

# Arctic Black Carbon: Policy Issues and Options

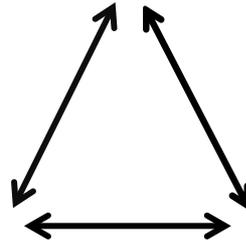
Presentation at the ICCT Workshop  
*Marine Black Carbon Emissions:  
Measuring and Controlling BC from Marine Engines*

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# Analytic Agenda

Climate change  
science and impacts



Industry technologies  
and practices

Government policies  
and institutions

# Outline of Comments

## Problems

Arctic warming

Black carbon depositions

Shipping emissions

## Solutions

Industry technologies and practices

Existing government policies and institutions

Arctic Black Carbon (ABC) agreement proposal

# ARCTIC WARMING

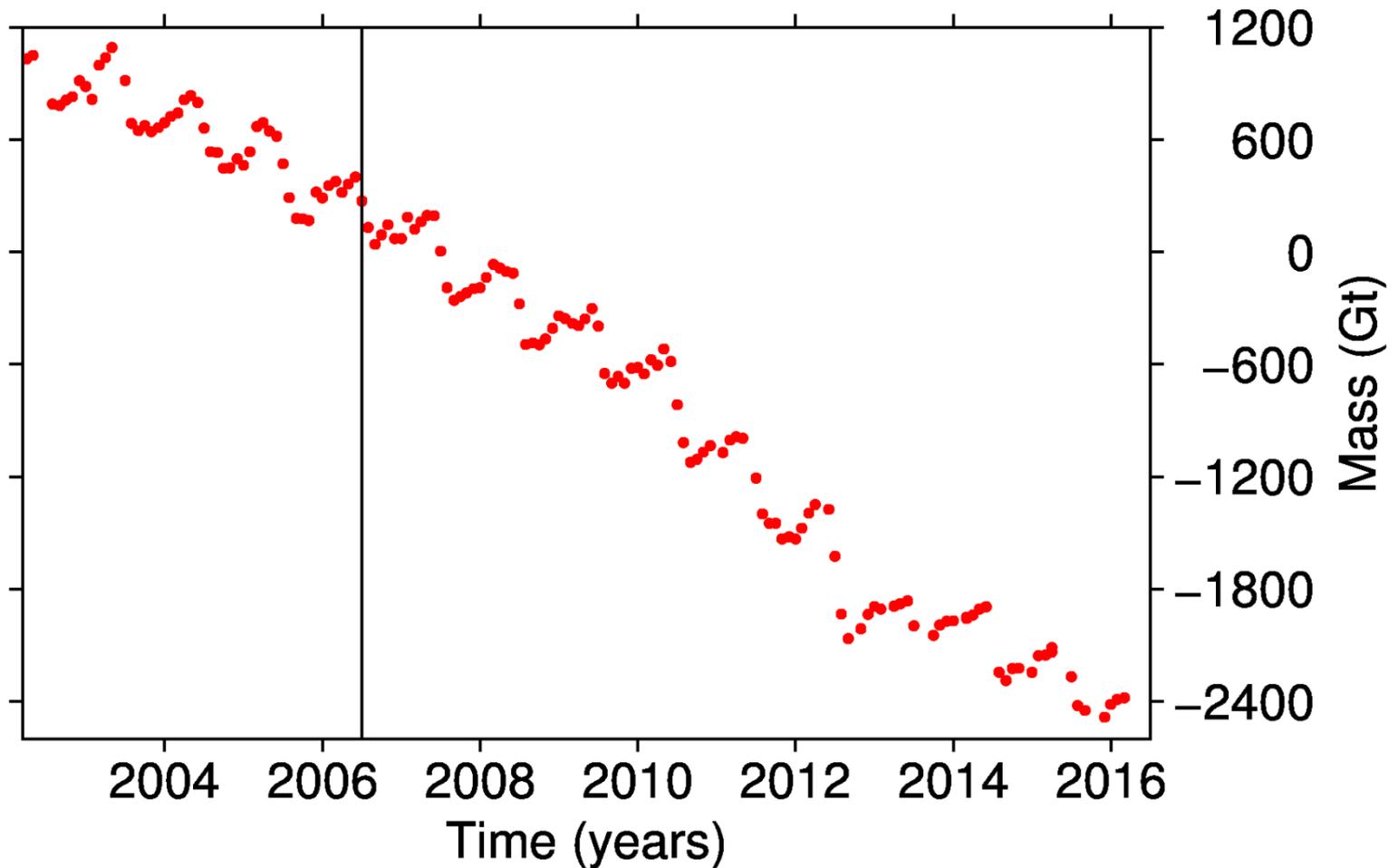
## Processes and Effects



\* “Arctic Amplification”  
feedback loops

# Greenland Cumulative Ice Sheet Loss, Mass

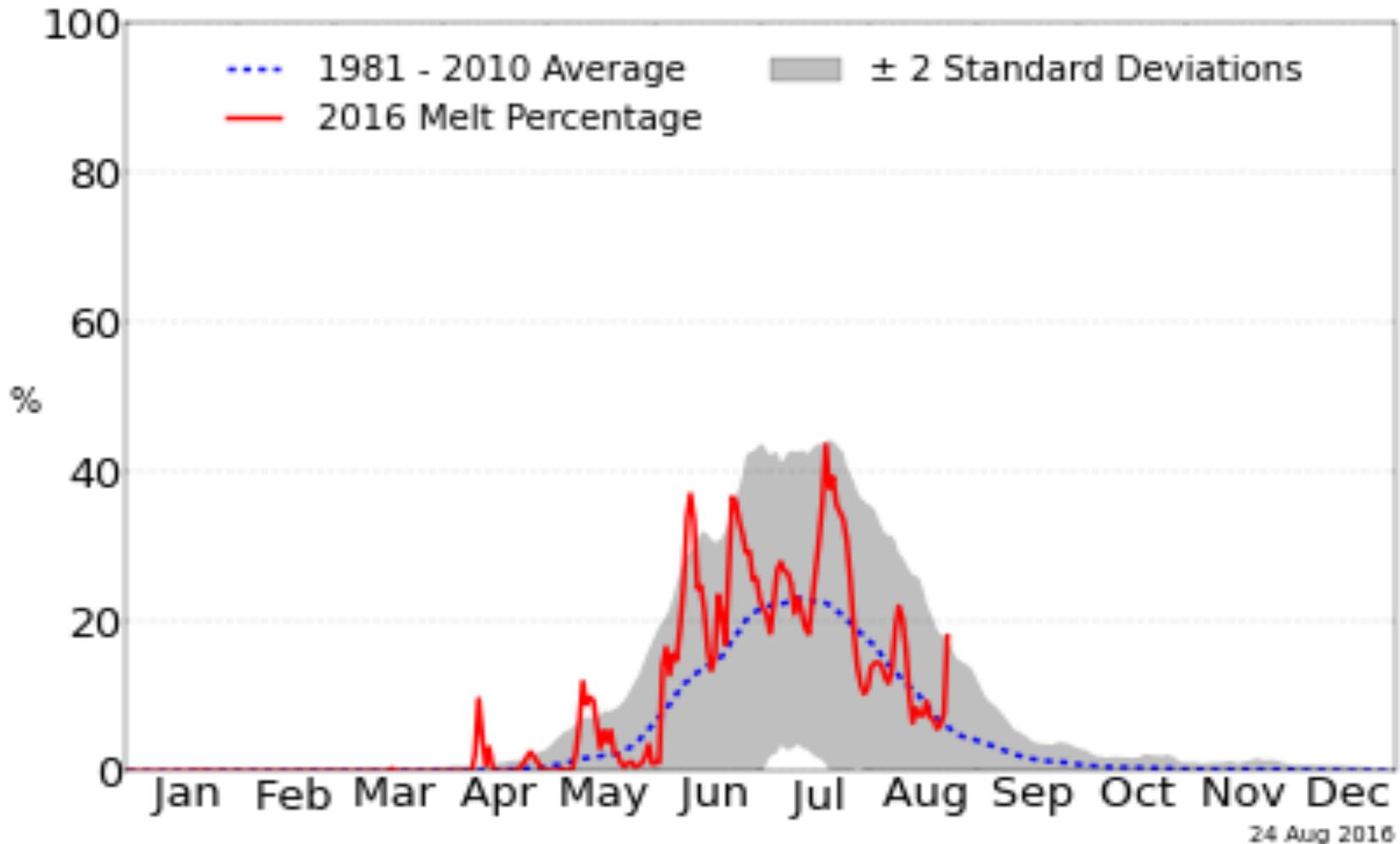
Source: [www.polarportal.dk](http://www.polarportal.dk) 26 August 2016



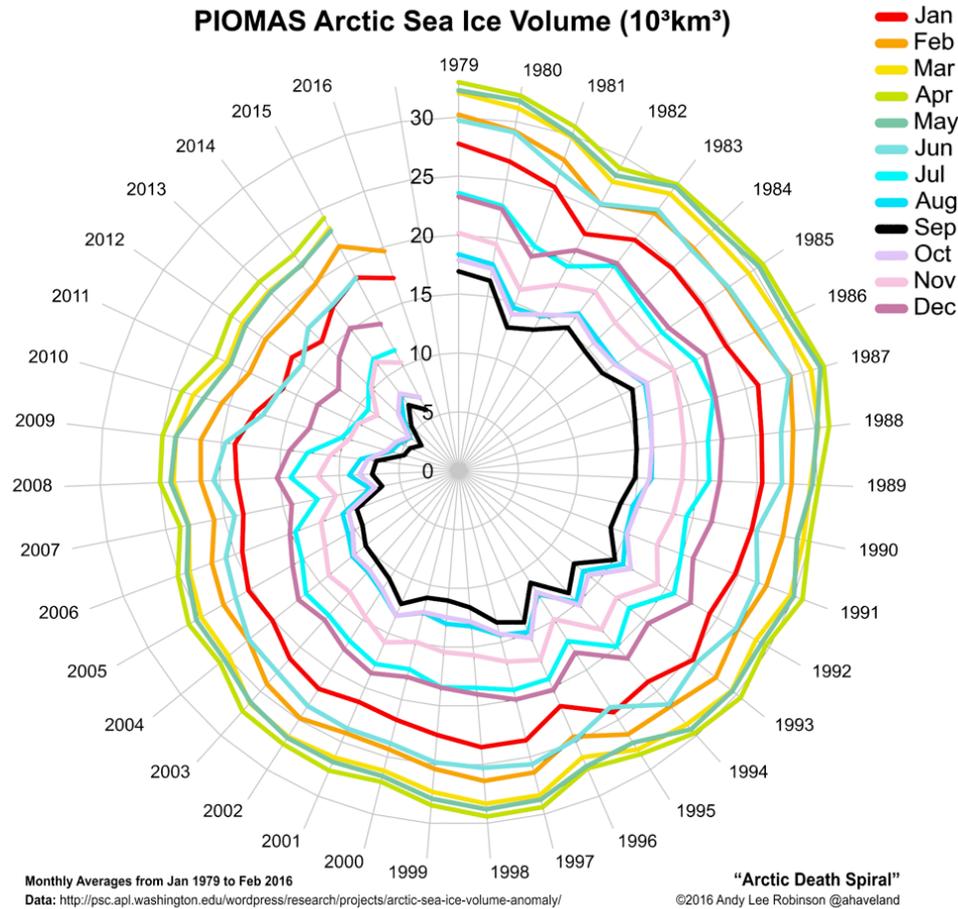
# Greenland Ice Sheet Melt, Surface, 2016 Monthly

Source: [www.nsidc.org](http://www.nsidc.org) August 2016

## Greenland Melt Extent 2016



# Arctic Sea Ice Volume, 1979-2016, Monthly



# BC Depositions in Arctic Region

(Sources: AMAP, 2015; and ...)

## Effects

- “Arctic Amplification” – snow & ice albedo reduction
- BC has a greater warming impact than carbon dioxide
- Impact of BC emissions per unit is 5 times greater for within-region emissions than for outside-region
- Mitigating BC emissions is necessary to prevent Arctic/Global catastrophe. Mitigating carbon dioxide emissions is also necessary but not sufficient.

## Sources

- >East and South Asia – approx. 40%
- >Russia - approx. 20%
- >Shipping: 3% (in 2010) - *but the issue is future volumes*

“Be proactive”

# **SOLUTIONS**

## **Industry Technologies and Practices**

**See the work of the ICCT and others**

# SOLUTIONS

## Government Policies and Institutions

UNFCCC

CCAC

AC

IMO

ISO

WTO

(TPP - pending)

**Incentives needed for:**

***(1) uptake of technologies***

***(2) participation and compliance (not free riding)***

# Proposal: Arctic Black Carbon (ABC) Agreement

## What's a "club"?

An institutional arrangements where:

### I. Benefits are...

shareable among participants  
and

excludable to non-participants and non-compliant  
participants

*Advantage: avoids free-riding*

II. Membership is smaller than multilateral/universal

*Advantage: easier to negotiate (?)*

# ABC Agreement – Key Features

- Includes *both* regulation and technology transfer
- *Regulation*: need a license for vessels to operate in Arctic region – license based on equipment and operations, with tracking, inspections and penalties for non-compliance
- *Technology adoption subsidies*: carrot for participation and compliance

# ABC Agreement – Illustrative Options

**Requirements to obtain license:**

**meet equipment and emission standards**

**Penalties for non-compliance:**

**fine, impoundment, loss of license**

**Tracking and enforcement:**

**learn from ECA provisions and experience**

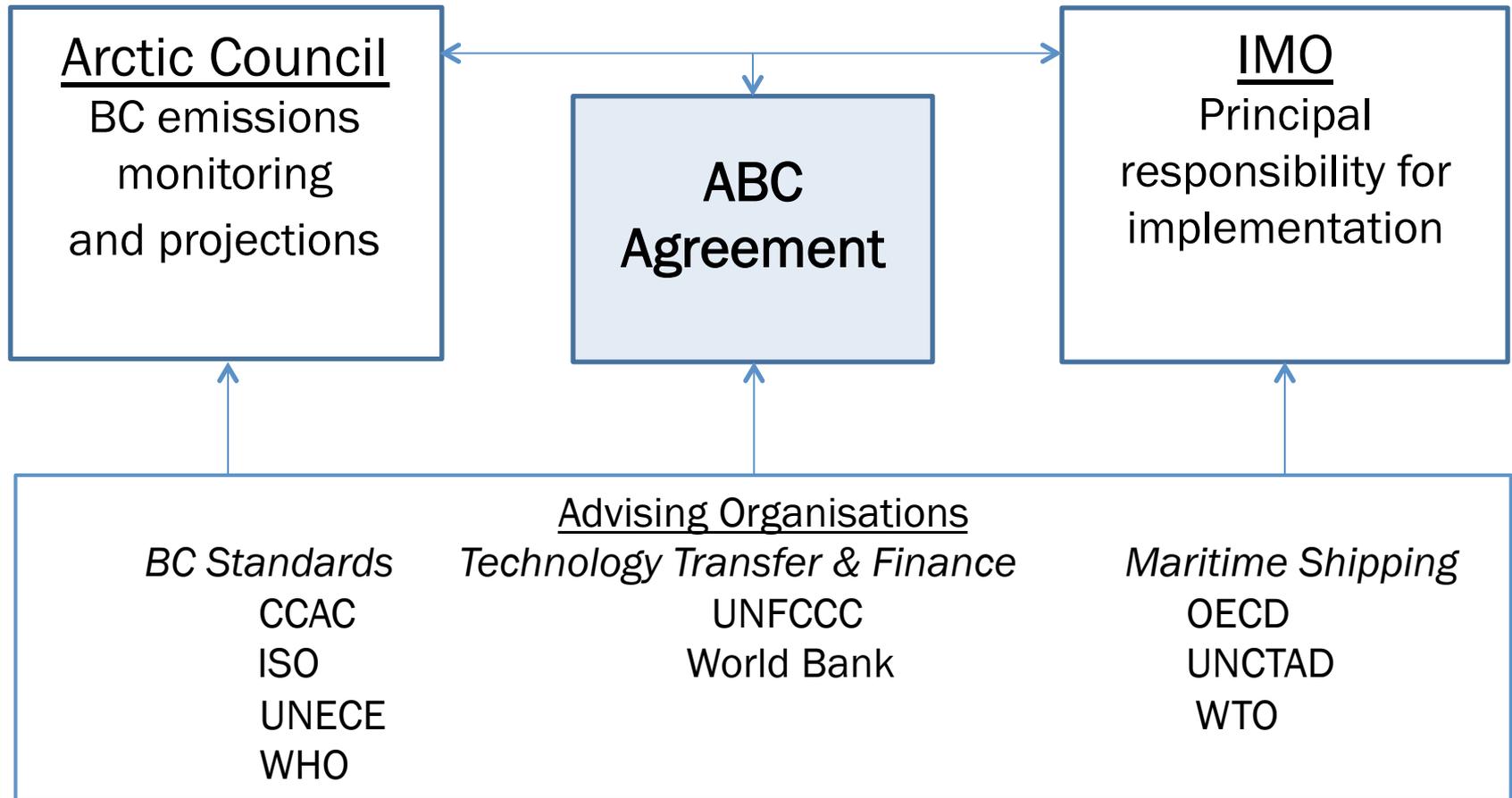
**Technology subsidies:**

**financed by World Bank**

**technical support from IMO**

# ABC Agreement – Schematic Chart

## Institutional Roles and Relationships



# ABC Agreement Challenges

## Arctic routes - legal and political constraints

- Northwest Passage: UNCLOS Article 243 (“Canadian Exception”)
- Northeast Sea Route: Russia (negotiate linkages to other issues)
- Central, North Pole: international waters (UNCLOS; Nordic Summit statement)

## Relationships to other government policies and institutional arrangements – “building blocks and stumbling blocks”

- Ports – local
- Nationality - ownership, registration, operator
- ECAs – bilateral, regional
- IMO – Black carbon “program”
- World Bank , Networked Carbon Markets Initiative
- “Regulatory capture”

# For further information

[www.ictsd.org](http://www.ictsd.org)

[www.TradeAndClimate.net](http://www.TradeAndClimate.net)

[www.usclimatechange.com](http://www.usclimatechange.com)

[Email: tbrewer@ictsd.org](mailto:tbrewer@ictsd.org)

## ANNEX: Recent Literature on Climate “Clubs”

Brewer, Thomas L., Henry Derwent and Andrzej Blachowicz. 2016. “Carbon Market Clubs and the New Paris Regime: Paper for the World Bank Group’s Networked Carbon Markets Initiative.” *Climate Strategies*. Available at [www.worldbank.org](http://www.worldbank.org).

Victor, David. 2015. “The Case for Climate Clubs.” Available at [www.ictsd.org](http://www.ictsd.org)

## UNCLOS Article 234 Excerpt

### *Ice-covered areas [“Canada exception”]*

Coastal States have the right to adopt and enforce non-discriminatory laws and regulations for the prevention, reduction and control of **marine pollution from vessels in ice-covered areas within the limits of the exclusive economic zone**, where particularly severe climatic conditions and the presence of ice covering such areas for most of the year create obstructions or exceptional hazards to navigation, and pollution of the marine environment could cause major harm to or irreversible disturbance of the ecological balance. Such laws and regulations shall have due regard to navigation and the protection and preservation of the marine environment based on the best available scientific evidence.

# Canada-US Summit Joint Statement Excerpt

(March 2016)

“...we will determine with Arctic partners how best to address the risks posed by heavy fuel oil use and black carbon emissions from Arctic shipping.”

# Nordic Summit Joint Statement

(May 2016)

## *The Arctic*

The United States, the Kingdom of Denmark, Finland, Iceland, Norway, and Sweden affirm our commitment to **safeguarding the Arctic environment** while providing enhanced opportunities for sustainable development for all inhabitants of the Arctic, including indigenous peoples....

We will work towards the highest global standards, best international practice, and a **precautionary approach**, when considering new and existing commercial activities in the Arctic, including oil and gas operations....

We reaffirm the importance of maintaining the Arctic region based on universally recognized principles of international law including those reflected in the **United Nations Convention on the Law of the Sea**.

# TransPacificPartnership (TPP) Article 20.6 Excerpts (ratification pending)

## Protection of the Marine Environment from Ship Pollution

The Parties recognise the importance of protecting and preserving the marine environment. To that end, each Party shall take measures to prevent the pollution of the marine environment from ships....

...the Parties shall cooperate to address matters of mutual interest with respect to pollution of the marine environment from ships.

Areas of cooperation may include:...

pollution from routine operations of ships;...

emissions from ships;...

increased protection in special geographic areas; and

enforcement measures including notifications to flag States and, as appropriate, by port States....