

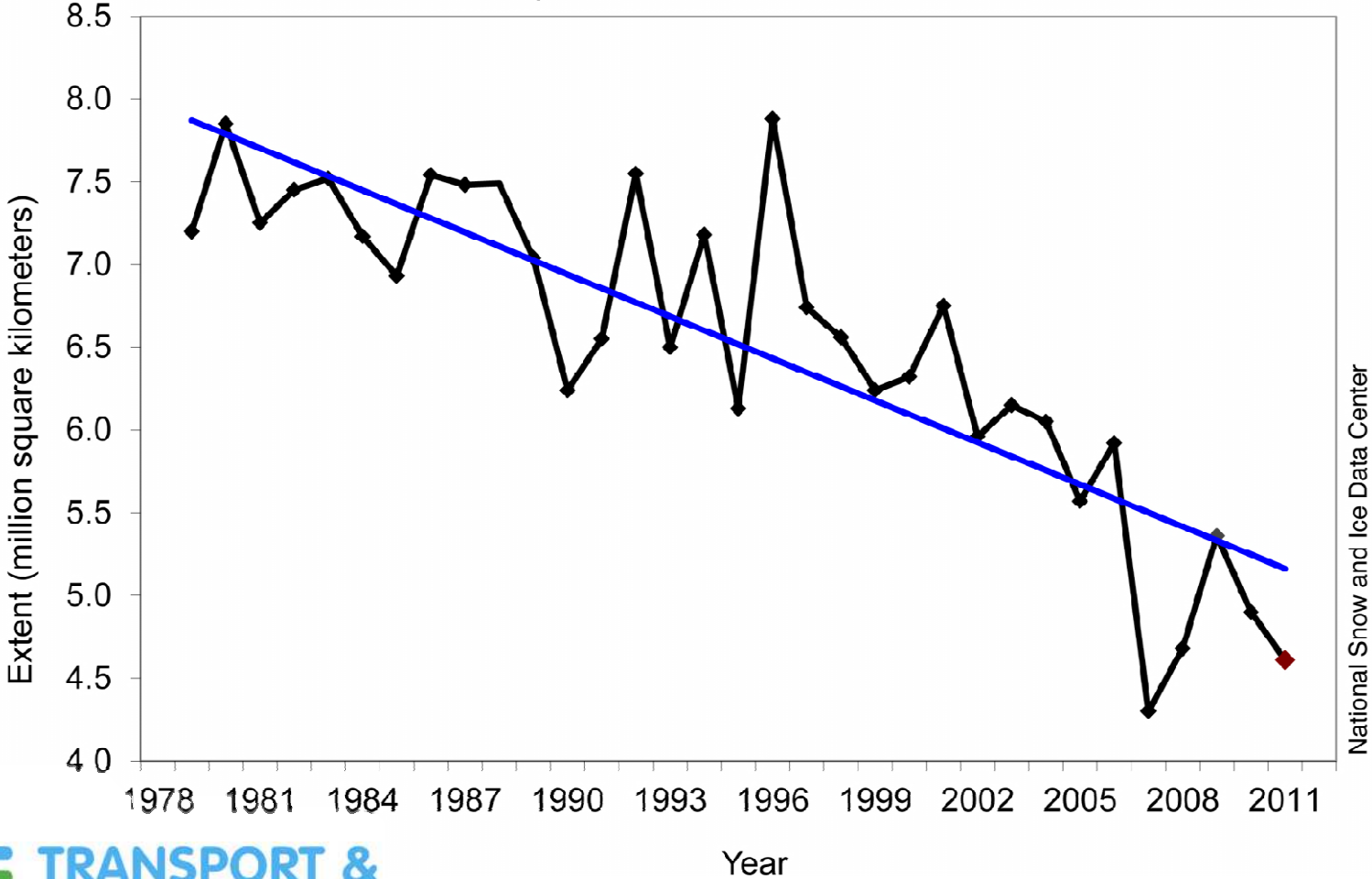
# Shipping in the Vulnerable Arctic



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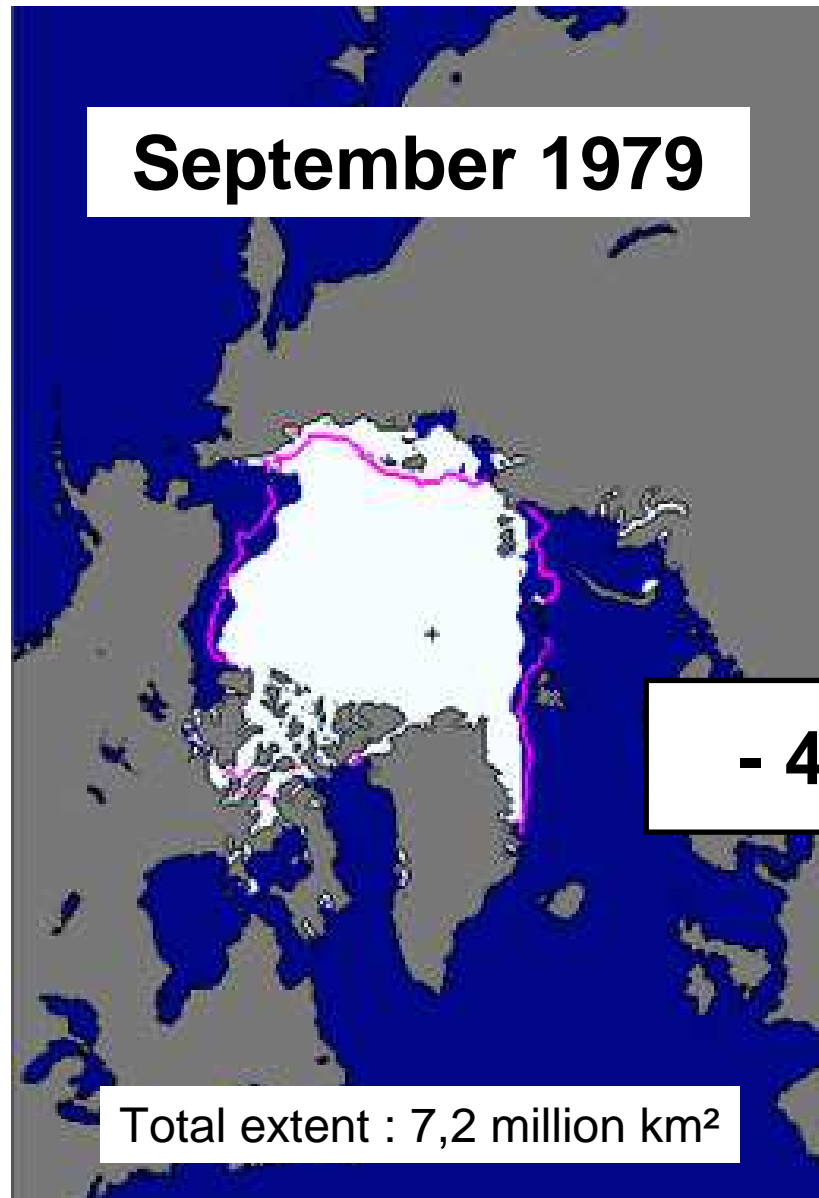
# September Sea Ice Extent

Average Monthly Arctic Sea Ice Extent  
September 1979 to 2011



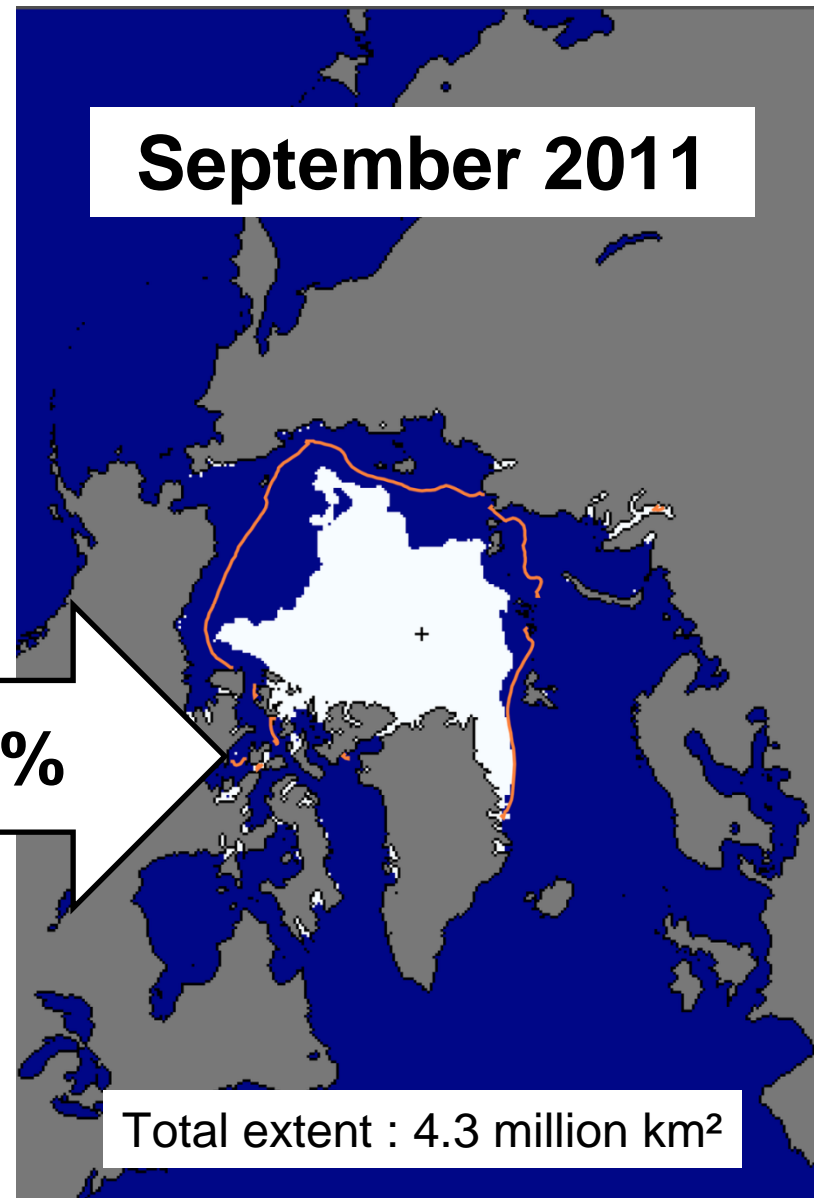
National Snow and Ice Data Center

**September 1979**



Total extent : 7,2 million km<sup>2</sup>

**September 2011**

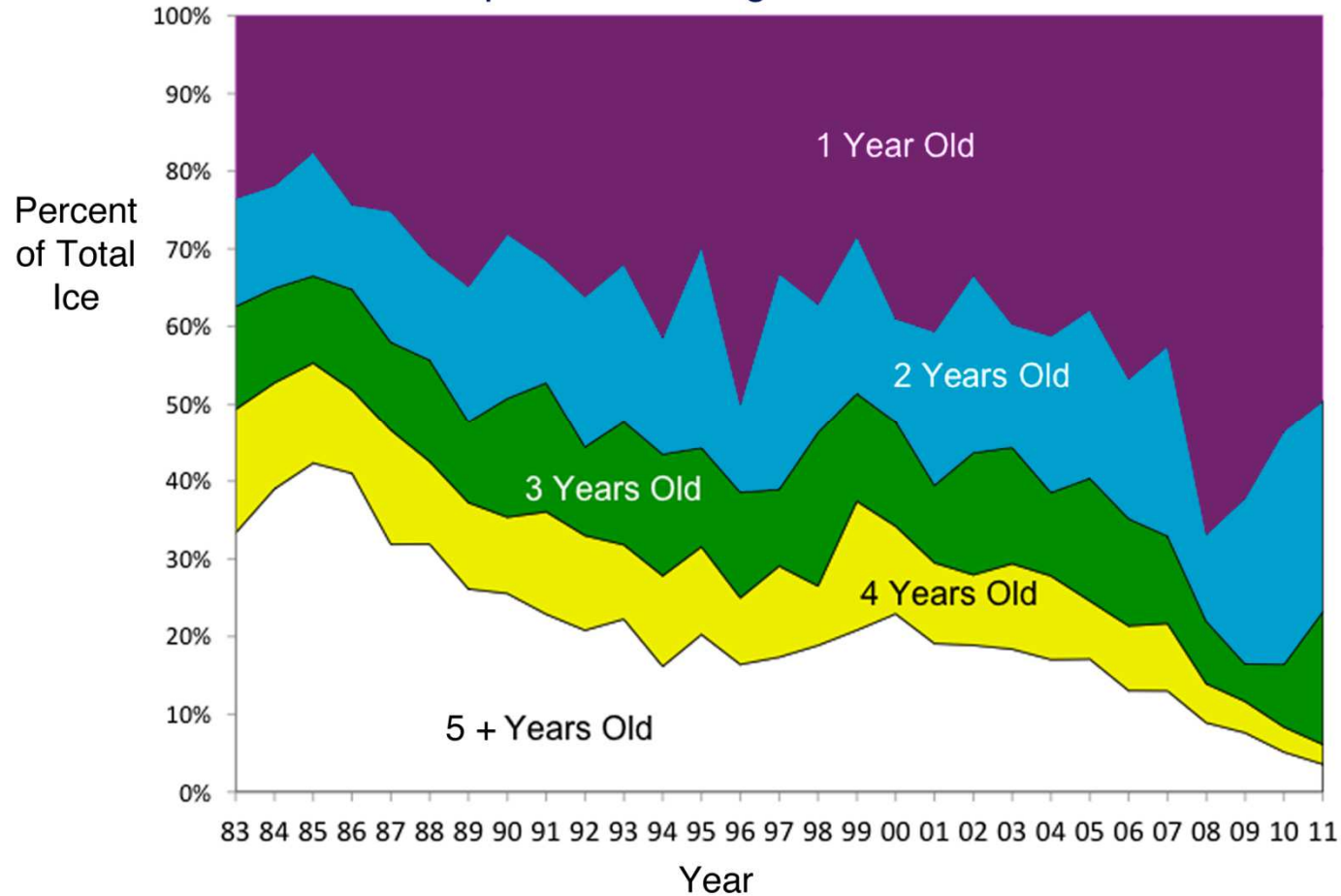


Total extent : 4.3 million km<sup>2</sup>

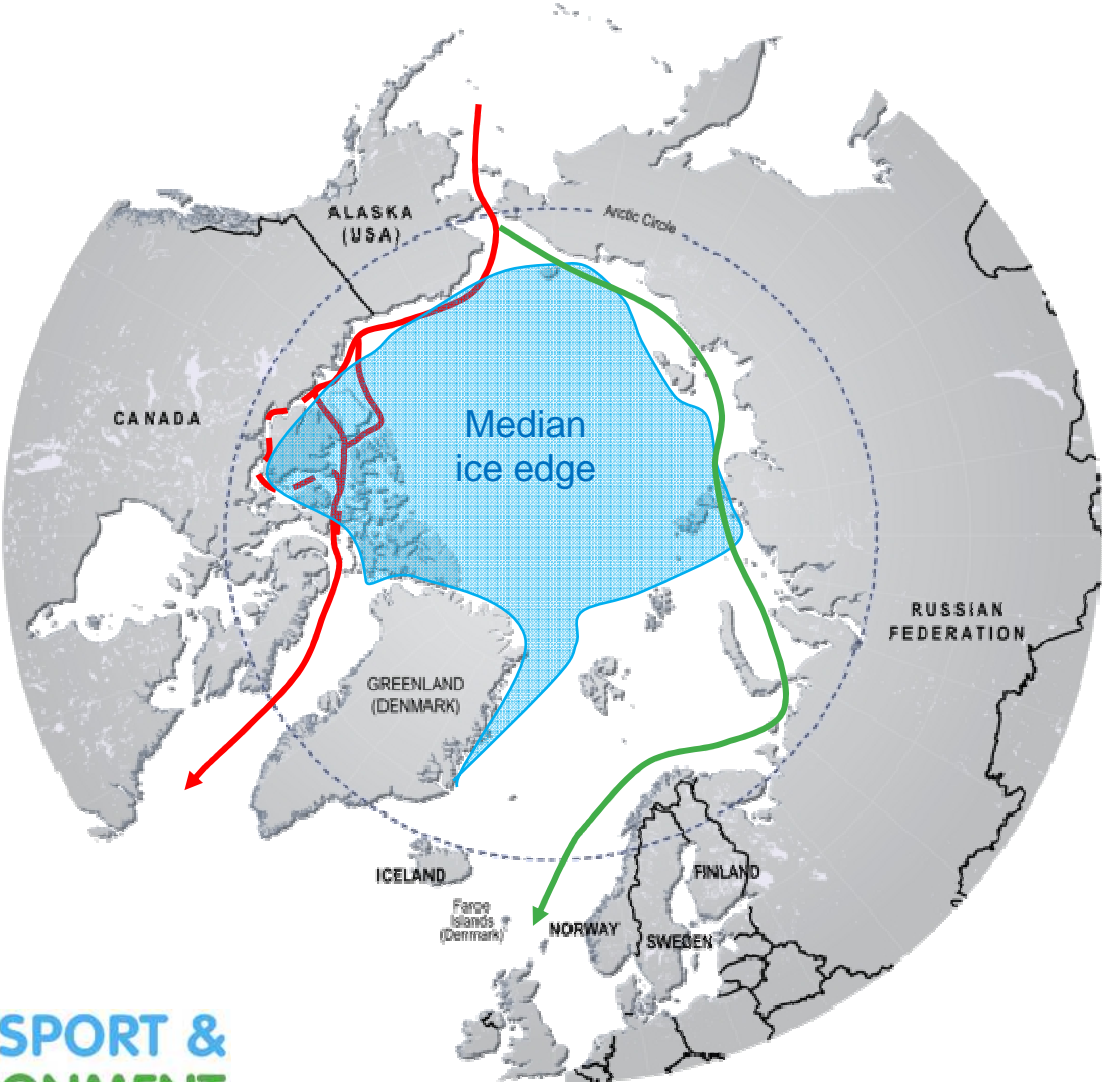
**- 40 %**

# Arctic Ice Age Change

September Ice Age: 1983 to 2011



# Arctic maritime routes



# Ships movements in the Arctic

**Table 1.** 2004 Ship Traffic by Type and Season Reported by the Arctic Marine Shipping Assessment (Arctic Council et al., 2009).

Ship Type	Annual Trips	Season	Seasonal Trips
Bulk Trips	1052	Winter (Dec–Feb)	3072
Container Trips	2096		
General Cargo Trips	1403	Spring (Mar–May)	3390
Government Vessel Trips	273		
OSV Trips	58	Summer (Jun–Aug)	4807
Passenger Vessel Trips	6972		
Tanker Trips	2827	Fall (Sep–Nov)	3729
Tug and Barge Trips	317		
Total Trips in 2004	14 998		14 998

Source; J J Corbett et al, Arctic Shipping Inventories and future Scenarios 2010

# Arctic Shipping Growth Scenarios

**Table 7.** In-Arctic Shipping Activity by Vessel Type Across Future Scenarios.

Vessel Category	2004 Pct of Total	2020 BAU Pct of Total	2030 BAU Pct of Total	2050 BAU Pct of Total	2020 Hi-G Pct of Total	2030 Hi-G Pct of Total	2050 Hi-G Pct of Total
Container Ship	21%	27%	34%	50%	31%	40%	61%
General Cargo Ship	18%	15%	13%	9%	15%	12%	8%
Bulk Ships	11%	11%	11%	10%	11%	10%	8%
Passenger Vessels	10%	9%	8%	6%	9%	8%	5%
Tanker	8%	13%	13%	11%	13%	12%	9%
Government Vessels	3%	3%	2%	2%	3%	2%	1%
Tug and Barge	0%	0%	0%	0%	0%	0%	0%
Offshore Service Vessel	0%	0%	0%	0%	0%	0%	0%
Transit Total	71%	77%	81%	88%	80%	85%	93%
Fishing <sup>a</sup>	29%	23%	19%	12%	20%	15%	7%

<sup>a</sup> Decline in fishing vessels and increase in transport vessels is attributed to growth scenarios by vessel type (see IMO study for discussion; Buhaug et al., 2009) and negligible change in fish stocks assumed for this work.

Source; J J Corbett et al, Arctic Shipping Inventories and future Scenarios 2010

# Arctic Tanker Traffic

September 2011; two thirds of ships transporting petroleum products and gas from Russia & High North called at EU ports.

Add in Norwegian ports and;

EU/NO account for 75% of port calls of oil and gas tankers from Arctic sea routes.

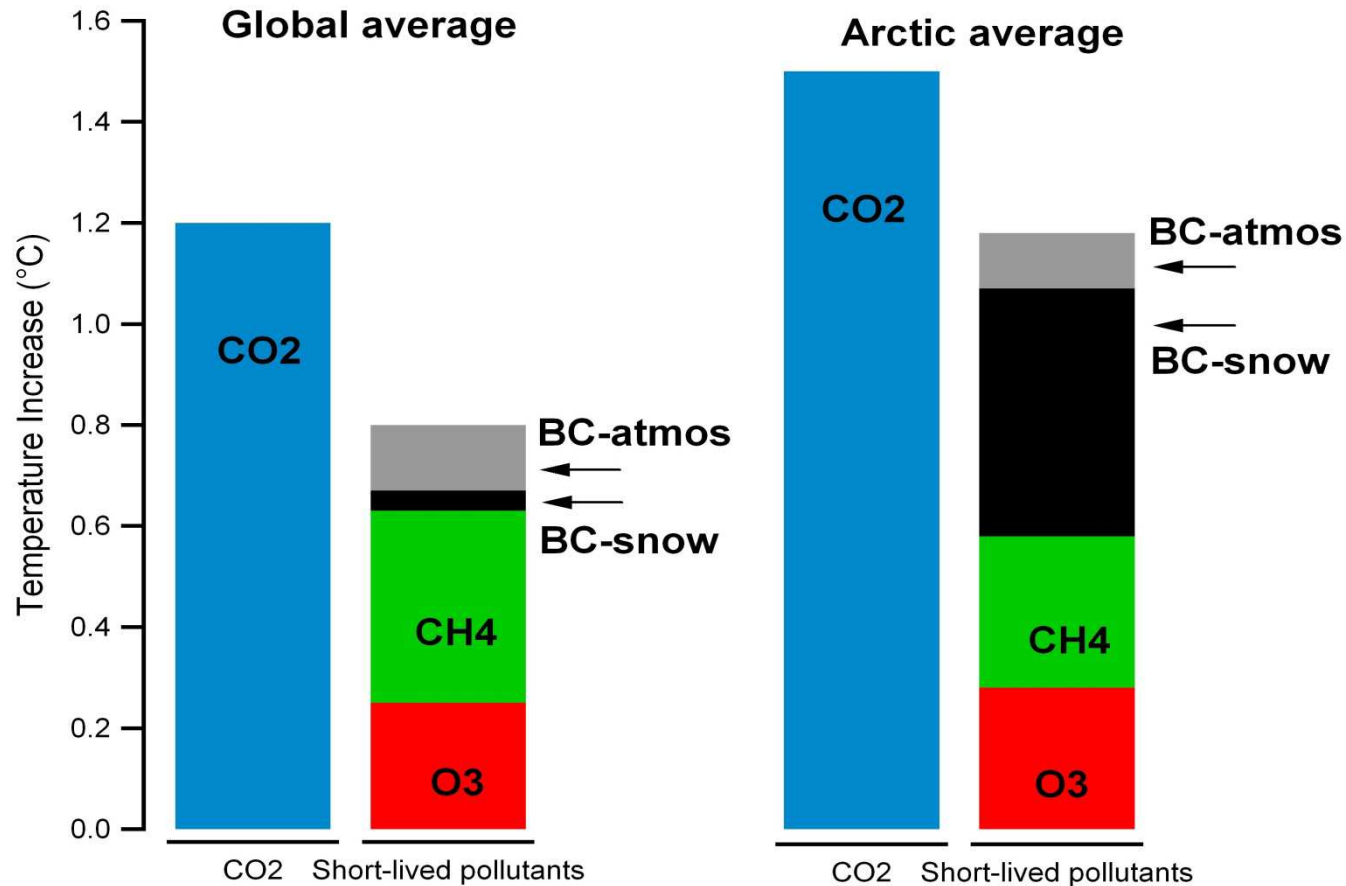
Source; Norwegian coastal authority

<http://www.kystverket.no/Om-Kystverket/Brosjyrer-skjema-og-andre-publikasjoner/Statistikk/>

# Shipping emissions in the Arctic

- Ships emit not only CO<sub>2</sub>,
- also other substances harmful to the Arctic
- air pollution
- Especially short-term climate forcers;
  - Black carbon, methane, ozone
- Danger of moving the emissions sources closer to this most sensitive environment

# What about black carbon?



Quinn, *Impact of Short-Lived Pollutants on Arctic Climate*,  
presented at AMAP, Oslo, September 15 2008

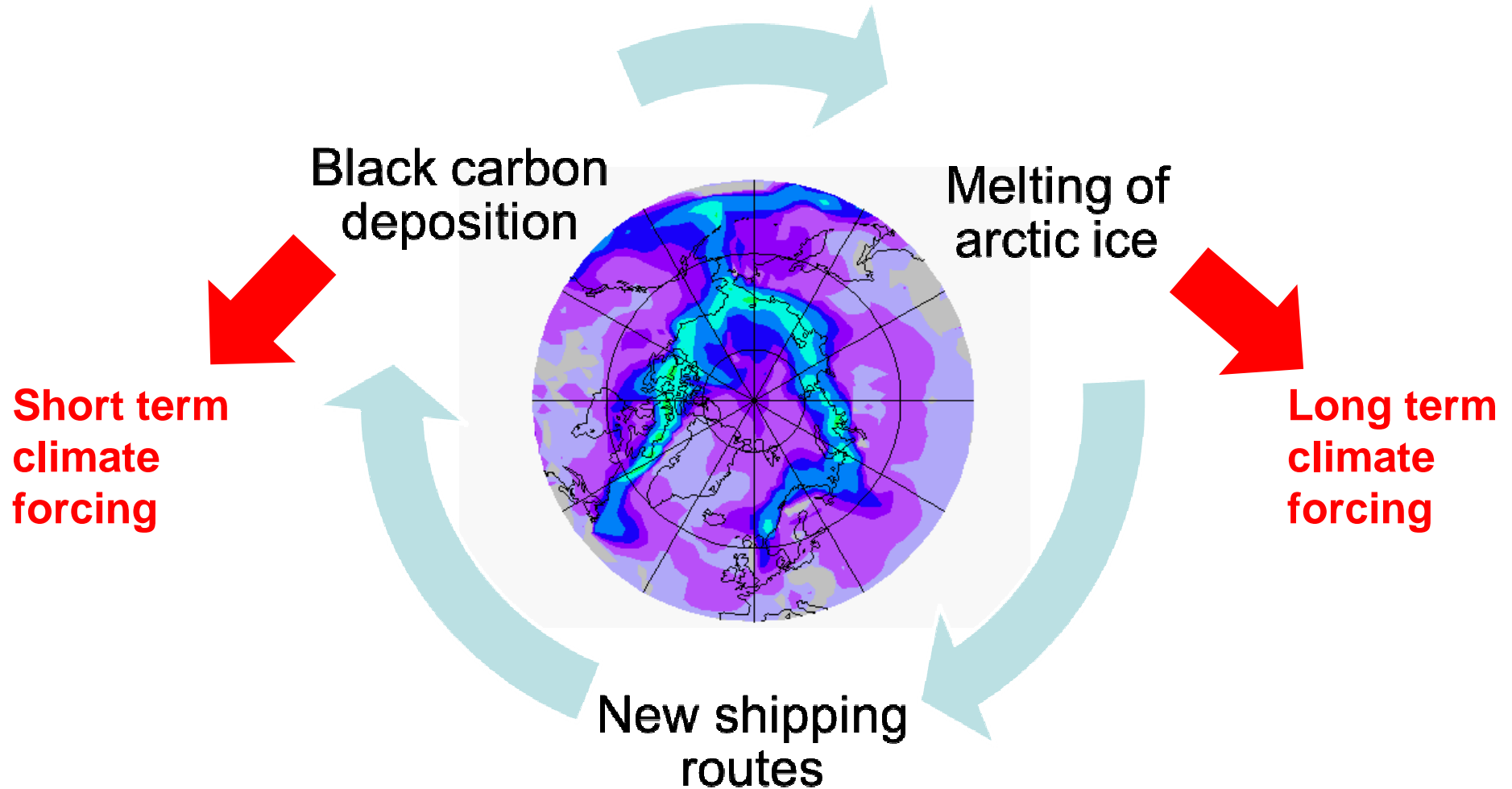
# Facts and figures about BC

- BC believed to contribute up to **16% of global warming**, making it the second most important climate forcer after CO<sub>2</sub>
- BC is estimated to account for **half of all Arctic warming**
- ICCT calculates that the GWP of black carbon is **1,600 times higher than that of CO<sub>2</sub>** at 20 years, and 460 times higher over a period of 100 years

# Why is action important?

- BC warming effect is especially important in the Arctic and within the Arctic front, which extends as far south as 40°N
- Europe is the largest contributor to deposition of sulphate and BC at the Arctic ice cap surface
- Europe's role as one of the major users of Arctic sea routes

# Vicious circle



# So what should we do?

# Polar Code Proposals

- IMO drafting Polar Code to address safety, environmental and technical aspects
- NGOs are proposing measures
- Ban on the use of HFO in Arctic
- Mirrors similar ban on use and carriage in Antarctica which took effect in August 2011
- Stronger than declaring an Arctic ECA

# Call for Arctic HFO ban

What is impact of switch to distillate fuel?

- Less environmental damage from spill
- => BC emissions could be reduce by up to 75% (depends on engine load, etc.)

Need to go further than ban on use of HFO

- Weather restrictions, lack of light, lack of emergency response infrastructure
- Increased safety risks of Arctic operations

# And restrictions on HFO Carriage

- We need restrictions on carriage of HFO
- Aimed at minimising chances of oil spill
- And mitigating impacts of such a spill
- eg additional navigational standards
- possibly ban on carriage in sensitive areas (high biological diversity, ecological important) where any pollution unacceptable & risk the greatest

# Arctic Speed Cap

- NGOs have also proposed Arctic speed limits – on safety & environmental grounds
- could amount to cap on existing speeds
  - currently 6-13 knots
- and stricter limits in sensitive areas
- minimises risk of collision with ice or ships
- Protects against fauna strikes, noise
- BC effect

# 2011 EP resolution on the Arctic

*“ 28. Welcomes the ban on the use and carriage of heavy fuel oil on vessels operating in the Antarctic Area, approved by the IMO's Marine Environment Protection Committee (MEPC), which is due to enter into force on 1 August 2011; stresses that a similar ban might be appropriate in Arctic waters to reduce risks to the environment in case of accidents; ”*

European Parliament resolution of 20 January 2011  
on a sustainable EU policy for the High North ([2009/2214\(INI\)](#))

# 2011 EP resolution on the Arctic

*“ 67. Requests the EU and its Member States to propose, as part of the ongoing IMO work on a mandatory Polar Code for shipping, that soot emissions and heavy fuel oil be regulated specifically; in the event that such negotiations do not bear fruits, requests the Commission to put forward proposals on rules for vessels calling at EU ports subsequent to, or prior to, journeys through Arctic waters, with a view to imposing a strict regime limiting soot emissions and the use and carriage of heavy fuel oil; ”*

European Parliament resolution of 20 January 2011  
on a sustainable EU policy for the High North ([2009/2214\(INI\)](#))

Thank you for your attention !

