

**BEPSII**  
BIOGEOCHEMICAL EXCHANGE PROCESSES  
AT SEA-ICE INTERFACES

International Foresight Workshop on  
Arctic Sea Ice Change (ASIC)  
**Future changes in Arctic sea-ice  
biogeochemistry and associated  
ecosystems**

Davos, June 15-17, 2018

**The scientific objective** of ASIC is to evaluate the biogeochemical and ecological consequences of the expected changes in the Arctic sea-ice scape.



(Photo: Gert van Dijken)

2011 ICESCAPE expedition



ASIC Foresight workshop in Davos in June 2018.

In total, 40 people representing 14 countries attended the ASIC workshop.

Co-sponsors:





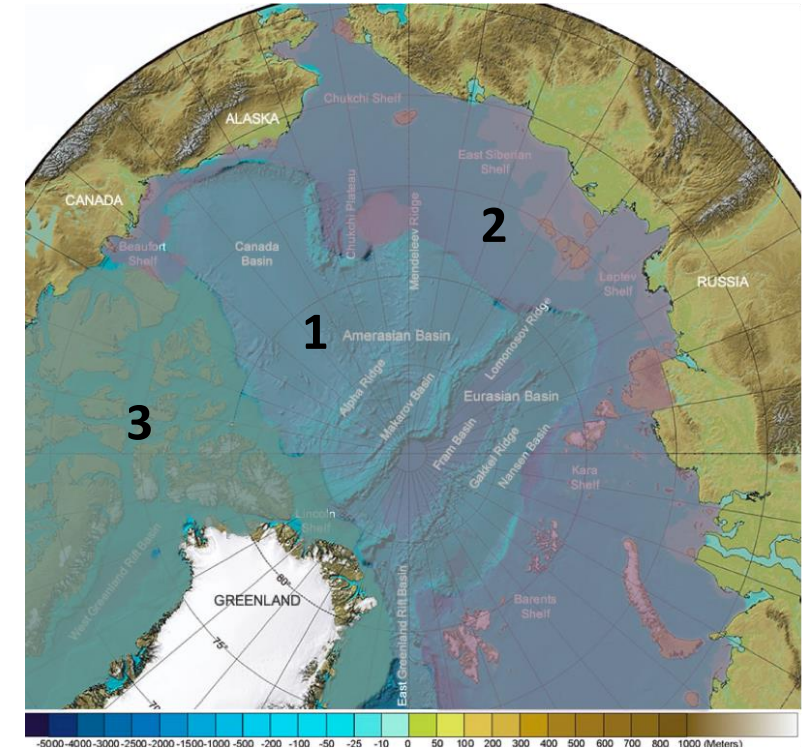
## Sea-ice variables

1. physico-chemistry (thermodynamics, nutrients, light).
2. biota (from primary production to fish).
3. climate-active gases (CO<sub>2</sub> including ocean acidification, O<sub>2</sub>, CH<sub>4</sub> DMS, halogens).

## Scenarios

- **Changes in ice structure:** thinner, warmer, younger, more permeable, more mobile, more deformed sea ice, in association with increasing rain and less snow accumulation;
- **Changes in ice coverage:** sea-ice concentration and seasonality.

## Bioregions



1. Basin (blue shading),
2. Shelf (pink shading),
3. Outflow Shelf (green shading)

- An **opinion paper** for submission in early summer 2019 as an invited perspective paper in *Nature Climate Change*.
- Provide our best estimate of expected changes in climate-relevant BGC variables in different bioregions.

