Safety and Regulations of Arctic Shipping

Hiromitsu Kitagawa
Special Research Fellow, Ocean Policy Research Foundation
Tokyo, Japan

ABSTRACT

In a few decades, it is predicted that the extent of summer Arctic sea ice will retreat significantly and first-year sea ice will only be present in the winters. However, major obstacles still remain, such as unpredictable regional anomalies in ice conditions, drifting icebergs, severe icing, darkness in winter, remoteness and vulnerable environments. To insure safety and efficiency in proposed Arctic transportation, internationally accepted rules and regulations are necessary and some aspects of these are discussed in this paper. In regards to specified vessels being ice-strengthened and manned by well-trained crews, Arctic operations by consortia or alliances, organized under an agreement among world shipping industry leaders and regulators would be desirable. Such organized Arctic operations would maintain a high degree of safety and would become cost effective, and mega-hub ports on the rim of the Arctic Seas could become staging areas for trans-shipment of the Arctic Ocean.

KEY WORDS: Arctic Shipping; Northern Sea Route; certificate of crew; safety of navigation; hub-port; seaborne trade; Asian market.

INTRODUCTION

The rapid retreat of sea ice in the Arctic Seas has frequently been reported and discussed in a number of academic papers. The matter admits some arguments. Some scientists criticized the Intergovernmental Panel on Climate Change (IPCC) AR4 report and emphasized that the current rapid retreat could still be due to periodical fluctuations of the natural climate and the sea ice would increase its coverage again to some extent in a few decades, although in the longer term the trend of retreat and thinning of sea ice would continue. Such arguments perplexed the shipping industry, which prefers stability in predictions for Arctic shipping planning.

The world seaborne trade has closely followed trends in the world Gross Domestic Product (GDP). It was thus affected by the global recession in 2009, while the trade volume of coal and iron ore remained at a high level due to the strong import demand of China. China’s demand for the resources has been developing far in the High North. After the Beluga’s successful voyages in 2009, the Barents consortium led by the Tschudi Shipping Co. transported iron ore from Kirkenes in Norway to China via the Northern Sea Route (NSR) under escort of a Russian nuclear-powered icebreaker. The year 2010 was memorable for the NSR. Nearly ten bulkers destined for China sailed via the NSR under escort of Russian nuclear-powered icebreakers. Some of them seemed not to need much icebreaker support, but the insurance costs made the request for icebreaker escort routine. All of them were conditional operations, being far from conventional operations in the world shipping market.

The International Northern Sea Route Programme (INSROP)/Japan Program of INSROP (JANSRP) had already confirmed that the Northern Sea Route was technically feasible. The NSR will be able to shorten travel distances significantly and thus reduce the total amount of fuel consumption and exhaust-gas emissions from ships. Despite the voyages made via the NSR in 2010, challenges still remain. With ice diminishing in the Arctic Ocean as a result of global warming, the risk of damage to vessels and exploration and production rigs operating in the Arctic is rather increasing due to yearly fluctuations and unpredictable ice conditions, along with regional uncertainties.

Great care should be devoted to the relatively high encounter probability of drifting ice floes such as bergy bits calved from warmed-up glaciers, severe icing due to temperature rise in the sea water, and wave actions, which are weakened through pack ice floe or fast ice, when sea ice covers the water surface to a great extent.

Such requirements for Arctic navigations could be satisfied with specifically designed and equipped vessels and when manned by fully trained and experienced crews. However, such operations would neither be appropriate nor beneficial for sailings outside of the Arctic seas. Seaborne trade economics would then demand an operation mode of trans-shipment at some ports on the both sides of the rim of the Arctic seas. A possible solution, therefore, would be to open hub-ports as staging areas for trans-shipment and to operate specifically designed vessels with crews holding an internationally recognized certificate for arctic seas navigation. This paper is a feasibility study on the safety of...