Planning a Late Season NSR Voyage

James Bond | 1 Nov 2022

Late Oct / Early Nov 2021 on the NSR

HIGH NORTH NEWS

Business Politics Science Arctic Living Opinions Newsletter

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Early Winter Freeze Traps Ships in Arctic Ice, Highlighting Weak Safety Regime

Maritime News › General › Stuck in ice ships scattered ...

Stuck in ice ships scattered along

Posted in General by Mikhail Voytenko on Nov 05, 2021 at 05:24.

Nov 5: Cargo ships are scattered all along Northern Sea Route, most of them awaiting icebreaker to be taken through ice. Icebreaker VAYGACH is presently at Pevek Port, bulk carriers NORDIC QINNGUA, GOLDEN PEARL, gen cargo UHL FUSION are led by nuclear icebreaker TAYMYR, all three transiting NSR from Europe to Far East. Bulk carriers NORDIC NULUUJAAK and GOLDEN SUEK stuck in ice, waiting for icebreaker. Gen cargo POOLGRACHT, UHL FAITH, UHL FLASH stuck in ice, waiting for icebreaker, all three transiting from China to Northern Europe. About a dozen Russian cargo ships are also positioned along NSR, either waiting for icebreaker, or trying to find passages in ice floes. More or less autonomous are newly built, highest ice-class, powerful LNG tankers, but let's not forget, that their operators had to turn to icebreakers too, last winter, after one of them was damaged while transiting NSR autonomously.

Insurance Marine News

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Ice problems for vessels in Northern Sea Route sees blame-shifting

By admin On November 25, 2021 In Cargo, Insurance Marine News, Keep, Marine Hull, Marine Liability

The slowing of traffic on the Northern Sea Route this month, which has seen various icebreakers, notably the **Vaygach** (IMO 8417493) and **Taymyr** (IMO 8417481) undergo various back-and-forth shuttle manoeuvres in order to lead around a dozen vessels, including the **Nordic Nuluujaak** (IMO 9884966), **Golden Suek** (IMO 9438614), **Nordic Qinngua** (IMO 9884978), **Golden Pearl** (IMO 9470375), **UHL Fusion** (IMO 9785380) and **Kumpula** (IMO 9590802) through solidifying ice, looked to be continuing this week, albeit with different vessels needing help.

The Vaygach-led far-east bound convoy of the first five ships mentioned above reached the Bering Strait on November 21st. The Vaygach then turned round and took three Russian cargo ships in the direction of Arkhangelsk, White Sea. As of November 24th it was leading this convoy in the East Siberian sea ice and from time-to-time the ships became stuck, forcing the icebreaker to move around them, cutting a path. The convoy is heading north-west to pick up three dry cargo ships and one tanker, including Finnish bulk carrier Kumpula, which are stuck in ice while travelling westbound. There remained some distance between the icebreaker, its caravan, and the other four ships that are stuck.

The Barents Observer

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Illustration photo by Rosatom

Two icebreakers are on the way to rescue ice-locked ships on Northern Sea Route

But some of the vessels will have to wait for at least one week before they are released from captivity in the remote Arctic sea-ice.

Finnish bulk carrier Kumpula escorted through the East Siberian Sea. Photo: ESL Shipping

Arctic shippers eye release from Russian ice captivity

The 15 ships that for the last two weeks have been ice-locked in Russian Arctic waters see release coming as a second icebreaker makes its way into the East Siberian Sea.

By Atle Staalesen

November 16, 2021

The Barents Observer

中文 РУССКИЙ Search

Illustration photo: Rosatomflot

Critical situation might be in the making in the Northern Sea Route

...rly freeze has taken shippers by surprise and a big ...
...er of getting stuck in thick sea-ice.

Sudden Freeze-Up Disrupts Supply Chain on Russia's Northern Sea Route

ABS

Overview

- QUESTONS, QUESTIONS, QUESTIONS
  - Who got “stuck”?
    - When? Where?
  - What were the ice conditions?
  - Was this foreseeable?
    - Was there a point when a different decision could have been made?
  - Did the safety regime stumble, falter, or fail?

- EXPLORATION OF ANSWERS
  - Is there data available that would / could have led to a different outcome?

“Stuck” Ships

- Press reported that some 20 vessel were stuck on the NSR in late fall of 2021, including this sample of bulkers

Name	Class Society	Dimensions	Ice Class	Transit Direction	NSR Entry Date	NSR Exit Date	Duration (days)
Admiral Schmidt	ABS	250m LOA, 43.1m beam	PC6	West to East	27 Oct	10 Nov	15
Kumpula	DNV	197m LOA, 32.6m beam	1A	East to West	6 Nov	8 Dec	33
Nordic Nuluujaak	DNV	230m LOA, 38.0m beam	1A	West to East	24 Oct	20 Nov	28
Nordic Qinngua	DNV	230m LOA, 38.0m beam	1A	West to East	30 Oct	20 Nov	22
Golden Pearl	DNV	225m LOA, 32.2m beam	1C	East to West West to East	8 Oct 26 Oct - Murmansk	19 Oct – Murmansk 20 Nov	12 26
Golden Suek	DNV	225m LOA, 32.2m beam	1C	East to West West to East	28 Sep 18 Oct - Murmansk	10 Oct – Murmansk 20 Nov	14 34

- NSR Boundaries: East = Diomede Island and West = 50º Longitude
- Observations:
  - Golden Suek and Golden Pearl transits East to West ≈ 13 days
  - Stuck ships transits = 22-34 days

Where were the Sticking Points

- Who got held up (speed, <≈3 knots), Where and When

Name	Delay date(s)	Delay Duration	Location	Comment
Admiral Schmidt (PC6)	30 Oct 3/4 Nov 6/7 Nov	4 hrs 12 hrs 9 hrs	77.3, 101.5 (Strait Kara & Laptev Seas) 73.1, 162 (East Siberia Sea) 70.6, 169.5 (East Siberia Sea)	Transit: Baffinland to Asia (loaded 12-14 Oct) Decision date: 4 Oct (south of Iceland)
Nordic Nuluujaak (1A)	30 Oct to 13 Nov	325 hrs	75.3, 155.6 (East Siberian Sea)	Transit: Baffinland to Asia (loaded 8-10 Oct) Decision date: 17 Oct (south of Iceland)
Nordic Qinngua (1A)	31 Oct 7 Nov 9 - 13 Nov	13 hrs 7 hrs 120 hrs	77.0, 72.6 (Kara Sea) 76.0, 151.7 (Laptev / East Siberian Sea) 75.9, 158.5 (East Siberian Sea)	Transit: Baffinland to Asia (loaded 8-11 Oct) Decision date: 24 Oct (north of Iceland).
Golden Pearl (1C)	30 – 31 Oct 1 -3 Nov 8 - 13 Nov	11 hrs 48 hrs 105 hrs	76.5, 97.5 (eastern Kara Sea) 77.4, 102.0 (Strait Kara & Laptev Seas) 75.9, 158.5 (East Siberian Sea)	Shanghai to Murmansk and back to Shanghai Loaded in Murmansk 19-25 Oct Decision Date: 25 Oct (Murmansk)
Golden Suek (1C)	28 Oct to 1 Nov 2 - 13 Nov	100 hrs 270 hrs	76.2, 148.2 (Laptev / East Siberian Sea) 75.6, 159.5 (East Siberian Sea)	Shanghai to Murmansk and back to Shanghai Loaded in Murmansk 11-18 Oct Decision Date: 18 Oct (Murmansk)

POLARIS

- Risk evaluated based on Ice Class & ice regime encountered
- Outcome is a ***single value*** Risk Index
- RIO = $(C_1 x RV_1)+(C_2 x RV_2)+(C_3 x RV_3)+(C_4 x RV_4)$
  - $C_1 \ldots C_4$ concentrations of ice types within ice regime (mixture of different ice types and ice free water)
  - $RV_1 \ldots RV_4$ Risk Values (RV) for each ice class

RIO_{SHIP}	Ice classes PC1-PC7	Ice classes below PC 7	Color Code
20 ≤ RIO	Normal operation	Normal operation	
10 ≤ RIO < 20			
0 ≤ RIO < 10			
-10 ≤ RIO < 0	Elevated operational risk	Operation subject to special consideration	
-20 ≤ RIO < -10	Operation subject to special consideration	Operation subject to special consideration	
-30 ≤ RIO < -20			

Increasing ice thickness (severity)

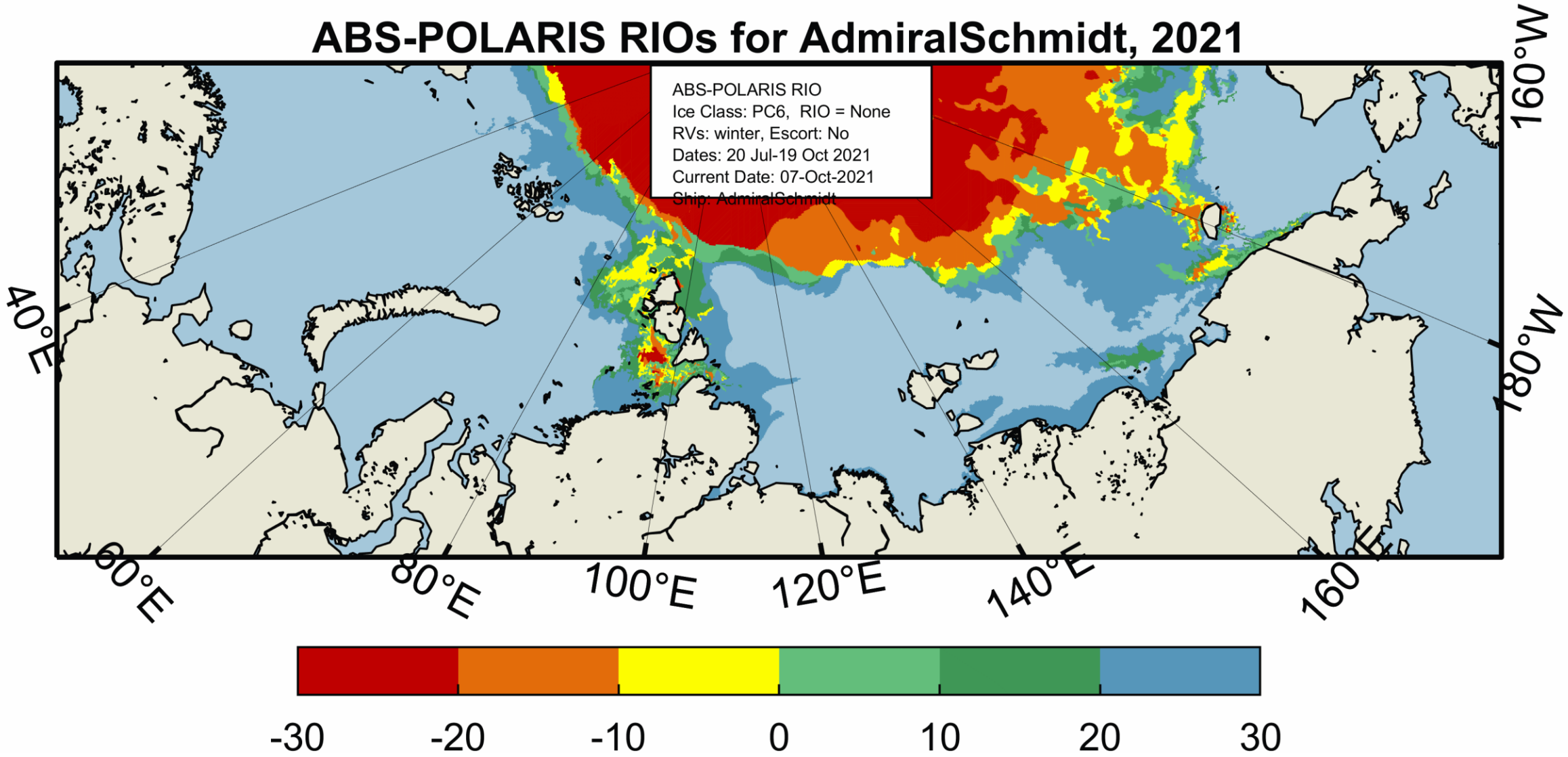
Winter Risk Values (RVs)

Polar Ship Category	ICE CLASS	ICE FREE --	NEW ICE 0-10 cm	GREY ICE 10-15 cm	GREY WHITE ICE 15-30 cm	THIN FIRST YEAR 1ST STAGE 30-50 cm	THIN FIRST YEAR 2ND STAGE 50-70 cm	MEDIUM FIRST YEAR 1ST STAGE 70-95 cm	MEDIUM FIRST YEAR 2ND STAGE 95-120 cm	THICK FIRST YEAR 120-200 cm	SECOND YEAR 200-250 cm	LIGHT MULTI YEAR 250-300 cm	HEAVY MULTI YEAR 300+ cm
A	PC1	3	3	3	3	2	2	2	2	2	2	1	1
	PC2	3	3	3	3	2	2	2	2	2	1	1	0
	PC3	3	3	3	3	2	2	2	2	2	1	0	-1
	PC4	3	3	3	3	2	2	2	2	1	0	-1	-2
	PC5	3	3	3	2	2	2	1	1	0	-1	-2	-2
B	PC6	3	2	2	2	2	1	1	0	-1	-2	-3	-3
	PC7	3	2	2	2	1	1	0	-1	-2	-3	-3	-3
C	IAA	3	2	2	2	2	1	0	-1	-2	-3	-4	-4
	IA	3	2	2	2	1	0	-1	-2	-3	-4	-5	-5
	IB	3	2	2	1	0	-1	-2	-3	-4	-5	-6	-6
	IC	3	2	1	0	-1	-2	-3	-4	-5	-6	-7	-8
	No Ice Class	3	1	0	-1	-2	-3	-4	-5	-6	-7	-8	-8

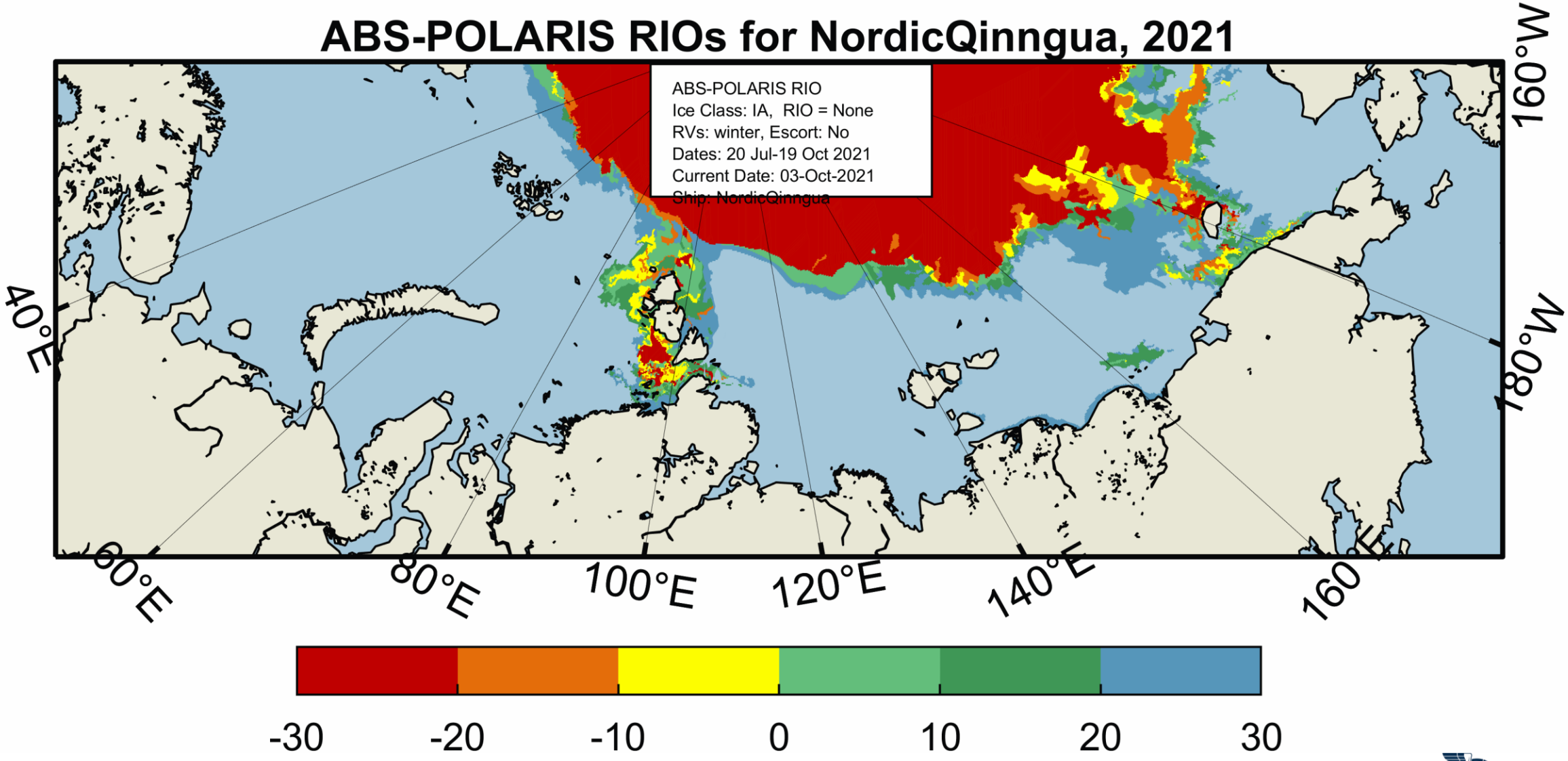
Decreasing ice class

Increased Risk

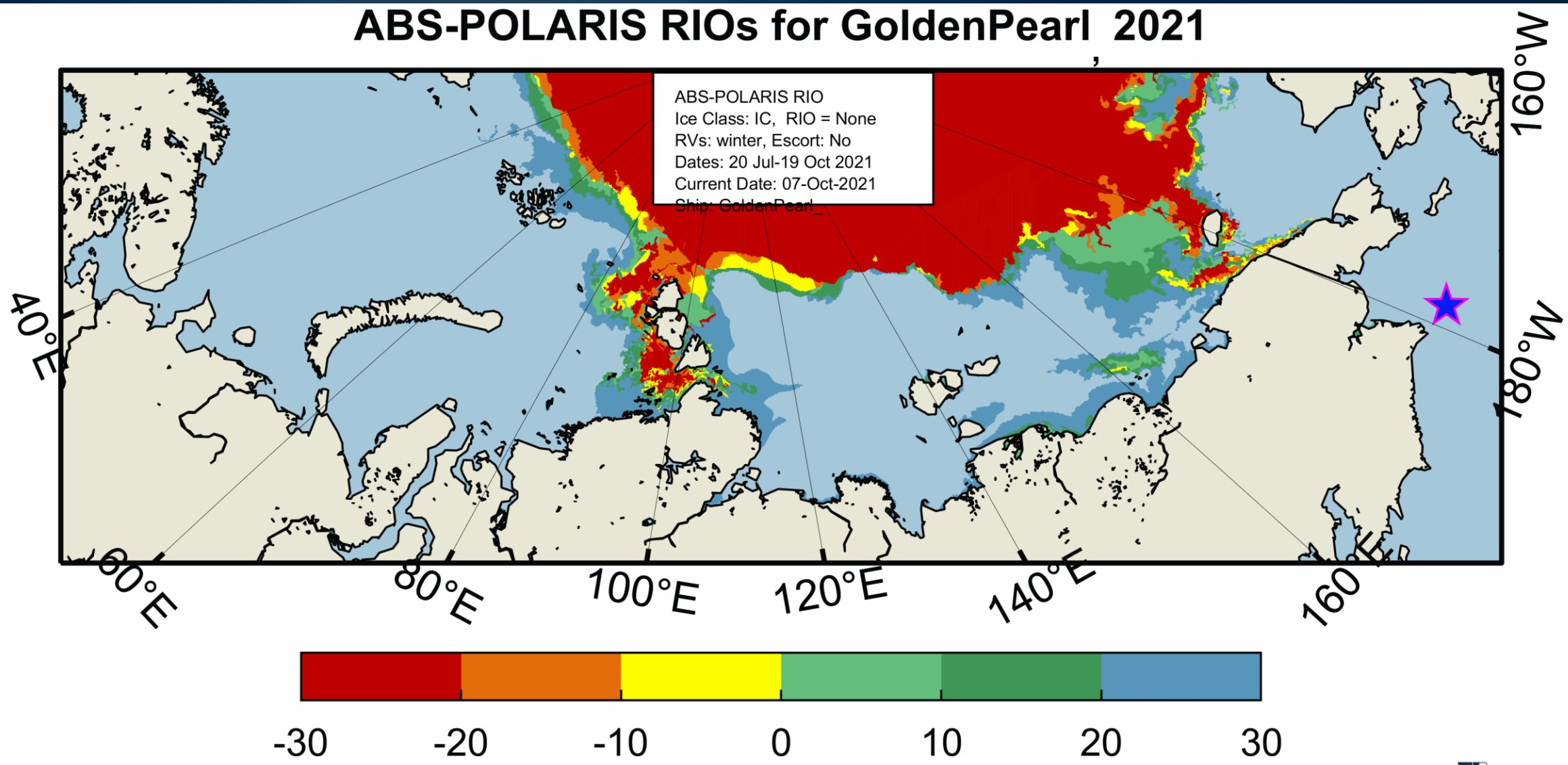
ADMIRAL SCHMIDT (PC6)



NORDIC QINNGUA (1A)



GOLDEN PEARL (1C)

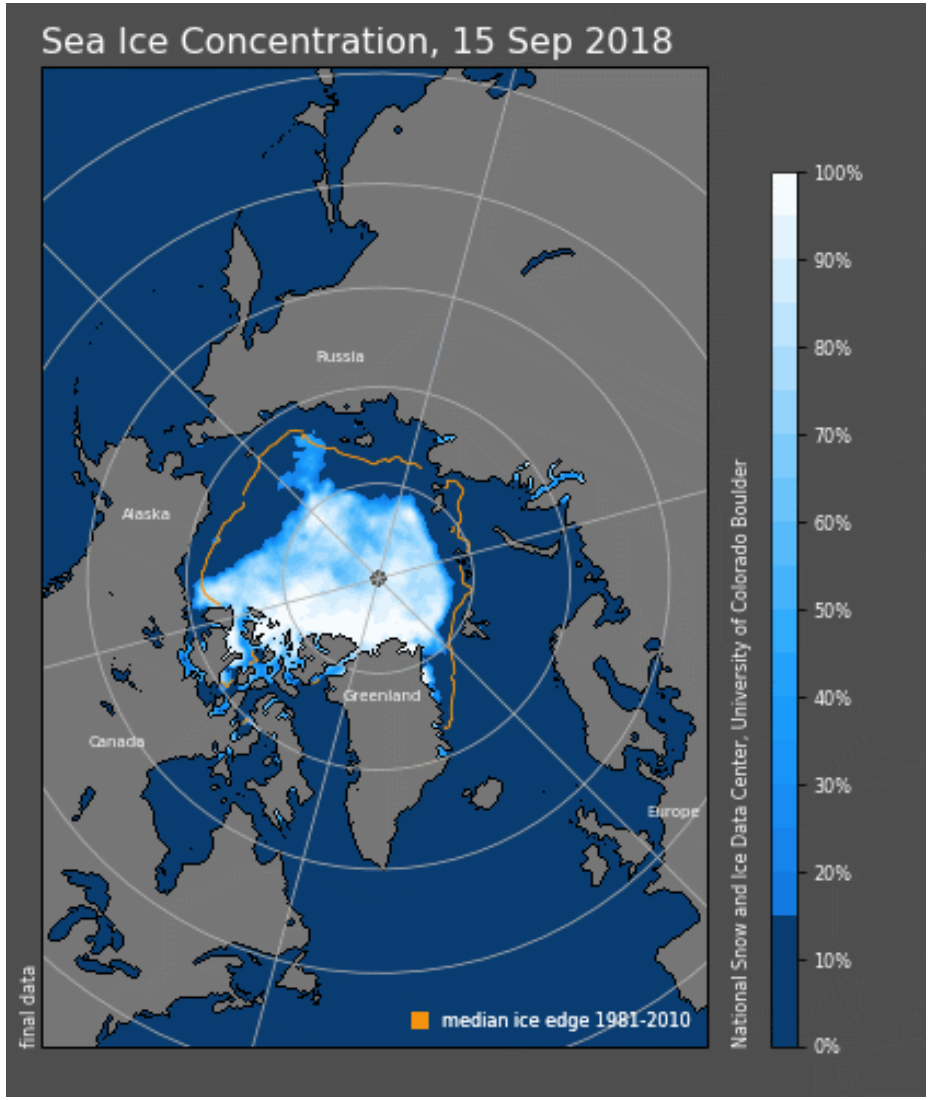


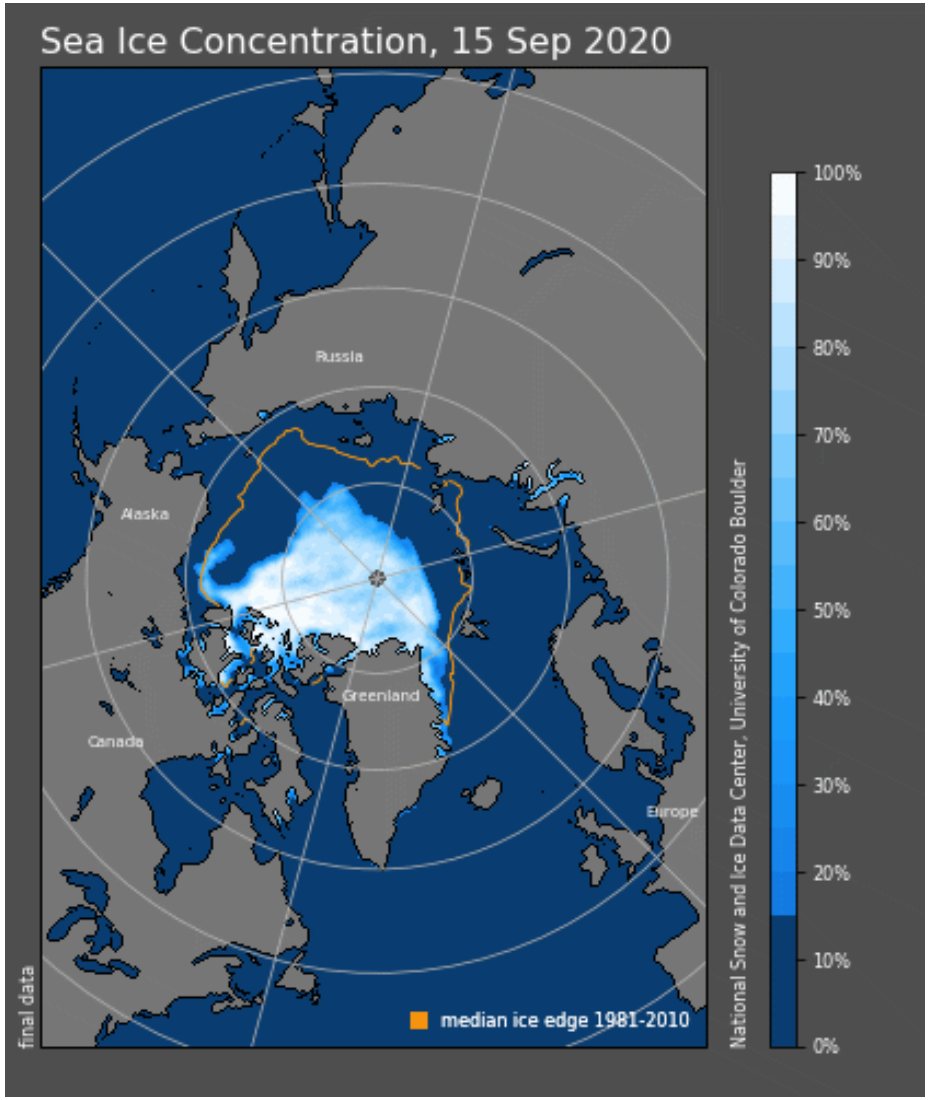
Was this “Event” Foreseeable?

- Observations:
  - Golden Suek (1C) and Golden Pearl (1C) transits East to West ≈12 days
  - Stuck ships transits ≈ 20 to 25 days
  - Icebreaker escort arranged to transit through the East Siberian Sea (14/15 Nov)
- ABS POLARIS videos reveal
  - PC6 ship although making a near identical voyage to the 1A ships did not experience significant delay
  - Ships were operating in ice regimes beyond that intended under IMO POLARIS
  - Did the safety regime fail? Damage? Pollution incident? Human injury?
- Was this foreseeable? Did Voyage Planning Fail?
  - Historical ice data may show trends
  - Air temperature trends
  - Prediction models from Ice Services

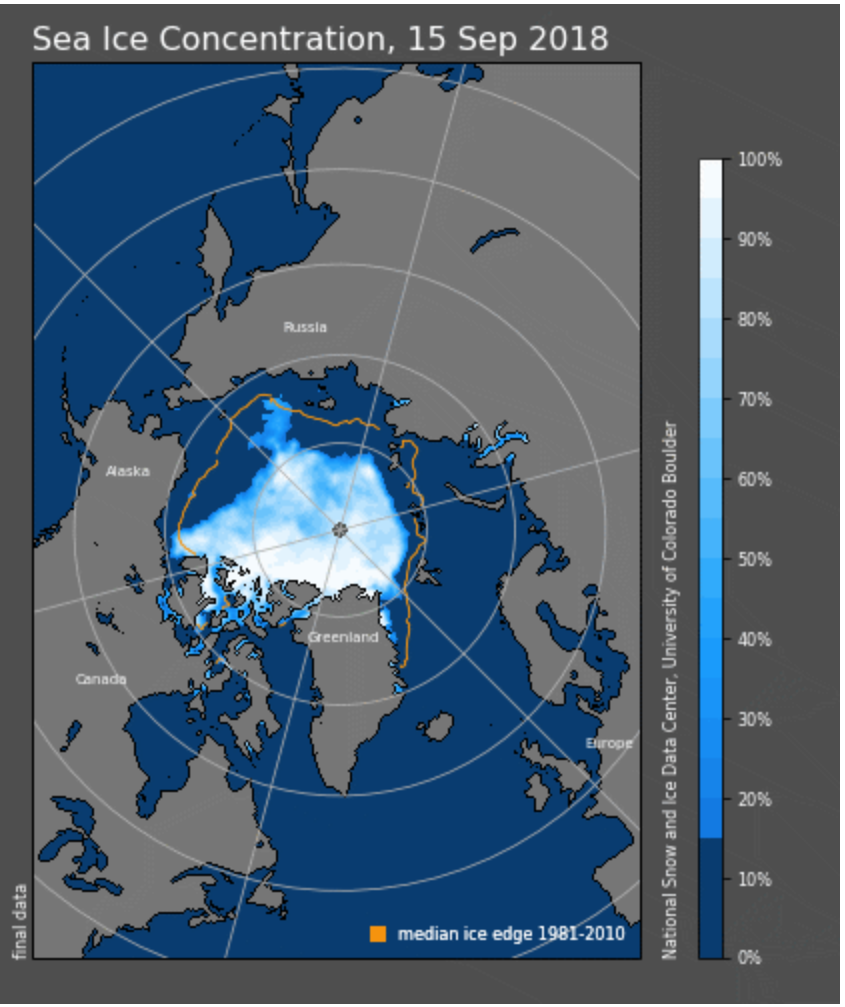
Was this “Event” Foreseeable?

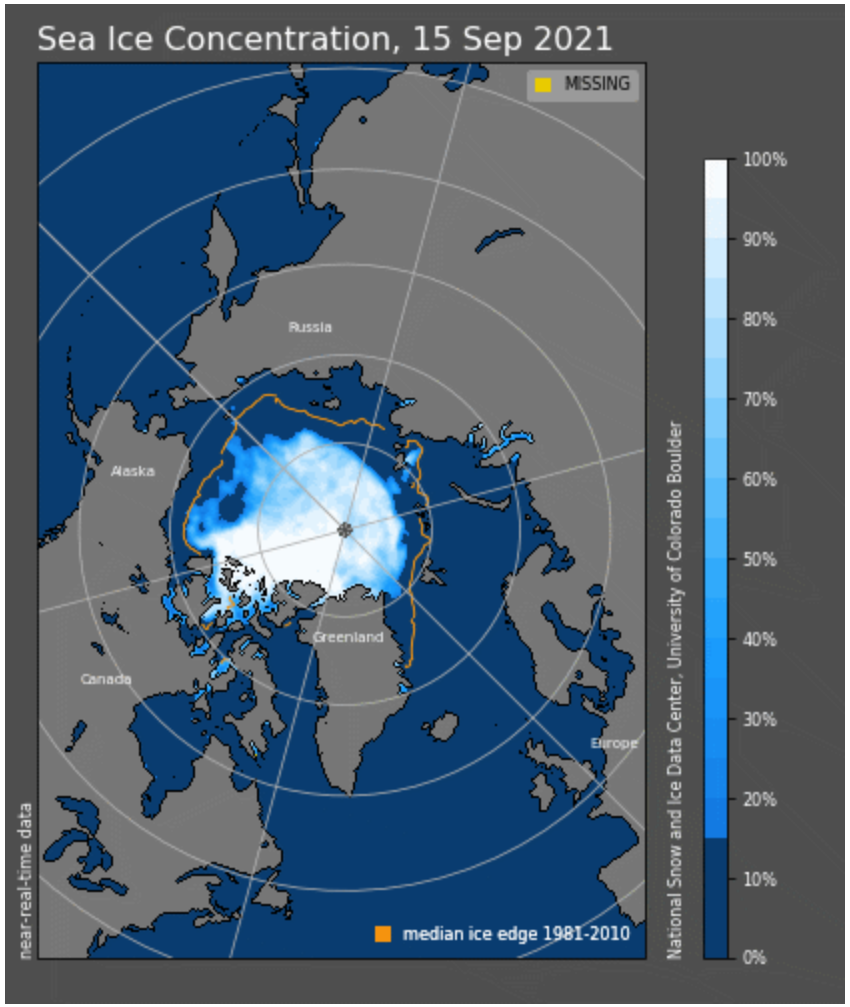
- Watch for “Decision Dates”
  - Admiral Schmidt 4 Oct
  - Golden Pearl 25 Oct
  - Golden Suek 18 Oct
  - Nordic Qinngua 24 Oct
  - Nordic Nuluujaak 17 Oct
- 2018 shows
  - “tongue” in East Siberian Sea significant 20-22 Oct
  - closure between Kara and Laptev Seas 26-28 Oct
- 2020 very open
- NSR is where sea ice extent change is most notable compared to long term median ice edge

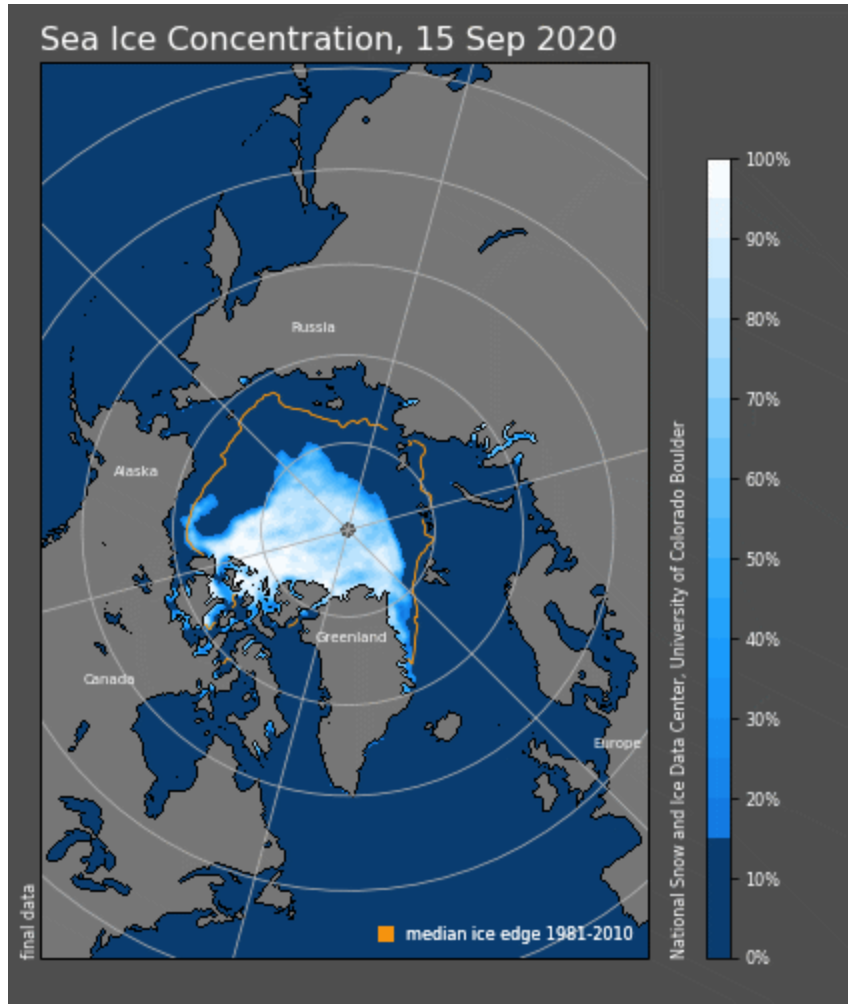




Was this “Event” Foreseeable?



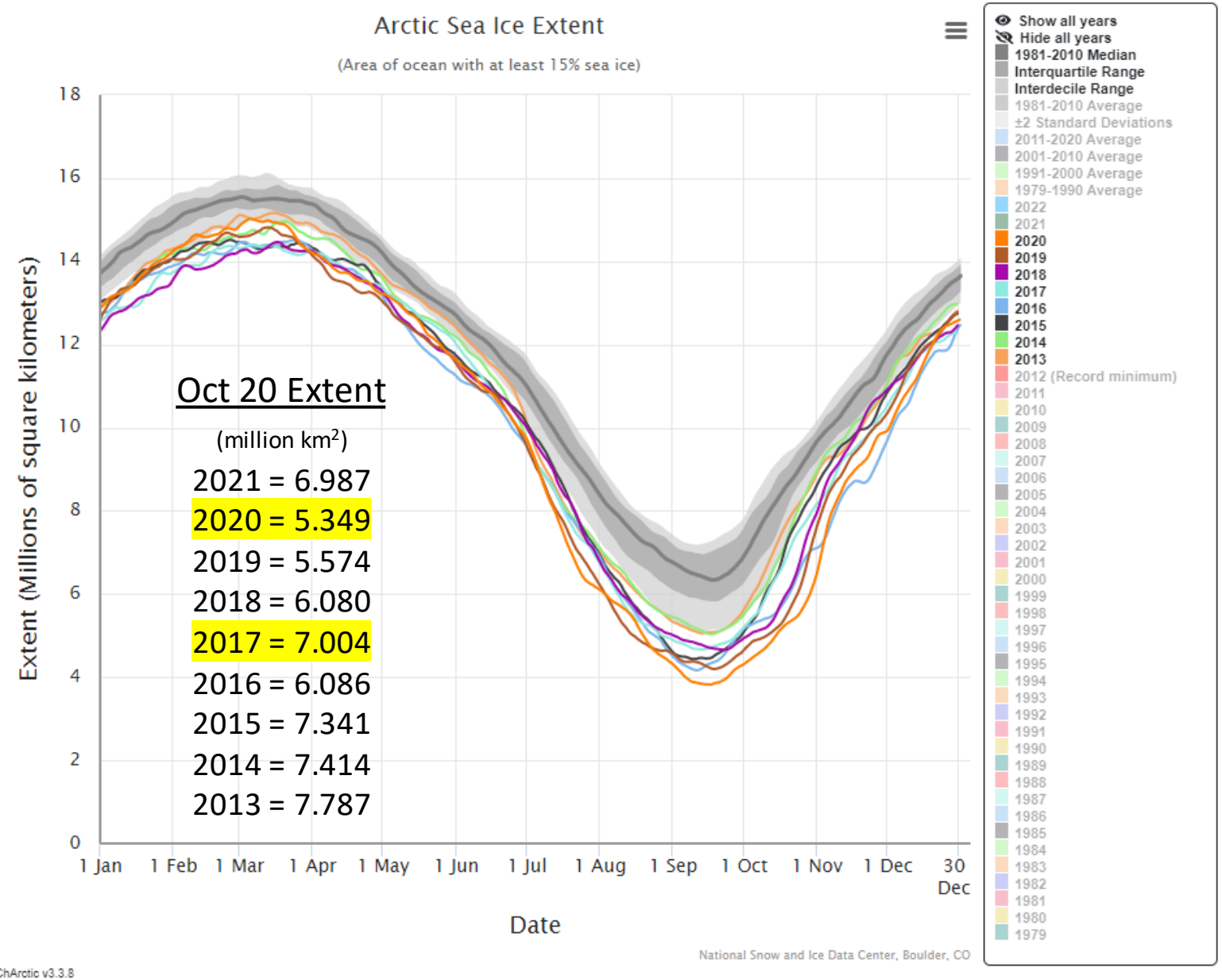




Images Courtesy “National Snow and Ice Data Center, Boulder Colorado

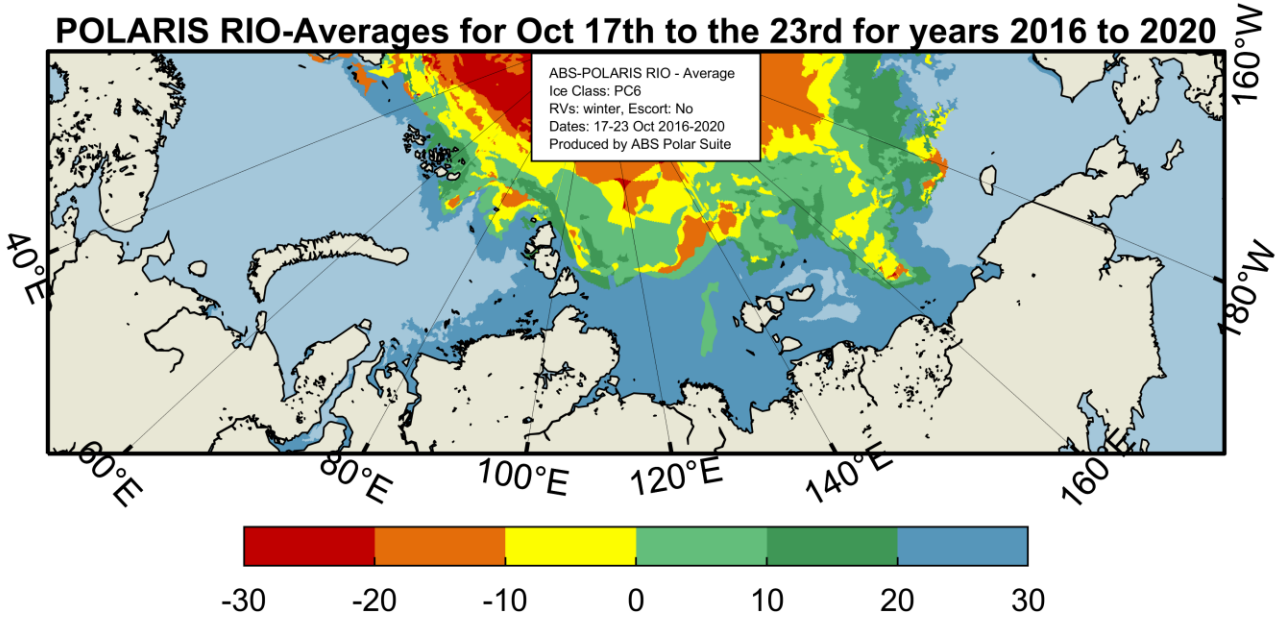
Polar Code Operational Assessment & Voyage Planning

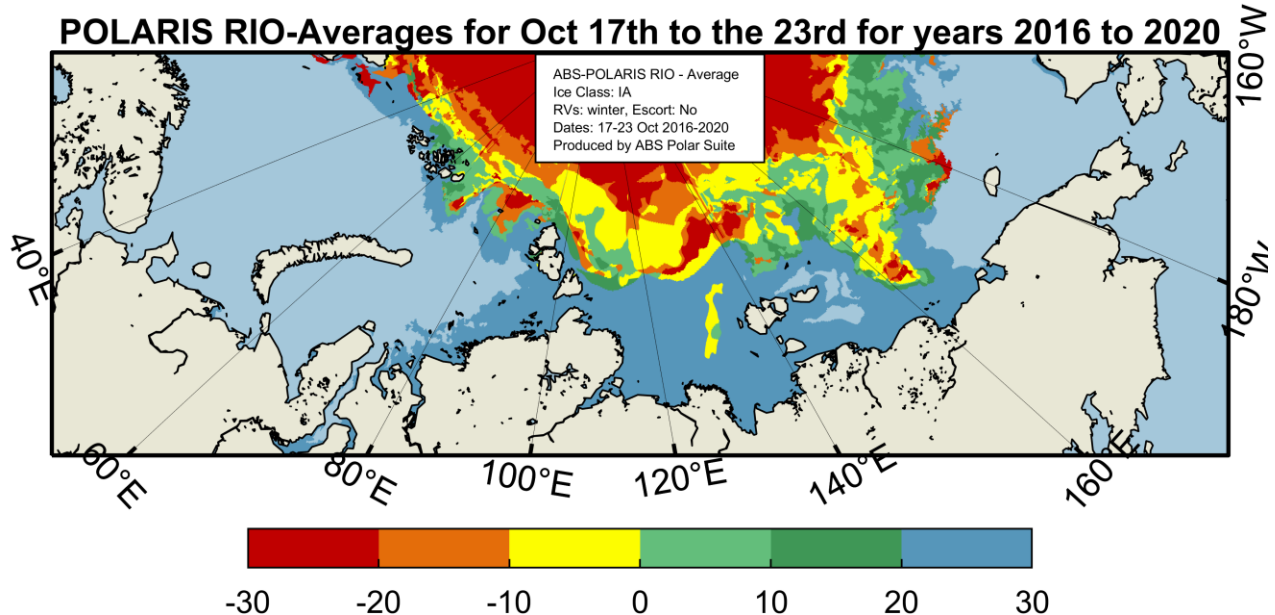
- For Polar Code Operational Assessments:
  - Review historical ice data
  - Review air temperature data
- Voyage planning is required
- Requirement to receive ice information on a regular basis when in Polar waters
- Who is making the strategic chartering decisions? Are they well informed? Sufficiently knowledgeable? 2020 was good, "let's do it again!"
- Operational decisions (tactical) responsibility of the Master

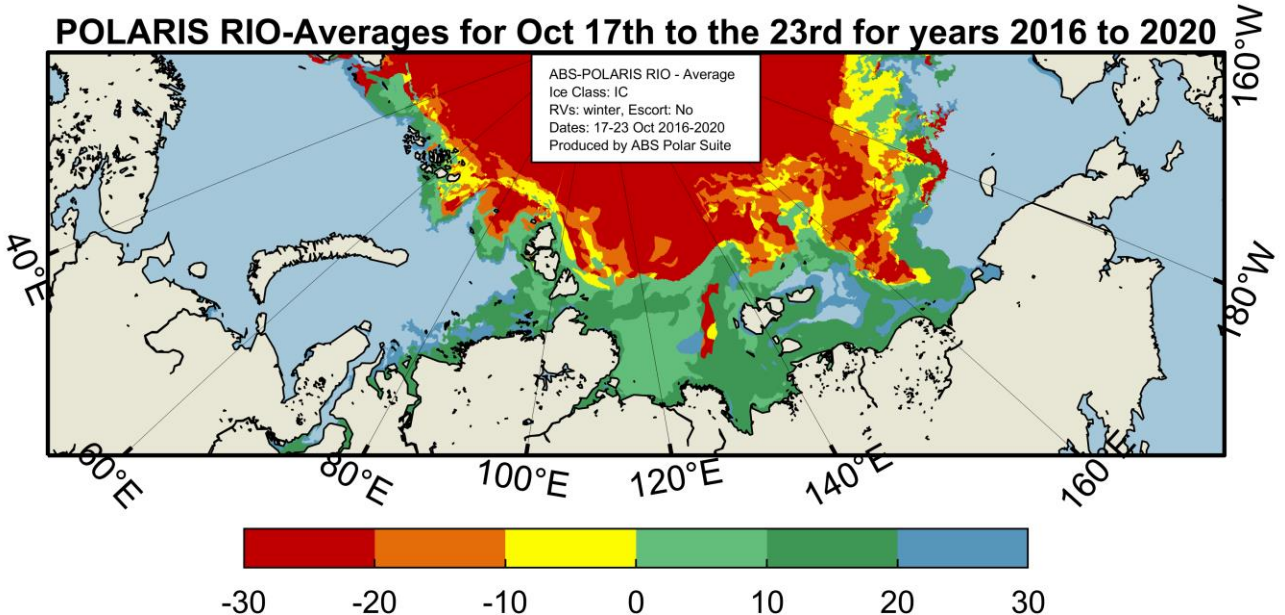


ABS POLARIS – Historical Data

- For Polar Code Operation Assessments:
  - Typically use latest five years of data, conservatively averaged
- Decisions dates around 20 Oct
  - PC6 should anticipate ice along route but shouldn't be a significant challenge
  - 1A should anticipate presence of challenging ice, route through likely
  - 1C should anticipate presence of very significant ice, arrange icebreaker escort

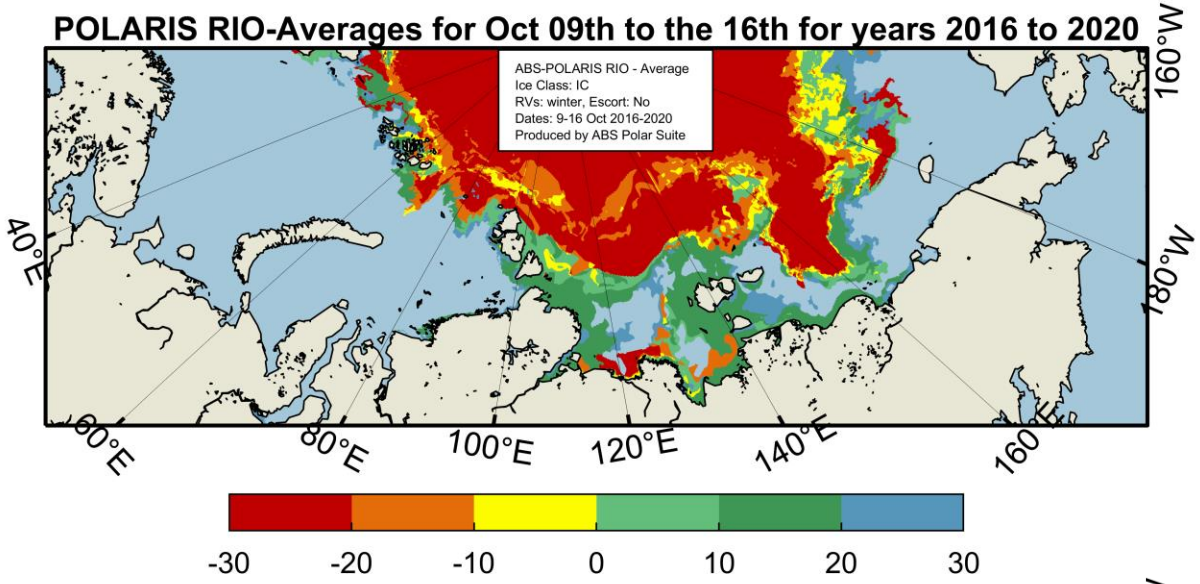


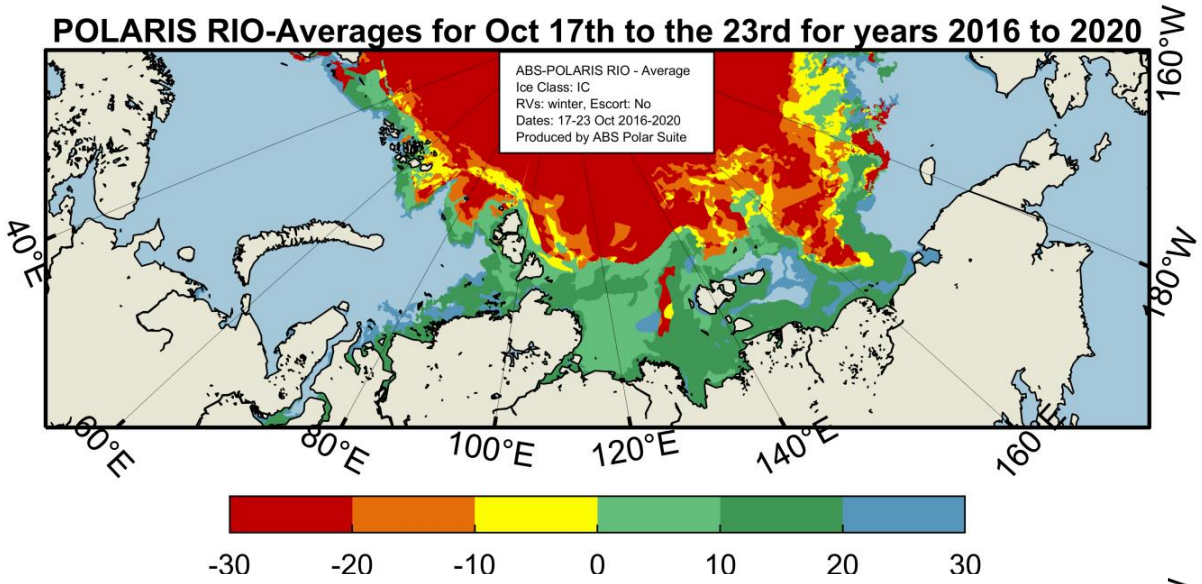


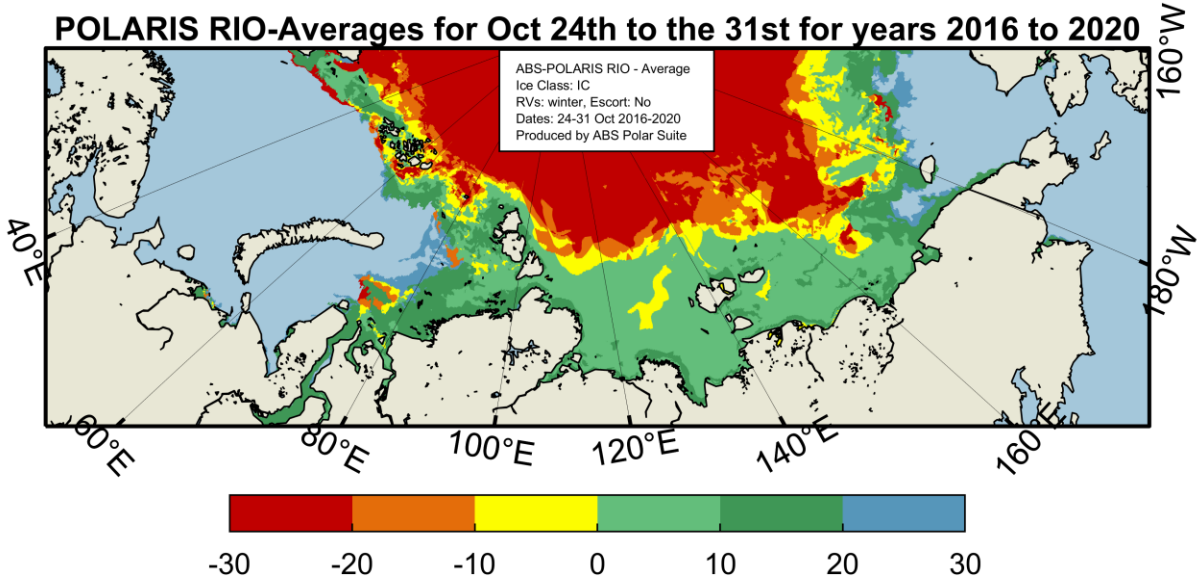


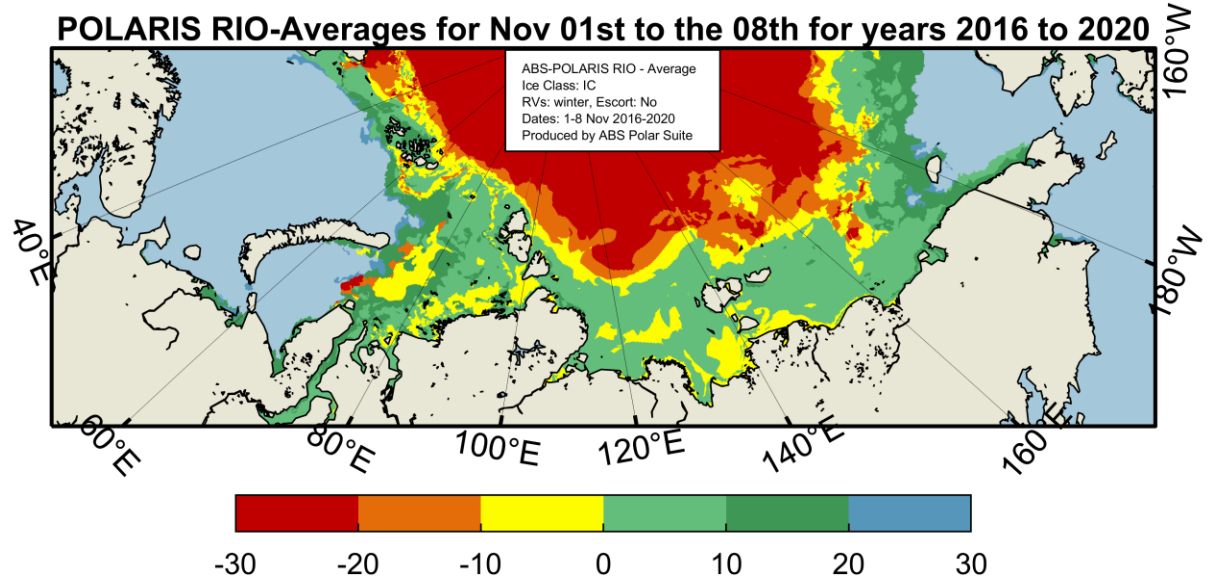
ABS POLARIS – Historical Data (1C Focus)

- Decision dates for the Murmansk to Shanghai leg were 18 and 25 Oct









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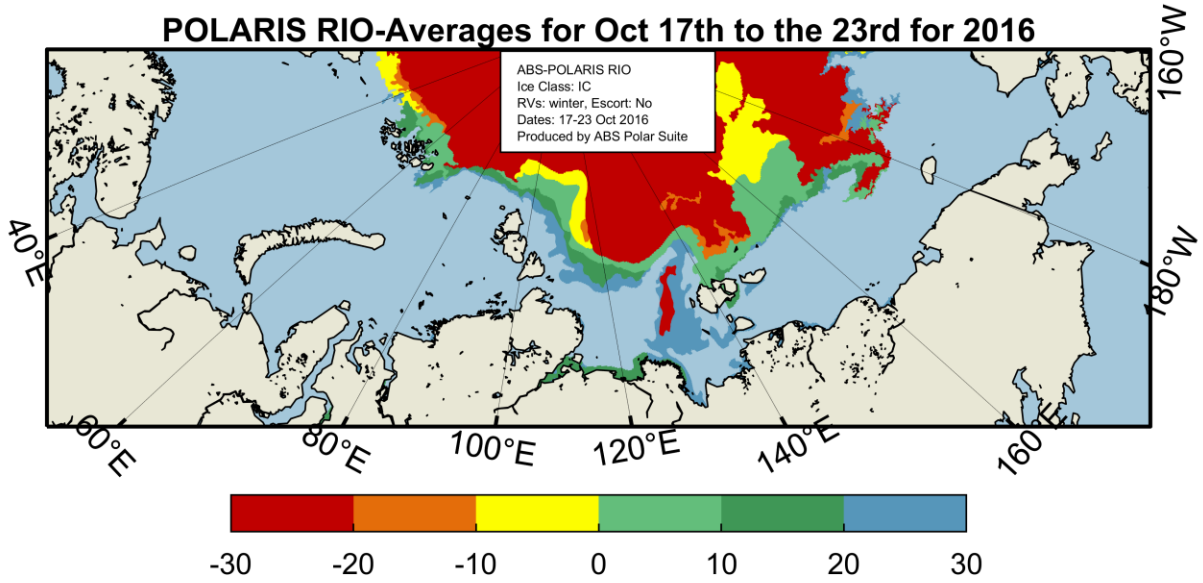
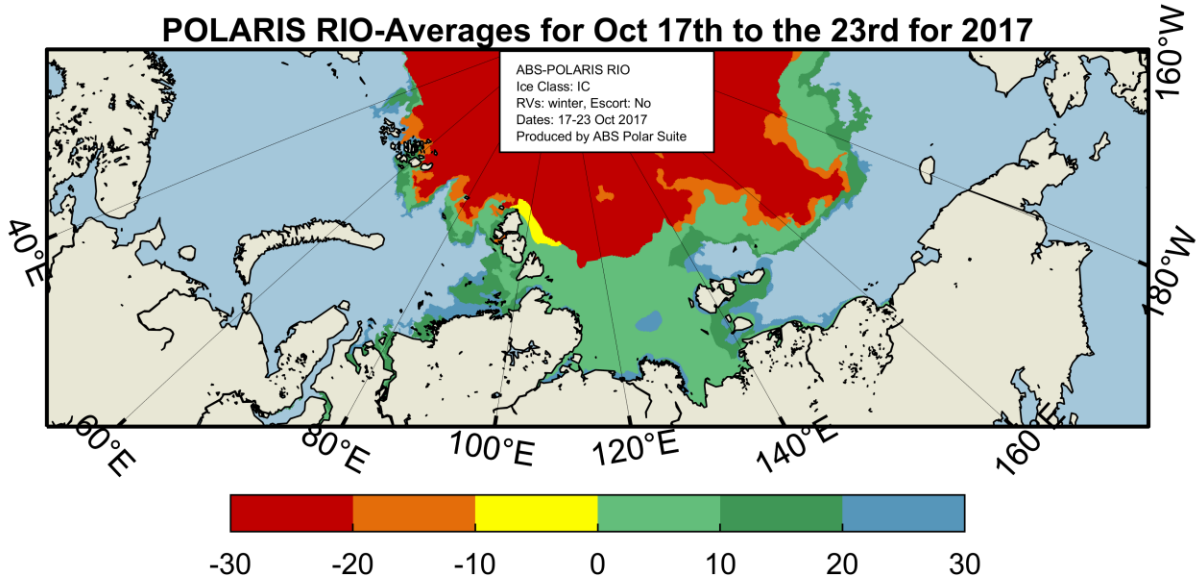
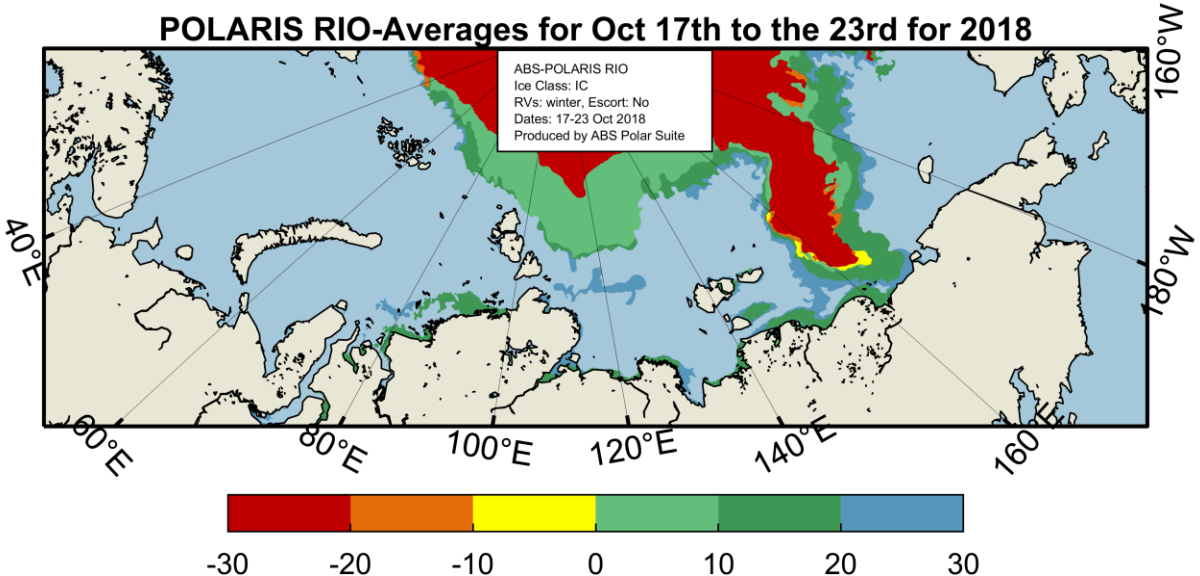
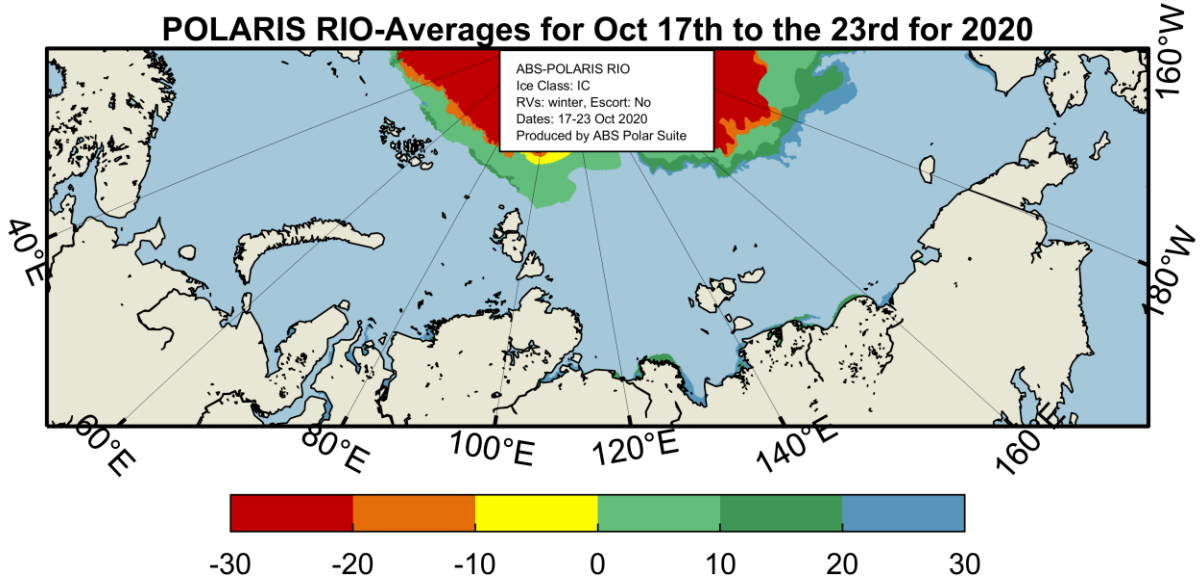


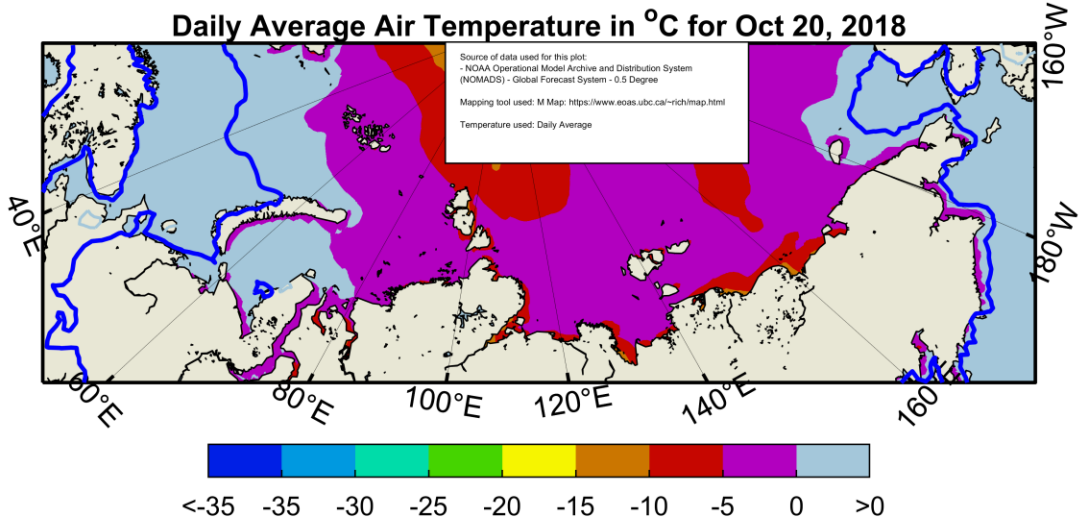


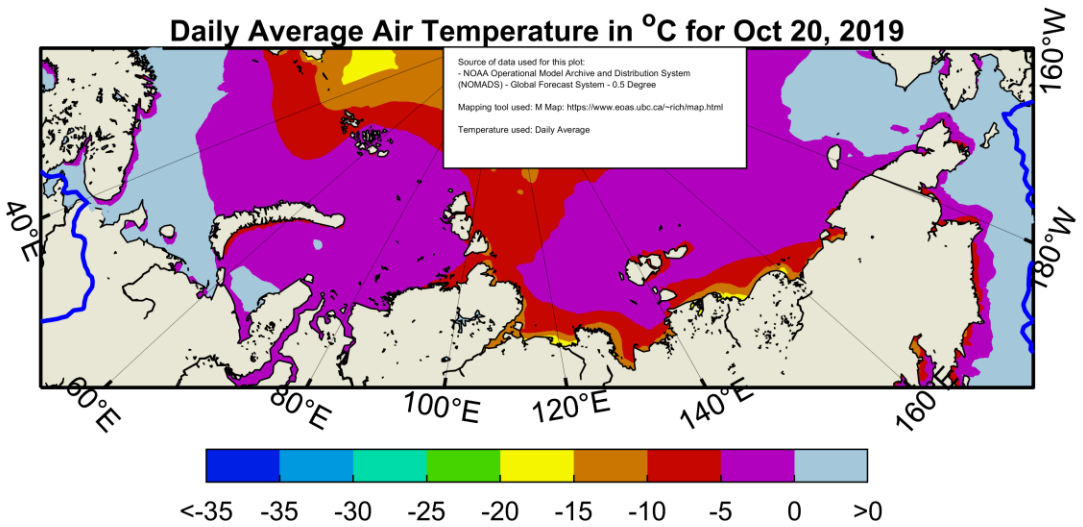


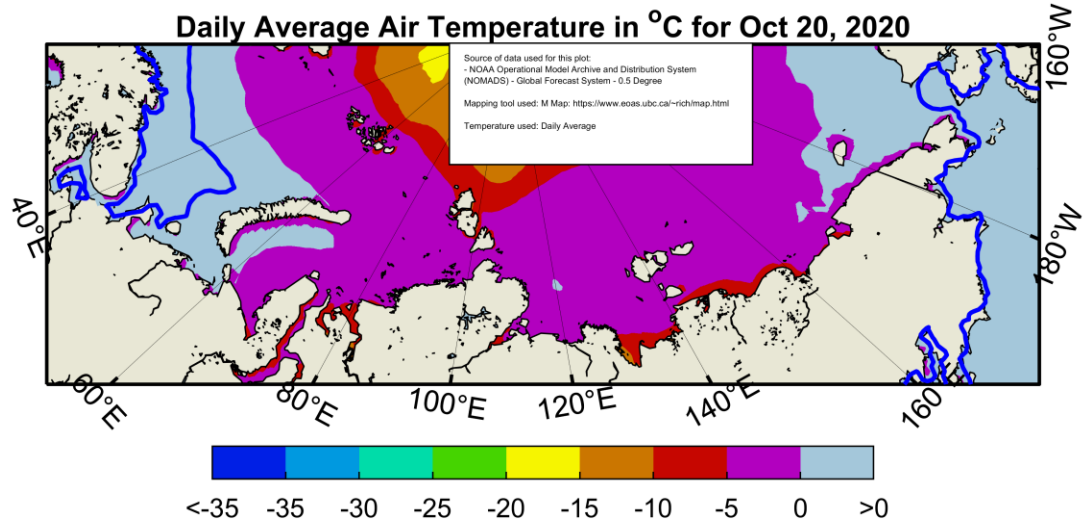


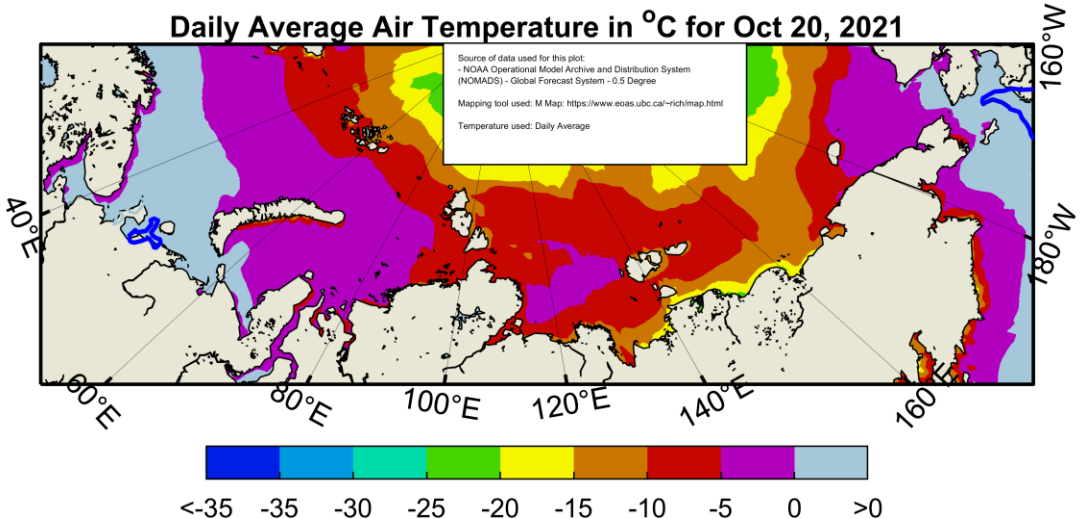
But 2021 was worse than “typical” – Foreseeable?

- Leading indicator for sea ice to form is cold air temperatures
- On 20 Oct “Decision Day”, 2021 temperature is indicating that sea ice will be growing very rapidly compared to recent years



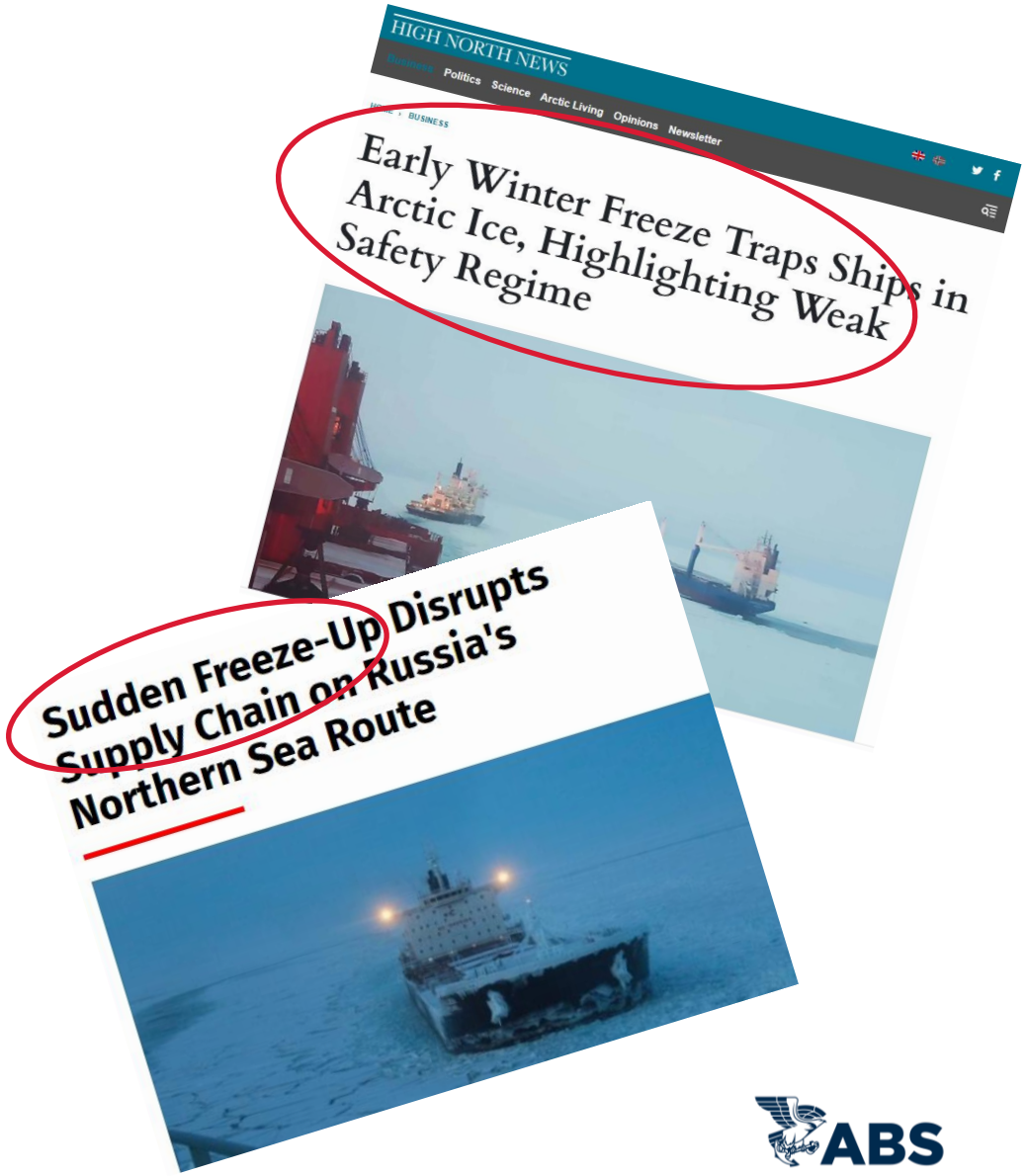






Conclusions

- Voyage planning is a critical component of safe Polar Shipping
- Data is available to support decision making
- IMO POLARIS methodology appears sound
- Year on Year variability is significant, especially along the NSR
- Are chartering opportunities / decisions being made with the correct and sufficiently detailed information?
- Were some poor decision made? Likely
- Is the Safety Regime weak - NO



Thank You

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