

The Impact of a Warming Arctic on International Shipping

Transit Traffic along Arctic Routes – Developments, Opportunities
and Imponderables

Oliver Thorsten Ried

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Abstract

This book aims to provide a picture of today's developments, opportunities and imponderables for Arctic transit shipping in both the Russian and Canadian Arctic with hands-on information for shipowners, environmentalists and representatives of international governmental bodies. The image of a potentially soon navigable Arctic Ocean has stirred worldwide public attention but was too often blurred by factually incorrect sensationalism and geopolitical sabre-rattling. This book offers a realistic overview of what we can expect from Arctic Shipping, how soon opportunities will develop and what difficulties remain to make the century-old dream of a shortcut from Europe to Asia reality.

First, the recent macro environment for shipping along Arctic routes is investigated. This includes an analysis of climate models, sea ice projections and local conditions from a seafarer's point of view. How long will the navigable season become in the future? How reliable are those predictions and does that mean that by the end of the century the Arctic Ocean will be a shipping lane like the Suez Canal today? Further, available infrastructure, legal controversies and environmental issues are presented.

Second, the suitability of potential new routes for commercial traffic is discussed. This comprises a review of present-day studies on profitability, identification of key performance factors and an evaluation of interviews conducted with leading industry representatives. The book answers the question whether the Arctic routes are at all compatible with modern liner shipping and for which shipping sectors it might be particularly interesting.

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List of Abbreviations

ACIA	Arctic Climate Impact Assessment
AMAP	Arctic Monitoring and Assessment Programme
ARCDEV	Arctic Demonstration and Exploratory Voyage
ARCON	Arctic Container
ARCTIS	Arctic Resources & Transportation Information System
Atmos. Environ.	Atmospheric Environment
AV	Akademiker Verlag
AWI	Alfred Wegner Institut
B Ins	Business Insurance
BB	Bond Buyer
C	Celsius
CAGR	Compound annual growth rate
CCG	Canadian Coast Guard
DGPS	Differential Global Positioning System
DNV	Det Norske Veritas
e.g.	example given
e.V.	eingetragener Verein
Ed.	editor
EEZ	Exclusive Economic Zone
ESA	European Space Agency
et al.	and others
FESCO	Far East Shipping Company
ft.	foot
Frhr.	Freiherr
Geophys. Res. Lett.	Geophysical Research Letters
GISS	Goddard Institute for Space Studies
GPS	Global Positioning System
HJIL	Heidelberg Journal of International Law
HSVA	Hamburgische Schiffsbau Versuchsanstalt
HWWI	Hamburgisches Welt Wirtschafts Institut
IAME	International Association of Maritime Economists
IGARSS	International Geoscience and Remote Sensing Society
IMO	International Maritime Organization
INSROP	The International Northern Sea Route Programme
Int J Prod Econ	International Journal of Production Economics

INTERTANKO	International Association of Independent Tanker Owners
IPCC	Intergovernmental Panel on Climate Change
J Transp Geogr	Journal of Transport Geography
J. Geophys. Res.	Journal of Geophysical Research
LIBOR	London Interbank Offered Rate
Mio.	Millions
NEP	North-East Passage
nm	Nautical mile
No.	Number
NOAA	National Oceanic and Atmospheric Administration
NSR	Northern Sea Route
NWP	North-West Passage
Ocean Coast. Manage.	Ocean and Coastal Management
p.a.	per annum
PAME	Protection of the Arctic Marine Environment
PNAS	Proceedings of the National Academy of Science
Pol Geo	Polar Geography
pp.	pages
RFR	Required Freight Rate
RUB	Russian Rouble
SAR	Search and Rescue
Sci G Sec	Journal of Science and Global Security
SIPRI	Stockholm International Peace Research Institute
SRES	Special Report on Emissions Scenarios
SWIPA	Snow, Water, Ice and Permafrost in the Arctic
t	tonnes
TEU	Twenty-foot equivalent unite
TRANSPORT RES A-POL	Transportation Research Part A: Policy and Practice
TRANSPORT RES C-EMER	Transportation Research Part C – Emerging Technologies
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
USD	US Dollar
VHB	Verband der Hochschullehrer für Betriebswirtschaft e.V. (German Academic Association for Business Research)
Vol.	Volume
WTO	World Trade Organization