitry Laptev and Sannikov straits.

The Northern Sea Route (NSR) is defined by the legislation of the Russian Federation as historically established national transport communication of Russia in the Arctic. It connects the European and Far Eastern ports of Russia, as well as the mouths of navigable rivers of Siberia. NSR runs along the seas of the Arctic Ocean (Kara, Laptev, East-Siberian, and Chukchi seas) and partly through the Pacific Ocean (the Bering Sea). The length of the Northern Sea Route from the Kara Gates (Novaya Zemlya) to the Bay of Providence in the Bering Strait is about 5600 km.

Recently, there have been persistent attempts by Western countries to achieve the full freedom of navigation along the Northern Sea Route and passage of their civil and naval ships through the Russian Arctic straits, implying attempts to give Northern Sea Route the status of "international transport corridor". It is a question of
regime of navigation along the Northern Sea Route, for which the desire of a number of states to internationalize the Northern Sea Route and to introduce freedom of navigation for merchant ships and warships of any state, irrespective of the competence of the Russian Federation, is more and more frankly manifested. The position of Western countries is dictated not by legal but geopolitical, military-political or purely economic considerations, since the delivery of cargos by the Northern Sea Route, except for shortening distance and time, can ensure the reliability and stability of shipping in economic, political and military relations, and transit potential of the Russian Arctic in the future will increase dramatically.

Geopolitical problems associated with the NSR operation and definition of its legal status should be considered as priority problems in the Arctic policy of the Russian state. This is determined, first, by the growth of cargo transportation along the Northern Sea Route, including foreign shippers. Second, the problem of the NSR internationalization, its common use as the most important global transcontinental transport route linking the Atlantic and Pacific Oceans through the northern seas and straits by the shortest route becomes more urgent.

The legal status of the Northern Sea Route and the seas making up its system is closely interrelated with the regime of the straits leading to these seas. Almost all of them (the Kara and Yugorsky straits, Matochkin Shar, the Vilkitsky, Shokalsky and Red Army straits) are overlapped by Russia's territorial sea, with the exception of the straits of Dmitry Laptev and Sannikov, which are regarded as belonging to Russia historically. All of them, as well as the strait leading to the Hudson Bay, which is historic bay of Canada, Norwegian Indreleia strait route and some other Arctic straits, are historic straits of the respective states, as they are located apart from the ways of international navigation and for a long time were used by these coastal states or lead to their historic bays and seas [11]. The Arctic states have been developing the Arctic and establishing navigation in its waters for a long time. This allows us to consider such states as possessing special rights in the Arctic.

It should be recognized that Russian sovereignty in the Arctic is based on the right of historic waters, Russia's priority in discovery and development of the most of the Arctic islands and lands and in navigating the Northern Sea Route since the 16th century. It does not
depend on the ice melting in the Arctic Ocean and ice situation in its water area.

In this connection, Canada's experience in solving similar problem with regard to the Northwest Passage and securing its sovereignty over the waters of the Canadian Antarctic Archipelago by severely limiting foreign shipping in coastal Arctic waters, is interesting for the analysis and clarification of the legislative regime of the Northern Sea Route and the Russian Arctic sector. First of all, the Law on Prevention of Pollution of Arctic Waters was adopted in 1970. Canada's clear and strictly consistent position is that Canadian sovereignty in the Arctic does not depend on the presence or absence of ice, but is based on the right of historic waters, and Canada exercises absolute and permanent sovereignty over these waters, bearing in mind that even ice melting will not affect Canadian sovereignty based on the legal status of historic waters, and not on the fact of the presence of ice. In addition to national legislation and international agreements, Canada's political and legal position with regard to the Arctic is supported by actual actions to strengthen state control in its Arctic sector.

The status and legal regime of the Northern Sea Route should be considered in connection with the special interest and historical rights of the Russian Federation to this polar sea route. Historically established legal regime of Russian sector of Arctic and Northern Sea Route in the best way ensures the safety of polar navigation and protects unique Arctic environment from pollution. This regime ensures the fulfillment of long-term objectives to protect Russia's geopolitical interests in the Arctic, the inviolability of its polar borders, and promotion of national economic and political interests of the country in relation to the Northern Sea Route itself.

It is therefore proposed to consider maritime space of the Russian Arctic sector as Russian historic waters, and the Northern Sea Route as historic national internal sea route of Russia.

The legal problem of historic waters is one of the oldest problems of international maritime law. Attempts to codify the legal status and regime of historic waters were made in the framework of the Hague Conference on the codification of international law of 1930 and at the first UN Geneva Conference on the Law of the Sea in 1956. But these issues have not received contractual binding. They are also not among the issues regulated by the UNCLOS of 1982.
Legal issues related to historic waters continue to stay in the field of customary rules of international law and are governed by norms and principles of general international law, as stated in the Preamble to the 1982 Convention [12]. A proper international legal solution of the problem of historic waters will serve as an important means for strengthening Russia's sovereignty and protecting its sovereign rights in the Arctic.

Regarding the theory and practice of historic waters the following should be noted.

First, under the direct influence of the practice associated with the use of maritime spaces, generally accepted understanding has developed in the theory of law that a state can consider its marine areas adjacent to its coast as its historic waters if there are certain objective (specific geographical location, economic, historical and other factors, including vital interests) and subjective (implementation of power of the coastal state, recognition by other states, etc.) criteria. Objective criteria create the basis for historical rights, and subjective criteria prove intention of the coastal state to exercise these rights and to use them in future, as well as the position of other states with respect to the claims. In each case of claiming historic waters, specific criteria are singled out. They have individual character, since in other specific cases they are not repeated in the same form or volume.

Second, historic waters have the legal status of a state territory with a certain legal regime similar to the regime of internal or territorial waters (territorial sea). It is applicable, first of all, to the historic waters that wash the shores of only one state, as is the case for the Kara, Laptev, East Siberian and partially Chukchi seas washing the shores of the Russian Federation in the Arctic.

Proper international legal solution of the problem of historical water would contribute to an objective solution of the delimitation of both sea areas and marine economic possessions in the Arctic and other regions of the World Ocean.

Russian Federation should declare the seas of the Arctic washing the northern coast of Russia up to the North Pole (Kara, Laptev, East Siberian and partly Barents and Chukchi seas within the Russian Arctic sector) its historic waters, extending the regime of the Russian territorial sea to them, including and with respect to aquatic and seabed resources.
Delimitation of maritime economic possessions (economic zone and continental shelf) in the Arctic in the last quarter of century since 1990 was carried out in accordance with international treaties of the USSR and Russia with neighboring countries in the East and West of the country – the USA and Norway, which affected the extensive waters of the Arctic Ocean (the Arctic zone), as well as the Pacific Ocean. In this connection, it is of practical interest to analyze the general and the particular in the delimitation of the Arctic zone in international treaties: "Agreement between the USSR and the USA on the Maritime Boundary" of 1990 and "Treaty between the Russian Federation and the Kingdom of Norway concerning Marine Delimitation and Cooperation in the Barents Sea and the Arctic Ocean" of 2010.

Analysis of the general and the particular in the delimitation of the Arctic zone under international treaties with the USA and Norway shows that the Treaty with Norway of 2010 in a certain sense is a clone of the Agreement with the United States of 1990.

Both treaties contain unjustified concessions of sea economic possessions in favor of neighboring countries – the USA and Norway at the expense of Russia's interests.

Both treaties deal with "maritime delimitations" while international maritime law operates with the categories "territorial sea", "exclusive economic zone" and "continental shelf".

In both treaties the detailed maps, showing the delineation of the "territorial sea", "exclusive economic zone" and "continental shelf" are not attached to the texts of the agreements. Only a map-scheme with an illustrative line of delineation according to the points 1, 2, 3, 4, 5, 6, 7, 8 listed in paragraph 1 of Article 1 is attached to the Treaty with Norway. No map with a clear indication of the contractual line of maritime economic border is attached to the Agreement with the United States. This map is integral and obligatory component having primary importance for international agreements on borders between states, and its absence is serious drawback, since it allows for treaty free interpretation.

In both treaties, there is a deviation from the existing special circumstances when delimiting maritime economic domains in favor of neighboring states.

Specific feature of delimitation with the United States in the Bering Sea under the 1990 Agreement is deviation in favor of the
Baker-Shevardnadze line from the existing special circumstances – the Convention of 1867. The text of the Convention provided general south-western direction of the border of the territories ceded by Russia in the Bering Sea and designated three middle points – between Chukotka and Alaska in the Bering Strait, between Chukotka and the St. Lawrence Island in the Bering Sea and between the Attu and the Cupper islands, i.e., between the Commander Islands and the Aleutian Islands, which made it possible to draw median line between the territories of the USSR and the USA in the Bering Sea.

Peculiar feature of the delimitation with Norway under the Treaty of 2010 is a retreat in favor of median line from the existing special circumstances – the Svalbard Treaty of 1920, binding on Norway and its other participants as a norm of treaty international law, and the western boundary of the polar possessions of the USSR declared by the Decree of the Presidium of the CEC of the USSR on April 15, 1926 and de facto recognized by all interested countries as a norm of customary international law (international custom).

The sectoral principle of the Arctic division was only partially ensured by the Agreement with the United States of 1990 – from the middle of the Bering Strait along the meridian 168° 58' 37" west longitude, not more than 350 nautical miles of the exclusive economic zone from the base lines on the coast of Russia, i.e. not to the North Pole (90° north latitude), but to about 77° north latitude, i.e., it actually leads to the abandonment of the eastern border of the Russian sector and its polar possessions in the Arctic. The provisions of the Treaty with Norway of 2010 contradict the longstanding national practice of delineation in the Arctic and in fact abolish the western boundary of polar domains determined by the decision of the Presidium of the Central Executive Committee of the USSR from 1926, that is, the sectoral principle was abandoned in favor of Norway in the Treaty of 2010.

The Agreement on the Maritime Boundary is considered as contradicting national interests not only in Russia, but also in some social and political circles of the United States. Negotiations on the conclusion of this agreement triggered claims to a number of Russian territories – the Wrangel, Herald, Henrietta, Jeannette, Bennett and Copper Islands, Sea Lion Rock and Sea Otter Rock. A number of politicians from the state of Alaska made these claims, and their demands were supported by the «State Department Watch» group.
This organization is a lobbying structure, supported by a number of republican and conservative organizations. These politicians based their claims to Russian islands on the "right of discovery", and accused US government of the fact that the agreement was concluded without taking into account interests of the State of Alaska, and the document itself fixed the transfer of "native" American territories to Russia's sovereignty. After ratification of treaty of 1990 the «State Department Watch» and a number of Alaska politicians continued to voice territorial claims to Russia. The Alaska Legislative Assembly adopted resolution HJR 27 in 1999, in which an appeal was made to the US State Department demanding the resumption of dialogue with Russia on territorial issue, taking into account the interests of the State of Alaska. The US State Department, in turn, officially stated that it did not intend to negotiate the ownership of the Russian islands. It is possible that the actions of the "State Department Watch" were custom-made and aimed at forcing Russia to ratify the 1990 agreement. It can also be assumed that this position is related to the peculiarities of internal political struggle in the United States of America. Territorial claims to Russia can be seen as part of the desire of Alaska's regional politicians to strengthen their influence, positioning themselves as defenders of interests of their native state, and as a means of conservative forces’ pressure on democratic administration accused of "betraying" America's interests. The activation of territorial claims against Russia coincided with growing criticism of President Obama's administration not by chance. The United States of America does not officially support these territorial claims to Russia, made by some representatives of the US public and political circles [13].

Wrangel Island on the border of the East Siberian and Chukchi Seas was discovered in 1867 by the American expedition of T. Long, who installed an American flag on the island. It was mapped and named after Wrangel, the chief administrator of Russia’s possessions in North America, who as early as 1823 determined the position of Wrangel Island and applied it with a high degree of accuracy to the map in accordance with the stories of the Chukchi. Herald Island in the Chukchi Sea was opened in 1848 by the British naval expedition. The Henrietta, Jeannette, Bennet islands in the East Siberian Sea were discovered in 1881 by expedition of the American polar explorer J. De Long. In the late XIX – early XX century, there were repeated
attempts by American industrialists and entrepreneurs to seize Wrangel Island, belonging to Russia, to install American or Canadian flags on it, and declare the sovereignty of the United States or Canada over the island. In violation of the Convention of 1867, the command of the US "Rogers" patrol vessel on the orders of captain K. Hooper, the head of the US patrol service in the Alaska zone, established American flag on Wrangel Island and declared it possession of the United States of America in 1881. But, as in the case of similar claims by Canada, this measure did not affect the Russian sovereignty over the island, which was determined by the 1867 Convention. In 1911-1913, Wrangel Island was inspected and mapped by expedition of the hydrographic department of the Naval Ministry of Russia. American and Canadian hunters exploited the island until 1910 and from 1914 to 1924. In response to the violation of Russian sovereignty in the Arctic in 1916, the Ministry of Foreign Affairs of Russia sent a note to all great powers confirming Russia's sovereignty over Wrangel Island, which met no objections. The Prime Minister of Canada, M. King made a statement about Wrangel Island as belonging to Canada in 1922. The Government of the USSR protested this statement with reference to the note of the Ministry of Foreign Affairs of Russia on the sovereignty of Russian Empire over Wrangel Island, which was sent to all interested states in 1916.

According to ITAR-TASS, the state of Alaska Parliament adopted a resolution on US-Russian negotiations on maritime boundaries in 1999.

The legitimacy of the borders between the United States and the Russian Federation was questioned in the joint resolution HJR 27 adopted in June 1999 by the Alaska parliament. The resolution states that US Secretary of State James Baker signed an agreement with Eduard Shevardnadze on the sea border on June 1, 1990 without the participation of representatives of Alaska in negotiations and without the state's consent to the terms of the agreement.

In the current disagreement over the possible impact of Japanese salmon fishing in the Russian zone on the trans-zonal populations of these species, this resolution raises doubts about the authority of the US Secretary of State to negotiate fishing without the participation of the relevant representatives of the State of Alaska.

The resolution states, in particular: "The maritime boundaries described in the proposed treaty transfer the following eight islands
along with the adjacent territorial waters and seabed to the Russian jurisdiction: Wrangel Islands, the islands of Herald, Bennet, and Henrietta in the Arctic Ocean, and the Copper Islands, Sea Lion Rock and Sea Otter Rock on the western tip of the Aleutian ridge, and the maritime boundary described in the agreement delimits territorial sea and seabed of Little Diomede Island at less than the normal 3-mile 13 or 12-mile extent». The Alaskan parliamentarians put the agreement in doubt and note that neither the former USSR nor its successor, the Russian Federation, has yet ratified it.

The resolution further states that this agreement violates the interests of the US and Alaska: «…No Alaskan official has ever been invited to participate in the treaty negotiations, in spite of abiding Alaskan interests in fisheries, petroleum and other potential continental shelf resources and the considerations of navigation in the area…Alaska has not been fully consulted in the entire matter. . . It is our purpose to urgently recommend that the presently-proposed treaty not be ratified by the U.S. Senate, and that negotiations be continued to include appropriate Alaskan officials and current United States and Alaskan historic, territorial, and resource interests…”

"The power of the Secretary of State to establish at his own discretion maritime boundary that entails changes in land, jurisdiction over the sea bed, sovereignty and property of the State of Alaska raises the issue of constitutionality and personal culpability, and since the US State Department is currently negotiating with the Russian government on revision of the maritime boundaries in accordance with implementing this agreement with a view to withdrawing from the American side and handing over to Russian side additional 40,000 square miles of ocean and seabed that can yield 300 million pounds (more than 136,000 tons) of the catch, without any quid pro quo [compensation] for the United States,…the proposed treaty should be cancelled and new negotiations should be held with the participation of the State of Alaska, and the terms of the new agreement relating to the territory, sovereignty or property of the state of Alaska should be accepted only with the consent of that state”.

Finally, resolution HJR 27 states: «Current negotiations between the State Department and the Russian government on ceding of additional fishing rights and seabed to Russia in accordance with the given executive agreement on the maritime border should be open
to participation of representatives of the State of Alaska, and public hearing should be conducted before signing this treaty».

Copies of resolution HJR 27 were sent to President Clinton, Secretary of State Albright and Justice Minister J. Reno.

The Independent Group for Foreign Policy Review of the United States of America has issued a statement from which it follows that the Alaskans are protesting against the transfer of nine Native American islands to the Russians (referring to Wrangel, Herald, Bennet, Henrietta, Jeannette, and Copper islands, western reef of Small Diomede, Sea Lion Rock and Sea Otter Rock) [14].

The problem of territorial claims of the USA to the Russian Arctic islands was studied by S. Karev, the former head of the international legal department of the USSR Ministry of Foreign Affairs, later the head of the division of legal department of the Ministry of Foreign Affairs of Russia. It is about the claims of parliamentarians in Alaska and some members of the US Congress to these territories. According to S. Karev, "The 1990 agreement finally closes this issue" [15].

In this regard, it should be noted that the claims of the American side to these islands, whoever they are made by in US, can be settled quite simply by invalidating (nullifying) the Russian-American Convention of 1867 on the cession of Alaska by Russia to the United States of America, since Article I of this treaty determines the boundary of the ceded territories in the Arctic Ocean and, accordingly, their belonging to each state.

Summarizing the study, we note that the "Agreement between the USSR and the USA on the Maritime Boundary" of 1990 and "Treaty between the Russian Federation and the Kingdom of Norway concerning Marine Delimitation and Cooperation in the Barents Sea and the Arctic Ocean" of 2010 are detrimental to economic and strategic interests of the Russian Federation in the respective waters of the World Ocean.

77
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EVALUATION OF THE QUALITY OF FORECASTS FOR THE WIND-INDUCED WAVES IN THE SEA OF JAPAN AND THE SEA OF BERING

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Abstract: The success of economic activities at the sea is closely dependent on the forecasts for the wind-induced waves. The accuracy and efficiency of these forecasts are connected with the reducing of risks and costs in such areas as shipping, fishing, mining of hydrocarbons on the shelf. Assessment of forecasts is carried out according to observation data, namely data obtained during the vessel’s movement, information from stationary buoys and from drilling platforms. The most accurate data is provided by the hourly instrumental measures of the buoys which are fixed by anchor. However, the location of these buoys in the oceans is unequal. The most of them is located along the Pacific coast of American Continent and the coast of Northern Atlantic. In this regard, the seas adjacent to the Russian coast have not been studied enough.

At present time the forecast for the wind-induced waves is done according to complex mathematical models. One of them is discrete spectral model WAVEWATCH III. It is used in many forecast centers over the world. In Russia it is used online by Far Eastern Departments (Primorye, Kamchatka) of Russian Hydro-meteorological service in the water areas of the Pacific, the Sea of Japan, the Sea of Okhotsk and the Sea of Bering.

Keywords: wave model, forecast information, correlation coefficient, near-water wind, grid spacing

Brief description of the model and initial data

The wave model WAVEWATCH III is based on the solution of the equation of the spectral wave energy balance in Eulerian graph [5]:

\[ \frac{dE_{n,k}}{dt} = -2\pi n c_k \Delta x \text{Im} \left[ \phi_{n,k}^* \frac{\partial \phi_{n,k}}{\partial x} \right] + \text{other terms} \]
\[
\frac{\partial N}{\partial t} + \nabla [(\varepsilon_s + \mathbf{U}) N] + \frac{\partial}{\partial \theta} \frac{\partial k}{\partial k} [kN] = \frac{S}{\omega}
\] (1)

With the meaning

\(N(k, \theta)\) - spectral density, \(k\) - wave number, \(\theta\) - direction, \(\varepsilon_s\)
velocity vector of wave turn, \(\mathbf{U}\) - wind velocity vector, \(\omega\) - circular
frequency, \(S\) – function of sources.

The model relies on the following mechanisms \(S\):

\[S = Sin + Sds + Snl + Sbot + Sdb + Ssc + Sref.
\] (2)

The main source \(Sin\) describes the input of external energy to
the waves under the influence of the wind and includes the linear and
exponential dependence of wave growth. The mechanism of
dissipation consists of: \(Sds\) – dissipation in the deep water; \(Sbot\) – due
to the changing of the depth; \(Sdb\) – destruction of wave crests under
the influence of water bottom (surf). Non-linear interaction \(Snl\), it
characterizes the mechanism of energy redistribution in the wave
spectrum. Wave reflection \(Ssc\) takes place due to obstacles, mainly in
the bays and in the harbors. When entering shallow water and
decreasing of the depths there is observed the mechanism of
refraction \((Sref)\).

While solving the equation (1) the result is wave spectrum and
mixed characteristics of the waves such as height, period, length and
direction of approach. Additionally, you can divide the options for
wind waves and the sea ripple (surge) from multiple systems. In this
study we used a model which takes into account the mentioned
mechanisms and settings, described in [3, 4].

The frames of calculation included the water areas of the Sea of
Japan, the Sea of Okhotsk, the Sea of Bering and the northern part of
the Pacific from 20, 5° northern latitude. The grid resolution of the
area is 0.5°x0.5°.

Calculations are based on the data received by Japan
Meteorological Agency about prognostic fields of the near-water
wind, with the lead time up to 132 hours, the spatial step 1.25°x1.25°
and discreteness of 12 hours. The forecasts for the wind-induced
waves have been made for the time of 0 (midnight) and 12 (midday) UTC from January 30 till May 31, 2013. This period had been chosen because in the cold season there is observed the active cyclonic activity, due to which in above-mentioned areas the significant wind-induced waves are being formed. In total, there have been composed 213 forecasts.

**Analysis of results**

Estimates of forecasts’ accuracy had been received by comparing the calculated data with instrumental observations from four buoys: № 22105 (35, 53° n.l. 130, 0° e.l.), № 22106 (36,35° n.l. 129,78° e.l.) located in the south of the Sea of Japan, № 46071 (51,141° n.l. 179,119° e.l) in the Pacific ocean to the south of Aleutian Islands and № 46035 (57,067°n.l. 177,75° w.l.) in the Sea of Bering.

The wave motion on each of these buoys is shown in the Figure 1. As we can see, the result (coincidence) is somewhat worse for buoys № 46071 and № 22105.

While evaluating the quality of forecasts there were used the following statistical estimations: \( \Delta \) – systematic error, which indicates overestimation or underestimation of the calculated data against the measured values; \( S \) – mean – square error; \( |\Delta| \) - mean absolute error; \(|q|\) - average relative error (%), \( K_{korr} \) – correlation-index, \( SI \) – scatter-index, \( S/\sigma \) – criterion of forecasts’ applicability (it should be less than 0,8 ), \( \sigma \) – standard error (deviation), \( P(\%) \) – forecast sufficiency (обеспеченность) (%).

Estimates of the accuracy of forecasts for the wind-induced waves with lead time \((T)\) up to 6, 5 days are shown in the Table 1. The best results had been obtained when comparing the observations from the buoys №22106 and 46035. The analysis revealed that one of the errors had been associated with inaccuracies in the bathymetry (data set about the depths of water body). For example, in the areas of buoys 22105 and 46071 there are minor depths, which is not true. While configuring the model, the electronic archive of bathymetry ETOPO (http://www.ngdc.noaa.gov) was used, containing inaccuracies about some sea water areas. These inaccuracies are particularly distinctive in the areas with small depths.
Table 1 — Evaluation of forecasts for wave height based on observations from buoys

<table>
<thead>
<tr>
<th>$T$, time</th>
<th>12</th>
<th>24</th>
<th>48</th>
<th>72</th>
<th>84</th>
<th>96</th>
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<td>0.26</td>
<td>0.27</td>
<td>0.30</td>
<td>0.30</td>
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</tr>
<tr>
<td>$S$</td>
<td>0.54</td>
<td>0.54</td>
<td>0.59</td>
<td>0.63</td>
<td>0.70</td>
<td>0.72</td>
<td>0.91</td>
<td>0.92</td>
</tr>
<tr>
<td>$</td>
<td>\Delta</td>
<td></td>
<td>0.38</td>
<td>0.38</td>
<td>0.42</td>
<td>0.45</td>
<td>0.49</td>
<td>0.51</td>
</tr>
<tr>
<td>$</td>
<td>q</td>
<td></td>
<td>4.9</td>
<td>4.8</td>
<td>5.3</td>
<td>5.7</td>
<td>6.2</td>
<td>7.0</td>
</tr>
<tr>
<td>$K_{korr}$</td>
<td>0.92</td>
<td>0.93</td>
<td>0.93</td>
<td>0.92</td>
<td>0.90</td>
<td>0.89</td>
<td>0.83</td>
<td>0.83</td>
</tr>
<tr>
<td>$SI$</td>
<td>0.30</td>
<td>0.30</td>
<td>0.33</td>
<td>0.36</td>
<td>0.38</td>
<td>0.40</td>
<td>0.49</td>
<td>0.50</td>
</tr>
<tr>
<td>$S/\sigma$</td>
<td>0.40</td>
<td>0.40</td>
<td>0.45</td>
<td>0.49</td>
<td>0.52</td>
<td>0.55</td>
<td>0.69</td>
<td>0.67</td>
</tr>
<tr>
<td>$P(%)$</td>
<td>93.5</td>
<td>94.4</td>
<td>93.6</td>
<td>91.4</td>
<td>90.5</td>
<td>87.6</td>
<td>83.4</td>
<td>84.0</td>
</tr>
</tbody>
</table>
Figure 1. Time dependence of wave height according to model and data from buoys

The accuracy of forecasts for all four buoys is good (the criterion for medium-range forecast 90-84% [2], up to 48 hours –
excellent (criterion 93%). Forecasts were regarded as accurate for any actual wave height up to 2 m, in accordance with [2].

The decline in the forecasts’ accuracy in addition to the increase of lead time (earliness) is determined largely by increase of errors in the forecast information about the wind velocity. This forecast information is used as an input data in the calculation model of wind-induced waves. One of the solutions for improving the estimates is the treatment of systematic errors. As a result the accuracy of forecasts for wave height increases by 3-5%. However, evaluation work for every separate water area is necessary, because Δ is different in each of them.

The quality of forecasts in terms of correlation coefficient and index of dispersion are comparable to indicators of foreign systems which are known from literary sources. The greatest variation of wave height occurs in the range 2-6 m, mainly on the buoy № 46071. Normalized mean-square error increases from 8% in the first day to 15% in the fifth day.

The results of the generalized evaluation of forecasts for wave periods are shown in the Table 2. According to [2], the evaluation of accuracy of wave periods is not made, but it is shown in the Table in order to have a conclusion about forecasts’ accuracy.

Normalized mean-square error decreases from 15.7% with the lead time 12 hours to 14% with the lead time 48 hours and then increases to 15.9% in the sixth day.

Table 2 — Evaluation of forecasts for wave periods based on observations

<table>
<thead>
<tr>
<th>$T$, hours</th>
<th>12</th>
<th>24</th>
<th>48</th>
<th>72</th>
<th>84</th>
<th>96</th>
<th>120</th>
<th>132</th>
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</thead>
<tbody>
<tr>
<td>Δ</td>
<td>-0.51</td>
<td>-0.23</td>
<td>0.19</td>
<td>0.34</td>
<td>0.44</td>
<td>0.54</td>
<td>0.55</td>
<td>0.45</td>
</tr>
<tr>
<td>$S$</td>
<td>2.18</td>
<td>2.08</td>
<td>1.95</td>
<td>2.02</td>
<td>2.15</td>
<td>2.38</td>
<td>2.39</td>
<td>2.21</td>
</tr>
<tr>
<td>$</td>
<td>\Delta</td>
<td>$</td>
<td>1.44</td>
<td>1.35</td>
<td>1.23</td>
<td>1.28</td>
<td>1.38</td>
<td>1.50</td>
</tr>
<tr>
<td>$</td>
<td>q</td>
<td>$</td>
<td>18.7</td>
<td>18.4</td>
<td>17.9</td>
<td>19.3</td>
<td>20.3</td>
<td>22.7</td>
</tr>
</tbody>
</table>
In the Figure 2 there is shown the evaluation of the growth of accuracy of forecasts of the wave height in the process of model development as well as the change of input data quality (the velocity of near-water wind at a height of 10 m). Let us consider the evaluation and compare with the data of 2008 [1]. In this time there had been used the model WAVEWATCH, version 2.22 (in this study there had been used the model version 4.04). The velocity of near-water wind was calculated according to prognostic pressure fields with resolution 2,5°x2,5°. The grid spacing had been determined as 1°x1°. The comparison of forecasts for the wind-induced waves with the lead time up to 3 days was carried out with the use of the charts reflecting analysis results, which had been compiled by Primorye Hydro-meteorological service for 32 geographical points. These charts had been made on the basis of all marine observation data obtained during the vessel’s movement.

In order to compare the accuracy of forecasts during tests of 2008 with above mentioned data there had been chosen two points located identically with the coordinates of the buoys № 22105 и 46035. When comparing estimates of periods 2008 and 2013 statistical figures have improved. For example, absolute error decreased by 0.2; mean-square error - by 0.2-0.3; relative error – by 5-15%; correlation coefficient increased by 0,25-0,3; scatter-index decreased by 0,2. The forecasts’ accuracy increased by 16%. Speaking in general, all estimates show a significant increase in accuracy of forecasts for the height of wind-induced waves.

<table>
<thead>
<tr>
<th>$K_{kor}$</th>
<th>0,69</th>
<th>0,71</th>
<th>0,76</th>
<th>0,76</th>
<th>0,74</th>
<th>0,70</th>
<th>0,70</th>
<th>0,72</th>
</tr>
</thead>
<tbody>
<tr>
<td>$SI$</td>
<td>0,29</td>
<td>0,28</td>
<td>0,26</td>
<td>0,27</td>
<td>0,29</td>
<td>0,32</td>
<td>0,32</td>
<td>0,30</td>
</tr>
<tr>
<td>$S/\sigma$</td>
<td>0,75</td>
<td>0,71</td>
<td>0,67</td>
<td>0,69</td>
<td>0,73</td>
<td>0,78</td>
<td>0,79</td>
<td>0,75</td>
</tr>
<tr>
<td>$P(%)$</td>
<td>78,5</td>
<td>80,7</td>
<td>82,8</td>
<td>81,4</td>
<td>79,8</td>
<td>78,2</td>
<td>74,2</td>
<td>71,5</td>
</tr>
</tbody>
</table>
Figure 2. Growth tendency of forecasts’ accuracy according to years

**Conclusion**

Basing on these results we can make following conclusions. The model’s new version has shown the advantage which allows to have more qualitative estimates. Due to the improved physical mechanism of model functions the forecast sufficiency increased, the number of errors decreased. After studying the errors there have been developed the directions for further work, connected with the improvement of accuracy of forecasts for the wind-induced waves.

**REFERENCES**


Life and Work in the Ice

A series of workshops under this common name was conducted by the East Arctic Center at the Admiral Nevelskoy Maritime State University in 2015-2017. Representatives of various educational institutions, research centers, Armed Forces, law enforcement agencies, regional and local authorities actively participated in the events, discussing a wide range of aspects related to the life and exploration of the Arctic and adjacent territories of Russian Far East and water areas of North-Western Pacific. Selected publications by workshop participants based on their presentations are published further on in the current edition of our Journal.
ARCTIC MARITIME TRANSPORT SYSTEM:
HISTORY, STATUS AND PERSPECTIVE

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Saint-Petersburg State University,
Arctic and Antarctic Research Institute

Abstract: The role and place of Russia in the modern system of international relations, the inclusion of Arctic projects in global economic system is a relatively new area of multinational economic cooperation and strategic research planning. The influence of global strategic concepts on scientific research planning in the Arctic, as well as its practical application in the Arctic states is studied in the article. The improvement of local self-government institutions and norm-setting activities in the formation of regional maritime transport system have become the main research objects for social sciences, taking into account the ecological and economic specifics of modern development of the Arctic territories.

Keywords: maritime transport system, Northern Sea Route, protection of the marine environment, self-government.

Strategic spatial planning for regional development of Russian Federation as one of the priority areas of the state policy raises topical scientific and practical tasks in the field of social sciences. The large-scale initiatives on the development of the Far East and the Arctic zone of the Russian Federation at the beginning of the XXI century are two complementary examples of modern spatial planning. It can be applied not only for the Russian Federation but also facilitate the comprehension economic opportunities for its neighboring nations. Structural changes in the world natural resources market, the possibility of creating transport corridors, connected with the plans for the development of the natural and territorial complexes of the Arctic mineralogical basin, primarily the circumpolar oil and gas super-basin, in the bowels of which the reserve of energy and natural resources are powerful demand factors in many countries. It is this space that becomes the object of research and technology innovations. Thus, the Yamal model of Arctic projects shows new opportunities for the development of the transport system: aviation, sea and rail [1]. The plan for the development of a strategically important macro-

90
region, the Russian Arctic is associated with the formation of the Arctic maritime transport system [2,3].

The world-wide approach is one of the promising research concepts used in empirically-analytical socially oriented research activities. The identification of the conceptual directions of global politics, the influence of its principles on the formation of regional political strategies, their application in the practice of international interaction make it possible to assess the degree of expediency of modern phenomena and processes in international relations and world politics [4]. Despite the results of the world-wide research on Arctic topics, it should be said that the scale of the strategic importance of the Russian Arctic at the global, regional and national levels is most dependent on the intra-regional mechanisms of regional interaction. Therefore, a competent policy of creating and managing new institutions of development in the Russian Federation, simultaneously dictated by domestic political necessity and international political tendencies in the modern world, is a unique opportunity to improve and show the Arctic peculiarity of conducting state, public and commercial policies in the world. Therefore, the study of the influence of global strategic concepts on Arctic scientific research planning, as well as their practical application in eight Arctic states (Iceland, Denmark, Canada, Norway, Russia, USA, Sweden and Finland) was conducted. Specific features of the formation of an international legal conciliation system relating to the Arctic and the development of the foundations of Arctic relations were revealed. An analysis of the history of the creation and operation of international cooperation in the Arctic since the late 1980s and 30 conventions and agreements relating to oil and gas activities in the Arctic has shown the existence of active norm-setting activities in the social and economic development of the Arctic, which can be grouped into 8 regulatory and legal directions [5]. At the same time, it became obvious that the main objects of the study of social sciences, taking into account the ecological and economic features of modern development of the Arctic space, are the improvement of the institution of local self-governing and the formation of a policy of social innovations. For the Russian Federation, normative activities in the formation of the maritime transport system are at the forefront of international regional and global economic interaction.
Improving lawmaking activity concerns the coastal part of the Northern Sea Route - parts of the Arctic Maritime Transport System. Table 1 renders the scheme presented by the Ministry of Transport of the Russian Federation. The chart shows the sea routes of the European, Siberian and eastern parts of the Arctic coast of the Russian North. 20,000 km of the Russian Federation state border cover the Arctic Ocean and the northern Far Eastern seas, which is 1/3 of the total length of the Russian border. The Northern Sea Route (NSR) is a national transport highway, which is the most important integrating component of the economic infrastructural complex in the Far North, connecting the Far Eastern and Western regions of the Russian Federation and uniting the largest river arteries of Siberia into a joint transport system. The NSR length from the Kara Gates to the Providenia Bay is 5,600 km, or 3,025 nautical miles. Norilsk Nickel, Gazprom, Lukoil, Rosneft, Rosshelf, Krasnoyarsk Territory, Sakha - Yakutia and Chukotka are the main NSR users in Russia.

Table 1. Northern Sea Route and maritime transport corridors

These two areas of cooperation have become the basis of international practices in the Arctic at the turn of the century. As a
result of the International Transport Euro-Asian Conference held in St. Petersburg in 1998, the NSR was awarded the status of an international Euro-Asian transport corridor. The following principles for the formation of the Euro-Arctic transport system were defined at the meeting of Ministers of Transport of the Barents / Euro-Arctic Council (BEAC) in 1996:

(a) The process of the gradual opening of access to national transport markets will be conducted on a mutually beneficial basis;

b) Transport system should be developed in accordance with national interests and the principles of a market economy;

c) The gradual simplification of the border crossing procedures for cargo and passengers.

The first assessments of the importance of the Arctic marine transport system became the primary topic at the international conference “Arctic Transport System in the 21st Century” (St. Petersburg, 1999) with special attention to maritime component of transport system. The reports of two research programs were presented at the conference:

a) European Union - “Experimental voyage of Russian and Finnish tankers loaded with gas condensate from the Ob’ Bay and Yamal Peninsula to the European market” (ARKDEV, 1997-1998), which made it possible to identify the expediency of using the NSR as "an element of the European Arctic maritime transport system" [6] and the reality of year-round navigation to and from the Ob’ Bay, and also

b) Joint research project of the Russian Federation, Norway and Japan (INSROP, 1993-1998), devoted to the study of the possibilities of the international transoceanic (transcontinental) transit route, which proved the possibility of cargo delivery acceleration for 10-15 days, additional income from the transportation of one container up to $ 250, one ton of cargo - $ 10 (at rates of dues gathering up to 5 dollars).

The analysis of the content of international events showed the emergence of a number of new concepts like giving the national transport artery of Russia, the Northern Sea Route the status of the international Euro-Asian transport corridor, as well as the notion ‘Arctic maritime transport system’. The concept of the Arctic transport system includes a combination of all types of transport: air, sea, railway and, perhaps, even the temporary winter roads in the
Arctic. And the term "Arctic maritime transport system" implies the aggregation of administrative and industrial state and private institutions and bodies dealing with maritime economic and scientific research activities in the Arctic Ocean, including its coastal natural preservation areas and natural resource complexes.

The current understanding of the transformation of control and management structures, including municipal territories in the Arctic where sea and river ports are located and industrial activities are actively carried out, is primarily motivated by the following factors:

a) Participation in Arctic projects of non-Arctic states such as the China [7], Italy [8], etc.,
b) Construction of the merchant ships by private companies,
c) Expansion of the Arctic maritime transport system in the western Arctic: creation of the Euro –Arctic maritime transport system including key port cities.

Specifically, China is exploring three sea routes from Asia to Europe - via the North-West Passage, running along the coast of the Canadian Arctic, via the North-East Passage - through the Bering Strait and further by the NSR, and the direct sea route along the central part of Arctic Ocean [9]. Beijing plans to increase the foreign trade cargo flow by the NSR from 5% to 15% by 2020, while they believe that 10% of the foreign trade cargo turnover will correspond to 526 billion Euros by 2020 [10].

The trend of the formation of a privately owned merchant fleet in the Russian Federation dates back to 1997, when an event that determined the ‘Arctic as the Future of Russia in Global Economy’ took place. It was the acquisition by LUKOIL of a controlling stake in JSC “Arkhangelskgeoldobycha” that allowed the private company to develop a strategy of creation its own merchant fleet. Nowadays LUKOIL is famous in the world as a major Russian ship-owner.

The advanced role of the European part of the Arctic maritime transport system was confirmed in 2010-2011. The large-tonnage tanker ‘SKF Baltika’ sailed through the Sannikov Strait for the first time, proving the possibility of using the maximum tonnage ships in these waters and developing a new high-latitude sea line of communication along the NSR routes. Moreover, the existence of EU project "Northern Maritime Corridor (NMC)" aimed at improving the efficiency of the European transport system in the North Sea and in the Arctic region is being considered within the framework of the
concept of an integrated maritime policy of European nations. The European project includes Work Projects such as "Oil and Gas Transport Sector", "Intermodal Services in the Barents Sea". It is noteworthy that public international associations, local governments and regional economic unions, mainly Great Britain, Norway, and also regions of the North-West of the Russian Federation actively participate in the management and coordination of these projects. Thus, the North European, Euro-Atlantic experience in management of coastal zones includes close interaction of new forms of management at regional and local levels. The concept of cooperation between coastal communities was introduced with the primary role of local self-government bodies as a new integrated institution for the management of state, private and public forms of ownership in the localities.

Strategic planning for the development of the Arctic zone of the Russian Federation can be considered as a unique government contribution in the modern regional and global system of integrated management [11-14]. Plans for the organization and effective "use of the Northern Sea Route for international navigation" [15], as well as the implementation of the subprogram "Coordination of the activities of public authorities in the social and economic development of the Arctic zone of the Russian Federation" [16] are under the close attention of the world community. The study of the issues of territorial linkage, the inclusion of the Arctic zone and the Far East of Russia as a "macro-region in the global economy" is also a matter of deep interest, for the economies of Asia-Pacific in particular. They closely monitor the implementation of measures of state support and stimulation of economic entities associated with plans to increase the volume of cargo transportation along the NSR to 63.7 million tons by 2020, as well as the the goal to increase the technological level of NSR infrastructure to 40.5 percent in 2020.

Arctic topics are beginning to acquire their internal management network in the Russian Federation. An agreement on the creation of the First Arctic Consortium of Transport and Logistics Operators as part of OOO Oboronlogistika, PJSC Sovfrakht and the FESCO Group was signed in 2016 in St. Petersburg, whose objectives are to manage all shipments by the NSR and regulate Arctic tariffs. The Consortium members agreed to work within the framework of a unified transport price list for the provision of
services in the Arctic and the Kurile Islands. The Consortium members possess 97 vessels with a total deadweight of over 1 million tons, as well as an infrastructure in 6 seaports. At present, the operator is gaining experience in federal orders by the Ministry of Defense. At the initial stage MoD fixes the prices for the cost of transporting goods and its spending on transportation, thus giving the shipping companies clear guidelines for the development of shipping routes. The Ministry plans to develop a comprehensive model for the development of the Arctic transport system as a whole [17]. The Arctic Shipping Management Center is set in Arkhangelsk. The Northern Arctic Federal University (SAFU) has allocated space for this and provided the possibility of using the equipment of its space monitoring center. "Oboronlogistics" together with NSR Administration determined the functions of this center and takes over the supply of equipment to the Center together with the Consortium participants [18].

Coordination and implementation of economic projects at the international Arctic regional level will be carried out by the newly created Arctic Economic Council. E.N. Ambrosov, the First Deputy Director General of PJSC Sovcomflot has been appointed as the Deputy Chairman of the Arctic Economic Council on behalf of the Russian Federation. Thus, the maritime transport theme is becoming one of priority areas of international economic interaction at the level of economic entities.

Today with the intensification of the activities by major transnational corporations, the role of government structures that form the normative and legal environment for water and land exploitation in the Russian Arctic is increasing as well. The study of the correspondence and correlation of the law-making activities of state bodies, international and regional maritime and other professional institutions, industry associations of marine economic activity operators have become a top research priority for social sciences (History, Political, Economics, Law and Sociology).

The study of the role and place of the emerging Arctic Maritime Transport System (AMTS) as part of the global maritime transport system deals with two issues: the recognition of unique geographical area specifics and existence of special conditions for life and work in the Arctic. Definition of Arctic transport route as a special area for the passage of special maritime transport vessels requiring special
classification in the global maritime transport system, as well as the development of professional standards for working in severe climatic conditions are necessary. Recognition of special working and living environment in Polar Ocean and in the coastal part of the Arctic dictates the evaluation of special procedures for the free or limited movement of goods, services and people in the region.

Public-private partnership is the basis for the development of AMTS [19]. Table 2 shows the transnational environment of the Arctic, compiled in 2009 [20].

Table 2. Transnational environment of the Arctic.

| Industry fields | A5 | Flag state | MIMO | VMO | A|C| E|C | Private companies | Insurance companies | NEAFC (North-East Atlantic Fishery Commission) | Coastal states |
|-----------------|----|------------|------|-----| |-| - | | | | | |
| Shipping        |    |            |      |     | | | | | | | | |
| Transportatio   |    |            |      |     | | | | | | | | |
| n                |    |            |      |     | | | | | | | | |
| Vessels counting |    |            |      |     | | | | | | | | |
| system          |    |            |      |     | | | | | | | | |
| Issuing ship    |    |            |      |     | | | | | | | | |
| certificates    |    |            |      |     | | | | | | | | |
| Research and    |    |            |      |     | | | | | | | | |
| prevention of   |    |            |      |     | | | | | | | | |
| accidents and   |    |            |      |     | | | | | | | | |
| emergencies     |    |            |      |     | | | | | | | | |
| Emergency       |    |            |      |     | | | | | | | | |
| preparedness    |    |            |      |     | | | | | | | | |
| Weather and ice |    |            |      |     | | | | | | | | |
| monitoring      |    |            |      |     | | | | | | | | |
| Icebreaker      |    |            |      |     | | | | | | | | |
| support         |    |            |      |     | | | | | | | | |
| Fishery         |    |            |      |     | | | | | | | | |
| Fish stock      |    |            |      |     | | | | | | | | |
| (TACs), others  |    |            |      |     | | | | | | | | |
| Canning         |    |            |      |     | | | | | | | | |
| states          |    |            |      |     | | | | | | | | |

97
As can be seen on the table, the participants of transnational cooperation are the five Arctic states (A5), coastal countries, flag states, international organizations and private companies in the main areas of international industrial cooperation - shipping, fishing, oil and gas [21]. According to N. Petersen, state powers include research and prevention of emergency situations, emergency readiness, counting fish stocks and pollution control under the UN Convention on the Law of the Sea (UNCLOS). Maritime transport activities are under the jurisdiction of the International Maritime Organization, coastal countries, incl. coastal Arctic states, flag countries and insurance companies. At the same time, the system of counting vessels is conducted by all coastal states, incl. coastal Arctic states, and the issuance of ship certificates belongs to the powers of the International Maritime Organization, coastal countries, private and insurance companies. The provision of meteorological services and monitoring of ice conditions is carried out by the World Meteorological Organization, coastal countries and private companies. Coastal states including coastal Arctic states and insurance companies are responsible for icebreaker support. With regard to fishing, the calculation of fish stocks and marine bioresources is carried out by Arctic coastal states. All states and their public associations are involved in environmental protection, including coastal states, European Union, North-East Atlantic Fisheries Commission. Legal mechanisms of energy economic activity are regulated by government agencies and private insurance companies.

Accordingly, coastal states and international organizations, as well as private companies engaged in providing weather and ice monitoring services as well as issuing ship certificates are forming the
bulk of the Arctic transnational environment in seaport cities. With the expansion of active economic activities (fishing and hydrocarbon extraction), all states, EU, NEAF, etc. are ready to participate in the regulation of Arctic economic issues, as part of the development of the multilateral Arctic strategy [22].

As can be seen from the table, such industries as shipping, fishing and oil and gas complex have separate sub-sectors that fall under different jurisdictions and are coordinated by different actors in the decision-making process - national, interstate and private. However, there is no place for local self-government bodies on the territories where economic activity is carried out. In this regard, there is a need to study the basic practices of port cities in the context of social innovations introduction.

The 3000-year history of seaports was not straight and easy. The flowering of the port was explained with an exceptionally favorable geographical position - at the crossroads of busy transport routes, with successfully developing economic environment and finally, with such unreliable and unstable factor as "High Policy considerations". Modern port cities, combining their transport function with the opportunities for economic recovery of neighboring regions, intend to concentrate all management mechanisms for their revival. At the same time, the capacity improvement of local self-government bodies becomes an essential part of supporting the development of the infrastructure of the port cities and port facilities as well. The experience of modern European cross-border cooperation has clearly demonstrated that effective functioning of local self-government bodies at the inter-territorial level within the country and at the level of international regional relations positively affects the progress of innovative economic cooperation.

Legislative grounds for the conduct of such activities by local governments are available in the Russian Federation, too [23]:

a) Item 1 of Art. 132 of the Constitution of the Russian Federation;

b) Item 8 of Art. 17 of Federal Law No. 131-RF "On general principles of the organization of local self-government in the Russian Federation";

2030”, providing for the transition “to an integrated approach to planning the development of specific coastal territories and adjacent water areas by aggregating them into a single government controlled entity”;

d) On approval of the Program to improve the management of public (state and municipal) finances for the period until 2018.

at the regional levels of cooperation:

e) The European Framework Convention on Trans-Border Cooperation Between Territorial Administrative Units or Local Authorities, ratified by the Russian Federation in January 2003,

d) The concept of cross-border cooperation in the Russian Federation, approved in February 2001 by the Government of the Russian Federation,

e) 17 recommendations of the Arctic Council Working Group on the following areas: Enhancing Arctic Marine Safety, Protecting Arctic People and the Environment, and Building Arctic Marine Infrastructure.

Coastal cooperation is a new form of economic partnership in which port cities and economic centers for the development of natural resources are in a situation when Asia-Pacific developing economies are ready to establish mutually beneficial relations. The analysis of the principles of government strategic planning shows that state mechanisms for coordinating new aspects of economic policy remain the most prepared for innovations. At the same time, the activities of local self-government bodies as a structure that organizes community life activities should combine the interests of the state, the people, large and small business entities and social services. This complex task can be accomplished with a clear understanding of its relevance to similar institutions of management in neighbor countries, on the one hand, and also by introducing the policy of creation coastal port cities domain, on the other. To identify opportunities for cooperation, it is possible to propose a so-called ‘concept of managing Arctic port cities in the Russian Federation for the revitalization of inter-territorial interaction within the country’, as well as the ‘concept of the formation of the Arctic maritime transport system, i.e. system supporting the so-called “Arctic economy” [24]. By including industries closely connected with NSR and infrastructure of coastal cities including port cities into the “Arctic economy”, one can see the overall picture of the Arctic maritime transport system.

100
NSR is a historical national sea route of the Russian Federation, the most organized and operationally ready strategic structure in the regional and global maritime transit system. It is also an integral element of the Arctic economic system and is included in the global processes of the world economic system. At the same time, the Arctic as a self-organizing territorial and spatial area is gradually becoming a region of world politics, in which the following basic principles of international economic partnership - XXI prevail:

- the principle of multilateral participation of states, interstate and non-governmental organizations, civil society, business circles and local governments in Arctic cooperation;
- the principle of priority of the Arctic environment protection and preservation, including the marine environment.

The above-mentioned principles should become an integral part of the emerging North Pacific cooperation mechanism as an integral part of the Arctic maritime transport system. Serious economic forms of cooperation are always preceded by humanitarian ties in the sphere of culture and art. However, when it comes to cross-border cooperation, social innovations easily penetrate [the borders] and adapt on the ground. The mutual penetration of the best ideas and experiences related to the implementation of joint projects in such spheres as education, healthcare, port cities infrastructure development, provision of social services, etc. must become priority directions for cooperation of coastal territories at the level of municipalities. Such approach is feasible for implementation not only in Russian Arctic and Far Eastern territories, but also in the port cities through which the Arctic economy links with the Asia-Pacific region.

The application of world-wide approach to exploring the possibilities for the formation of the Arctic transport system indicated that:

First, the importance of integrating the social sciences in studying the promising topics of global politics, its impact on the formation of international regional activities and its practical application at national level.

Secondly, the situation with strategic planning, lawmaking and implementation of Arctic projects in the Russian Federation reveals promising research areas and objects and incorporates them into the list of current topics for discussion and formation of exceptional
Arctic knowledge developed by scientific and research institutions in Russia.

Thirdly, the development of the federal legislative framework relating to the Arctic zone of the Russian Federation through improving the interaction of local authorities with state and public institutions, economic entities can be an effective foreign policy tool for securing national interests along the NSR and for development of international economic cooperation in the Arctic.

Fourthly, the modern role and position of the NSR in the strategic planning of the development of the Arctic zone of the Russian Federation, the European and Asian maritime transport system, the state of development of marine economic activities in the Arctic and the Far East show the growing interest of the APR states in the formation of the Arctic maritime transport system, in the creation of the North Pacific Network of Users of the Arctic Economy.

In this regard, I would like to address the organizers of the International Economic Forums in St. Petersburg and Vladivostok with the proposal to include the issue of studying the role and place of the Arctic maritime transport system in the development of the Russian Arctic and the Far East in its future agenda. All interested parties – leading universities and institutes of the Russian Federation, Arctic Consortium and Arctic Economic Council members, initiators of the creation of the International Alliance of the Oceanic Business Community, the Consensus Qingdao and others – may join the discussion and input in its success.

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COLD INJURY AND HYPOTHERMIA

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Abstract: Despite the fact that work at sea has become more comfortable and secure, new equipment for operations in low temperatures has appeared, rescue means have been improved, the problem of frostbite and hypothermia remains relevant and urgent for all mariners. Cold is the main enemy of people in distress, as well as everyday work in low-temperature environment imparts its specifics and limitations to human activities. Human body can adapt to a hot climate, a reduced concentration of oxygen in the air, a meager diet, but it is unable to adapt to the frost. When exposed to cold, the will of a person weakens, all vital functions are slowed down, the central nervous system is depressed. Therefore, it is important to understand the essence of the processes occurring in the body when the outside temperature is lowered, to know the ways of rendering First Aid. The topic may be useful for lecturers and instructors, for seafarers and persons working in the Arctic and other cold climate regions.

Keywords: survival, cold injury, hypothermia, Arctic, First Aid

To understand the processes occurring in the human body when the temperature of the environment is lowered, two notions must be separated: frostbite and hypothermia. This issue is fundamentally important, because in the first case cooling of the local parts of the body (nose, hands, feet, etc.) occurs necessarily at a negative temperature while in the second case the cold affects the entire human body and cooling can occur at positive temperatures.

It is known that the speed of body cooling is affected not only by the ambient temperature, but also by the speed of air currents and humidity, which greatly accelerate the process of heat release from the body to the atmosphere. Therefore, a person is feeling the outside temperature much colder than actual if even a minor wind is present. And, if we add the increase in atmospheric humidity to this, then a person begins to feel less comfortable even with a slightest drop in temperature. The specific component of all these three factors - temperature, wind and humidity, was called the "Cold Coefficient".
Impact of frost. The degree of penetration of the cold into the body and as a result of this, the depth of the injured areas, will determine the "degree of frostbite". The possibility of restoring the vital functions of frostbitten areas will be affected by the speed with which the body was cooled or thawed. An important factor in the restoration of the body functioning should be a slow and gradual heating.

Impact of wind. The stronger the wind, the more air molecules will come into contact with the body, accordingly a greater amount of heat will leave the body.

Exposure to humidity. It has long been known that the thermal conductivity of water is 25 times, and the heat capacity is 4 times higher than air. Therefore, the cooling process proceeds much faster in the presence of moisture in the ambient air. And if a person is completely immersed in water, which is exactly the case with ‘man overboard’ situation, the cooling proceeds many times faster than in the air.

To understand the physics of the processes that occur inside the body during frostbite, let us examine several cases. With an increase in temperature relative to zero water becomes liquid, to the contrary, as the temperature is lowered water begins to crystallize, turning into ice. Human body consists of a liquid to a great extent and when it "frosts" this liquid begins to crystallize. As a result, due to the freezing of liquid in human body the areas subject to freezing cease to function and are injured by the expanding liquid. The effects of fast heating are well known. For example, a person can feel sharp pain and aching muscles during warming of frozen hands in a flow of hot water. Similar situation is with quick-frozen fruits which retain their shape and consumer properties thanks to the new technology of rapid freezing and slow thawing.

Different processes occur in the body affected with hypothermia, primarily the redistribution of blood circulation from the periphery to the center and the suppression of vital functions, including the central nervous system. The reaction to external cold by the body occurs in stages. Simplistically, several important steps can be identified.

The first stage of thermoregulation is visible to the human eye. Many have repeatedly noticed that, microscopic depressions appear on the skin under the hot summer sun, on which drops of moisture
protrude. This natural process of opening the pores of human skin helps to avoid overheating of the body and to remove excessive heat together with sweat out of the body lowering its temperature. With a slight decrease of external temperature the body immediately shows the "goose-skin" effect, i.e. the reverse process of constriction and closure of the pores begins, as a result of which the total amount of waste heat is sharply reduced.

If the cold is influencing the body for a lengthy period of time, the outflow of blood from the periphery to the center of the body is started. The process of redistribution of blood flow which is necessary to reduce the cooling circuit comes into operation. It is noticeable during the handshake, when the palms and fingers of one person are much colder than the hands of the companion. Palms temperature decrease occurs with the outflow of blood from the subcutaneous layer, the epidermis [1].

With the continuation of the body cooling process, the next step may be a perception that often comes during a long exposure to the frost. After some time, the capillary blood supply gradually slows down while the process of blood outflow from the periphery continues, and a new feeling of chilliness of the hands and feet appears. It is sufficient for a person to make several mechanical movements, whether they are high-amplitude legs or short dynamic circles with hands, to eliminate this discomfort. Due to sharp movements and work of muscle mass, blood begins to flow to the limbs and the body becomes warmer.

If cooling continues, a tremor appears which indicates the start of the next thermoregulation process. The shivering organism tries to warm up, translating the mechanical energy of muscle contraction into heat.

Finally the most important stage of thermoregulation is triggered, when the body temperature drops to the critical level. The body tries to preserve vital functions of key internal organs by means of a critical redistribution of blood flows. At this stage the blood flow on the periphery stops, and the blood circulates only through the core of the body (brain, heart, lungs, liver ... etc.) [2].

Elimination of further cold effects and slow gradual body heating from center to periphery, as well as maintaining horizontal body position during transportation will be the most important aspects in providing medical assistance with all types of cold injuries [1].
Ideally, when a person affected with hypothermia is treated in a warm room, the following manipulations must be carried out. Clothes should be completely removed and the body dry wiped, because the remaining water will take away heat from the body when evaporating. At the same time, there is no need for rubbing the skin because there is no blood circulation on the body surface.

Optimal room temperature for treating the hypothermia victim is 20-25 degrees Centigrade. At this temperature, the patient does not need to be covered. If covered with blanket, warm air cannot reach the skin, and the body is unable to heat itself [2].

If room temperature is below 20 degrees Centigrade, then the victim must be covered and warmers are advised to be placed under the blanket. To "accelerate" the speed of warming warmers can be placed directly on the human body in the most sweetening areas, namely in the armpits, groin, feet, neck, head, abdomen and chest. Further it is very important to allow the victim to slowly and gradually warm until a rectum temperature rises to 37.0 degrees Celsius. Warm sweetened drink should be given to conscious patients.

Recommendations that can help in case of frostbite or hypothermia include the following actions [3]:

- Protect all open areas of the body from the frost.
- Make shoes much warmer by using extra insoles.
- If you do not move, warm your feet wrapping them with paper.
- Remember that cellophane does not preserve the heat, but only reduces the amount of air circulating near the body.
- Avoid wearing close-fitting clothing, especially shoes, which will prevent capillary circulation.
- If any part of the body begins to freeze, do not wait and perform the first warming procedures. Say, when the feet or hands freeze, make energetic waiving.
- Frozen hands can be quickly warmed by placing them in the groin area or in the armpit.
- Frozen feet can be quickly warmed by placing them in the belly area of a comrade, after removing the shoes and socks.
- Never rub the affected area of the skin with snow! Crystals of snow scrape and damage the affected body areas and moisturize it, contributing to an even stronger cooling.
Try to breathe through your nose and minimize inhalation through the mouth. Passing through the nose, the air is heating up and comes to the lungs warmed up. When inhaling through the mouth, a large amount of low temperature air enters the lungs, disrupting the functioning of the respiratory system and cooling the core of the body.

- It is highly recommended to have a stock of reserve underwear, since an easy procedure of replacing underwear with a dry one can significantly reduce heat losses in the body.
  - Have an emergency thermos with hot drink at hand.
  - Always cover your head because 60 to 80% of the total body heat passes through it. It should be remembered that the main amount of heat loss occurs in the temporal and occipital areas of the head.
  - Lubricate affected areas of the skin only with medicaments intended for curing the II and III degree burns.
  - Remember that if the skin is broken due to bursting of blisters, there is a high risk of infection of the problem skin areas.
- If you need a hot-water bottle to warm the frozen person it can be made by improvised means, for example, using a plastic bottle. You need to pour water (temperature about 37 degrees Centigrade) in a bottle and before closing the cap squeeze the bottle from both sides to make a bottle more flat in shape, which will increase the area of contact with the body. If there is no water thermometer at hand, then the desired temperature can be determined by putting the finger into the water. When the water warms to such an extent that a desire to get the finger back appears, then it will be approximately the necessary temperature.
- Remember that you can raise the temperature in the sleeping bag by placing a plastic bottle with hot water inside it.
- Do not put a frozen person in a tub of water. Water does not allow the body to warm evenly. The blood will flow from the "core" to the periphery which can eventually lead to death.
- Begin the process of warming the person who affected with hypothermia even in strong wind and frost. To do this, if possible, proceed with artificial respiration. Warm air breathed out of your mouth will warm the lungs of a victim which are part of the "core". The carbon dioxide of the exhaled air will promote the resumption of normal breathing of the patient while the level of remaining oxygen in it will be sufficient for breathing.
● Measure body temperature of a patient with hypothermia in the rectum only.
● Remember that the only historically proven and most effective way of warming up the frost victim is to provide full body contact with another human body, or several persons at a time.

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THE PROSPECTS FOR PARTICIPATION OF THE BRICS COUNTRIES IN THE ARCTIC COOPERATION

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Abstract: Today BRICS is intensively developing structure aimed at the cooperation of five countries: Brazil, Russia, India, China and South Africa. In this connection it should be noted that the importance of developing new agenda items for the BRICS countries’ cooperation is very actual. One of these agenda items may be the Arctic cooperation. Russia is the largest Arctic country, China and India have obtained the observer status in the Arctic Council, Brazil, as well, begins to show interest in Arctic affairs. Therefore, excluding the Republic of South Africa, the BRICS countries are gradually integrated into the Arctic policy, what, over time, can create preconditions for the Arctic direction of cooperation between the BRICS countries. The article discusses the background, existing forms and promising direction of cooperation of the BRICs countries in the Arctic.

Keywords: Arctic, BRICS, international cooperation, Arctic Council, transnational Arctic, polar research, Arctic Bank of reconstruction and development, the BRICS bank

As we know, formally, the Arctic international cooperation began at the end of the twentieth century, when the main mechanisms of international cooperation in the Arctic (the Arctic Council, the Barents Euro-Arctic Council, etc.) have been created. However, in recent time the picture of the Arctic political space has changed and we can see not only the Arctic countries but the non-Arctic and non-state “actors” as well. This allows experts to talk about formation of a new type of environment in the Arctic: Transnational Arctic [1-2] or Trans-Arctic [3]. Thus, we are talking about the formation of a space in the Arctic that develops in the realities of cross-border interaction of various “actors” on the basis of both formal and informal mechanisms, which allows new actors such as the BRICS to consider the Arctic as a region of their interests and possible cooperation. Thus, we are talking about the formation of the Arctic space that
develops in the realities of cross-border interaction of various “actors” and is based on formal and non-formal mechanisms. This allows new “actors” such as the BRICS countries to consider the Arctic as a region of their interests and possible cooperation.

In turn, the BRICS agenda has recently begun to include issues related to polar research and problems of exploration of the oceans and the Arctic. Thus, at the end of October 2015, in the period of Russia's chairmanship in BRICS, an international conference "Approaches of BRICS countries to the settlement of common spaces: directions and potential of cooperation" was being held, during which, in particular, issues of joint use of the oceans and the Arctic have been discussed [4].

As well, in October 2015 there was held the meeting of the BRICS countries’ ministers who are in charge of science, high technologies and innovations. This meeting is known by the “Moscow Declaration” which reflects the main directions of cooperation between the BRICS countries in the medium term. A special place in the Declaration is given to the creation of network cooperation in the following areas: biomedicine, human health and neuroscience; information technologies of the software for high-performance computing machines; research exploration of the oceans and polar areas; coordination of materials on nanotechnology and photonics [5].

At the next meeting of the BRICS countries’ ministers in October 8, 2016, there were discussed also the prospects for joint polar explorations. The Jaipur Declaration on the results of the conference includes a statement on the organization of the first meeting of the BRICS “working group” on joint ocean and polar researches. Thus, gradually, the Arctic issues appear in the BRICS agenda.

It seems quite possible to define the level of participation of the BRICS countries in the various forms of Arctic cooperation.

Bilateral cooperation of Arctic and non-Arctic countries:

Joint participation: Russia, China and India in various Arctic projects on bilateral basis. For example: the project of Russian “Gazprom” and “China National Petroleum Corporation” (CNPC) in Yamal. The issue of participation of Indian “OVL” (subsidiary of “Oil and Natural Gas Corporation Limited”) in the projects of
“Rosneft” and “Gazprom” is being actively considered. “OVL” has also been participating in the project “Sakhalin-1”.

As well, the cooperation in educational area is being developed. In September 2016 in Primorsky Region there has been opened the Russia-Chinese center on Arctic research organized by joint efforts of Far Eastern State University (FEFU, Russia) and Harbin Polytechnic University.

Multilateral cooperation:
- United Nations Organization: the BRICS countries participate in different projects of United Nations Environment Program, for example “Finance Initiative”. As well there are BRICS programs that attract attention of a number of international organizations and large business-structures;
- Arctic Council: Russia is the full member of the Arctic Council, India and China since 2013 are observers and have a right to take part actively in the work of the Council on all levels: from “task forces” to “working groups”;
- Northern Forum: there are broad prospects for participation of the BRICS countries in the work of the Northern Forum. At present time the participants are the Russian regional subjects as well as the Chinese northern Heilongjiang province. Today the activity of the Northern Forum is aimed at the development of sub-regional dialogue and implementation of joint projects (“Northern Sea Route”, “Management of wild nature”, “Monitoring of environment”, “Bank of Arctic reconstruction and development” etc.)

As for the promising directions of the BRICS countries’ Arctic cooperation the following ones may be noted.

1) The BRICS may participate in Arctic issues as a leading investor through the Bank of BRICS. In Saint-Petersburg economic forum of 2016 there has been proposed to create a “Bank of Arctic reconstruction and development” for implementation of largest projects.

2) One of the important directions of the BRICS countries’ cooperation is the environment protection. Here as the most promising may be determined such BRICS project as the “Platform of green technologies”, which held its first meeting in April, 2016. It may become the practical “spot” for the BRICS countries to exchange experience of legal regulation in the field of environmental protection, exchange of information about the best
available “green” technologies in this field and their implementation, development of joint projects [6].

3) A separate area of cooperation between the BRICS countries can be ensuring of sustainable use of water resources and exchange of experience in their management. Protection of water bodies is a priority for all the BRICS countries, where more than 40% of the world’s population is concentrated and the problem of access to clean drinking water and clean rivers is important. Russia is a country responsible for strengthening practical cooperation among the BRICS countries in the priority area "Water resources and pollution control of water." When discussing the prospects of the Arctic cooperation of the BRICS countries we should not forget that 1/5 of the world’s fresh water reserves are concentrated in the Arctic and the so-called “water diplomacy” of the BRICS may become the “successful tool” of five countries’ Arctic cooperation.

4) Cooperation of the BRICS countries in the sphere of the joint use of Northern Sea Route for cargo transportation.

5) Cooperation in the sphere of scientific and educational activity. For example, the experience of the network University of the Arctic may be useful for the network project of University of the BRICS. As for the scientific research, this direction, to our mind, is the most promising for all participants of the BRICS. One of such joint initiatives of the scientists from Russia, Brazil, India and China was the organization of a paned session named as “The BRICS in the Arctic: appearing chances for joint initiatives” within the framework of annual Assembly “The Arctic Circle” in Reykjavik (Iceland) in October 7, 2016. This initiative was one of the first efforts to coordinate the common directions of development of the Arctic scientific research within the framework of the BRICS on multilateral basis.

Summing up, we can say the following:
- At present moment there have appeared preconditions for the formation of the Arctic direction of cooperation between the BRICS countries;
- The BRICS countries are interested in further expansion of their presence in the Arctic and active involvement in the Arctic system of cooperation;
- Arctic cooperation may become a basis for the implementation of joint multilateral investment projects that would
raise economic cooperation within the framework of the BRICS to a new level;
- However in practice now there are not enough institutional frameworks for the development of the Arctic cooperation, there are only separate projects and bilateral ties.

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Abstract: International relations vary according to economic interests and generate new ways of interaction between countries that have no common borders and can be at considerable distances from each other. The emerging global regional interaction, such as the association of the BRICS countries, tells about the necessity to consolidate common interests within the framework of a single goal aimed at developing network diplomacy. Maritime domain is of special interest for BRICS members since it unites them ‘physically’, economically and educationally as well.

Key words: global regional interaction, BRICS association, integration, network diplomacy.

Today we see an aspiration of a number of countries to introduce significant changes to the world order as it was developed by the end of the XX Century. On the one hand, this is Russia, which is making efforts to restore the lost status of a global superpower. On the other hand, it is the nations that were formerly part of the Second (China, India) and the Third (Brazil, South Africa) echelon of states that did not have a decisive influence on international relations. In many ways, these five countries have become the initiators of the development of trans-regional interaction, which allows us to talk about a new phenomenon in international relations, both politically and economically. At the same time, it is important to emphasize that BRICS countries occupy 26% of the terrestrial territory of the planet, they account for 42% of the world population and about 30% of global industrial and 45% of agricultural production [1].

According to several experts (for example, F. Nusheler, A. Voskresensky), a new type of global regional interaction is being formed, based on the similarity of economic interests. At the same time, it is important to emphasize that, given the new technological capabilities of the information society, territorial proximity and the existence of common borders do not play a significant role. Common set of economic interests and corresponding interstate agreements comes to the foreground. Of course, the above consideration does not
imply that geographically distant BRICS members do not have to look for effective ‘physical’ means to interconnect them. Maritime transport is the best way to overcome the distances and successfully interconnect five nations, multiplying their export capabilities as well.

In fact, since the emergence of the BRICS in 2009 there is no generally accepted definition of what kind of organization it is. Various formulations - informal association, club, block, etc. are used by researchers. This uniqueness of the BRICS largely determines the specifics of the process of its institutionalization. According to N.A. Kosolapov, BRICS "occupies a specific place in world politics and international relations. This is an interstate formation, but not a union of states, not an integration association and not an international organization "[2]. If we approach the definition of BRICS from the standpoint of regional studies, then the definition of A.D. Voskresensky: BRICS is a trans-regional education [3] will be more appropriate. In the opinion of A.V. Kortunov, BRICS is an association of "old regions" in macro-regional complexes (macro-regionalization) [4]. As for official documents, BRICS is often defined as a "union" or "informal inter-state association" (for example, "Concept of the participation of the Russian Federation in the BRICS union") [5].

Within the framework of UNESCO an expert study was carried out, which resulted in the classification of international organizations on the basis of membership limitations by any criteria (geographical, economic, social or cultural) and their specific objectives (security, economic, social or cultural) [6]. In addition, an international organization usually has statutory documents and headquarters with the secretariat. If we consider the BRICS from these positions, then probably this alliance of states cannot be called an international organization. However, not all international organizations have a charter, for example, the OSCE for many decades functions without a charter. With regard to headquarters, after the establishment of the BRICS Development Bank in 2015-2016 headquartered in Shanghai, BRICS will also meet this criterion. This conclusion is related to the implementation of two major projects - the New Development Bank (BRB) of the BRICS and the Pool of BRICS Conditional Foreign Exchange Reserves; the financial potential of each will be up to $ 100 billion. BRICS group is often singled out as a separate trans-regional interstate association in UNCTAD publications.
There has not yet been a clear understanding of how to define the BRICS, but it is probably necessary to proceed from the fact that, as noted in UNESCO's expert note, "international organizations are "…institutions that are continuing to evolve; of course, their new forms and applications are possible "[7], therefore BRICS can be attributed to international organizations of a new type, based on flexible principles of network diplomacy and multilateral cooperation.

This approach to analysis of the BRICS integration component was proposed by V. Davydov and A. Bobrovnikov, the experts of the Russian Academy of Sciences. Each of the members of the "five" is included in the regional grouping: China participates in the East Asian Summit (EAS), India - in the South Asian Association for Regional Cooperation (SAARC), Russia - in the Europe-Asian Economic Community (EAEC), Brazil - in the Union of South American Nations (UNASUR), South Africa - in the South African Development Community (SADC). BRICS combines two primary functions - the coordinating body at the interstate level (similar to G7 or G20) and some institutions intrinsic to integrative regional groupings (such as the EU or ASEAN).

At this stage of the BRICS development more than 20 cooperation formats have been created, including working groups on international information security, public health, agriculture, science and technology and other areas, including business forums and scientific experts workshops. The BRICS Business Council began its operations which contributes to the informal integration of the BRICS countries "from below." A stock exchange alliance was created that provides cross-listing of shares of more than 7 thousand companies of the BRICS economies with a total capitalization of about US$ 8 trillion [1]. It is important to use one of the most popular mechanisms for organizing regional and transregional associations – free trade agreements (FTA) for further development of the BRICS. Within the FTA framework, on the one hand, customs duties, taxes and duties and quantitative restrictions in mutual trade are abolished, and on the other hand, each FTA participant may conduct its own trade policy towards third countries.

The importance of BRICS in world politics is constantly growing because their positions on global issues are discussed and agreed upon at regularly held summits. The BRICS countries seek to pursue a coherent policy in international organizations and influence
the adoption of key decisions. They managed to get close to the important mark on the cumulative number of votes in the IMF - 15%, which allows them to block unacceptable decisions. Currently, the BRICS countries have 14.81% of the vote. Approximately the same situation has developed in the International Bank for Reconstruction and Development where the BRICS nations increased their share from 10.4 to 13.2% of the vote as a result of the latest reforms. As a result, the block of developing countries and emerging market economies approached the 50% mark which makes it possible to actively influence the results of voting on the board of directors [1].

The desire of the BRICS countries which unite almost half of the world population, to form new forms of cooperative global governance balanced with the West, does not cause positive reaction for both Western politicians and experts so far. They tend to deny the existence of commonality among the BRICS countries and as a result, do not see the prospects for this association. Thus, J. Nye very skeptically noted that "as a challenge to the United States, BRICS is unlikely to become a serious alliance or even a political organization of like-minded states" [8]. At the same time, there is a growing interest among the Western media and the expert community in BRICS, as evidenced by various research centers and programs like the BRICS Information Center at the University of Toronto, the online edition of the BRICS Post in London, etc. [9] 

The BRICS nations have great differences both in their historical experience and civilizational nature and in their political and economic specifics. Undoubtedly, these countries have different objective parameters of their position in the modern international system, which also affects the differences in their foreign policy strategies. Moreover, there are political tensions between some BRICS countries (India and China). These problems can be overcome as a matter of compromise, communication and coordination only.

For Russia, BRICS is a form of collective opposition to the unipolar world order; therefore, reliance on BRICS is an instrument for overcoming Russia's consequences of opposing itself to the Euro-Atlantic that arose after the events of spring-summer of 2014. Therefore, it is important for Russia to transform BRICS from an informal consultative group with vague goals into a full-fledged organization of interstate cooperation. Russia is trying to promote the status of the BRICS countries in the UN constantly stressing that all
BRICS participants are very worthy candidates for membership in the UN Security Council, but "the desire to speed up the decision in this sphere does not lead to the result. The Security Council will only suffer if we give up the patient search for more consensus solutions for its reforming"[10].

Thus, it can be stated that the BRICS countries proceed from the principles of respect for equality and sovereignty of the parties. BRICS embodies the civilizational and cultural diversity of the modern world, which opposes the socially-cultural globalization of the world "in American style". The most important political and economic trend in international relations supported by the BRICS countries can be defined as follows: reforming the system of global institutions that has developed since 1991, resulting in the formation of a multipolar world, alternative decision-making centers, possibly collectively preventing negative developments in the world economy and politics.

Finally, about the prospects for priority intensification of BRICS cooperation in maritime domain. Growing export-oriented economies demand efficient and reliable access to foreign markets. Maritime transport is the top means and engine of international trade. According to IMO estimations, the demand in qualified seafarers is steadily growing, mostly in BRICS nations. China and Russia are two top suppliers of seafarers [11] for the global shipping industry while India, China, Brazil and especially South Africa need tens of thousands of new seafarers to man their merchant fleet. Thus, cooperation in training officers and ratings ‘inside’ BRICS can be a powerful tool for improving the alliance economic performance and overall integrity.

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VALUE AND MEANING ORIENTATIONS OF NAVAL OFFICERS AS A FACTOR OF PREPARATION TO DANGEROUS SITUATIONS IN COLD ENVIRONMENT

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Abstract: The article presents the theoretical approach and results of the study of meaningful orientations of naval officers serving on surface ships in the Far North, using methodic by D.A. Leontiev. The average values of the sampling indicators were compared by the levels of the five subscales with the control sample group and the average values. The results are interpreted.

Keywords: naval officers, Value and Meaning orientations, values, locus control-I, extreme professions, cold environment.

Life values and meaningful orientations are generalized ideas about the benefits and acceptable ways of obtaining them, on the basis of which a person carries out a conscious choice of goals and means of activity. Values and meaningful orientations of a person serve as the basis for the formation of his/her life strategy and in many respects determine the line of professional career [1-3]. In psychology, value orientations are understood as ideological, political, moral, aesthetic and other grounds for assessing social objects and events by a person; as well as the way a person manages his/her behavior in accordance with conscious motives elevated to the level of meaningful landmarks. It is assumed, for example, that the ideal professional is the one whose personal characteristics are least susceptible to negative transformation under the psychologic and physiological effects of cold climate and hostile environment. The results of studies of "myself" in an extreme and ordinary situation indicate that adults in an extreme situation both on an aware and unconscious levels believe that they become "different" and behave "differently" than in the usual situation.

It is highly difficult to conduct empirical study or stage a valid experiment in the field of exploring and describing changes in the behavior and activity of the individual in extreme situation. There are no symptoms and descriptions of personality changes in the
International Classification of Diseases [4, 5, 9]. According to the available research results, it is considered empirically proven that the personality changes when experiencing extreme situations. According to some authors, one of the most characteristic features of the changes is the representation of the "Image of the Self" (V.P. Serkin, 2014). Psychological personality changes affected by extreme situations are classified into 9 groups including professionally important qualities or professional deformation, personality constructs, implicit theories of personality and changing the image of the world, etc.[9].

Since people experience their lives in the light of what they think is meaningful, e.g. in the light of individual approaches to life, values act as a link between Meaning and Personality [6, 7, 10]. The cultural and universal values have a social and moral significance and thus serve as a prerequisite for acquiring a common meaning for the existence of a group or a whole nation. The Meaning expresses the perfection of individual consciousness in human life and equally applies to the sphere of consciousness and the sphere of physical being. The setting of personally significant goals, or rather the individual life experience in formulating such goals gives ‘meaning’ to the person’s behavior and mental activity.

Awareness of the ‘meaning of life’ allows an individual to plan to some extent his life path, to orient his intentions, perspectives, to responsibly choose a profession. This is especially important to frankly assess the personal readiness to take a risky job, in particular in dangerous environment of the North. The life horizon and personal capabilities depend from the search or rather, from the acquisition the ‘meaning of life’. The same attributes to the analysis of one’s own spiritual experience and the formation of goals and values, the choice of criteria for communication and relationships with other people. Therefore, the universal problem of assessing the ‘meaning of life’ allows us to understand not only the life purpose of man, but also to understand the ‘essence’ of a person, his/her ‘place’ in the world, in the group, in the professional community [2].

The level of the barrier - a certain threshold below which the individual is ready to change his own system of beliefs and views towards approximation to group values, is important to the process of accepting / rejecting certain values. When the threshold of non-compliance is exceeded an active denial of the group values by the individual occurs. Individual goals are also largely determined by the
group norms and values. In this case, a person tends to follow the level of claims and goals of the group to which he belongs. A person often does not realize that by doing this way or another, he/she does it under the influence of common group views. Members of the group generate similar beliefs, opinions, norms of behavior and similar value basis orientations, social and professional characteristics under the influence of joint activities [3].

A. Langle in the biography of V. Frankl emphasizes that the very existence of a man is due to the addressing of meanings and values: "Therefore, a person, according to Frankl, is responsible to the Meaning", and the Meaning is considered as personal essence. Conscience is the organ of Meaning. With the help of conscience, a person can discover the Meaning in realities of his life. Transcendence, or irrationality and not awareness is considered an important quality that attracts attention comparing with beliefs: "Therefore conscience as an immanent psychological fact, contains a reference to transcendence" [7].

Thus, the problem of studying the attitude of professional communities to value and ethical categories can be defined as an attempt to reveal the degree of awareness and personal value of the reflected categories. The identification of the existing differences in the objects under study and their interpretation has even more psychological significance. At the same time, the problems arising from the use of this or that approach do not diminish the applied importance of such studies and the possibility (sometimes necessity) to use its results in practice. First of all, it concerns the extreme and dangerous life activities of a person, where the personal psychological, ethical and spiritual qualities are fully revealed (or not disclosed where it is desirable).

To illustrate the application of the above methodology we address the process of nuns’ selection for the Dominican Order of St. Mary's College in New Orleans, LA described in Crumbo and Maholik "Purpose in Life" as an example. As V. Frankl writes: "... trained (for service in the Order), the group will show a vivid desire for Meaning, while a group that does not meet the requirements will demonstrate its absence." The indicator ‘Aspiration to Meaning’ and level of training gave more significant correlations than level of training and personal characteristics [11]. High spiritual level allowed carrying out activities "in the sphere of religion in particular and
professional selection in general" more qualitatively, confirming the supposition that the most devoted person is least susceptible to deformations caused by life challenges. "The image of Self," meaningful and value orientations should be taken into account in the professional selection and training of personnel for work in the Arctic and Northern regions.

A group survey of 29 Navy officers serving on surface ships in the Extreme North areas was conducted in 2016 to determine their level of meaningful orientations. D.A. Leontiev research methodic based on the ideas of Crumbo and Maholik was used. The survey results are presented in Table 1, for clarity compared with the norms obtained by D.A. Leontiev. As a control sample, the data on employees of local branches of law enforcement agencies (investigators serving in territorial and transport police bodies) living in regions equal to the Extreme North are also represented. The age of the subjects of survey in both samples varies from 25 to 35 years; all are college graduates with significant service experience.

The results of the comparison using the t-Student test of the study group and the control group are presented in Table 2. The choice of the control group's professional occupation was dictated by the results of theoretical evaluation which identified a high significance of Value – Meaning sphere for the employees of the police investigatory bodies, realized in ethical, professional, value and meaningful orientations [5].

High degree of significance of life orientations and ethical values, common attitude to ethical categories within the professional community is one of important professional qualities of law enforcement officers [4]. Ethical criteria of professional law enforcement activities require employees to implement superior moral values in their professional behavior ("Morale Supremacy") [8].

Previous studies have shown the most significant differences within the professional community of police officers in subscale Locus Control-I (LC-I) according to Leontiev technique.

Table 1. Indicators of the average values of the Value-Meaning Orientations test subscales obtained from the officers of surface ships and the control group (investigators, males). Norms determined by Leontiev: Goals [26,98-38,82]; Process [26.65-35.53]; Result
Average values

<table>
<thead>
<tr>
<th>Goals</th>
<th>Process</th>
<th>Result</th>
<th>LC-I</th>
<th>LC-Life</th>
<th>MoL, total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface ships officers</td>
<td>38,34</td>
<td>36,48</td>
<td>30,96</td>
<td>25,103</td>
<td>36,75</td>
</tr>
<tr>
<td>Control sample group</td>
<td>34,64</td>
<td>33,04</td>
<td>28,68</td>
<td>23,32</td>
<td>34,24</td>
</tr>
</tbody>
</table>

Table 2 - Determination of t-empirical indicators using t-Student criteria and D.A. Leontiev methodology of Value-Meaning Orientations test (officers of surface ships and control sample group (investigators)).

<table>
<thead>
<tr>
<th>H0, hypothesis</th>
<th>t-empirical</th>
<th>Critical values at significance level ρ = 0,05</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goals</td>
<td>Process</td>
<td>Result</td>
</tr>
<tr>
<td>Surface ships officers</td>
<td>3,728***</td>
<td>2,911**</td>
</tr>
</tbody>
</table>

* at ρ <0.05; ** at ρ <0.01; *** at ρ <0.001;

Subscale Locus-I ("The Image of the Self", "I am the Master of Life") characterizes a person with high scores on this scale as a strong personality, who has sufficient freedom of choice to build his life in accordance with his goals and perceptions of his life Meaning. The meaningfulness of life is closely connected with the internal locus of
control that characterizes the general conviction about the possibility of control and reflects the belief in one's own ability to exercise such control (the image of the Self) [6].

Surface ships officers show a high level of general meaningfulness of life. The officers demonstrated higher values in ‘Process’, ‘Result’, LC- I, LC-Life subscales than the norm determined by the author of the methodic (Table 1) and above the values of the control sample group. Naval officers demonstrated high results in all subscales with a high level of significance. Despite the fact that the study group shows significant differences compared to the control sample group, the result in the ‘Goals’ subscale does not go beyond the average values indicated by the author of methodic.

Low values in the ‘Goals’ subscale, even with a generally high level of general meaningfulness of life, will be inherent in a mundane person, and high scores can characterize not only a highly motivated person, but also a daydreamer whose plans do not have real basis [6]. 38.34 result in the ‘Goals’ subscale demonstrated by surface ships officers correspond to the norm specified by Leontiev. Thus, the officers of the study group demonstrated high values of the critical characteristics in Value-Meaning Orientations test, which can be associated with a high degree of professional readiness for service in unfavorable conditions.

Research studies carried out in 2016 among the officers of the Russian Pacific Fleet showed homogeneous high results of the "Image of Self", Value and Meaning orientations, different from the control sample groups. A high level of Value-Meaning Orientations can be interpreted as greater resistance to the influence of negative environmental and social factors, and on the other hand, as the lowest susceptibility to professional deformation due to the negative influence of the same environment. Additional research and analysis is needed to determine the dynamics of changes in the Value-Meaning Orientations among Navy officers under the influence of unfavorable environment and its influence on professional activities.

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**ARTICLE ABSTRACTS IN RUSSIAN**

Аннотации и ключевые слова

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Организационное обеспечение ледовой навигации в Канадском Арктическом секторе

В статье описывается последовательность обеспечения навигационной безопасности в полярных регионах Канады. Обсуждается порядок судоходства в ледовых условиях Арктики, получивший название Система судоходства при Арктических ледовых режимах (Arctic Ice Regime Shipping System - AIRSS). Показано, как AIRSS служит основой для комплексного индексирования рисков при оценке ограничений для действий в полярных водах (система POLARIS), утвержденного Комитетом по морской безопасности Международной морской организации в качестве одного из возможных вариантов для соответствия требованиям Раздела 1.5 Полярного Кодекса.

**Ключевые слова:** судно, ледовый класс, прибрежные арктические воды, Coast Arctic waters, система Зоны/Даты, система судоходства при арктических ледовых режимах (AIRSS), ледовый навигатор, ледовая цифра

Огай, Сергей Алексеевич; Рычкова, Виктория Феликсовна; Затепякин, Сергей Михайлович

Современная институциональная среда развития портов Приморского края

Необходимость настоящего обзора вызвана появлением нового интереса в административном органе субъекта Российской Федерации, Администрации Приморского края, к возобновлению работы Морского Совета при Губернаторе. Морские порты являются одним из основных факторов развития Приморского края. Этот фактор имеет историческое, региональное, экономическое обоснование. Основу морской транспортной, составляющей Приморского края представляют 6 морских портов и их морские портовые терминали. Нами представлены основные законодательные акты Российской Федерации, влияющие на морскую портовую индустрию,
определяющие современное развитие. Валовые производственные показатели портовой деятельности имеют положительную динамику. Однако, анализ состава портовых средств, состояния портовой инфраструктуры и структура грузооборота свидетельствуют о наличии проблем, задача решения которых относится к федеральным и региональным властям, бизнесу. Решение задач развития Приморских портов на современном уровне определяется не только отраслевыми параметрами, но и социальными, экологическими и другими аспектами, сопровождающими развитие морских портов в морском крае.

Ключевые слова: морской порт, Приморский край, проблемы развития, инфраструктура морских портов, Морской совет при губернаторе, институциональная среда

И Сан Гюн
Картографические заимствования и открытие Токто в 19 веке на Дальнем Востоке

В статье рассматривается степень обоснованности японских территориальных претензий на остров Токто (Такэсима) в Японском море путем изучения процесса признания существования Токто в 19 веке и отражения этого факта в картографии. Анализируются различные аспекты картографических заимствований и изготовления карт, в процессе контактов и взаимообменов между экспертами различных национальностей на географическом пространстве Дальнего Востока, влияние этих взаимообменов на картографию и отраженные на картах характеристики или границы территорий. В результате, Япония активно восприняла западные картографические традиции и технику (включая британские), на основе чего и появилась фатальная ошибка, заключающаяся в неупоминании Токто на географических картах. Например, после исследований британским судном «Аргонавт» на Дальнем Востоке одного из островов, ранее неточно представленного на географических картах, в Японии предприняли неверные шаги, представив «Такэсиму» (Уллындо) как «Аргонавт», а «Мацусиму» (Токто) как «Дажелет» (Уллындо).
Почему, собственно, речь в статье идет о 19 веке? Как раз в середине 19 века закончилось картографирование Дальнего Востока, осуществлявшегося Западными исследователями. Наконец, 19 век близко отстоит от нашего современного общества, соединяет традиционные и современные воззрения, западный и восточноазиатский менталитет. Поэтому, если понять правильно ситуацию на Дальнем Востоке того времени, то, может быть, удастся найти ключи к решению и современной «проблемы Токто».

Keywords: Дальний Восток, история картографии, история картографии, Токто, Лианкур, Уллындо, Аргонавт, Дажелет, карта японских приграничных территорий, карта восточного побережья Кореи

Самойленко, Петр Юрьевич
Имиджевые проблемы освоения Арктики и национальные интересы России на современном этапе

В статье описываются проблемы имиджевого позиционирования арктических проектов в рамках национальных интересов России. Проанализированы основные вопросы упоминаемости в средствах массовой информации и медиафере проблем освоения Северного морского пути, возможности лоббирования интересов России применительно к проектам освоения Арктики и использования Севморпути как транспортно-логистического коридора и связанных с этим иных возможностей сотрудничества, а также других проблем, связанных с возрождением постоянного присутствия России в Арктике. Также уделено внимание вопросам использования потенциала Дальнего Востока в вопросах развития Арктических проектов.

Ключевые слова: Арктика, арктическая политика России, Северный морской путь, имидж арктических проектов, Азиатско-тихоокеанский регион, средства массовой информации, национальные интересы России
Шарапова, Анна Алексеевна

Правовое регулирование Северного морского пути: современное состояние вопроса

Использование Северного морского пути (СМП) является наиболее обсуждаемой проблематикой всех научных и политических дискуссий об Арктике. Став одной актуальной темой благодаря пристальному вниманию правительства, выразившемуся в принятии целого ряда программных документов, а также интересу мирового сообщества к возможности осуществлять навигацию из Европы в Азию по альтернативному маршруту, СМП представляет интерес, как для научных кругов, так и для компаний-перевозчиков. В мае 2015 года разработан Комплексный проект развития Северного морского пути на период с 2015 по 2030 гг., который является завершающим на сегодняшний день нормативно-правовым актом в целом ряде источников, регулирующих СМП в Российской Федерации. В работе производится анализ существующих нормативно-правовых актов в указанной области, и делается вывод об их соответствие обязательствам РФ по международному праву, выявляются проблемы и перспективы развития СМП.

Ключевые слова: Северный морской путь, международное судоходство, транзит, российское законодательство, Конвенция ООН по морскому праву

Ткаченко, Борис Иванович

Международно-правовые аспекты разграничения морских экономических владений в Арктике

В статье описываются международно-правовые аспекты разграничения морских экономических пространств в Арктике в привязке к действующим нормам международного морского права. Предлагается рассматривать морское пространство российского Арктического сектора в качестве исторических вод Российской Федерации, а Северный морской путь как исторически сложившийся морской маршрут внутри национальных внутренних вод России.
Keywords: Арктика, международное право, арктический сектор, полярные морские границы, исторические воды и пути

Вражкин, Александр Николаевич
Оценка качества прогнозов волны Японского и Берингова морей

Рассмотрены оценки качества прогнозов ветрового волнения по морским акваториям Японского и Берингова морей. Сравнение проводилось с использованием данных инструментальными наблюдениями на стационарных буях. Оценивалась высота и период волнения. Расчёты проводились по модели WAVEWATCH-III. Суммарная обеспеченность прогнозов высот волн на первые сутки составляет с 94% и уменьшается до 91% на трети сутки. Для периодов — на уровне 81%. Показано преимущество новой версии волновой модели по сравнению с исследованиями предыдущих лет.

Ключевые слова: волновая модель, данные прогнозов, коэффициент корреляции, приводной ветер, шаг расчетной сетки

Харлампьева, Надежда Климовна
Арктическая морская транспортная система: история, состояние и перспектива

Роль и место России в современной системе межгосударственных отношений, включенность арктических проектов в мирохозяйственные связи сравнительно новое направление в сфере международного экономического сотрудничества и стратегического научного планирования. Исследовано влияние глобальных стратегических концепций на научно-исследовательское планирование в Арктике, а также их практическое применение в арктических государствах. Главными объектами исследования общественных наук с учетом эколого-экономических особенностей современного освоения арктического пространства становятся - совершенствование института местного самоуправления и нормотворческая деятельность в формировании морской транспортной системы.
ПЕРЕДВИЖНИКОВ, Иван Александрович
Морское и речное судоходство

Мореходные суда служат основой торговли, социальными услугами, туризма, а также существуют многие другие функции, которые связаны с морем. Однако при навигации в море или в бурном море, люди могут столкнуться с различными рисками, такие как навигационные ошибки, аварии, аварии, которые могут привести к человеческим жертвам и финансовым потерям.

Ключевые слова: мореходные суда, мореходство, безопасность, аварии, персонал, обучение.
Ключевые слова: Арктика, БРИКС, международное сотрудничество, Арктический совет, транснациональная Арктика, полярные исследования, Арктический банк реконструкции и развития, Банк БРИКС

Васильева, Наталья Алексеевна
Особенности взаимодействия стран в формате БРИКС

Международные отношения меняются согласно экономическим интересам и порождают новые способы взаимодействия стран, которые не имеют общих границ и могут находиться на значительных расстояниях друг от друга. Возникающее глобальное региональное взаимодействие, такое как объединение стран БРИКС говорит о необходимости умения консолидировать общие интересы в рамках единой цели направленной на развитие сетевой дипломатии.

Ключевые слова: глобальное региональное взаимодействие, объединение БРИКС, интеграция, сетевая дипломатия

Зубарев, Дмитрий Геннадьевич
Смысложизненные и ценностные ориентации морских офицеров как фактор подготовки к опасным ситуациям в условиях холода

В статье приведены теоретический подход и результаты исследования смысложизненных ориентаций по методике Д.А. Леонтьева для офицеров надводных кораблей служащих в условиях Крайнего Севера. Средние значения показателей выборки сравнивались по уровням пяти субшкал с контрольной выборкой и нормальными значениями. Полученные результаты проинтерпретированы.

Ключевые слова: моряки, мировоззрение, смысложизненные ориентации, ценности, Локус контроля-Я, опасные профессии, холод