

TRANS-ARCTIC NAVIGATION

CLIMATE CHANGE AND THE WITHDRAWAL OF ARCTIC ICE COVERAGE ARE EXPECTED TO EXPAND THE SAILING SEASON AND THEREFORE THE UTILISATION OF THE NORTHERN SEA ROUTE. THE KEY QUESTION ADDRESSED WAS WHAT IS THE CAPACITY OF THE NORTHERN SEA ROUTE UNTIL 2050 CONSIDERING THE CHANGING ICE CONDITIONS AND THE CHARACTERISTICS OF THE SHIPPING FLEET.



RESEARCH

To estimate the future transit capacity, a capacity model was built, based on two CMIP6 climate model simulations, the technical characteristics, including cargo carrying capacity and ice-class of the world commercial fleet and the available icebreaking capacity.



RESULTS

The results indicate that the overall cargo throughput of the Northern Sea Route would increase from 50 to 120 million tons p.a. in the slower ice melting simulation or from 350 to 460 million tons p.a. in the faster ice melting simulation. Individual navigation is expected to remain limited also in the coming decades. The navigation is expected to remain seasonal with high yearly fluctuations defined by the changing ice conditions. Due to this, the route is likely to be utilized mainly for tramp shipping, whereas conditions for liner shipping will remain challenging.



POLICY ACTIONS NEEDED

Enabling the growth of traffic flows requires considerable investments into supporting infrastructure along the route, including terminal facilities, ice-breaking capacity and safety and rescue equipment among others. At the same time, increasing commercial traffic in sensitive Arctic areas is deemed to create additional negative externalities. **Stricter regulation is required to minimize the negative impacts.**

IMPORTANCE

The results assist shipping companies to make long term investment decisions. Local authorities are provided with improved estimates on the future demand and requirements of supporting infrastructure. Finally, as with other trade routes, **the results have a geopolitical dimension and contribute to the understanding of international politics.**

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