

Latest News from Aker Arctic

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[Aker Arctic Technology Inc](#)

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Aker Arctic Technology Inc Services



Consulting and Technology
Development



Ship Design & Engineering



Ice Model Tests



Products for Ice Operations

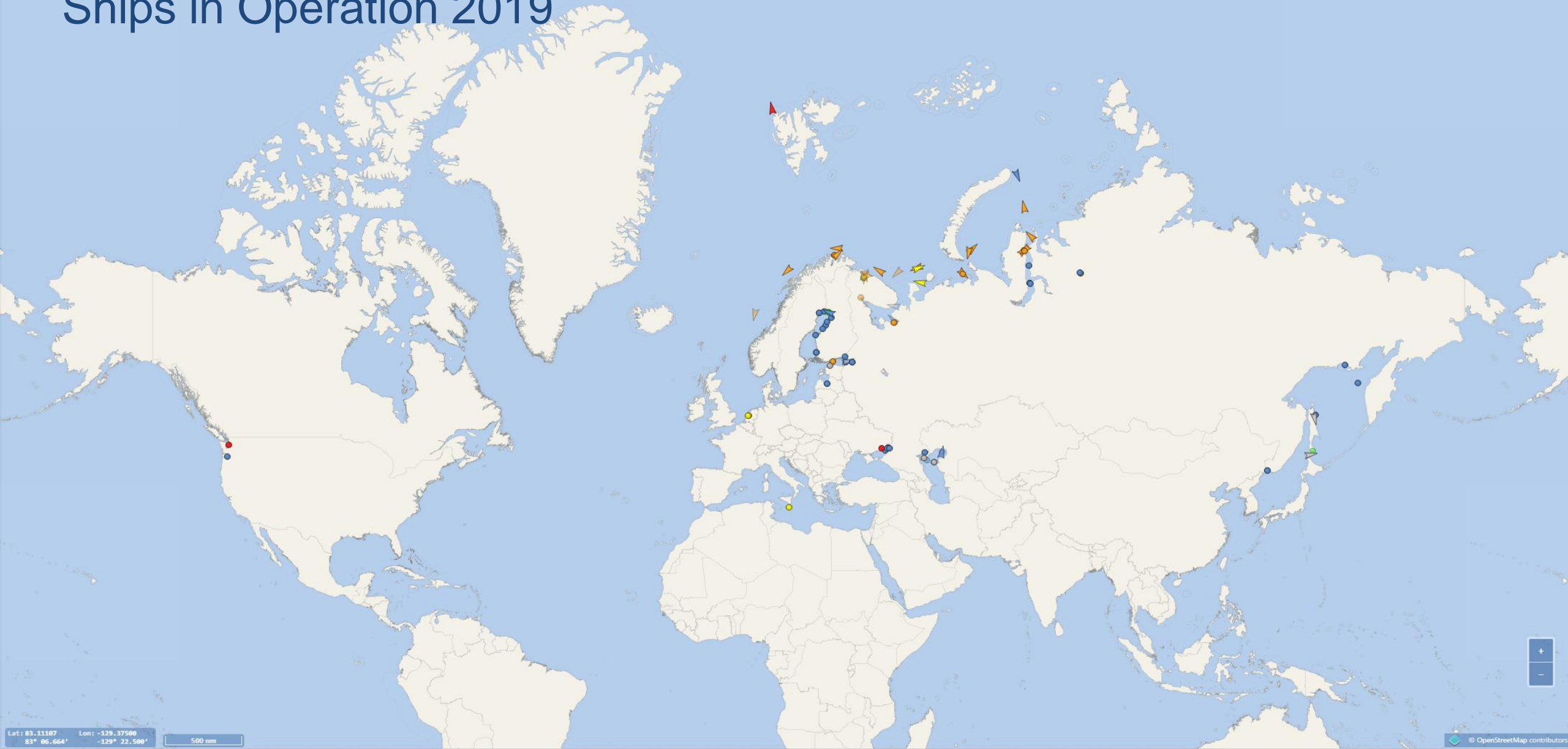


Full Scale Tests



Operational Services

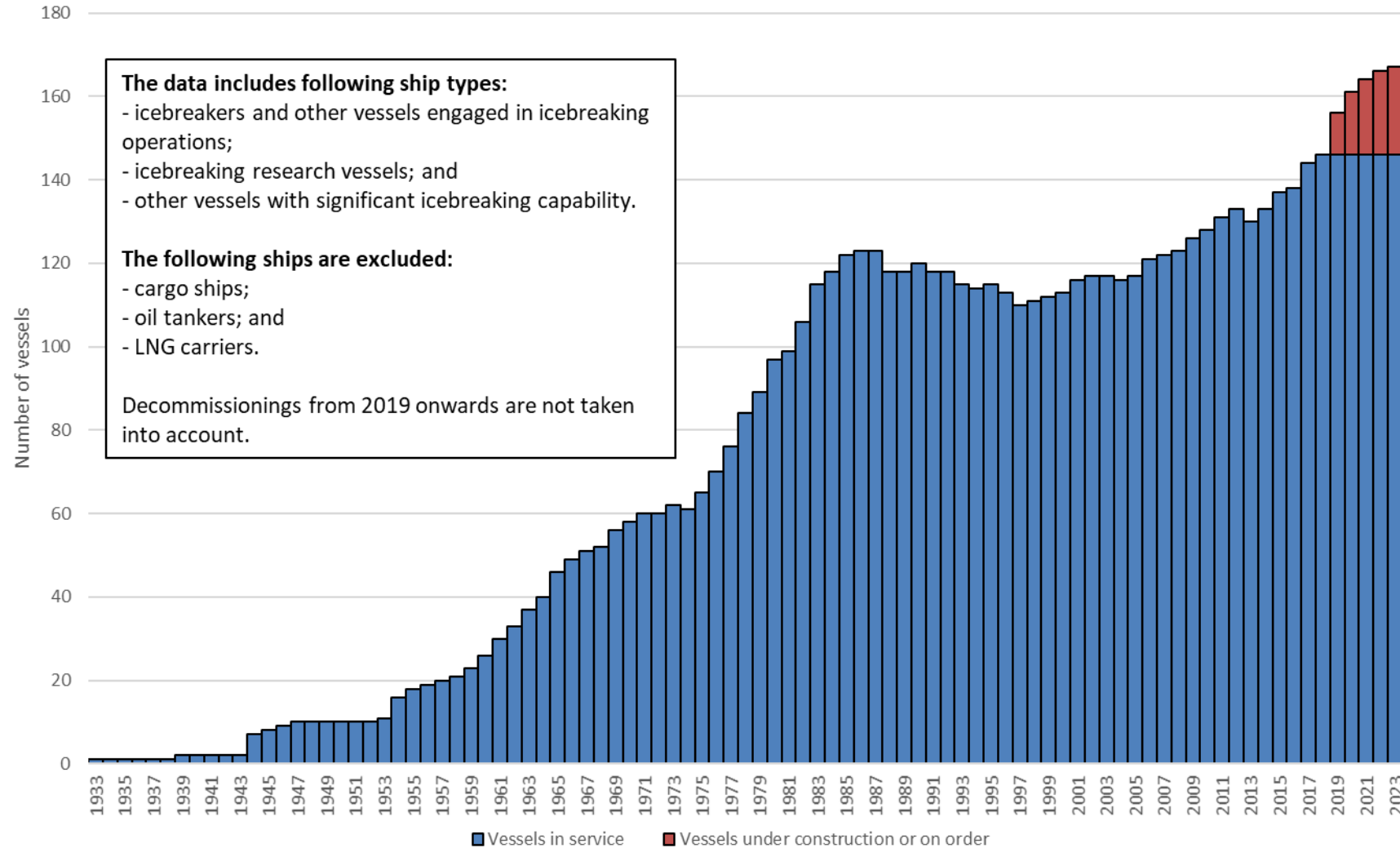
Ships in Operation 2019



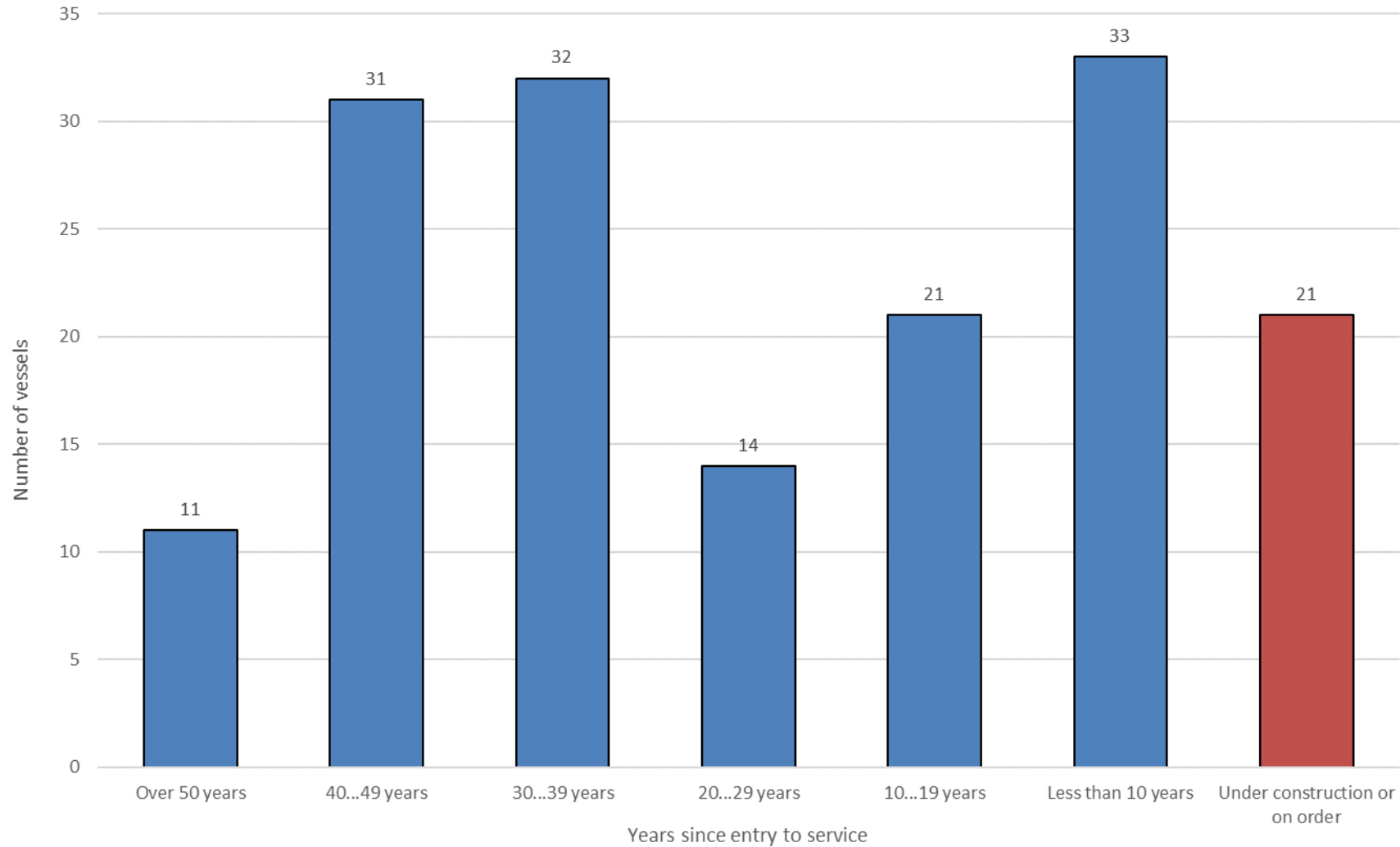
Ships in Operation 2019



Active World Icebreaker Fleet



Active World Icebreaker Fleet – Age Distribution



Latest Icebreaker Development – Technology



Photograph courtesy of Gazprom Neft

Icebreaking game-changer of the 2010s: *Polaris*

- Environmentally friendly dual-fuel power plant using liquefied natural gas (LNG) as primary fuel
- New propulsion configuration – return of the bow propeller
- Design goal: not just *powerful*, but also *efficient* – achieved!

Derivative designs

- Further development of the general concept for harsh Arctic conditions: *Aleksandr Sannikov* and *Andrey Vilkitsky*
- LNG now considered realistic alternative for polar icebreakers: Aker ARC 123 for FSUE Atomflot



Latest Icebreaker Development – USCG Activities on Polar Icebreakers

- USCG plan to replace existing polar class icebreaker Polar Star and Polar Sea is progressing.
- USCG financed industry studies for the new vessel in 2017-2018.
- Three US shipyards have issued a bid for this program.
- USCG is expected to make selection by end of April.
- The first vessel should be ready for delivery 2023.



3D rendering courtesy of Fincantieri

Latest Icebreaker Development – Canadian Activities

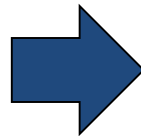
- Major countries are investing to new polar icebreakers
 - ◆ Canadian Coast Guard has plans for a large polar icebreaker, CCGS *John G. Diefenbaker*
 - ◆ Canada bought 3 Viking Class icebreakers
 - ◆ Canada is planning to increase capacity by additional interim icebreakers



3D rendering courtesy of VARD



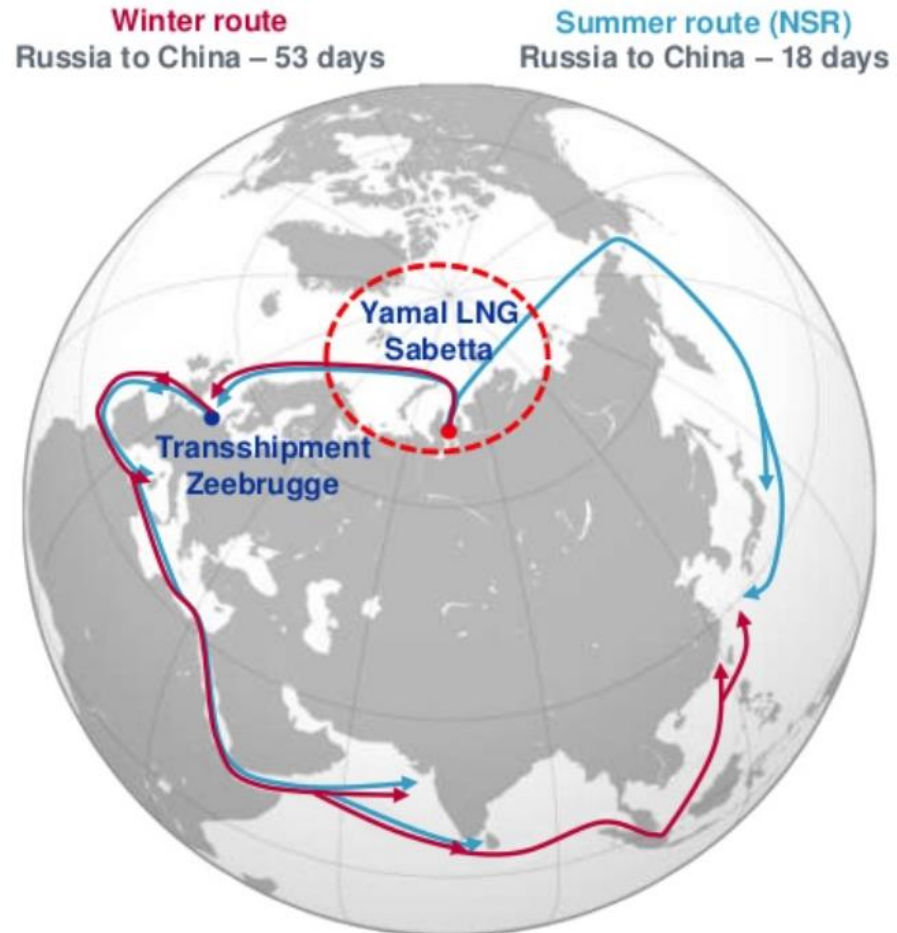
Three Ex-Viking Supply Ships Anchor Handling Tug Supply (AHTS) vessels – Balder Viking, Vidar Viking and Tor Viking – that are being converted as Canadian Coast Guard (CCG) Polar Icebreakers.



Ex-Vidar Viking refloated out after conversion by Chantier Davie to Canadian Coast Guard specifications. CCG Photo.

A Significant Breakthrough for the Arctic Ships

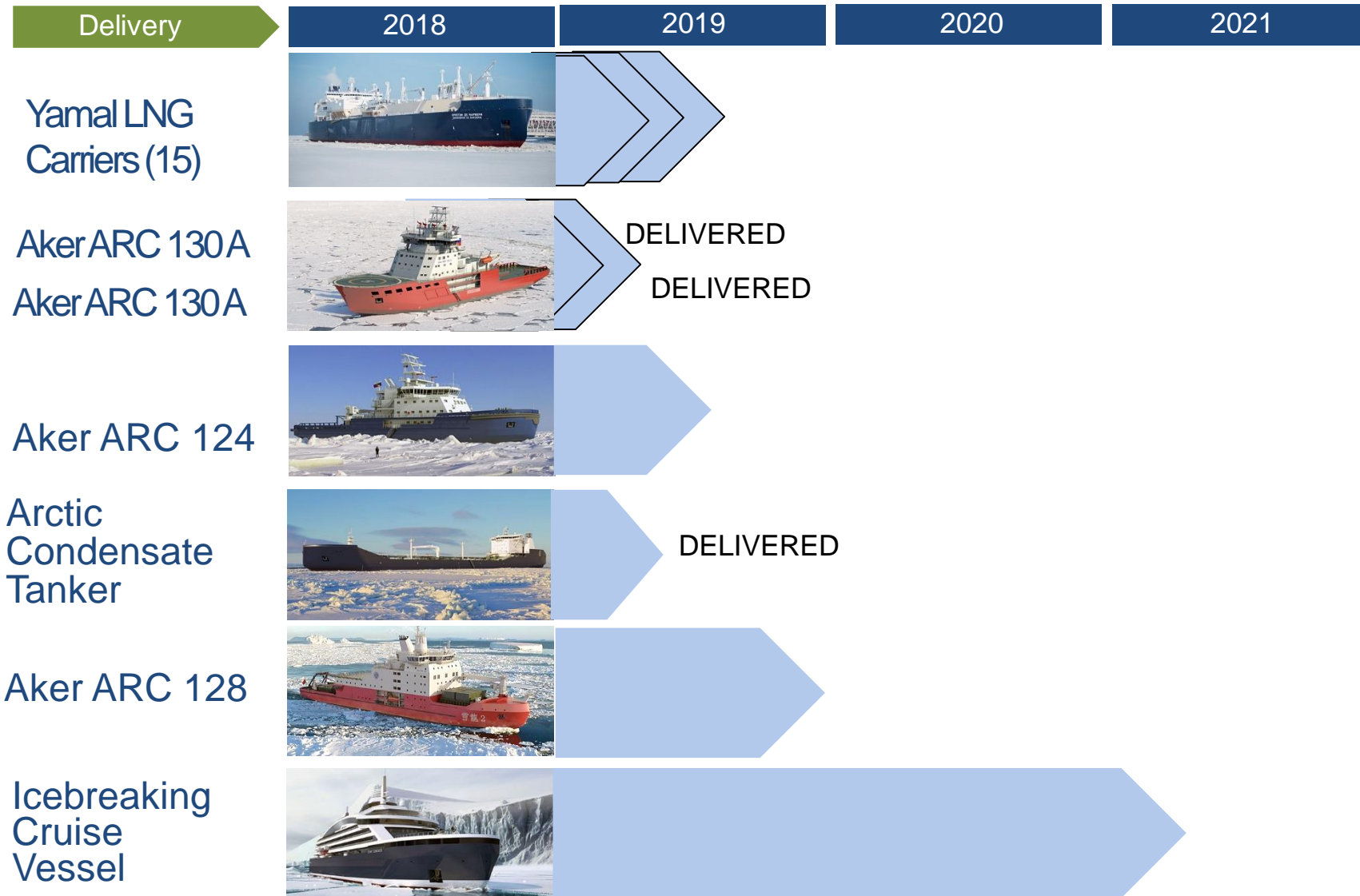
- Yamal LNG, first ever Arctic LNG project to start



LNG production is now in full capacity.
Already 10 million tons of LNG shipped
from Sabetta.



Recent Construction with Aker Arctic Design



Aker ARC 130 A Icebreaking Support Vessels

Aleksandr Sannikov, Andrey Vilkitsky

Length, overall	121.7 m
Breadth, dw., moulded	25 m
Draught, design waterline	8 m
Displacement	12 900 m ³

Icebreaking capability ahead:
2 knots, 2.0 m+30 cm snow

Icebreaking capability astern:
2 knots, 2.0 m+30 cm snow

Owner:	Gazpromneft
Builder:	Vyborg Shipyard JSC
Delivery:	2018

Aker ARC 212, Arctic Condensate Tanker

Length, overall 214 m
Breadth 34 m
Draught, ice 12.0 m
Cargo and slop tanks about 57,000 m³

Main generating sets 31.4 MW (total)
Propulsion units 2 x 11 MW ABB Azipod
Icebreaking capability 1.5 m (ahead) 1.8 m (astern)
Service speed 13 knots
Ice class RMRS ARC7 (equivalent to Polar Class 3)
Dual classification: Russian Maritime Register of Shipping
Bureau Veritas
Owner: Dynagas
Builder: Guangzhou Shipyard International
Delivery: 2018



Aker ARC 124, Port Icebreaker for Atomflot, IB OB

Length, over all: 89.5 m
Breadth, including fenders 21.3 m
Draught, maximum: 7.5 m
Main generating sets: 3 x 4880 kW
Propulsion: Diesel-electric
4 x 3000 kW
azimuth thrusters

Icebreaking capability: 2 knots in 1.5 m level ice
4 knots in 5.0 m brash ice with 50
cm consolidated layer
Bollard pull: 115 tons
Speed in open water: 15 knots
Ice class: RMRS Icebreaker7, or IACS Polar
Class 3

RESEARCH ICEBREAKERS



Chinese Icebreaking research vessel for PRIC, PC3

- Design contract 2012
- Feasibility 2015
- Design complete 2017
- Construction ongoing
- Delivery 2019
- Jiangnan Shipyard, Shanghai
- Name: Xue Long 2



The icebreaking research vessel Xue Long 2 is almost ready for delivery in China.

Other Research Icebreakers coming to service

RSV Nuyina

Australia's new Antarctic icebreaker is due to arrive in Hobart in 2020. She will be the main lifeline to Australia's Antarctic and sub-Antarctic research stations and the central platform of their Antarctic and Southern Ocean scientific research.



Sir David Attenborough

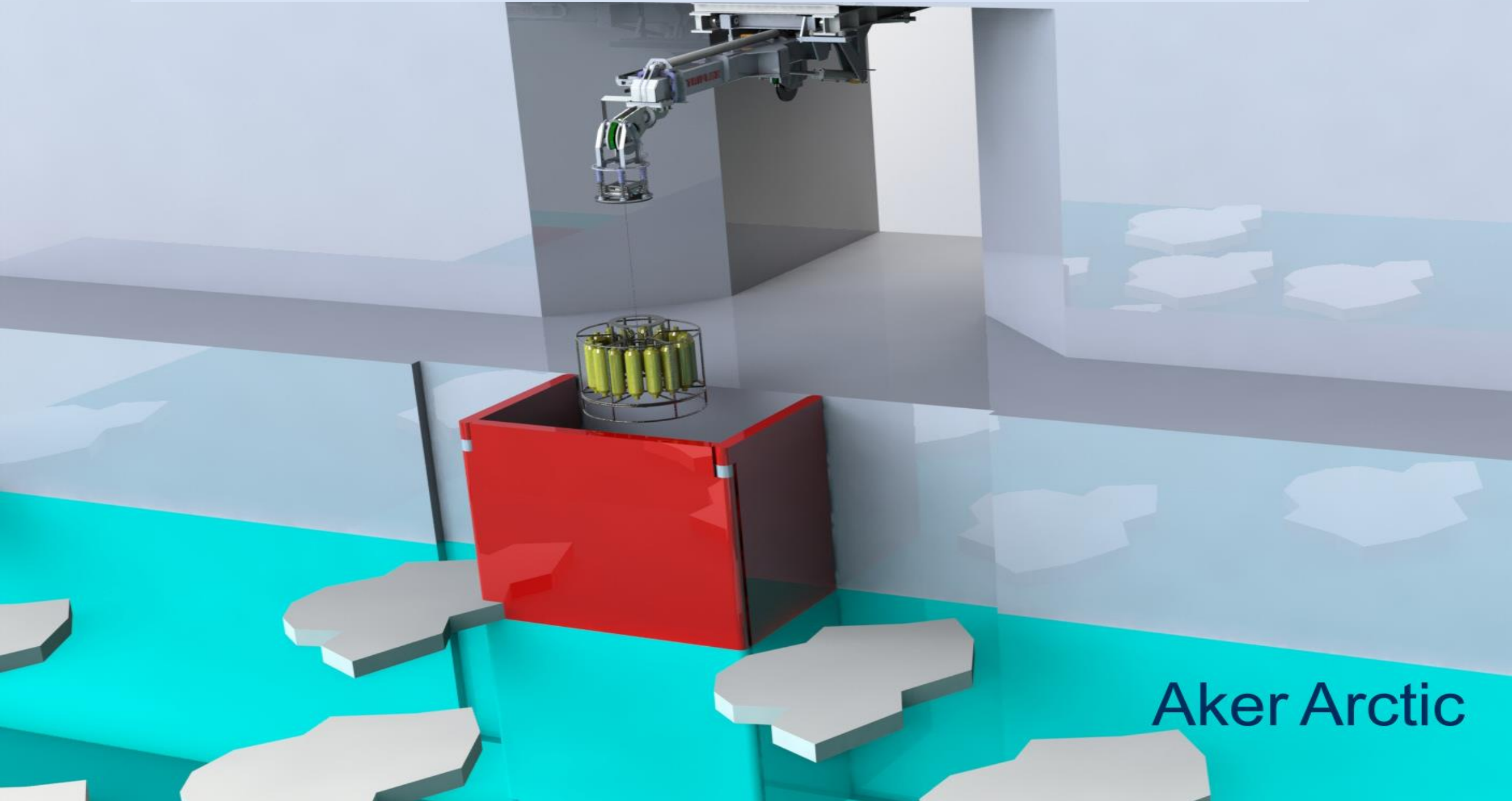
The new polar ship for the United Kingdom will spend the northern summer supporting Arctic research and the austral summer in Antarctica carrying out research programmes and resupplying the British Antarctic Survey's research stations. Her expected delivery is in summer 2019 and the vessel will replace the two polar ships RRS Ernest Shackleton and RRS James Clark Ross.

Antártica 1

Construction of the icebreaking research vessel for the Chilean Navy began last year with delivery expected during 2021. Its tasks will include logistic support, search and rescue, and scientific research south from the Antarctic Polar Circle. She will replace the icebreaker Almirante Óscar Viel which was acquired from Canada in the 1990s. Aker Arctic supported Canada-based Vard Marine in the design of the hull form and performed model tests.



Innovation – Sidepool - for deploying research instruments



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CRUISE ICEBREAKERS



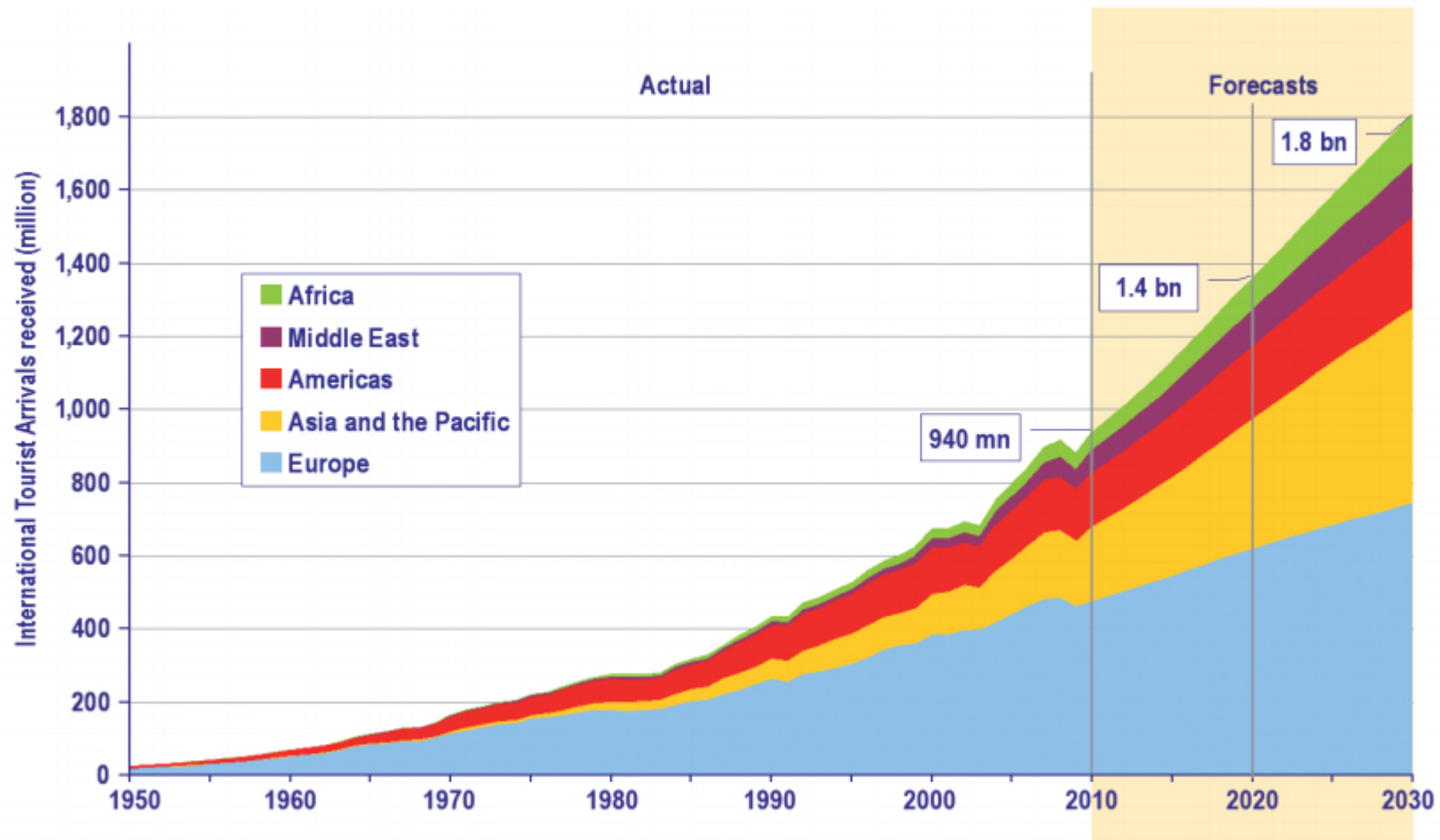
Polar Cruises

- Cruise market is increasing, and also interest in the polar regions is on the rise.
- Expedition type cruises have been carried out for a long time.
- Majority of them in "small scale" operations.
- Cruise prices vary a lot, starting from few thousands up to 40 000 USD for the North Pole voyages.
- Today the capability is increasing, as many new polar class cruise vessel's are coming into market.



Increase in the World Tourism

UNWTO Tourism Towards 2030: Actual trend and forecast 1950-2030

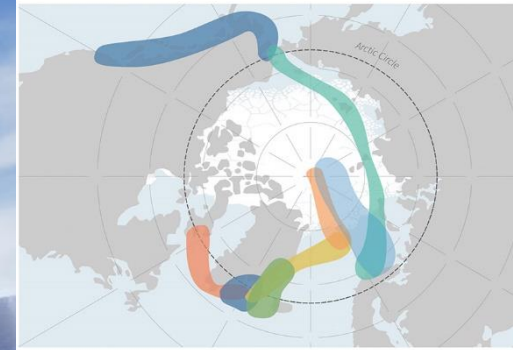


Le Commandant Charcot - First ever Icebreaking Cruise Vessel

- First ever PC 2 classed vessel
- Propulsion - LNG & Hybrid Electric
- PAX Cabins 135
- Aker Arctic DAS™



The North Pole - April/September 2021



- | | |
|--|--|
|  In the Wake of Commander Jean-Baptiste Charcot
April to May - 10 to 14 nights |  On Top of the World
July to August - 13 to 17 nights |
|  The Ice Field: the Frozen Continent
April - 12 nights |  Around the Pole
July to August - 16 to 20 nights |
|  The Origins of the Early French Polar Expeditions
April to May - 10 to 12 nights |  The Northern Sea Route
August to September - 25 to 30 nights |
|  The Last Predators of the Poles
May - 15 nights |  Alaska and the Coast Mountains
September - 10 nights |



Aker Arctic
The Ice Technology Partner

A large blue and white icebreaker ship, the Aker ARC 124, is shown navigating through a dense field of sea ice. The ship has a white upper hull and a blue lower hull. The name "Aker ARC 124" is visible on the white section. The ship is equipped with various antennas and radar equipment on its upper decks. The ice consists of numerous small, broken floes. A small figure of a person stands on the ice in the foreground, providing a sense of scale. The sky is a clear, bright blue.

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