



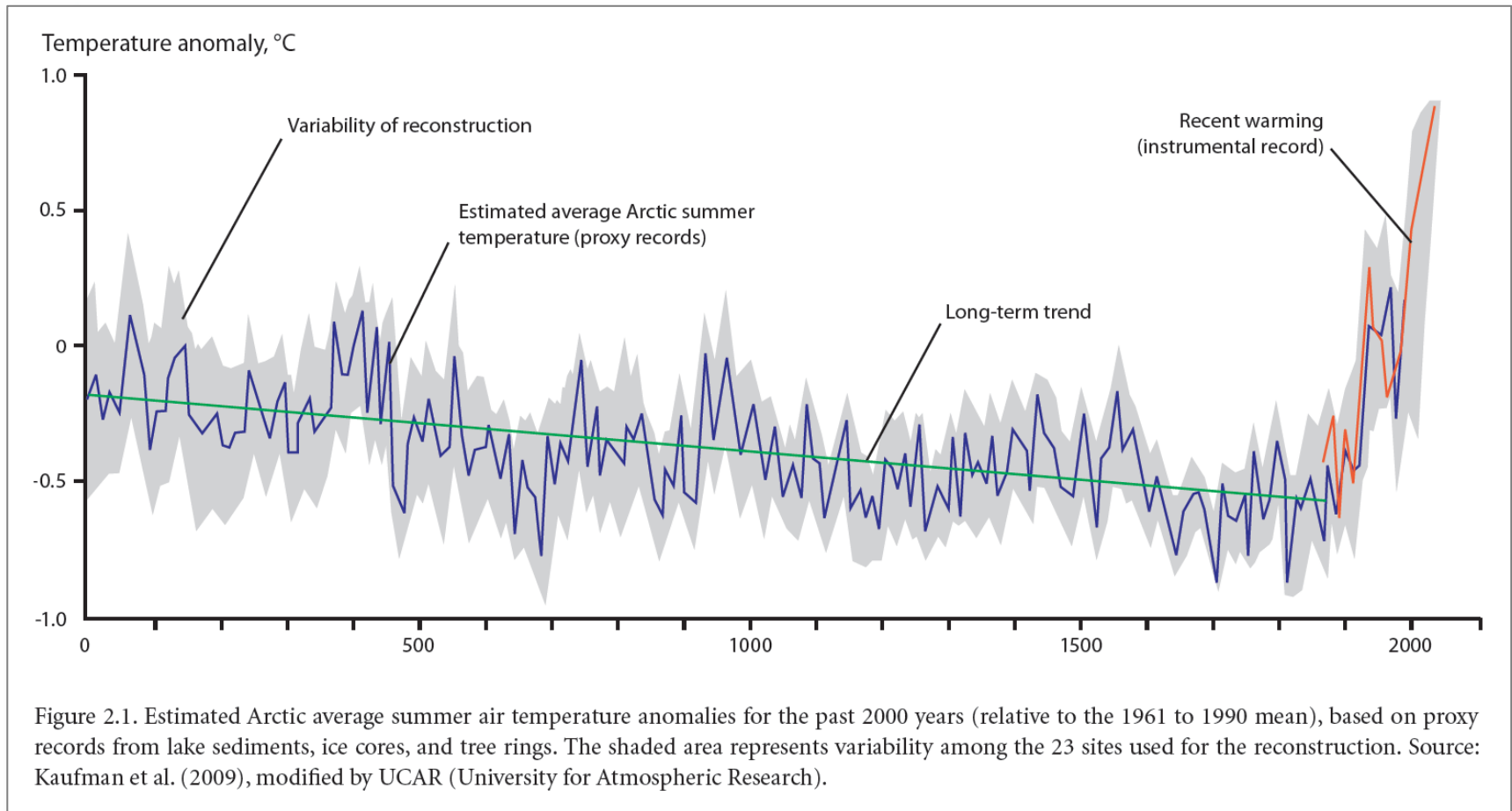
# Sne, Vand, Is og Permafrost i Arktis

Morten Skovgaard Olsen

Aarhus Universitet 25/9-12

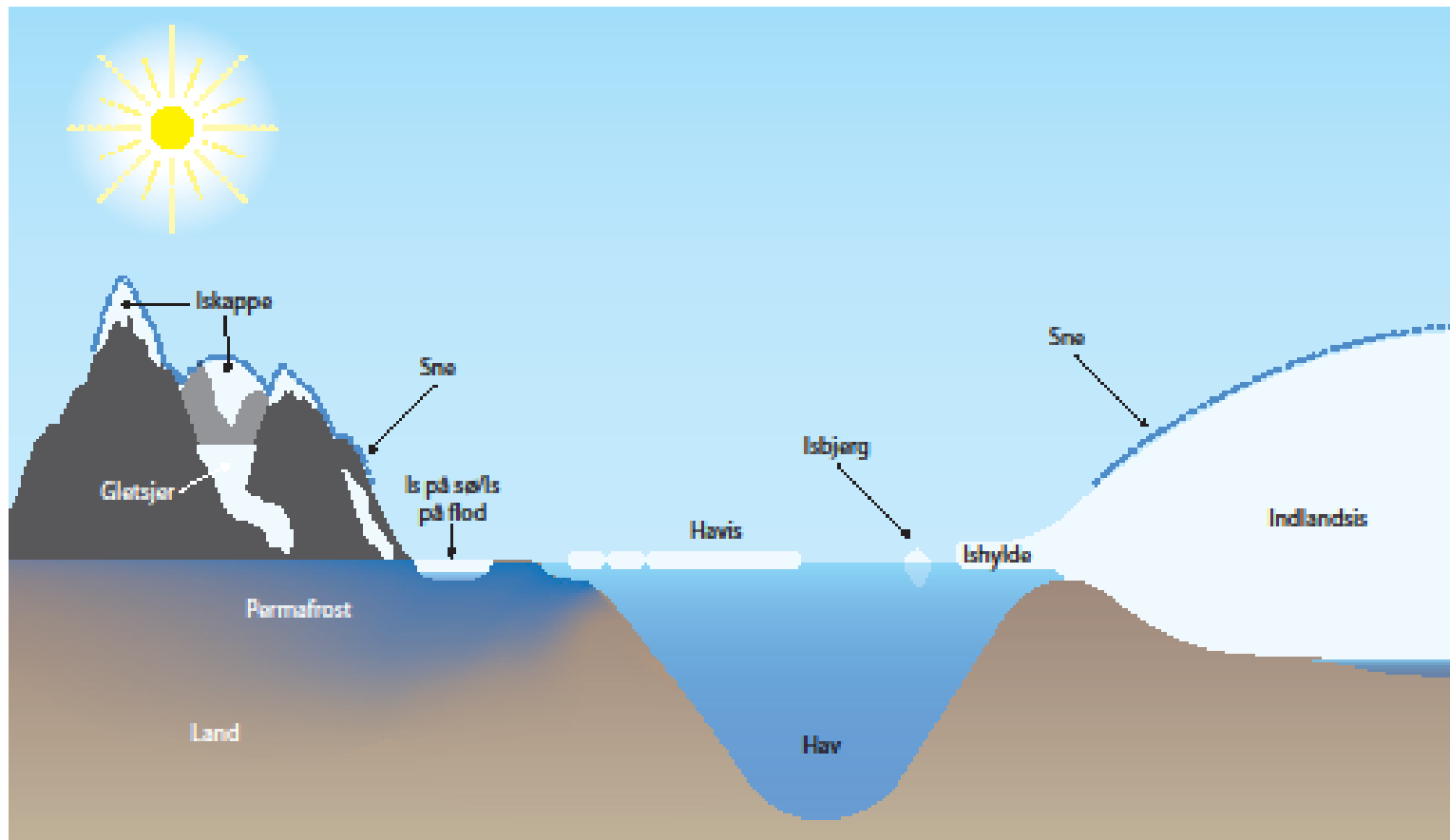


# Gennemsnitstemperatur i Arktis



# Alle dele af kryosfæren påvirkes

## Den arktiske kryosfære

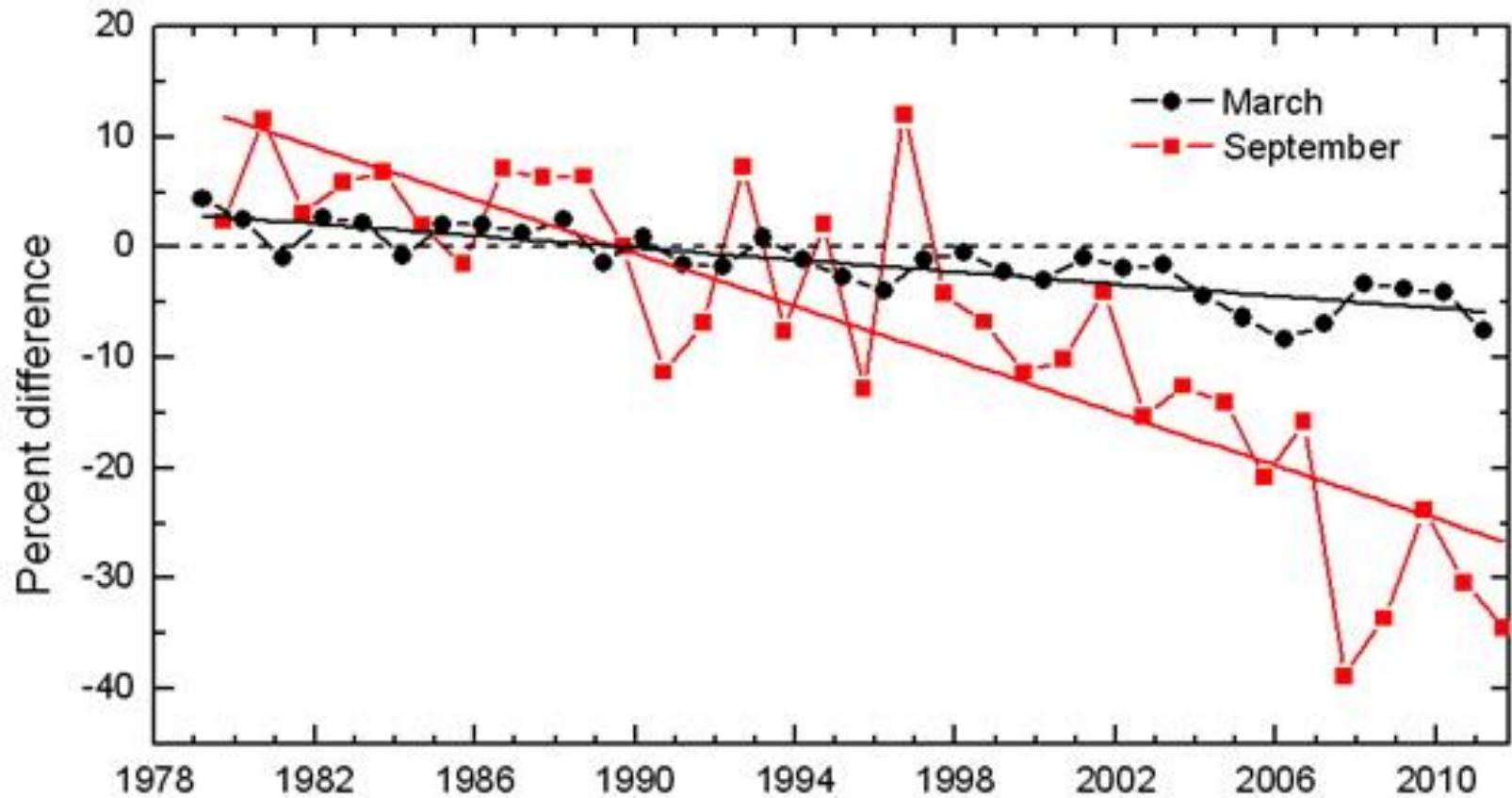




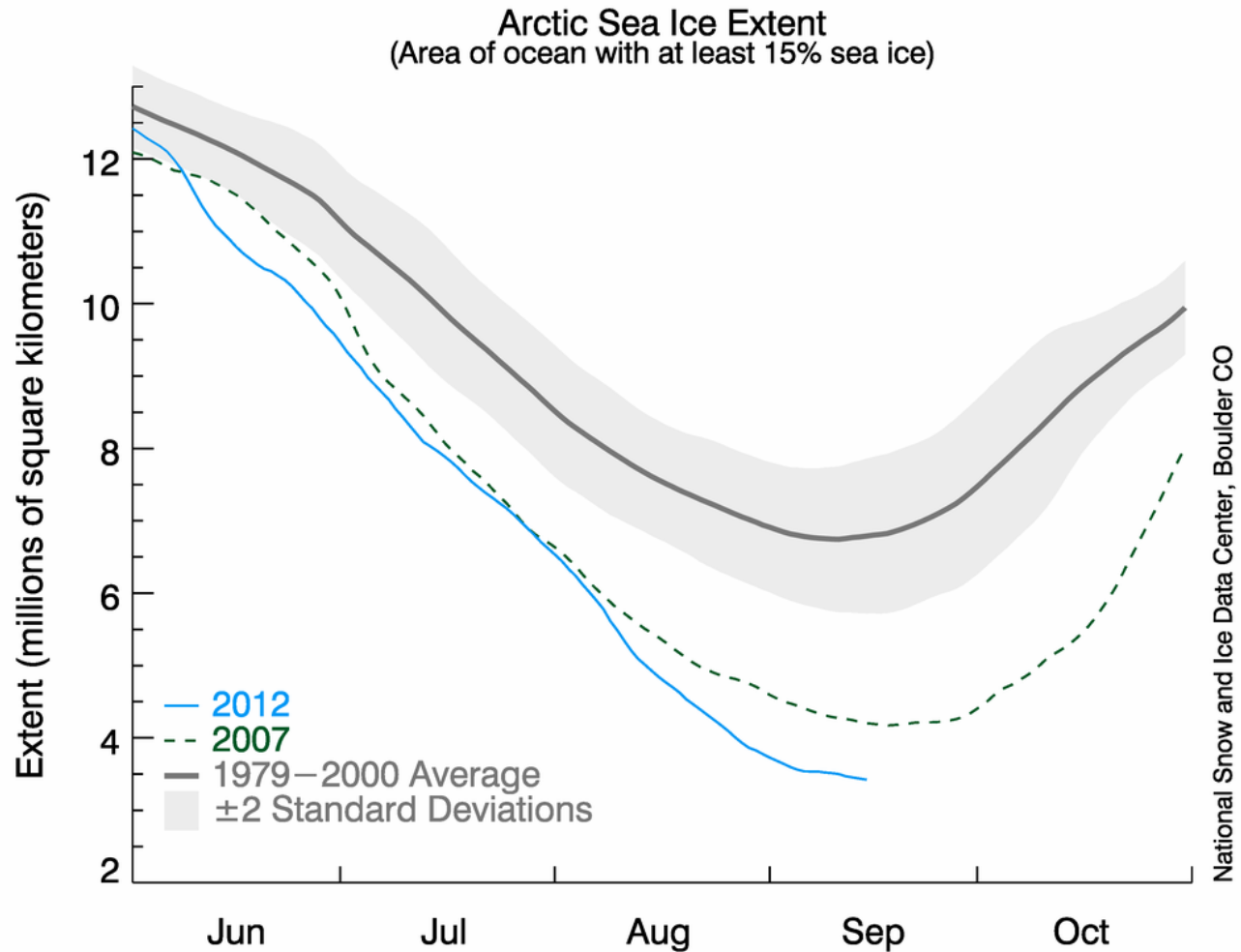


Aarhus Universitet 25/9-12

# Havis

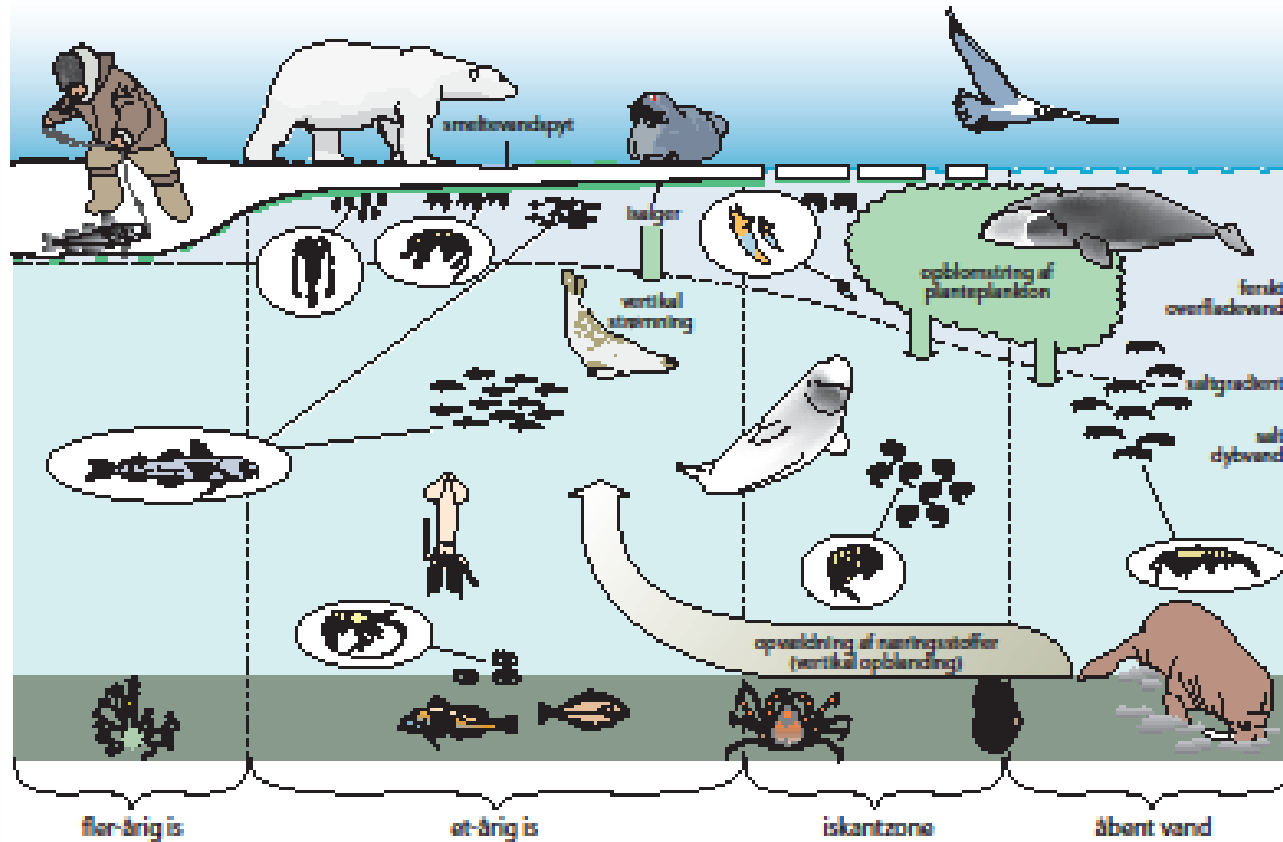


# Havis



15 Sep 2012

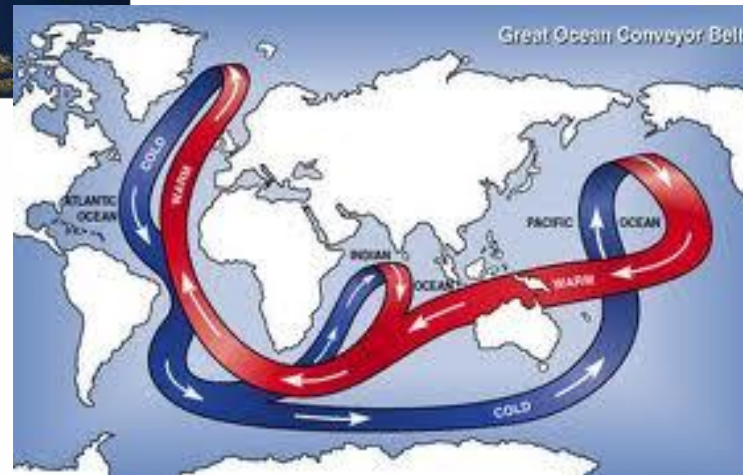
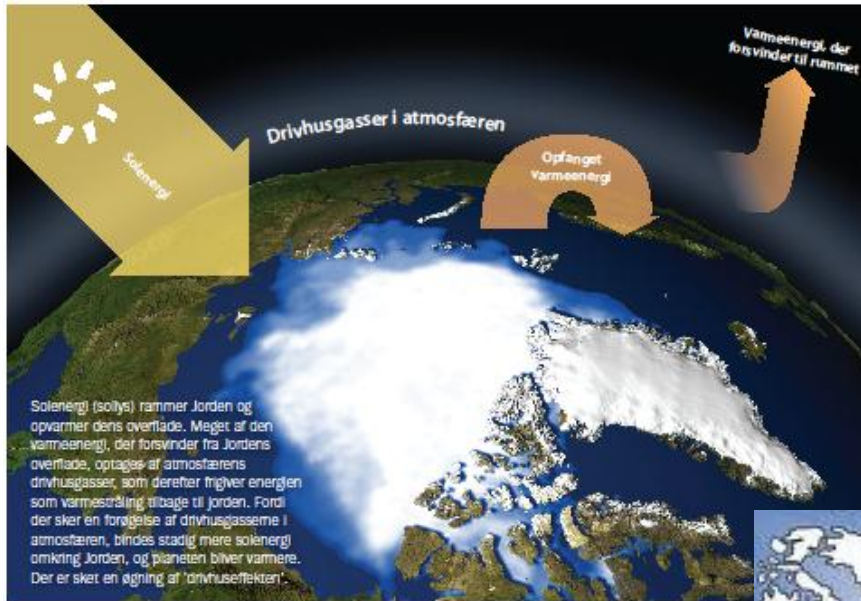
# Økosystemer





# Feedbacks

## Drivhuseffekten



# Muligheder og udfordringer



# Nogle hovedkonklusioner

- Ændringer i arktiske sne – og isforhold sker meget hurtigere end forventet
- Ændringerne har fundamentale konsekvenser for levevilkår i Arktis for globale klima- og miljøforhold
- Arktiske klimaændringer og deres afledte effekter driver andre ændringer i Arktis, men er ikke de eneste drivere

# SWIPA policy recommendations

- reduce uncertainty in predicting cryospheric change.
- observe the cascading effects of cryospheric change on ecosystems and human society.
- adaptation strategies appropriate to the scale and character of anticipated changes
- integrated assessment of the combined impacts of change in the Arctic

# Adaptation of Actions for a Changing Arctic

*“To enable more informed, timely and responsive policy and decision-making related to adaptation action in a rapidly changing Arctic.”*

# Adaptation of Actions for a Changing Arctic

- key findings and recommendations from existing assessments
- Identify existing adaptation efforts
- Consider Arctic-focused climate and integrated environmental frameworks/models that can improve predictions.



# AMAP og Adaptation of Actions for a Changing Arctic

2012-2013

Sammenstilling af anbefalinger

Workshop om globale klimamodeler og deres anvendelighed i Arktis (Oktober 2012, Seattle)

Workshop om opstilling af scenarier/modeller der imødekommer brugerbehov (Vinter 2013, Rusland)

# AMAP og Adaptation of Actions for a Changing Arctic

2013-2015

Gennemførelse af aktiviteter identificeret under fase I (2012-2013), herunder eventuelle opdateringer af tidligere arbejder.

2015-2017

## Sammenstilling og integreret analyse

# Udfordringer

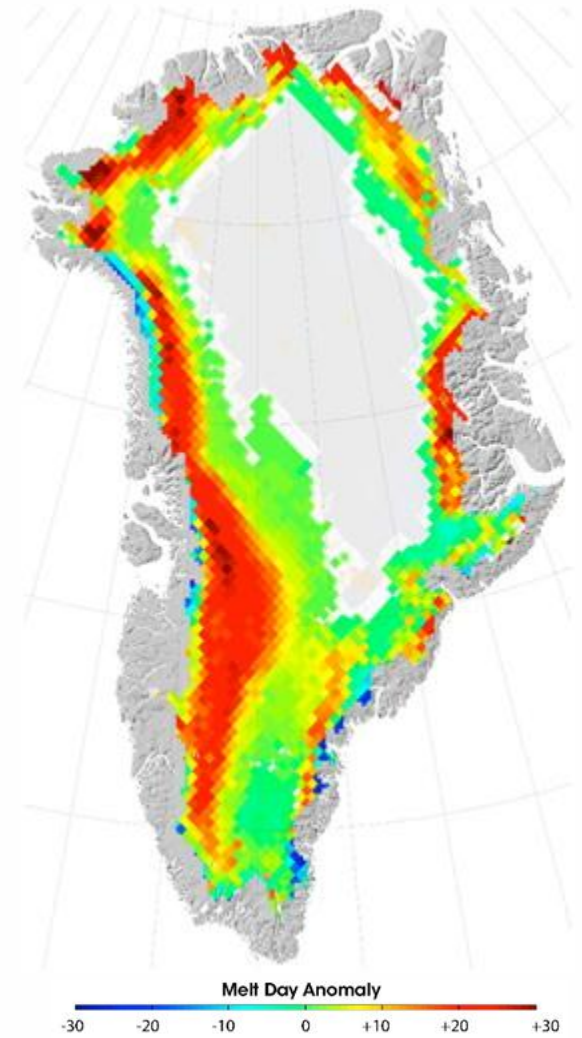
- Sammenhængende observationsnetværk for ændringer i kryosfæren
- Bedre forståelse af kausale sammenhænge på tværs af alle arktiske aspekter
- Forståelse og kvantificering af feedbacks
- Sammenhængende observationer og tolkninger på tværs af institutionelle og faglige grænser
- Formidling af viden

# TAK

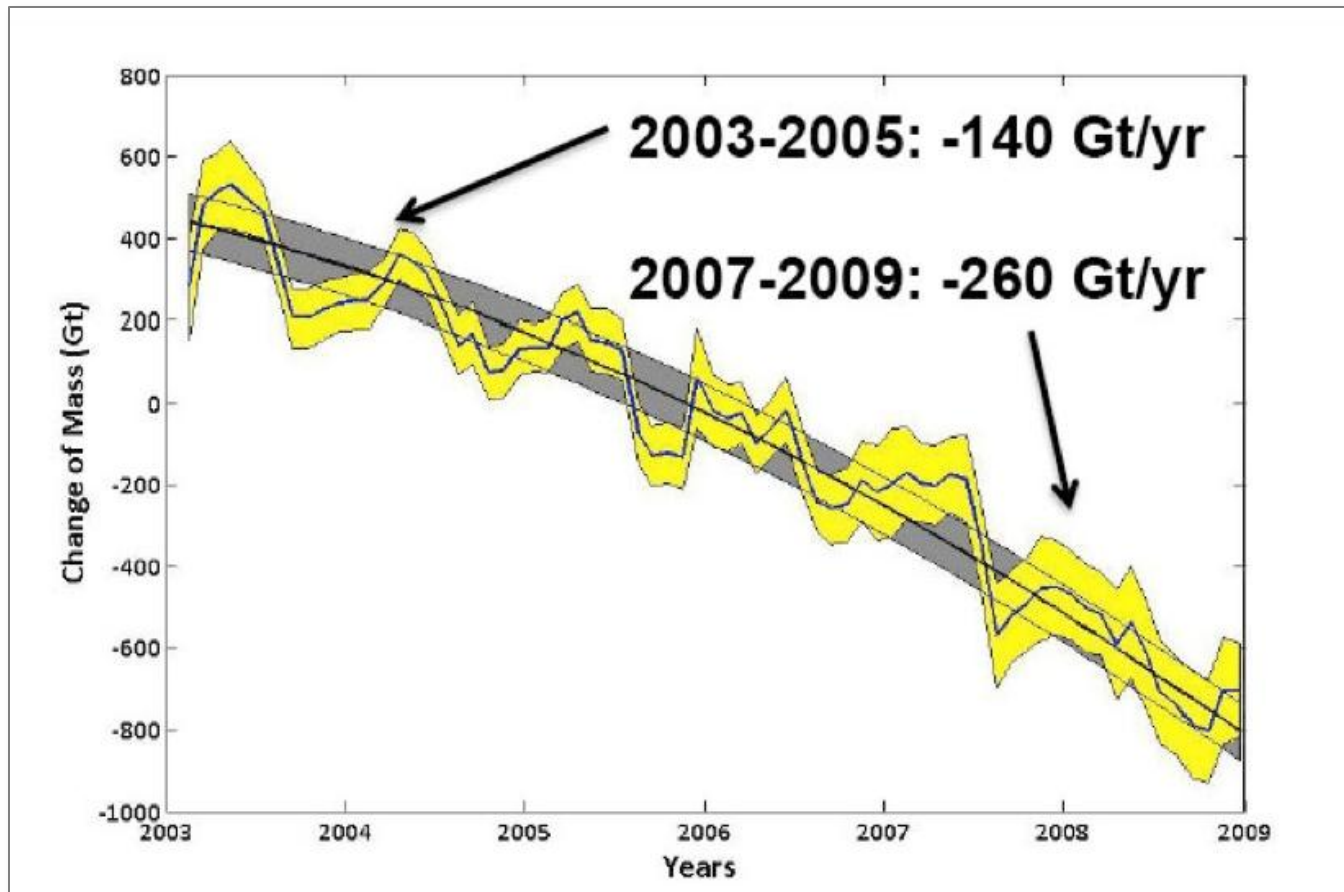
Aarhus Universitet 25/9-12



# Indlandsisen

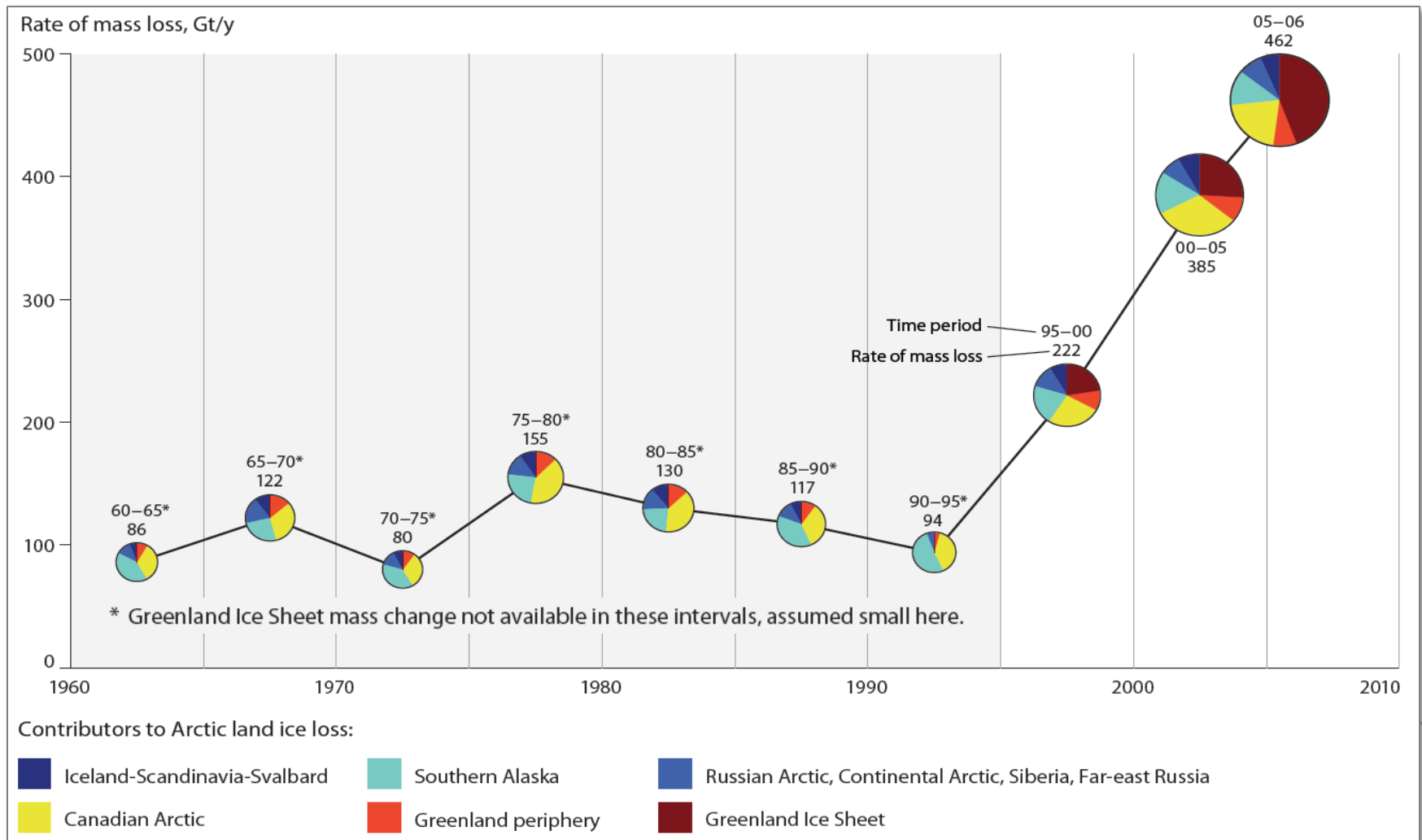


# Indlandsisen





# Tabet af landbaseret is fra Arktis



# Adaptation of Actions for a Changing Arctic

- 1. Consider the key findings and recommendations from existing AC assessments and other relevant national and international reports to determine how these can contribute to and inform adaptations options for Arctic countries.*
- 2. Identify existing national, regional and local adaptation efforts within or relevant to the Arctic region.*
- 3. Work with other relevant, recognized scientific organizations to consider Arctic-focused climate and integrated frameworks/models that can improve predictions of climate change and other relevant drivers of Arctic change.*

# (udvalgte) SWIPA policy anbefalinger

- Expand research into processes that are important for modelling the cryosphere, to reduce uncertainty in predicting cryospheric change.
- Develop and enhance systems to observe the cascading effects of cryospheric change on ecosystems and human society.

# (udvalgte) SWIPA policy anbefalinger

- Develop and implement Arctic adaptation strategies appropriate to the scale and character of anticipated changes. such strategies must take account of other relevant drivers of change.

# (udvalgte) SWIPA policy anbefalinger

- The Arctic Council should conduct an integrated assessment of the combined impacts of change in the Arctic, focused on how to minimize environmental damage and enhance human well-being.

# Adaptation of Actions for a Changing Arctic

*“To enable more informed, timely and responsive policy and decision-making related to adaptation action in a rapidly changing Arctic.”*



# Hvad sker der i fremtiden og hvor hurtigt vil det gå?

- Predictive capabilities
  - Behov for øget forståelse af kryosfæreprocesser og deres samspil
  - Bedre forståelse og kvantificering af feedbacks
  - Behov for sammenhængende observationer
  - Bedre forståelse af kausale sammenhænge på tværs af alle arktiske aspekter
  - Sammenhængende vurderinger af fremtidig udvikling på tværs af traditionelle fag- og disciplinrænsere