

# The Study on Necessity of Actively Participating in Opening up the Arctic Northeast Passage

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**Abstract.** Given the important strategic position of the Arctic Northeast Passage and its huge shipping potential, China will actively participate in the development of this passage. Based on the analysis of the current situation of Arctic Northeast Channel, some strategies for developing this fairway are summarized. For now, the development of the Arctic Northeast Passage will form a perfect energy supply system and a new shipping layout of foreign trade transportation, which is conducive to the economic globalization of China.

## 1. Introduction

“Polar Silk Road” The Arctic Northeast Passage is the most convenient sea passage connecting the Pacific and Atlantic Ocean. Compared with the traditional Suez Canal and Cape of Good Hope route, it significantly reduces the mileage and cost of shipping <sup>[1]</sup>. Moreover, this will allow Chinese vessels to bypass Somalia and avoid harassment by their pirates, greatly increasing the safety of the route. With the global climate change, the temperature in the Arctic region rises, the ice sheet gradually melts, and the ice area becomes smaller, which provides the precondition for the opening of the Northeast Passage. However, the eastern section of the Northeast Passage is located in the Russian Exclusive Economic Zone, and the Russian River Maritime Administration has strict jurisdiction over it, requiring all vessels passing through the North-East Passage of the Arctic to use Russian vessels to break ice and its navigation services. Based on the interests of China, it is inevitable to open up the Arctic North-east Passage, which will become the route of 9th ocean-going routes of China <sup>[2]</sup>.

## 2. Natural conditions

### 2.1. Geographical position

The eastern part of the Arctic North-east Channel is located in the Russian Exclusive Economic Zone, so Russia also calls it "Northern Sea Passage" <sup>[3]</sup>. The entire channel passes through five sea areas, the Barents Sea, the Kara Sea, the Laptev Sea, the Siberian Sea and the Chukchi Sea. Its coastline is very zigzag, forming many bays, coasts and marginal seas. Because of the low topography in some places, a large number of swamps, lakes and wetlands are formed when the ice melts, and a large number of small islands appear in coastal areas.



## 2.2. Ice analysis

"Chinese Journal of Polar Research" analyzed the ice conditions of the "Snow Dragon" during the fifth voyage in the article "Study on Navigation Strategy and Economics of Arctic Northeast Passage". In late July and early August, when the "Snow Dragon" was in the Bering Strait, along the Russian coastline the sea ice was large and the thick was about 80cm in the Northeast Passage. In some areas, the thick of sea ice was more than 100cm. In late August and early September, the sea ice in the Northeast Passage of the Arctic has basically melted, and a small amount of sea ice still exists in some high latitudes.

From this, we can see that in the summer of each year, there are always some ice-free periods in the Northeast Passage of the Arctic. Making full use of the ice-free period of the Arctic Northeast Passage and drawing up a reasonable navigation route will bring great impetus to the development of China's shipping industry.<sup>[4]</sup>

## 3. Visible benefits analysis

### 3.1. Avoid sensitive waters effectively

With the changes of sea shipping route in Central Europe, maritime trade also avoids sensitive passages along the way. At present, the route of the CEIBS route is mainly through the Indian Ocean, the Straits of Mandel and the Suez Channel, and through the Mediterranean to its destination. However, with the economic globalization, the traditional passage has many disadvantages; many sea areas have limited the weight and width of passing ships. For example, the Strait of Malacca is limited to 100,000 tons and the Suez Canal is limited to 200,000 tons. These old sea lanes can no longer bear heavy loads<sup>[5]</sup>.

In addition, piracy interference has become a major obstacle to trade and transportation, the most rampant of which is Somali pirates. The waters of Somalia are close to the narrow Gulf of Aden, which lies between the Indian Ocean and the Red Sea, it's a naval fortress from the Suez Canal to the Mediterranean and the Atlantic Ocean. The strategic position of the Gulf of Aden is very important. In contrast, the North Pole Northeast Passage goes westward through the Bering Strait and reaches Europe, which greatly shortens the shipping journey and shipping time. At the same time, the passing vessels have reduced their dependence on traditional passages such as the Suez Canal and the Straits of Malacca<sup>[6]</sup>, avoided the tonnage and width restrictions of these waters, and improved the efficiency and safety of maritime trade.

### 3.2. Reduce shipping costs

Take China's Shanghai port to Europe's Rotterdam port as an example. The distance of the traditional Suez Canal route is 10470 nautical miles, but if the North East Passage is chosen, the voyage will be reduced to 7,933 nautical miles, which is a full 1 / 5 of the original voyage. The North East Passage can greatly shorten the shipping mileage between China and European ports. Taking container ships as an example, it is obvious that, as far as fuel is concerned, the fuel cost of traditional China-EU routes accounts for more than 50% of the shipping costs<sup>[7]</sup>. And the North East Passage has been cut by a fifth of its shipping mileage, and its fuel cost has fallen by 15%. Since the Suez Canal only carries 200,000 tons of ships, many of the vessels leading to Central Europe travel through the Indian Ocean and reach their destination by bypassing Cape of Good Hope at the southern tip of Africa, which greatly increases the cost of running the ship.

Due to piracy interference when sailing to waters off Somalia, insurance and escort costs should also be taken into account in calculating costs. According to the statistics, the pirate premium is usually 2% of the total value of the ship. An enhanced container ship from Shanghai to Rotterdam costs an average of \$223,700 a month for pirate insurance and a seven-day one-way escort of \$3.23.

Vessels passing through the Suez Canal pay \$214,000 for a 3000TEU container ship. In addition, ships travelling along the Central European route will need to line up the port along the route, which will be saved if they choose the Northeast Passage.

### *3.3. Promoting efficient energy allocations*

As the last treasure house of the earth, the Arctic region is rich in oil, natural gas and mineral resources. In 2008, the Arctic oil and gas potential assessment report released by the US geological survey showed that the estimated oil, natural gas and LNG reserves in the Arctic circle were up to 90 billion barrels, 1669 trillion cubic meters and 44 billion barrels. Oil accounts for about 13 percent of the world's unproven reserves, natural gas for about 30 percent, liquefied natural gas for about 20 percent, of which 84% of the oil and gas resources are distributed in offshore areas, so the Arctic region is comparable to the Middle East <sup>[8]</sup>. At the same time, the Arctic region is rich in coal resources, accounting for a quarter of the world's reserves. In addition, the Arctic region also has nickel, lead, zinc, copper and other strategic resources.

With the global temperature rising, the Arctic passage has been gradually opened, and the resources have been effectively and reasonably allocated. The first is to make the large-scale development and export of Arctic energy a possibility, and the other is to make the resources of the world circulate exchange efficiently through the Arctic Northeast Passage through the development of the North East Passage. These two advantages make the Arctic Northeast Passage play a more and more important role in the world comprehensive pattern.

Canada, Russia, Norway and other countries along the Arctic coast, are the global oil and gas production and export power, the opening of the Arctic Northeast Passage will provide a convenient condition for these countries to export their own resources. Russia, in particular, is itself close to the world's leading energy consumption center, Eurasia. The opening of the North East Passage will break the monotonous restriction of transportation of oil and gas resources by land and railway. Thus improving the rational allocation of resources and the convenience of transportation to a greater extent <sup>[9]</sup>.

There is a shortage of oil resources in the world. According to statistics, there are only 39 net oil exporters out of more than 200 countries in the world, and they are highly concentrated in the Middle East and North Africa region, and more than 130 countries and regions need to import oil from abroad. About 90 countries have no oil production of their own <sup>[10]</sup>. The highly centralized oil supply has formed three oil supply trade zones, and the oil resources flow to the whole world on a large scale, forming international situation. The rich petroleum resources in the Arctic have led to the gradual improvement of the position of Russia, the United States and other North American countries in the global oil and energy supply chain system. The United States, Russia, Norway and other countries have begun to produce oil and gas in the Arctic and are actively using the Northeast Passage to export oil and gas energy. In the future, Russia will shift its main strategic resource base to the Arctic, which obviously speeds up the process of exploration and development of Arctic energy <sup>[11]</sup>. As of 2011, 266 oil and gas fields had been discovered in Russia for exploration in the Arctic, with 35.8 billion barrels of proven oil (including condensate) reserves, accounting for 3 / 5 of proven oil and gas reserves in the Arctic region. In the future, the influence of the Northeast Passage on the world resource trade pattern will become more and more important.

## **4. Development strategy analysis**

### *4.1. Strengthening cooperation*

As a outside country in the Arctic Circle, China lacks support for the development of the North East Passage. In recent years, China has actively participated in the development of the Northeast Passage of the Arctic, which is regarded by the world as a malicious act of strategic right, and has been prevented and excluded by the Arctic countries. In this regard, as our side, we must maintain a positive attitude and sincere attitude to seek cooperation. The most suitable partner is undoubtedly the European Union, which is roughly in the same position as ours, including its location and interests, and so on. Together with the European Union, we should eliminate the exclusive possession of Arctic resources by the circumpolar countries, reject the Arctic internationalization, restrict the narrow

approach of the North East Passage of the Arctic, advocate the sharing of global resources, and advocate the free navigation of Arctic waters.

China should cooperate with the relatively weak countries around the Arctic. Arctic countries have different geomorphological advantages and wide disparities in their overall national strength, especially those that have Arctic territory but are short of Arctic coastline and are under comprehensive national strength, such as Finland, Sweden, and so on. These countries have no power to speak to the Arctic affairs and have been squeezed and oppressed for their rights and interests. It can be seen that major coastal countries will urge the weak countries concerned to seek effective help abroad <sup>[12]</sup>. Therefore, we should seize this opportunity to show the sincerity and goodwill of our cooperation with them, strengthen the trust in politics, economy and trade, actively carry out cultural exchanges, and realize mutual benefit.

All in all, we should not neglect to communicate with the major powerful countries in the circumpolar region, to establish friendly relations of cooperation, to cooperate with each other, to help each other, and to win trust.

#### *4.2. Attach importance to Scientific Research*

At present, China's exploration of the Arctic is just beginning, and its understanding of the Arctic is far from that of the South Pole. Therefore, there is no objective and detailed system for understanding the Northeast Passage of the Arctic. However, these do not really meet the need to develop the Northeast Passage. In view of this, China should step up its efforts to further strengthen polar scientific research, further promote the research and development of deep-sea exploration technology, and establish and improve the Arctic scientific exploration mechanism. It's also very important to design an icebreaker suitable for the North East Passage <sup>[13]</sup> to improve the understanding and mastery of Arctic waters.

At the same time, it is also necessary to attach importance to the training of talents, strengthen the construction of talent teams, and train Arctic scientific experts on a large scale. We should vigorously support its Arctic research work, build Arctic research stations, and provide advanced hardware facilities for these talents and experts. We will grasp the navigation rules of the Arctic northeast channel by testing and studying all aspects of the Arctic northeast channel, such as meteorology, climate and hydrology. Similarly, we should actively develop the design and development of ships, actively learn from the successful products of other countries, and give their own thinking and research to build more ships suitable for the navigation of the Northeast Passage. In addition, it is also necessary to actively train navigation personnel in ice regions and the handling ability of ships in ice regions of the relevant personnel and do well the human resource reserve of related personnel.

#### *4.3. Keep pace with the times and policy*

During the visit to Central and Southeast Asian countries in 2013, Chinese President Xi Jinping put forward a major initiative to build "Belt and Road", which received high attention from the international community <sup>[14]</sup>. At the same time, the Chinese government has actively carried out foreign trade and successively introduced and opened special economic zones, free trade zones, and free trade ports. The introduction of these policies shows that China attaches importance to foreign trade. China hopes to enhance its comprehensive national strength through foreign trade. Therefore, we should seize this opportunity to develop the Arctic Northeast Passage, and it will be easier to develop this passage with the support of relevant policies. At the same time, through the development of the Arctic Northeast Passage, we can strive to achieve the great rejuvenation of the Great Renaissance of the Chinese Nation.

### **5. Conclusion**

With the increasing development of people's economy, the demand for energy is increasing day by day. The smooth passage of energy import and export affects the overall development and safety of China <sup>[15]</sup>. China should actively open up the Northeast Passage and respond to Belt and Road's strategy put forward by President Xi Jinping.

The Arctic Northeast Passage is an economic and trade fortress. With the warming of global temperature, there will be ice-free periods in the Arctic region in summer. By studying the Arctic ice conditions in many aspects, we have worked out a suitable Northeast Passage. The opening of the North East Passage will avoid the limit of load and the threat to safety of the traditional passages. At the same time, compared with other traditional passages, the North-East Passage of the Arctic will greatly reduce the cost of shipping. In addition, the Arctic region is rich in natural resources, the opening of this passage will promote the rational allocation of resources. For this reason, China will actively participate in the opening of the Arctic Northeast Passage. The most important thing is to strengthen cooperation with other countries in order to achieve a both-win situation. Then, China should strengthen its comprehensive strength, attach importance to scientific research and personnel training, and improve the hardware and strength of developing the Northeast Passage. Finally, under the background of economic globalization and our wantonly opening to world, by keeping pace with the times and policy, we can open up a passage suitable to our national conditions.

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