Representing icebergs and calving in a climate model

Presented by
Olga Sergienko, Alon Stern, Alistair Adcroft, Robert Hallberg and Gustavo Marques

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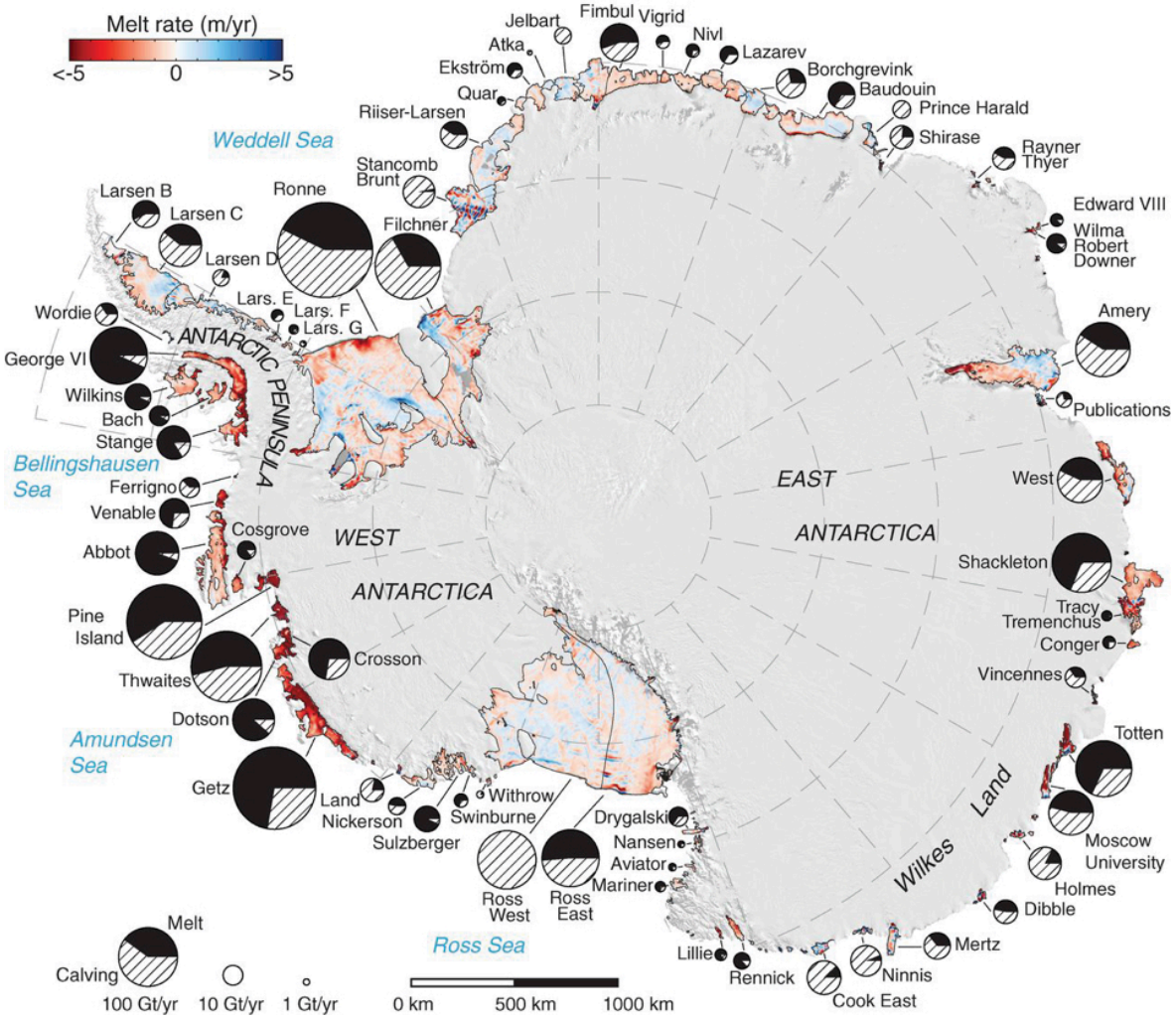
Antarctic mass loss

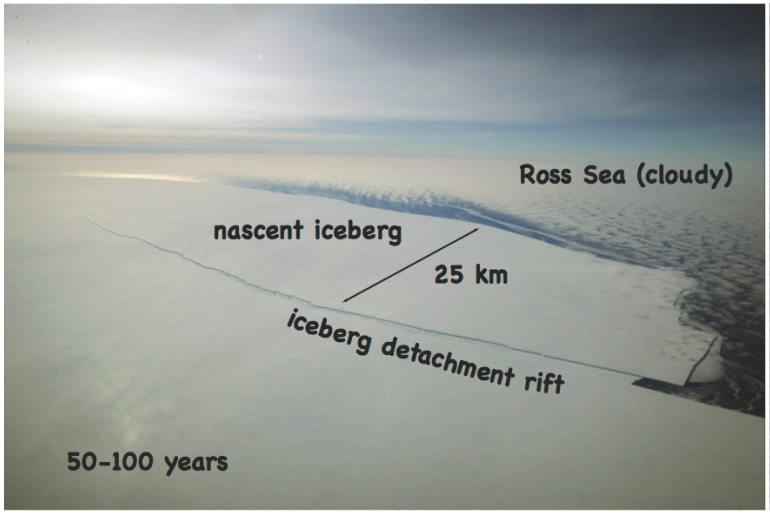


Melting 45% Calving 55%

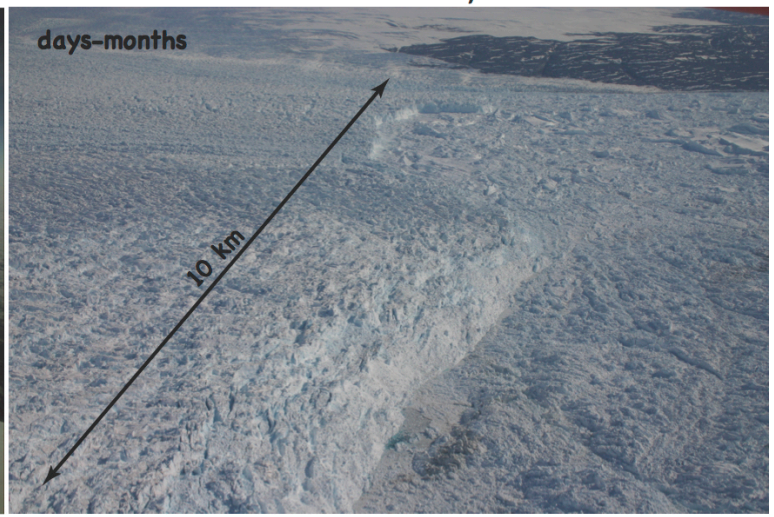
Rignot et al. (2013)

Calving and icebergs

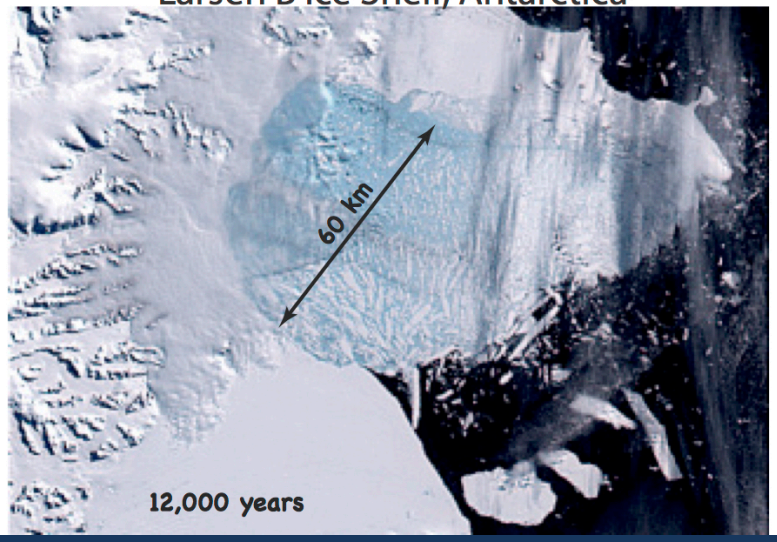
Ross Ice Shelf, Antarctica



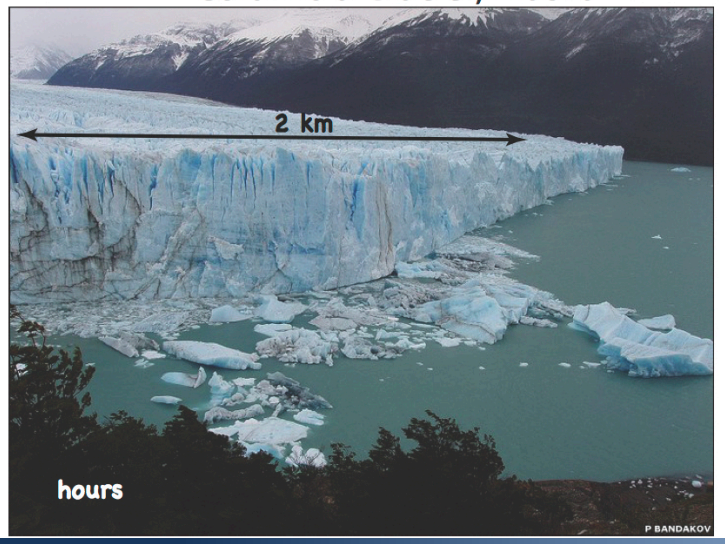
Jakovshavn Isbræ, Greenland



Larsen B Ice Shelf, Antarctica

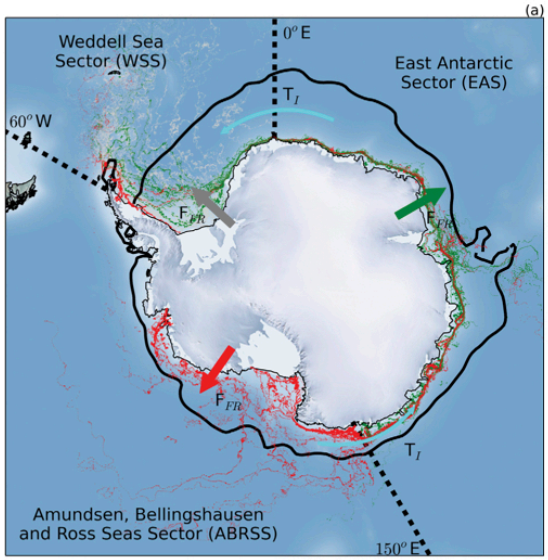


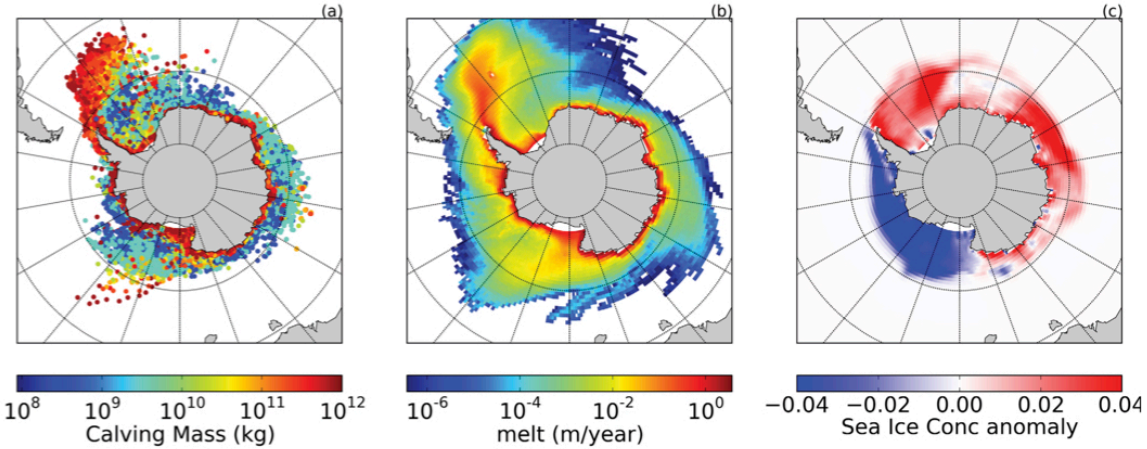
Columbia Glacier, Alaska

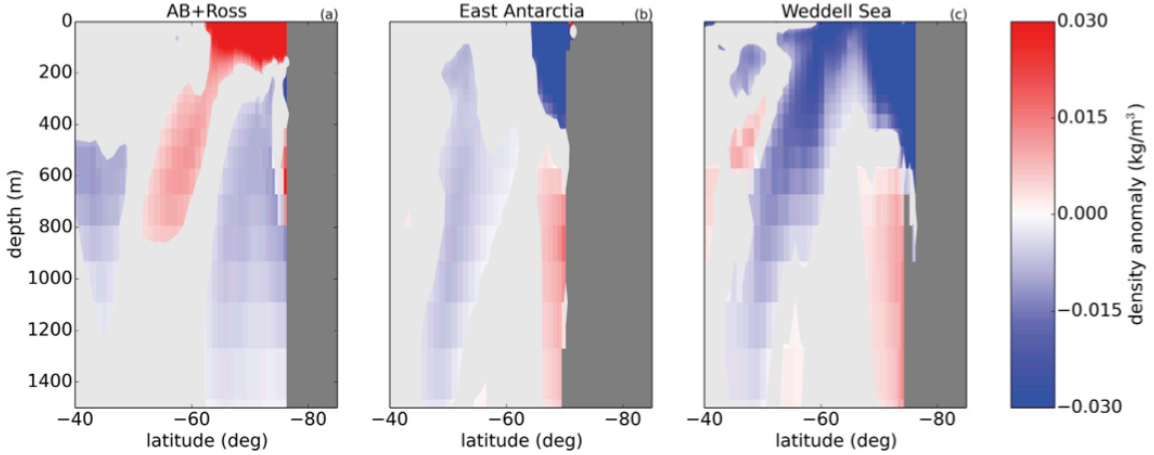


“Lagrangian point” icebergs in a climate model

CM2G climate model, MOM6 ocean component, 1° resolution

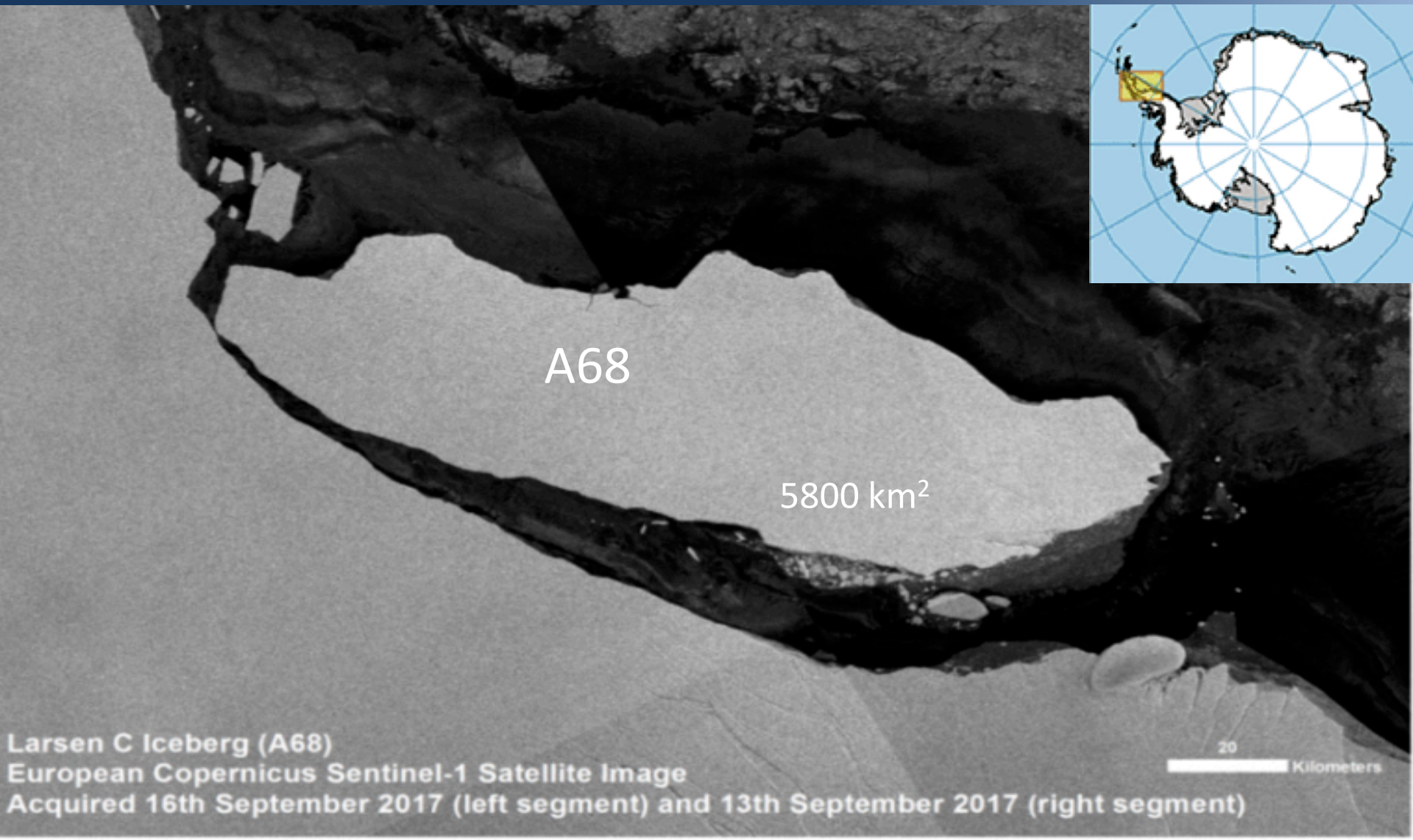




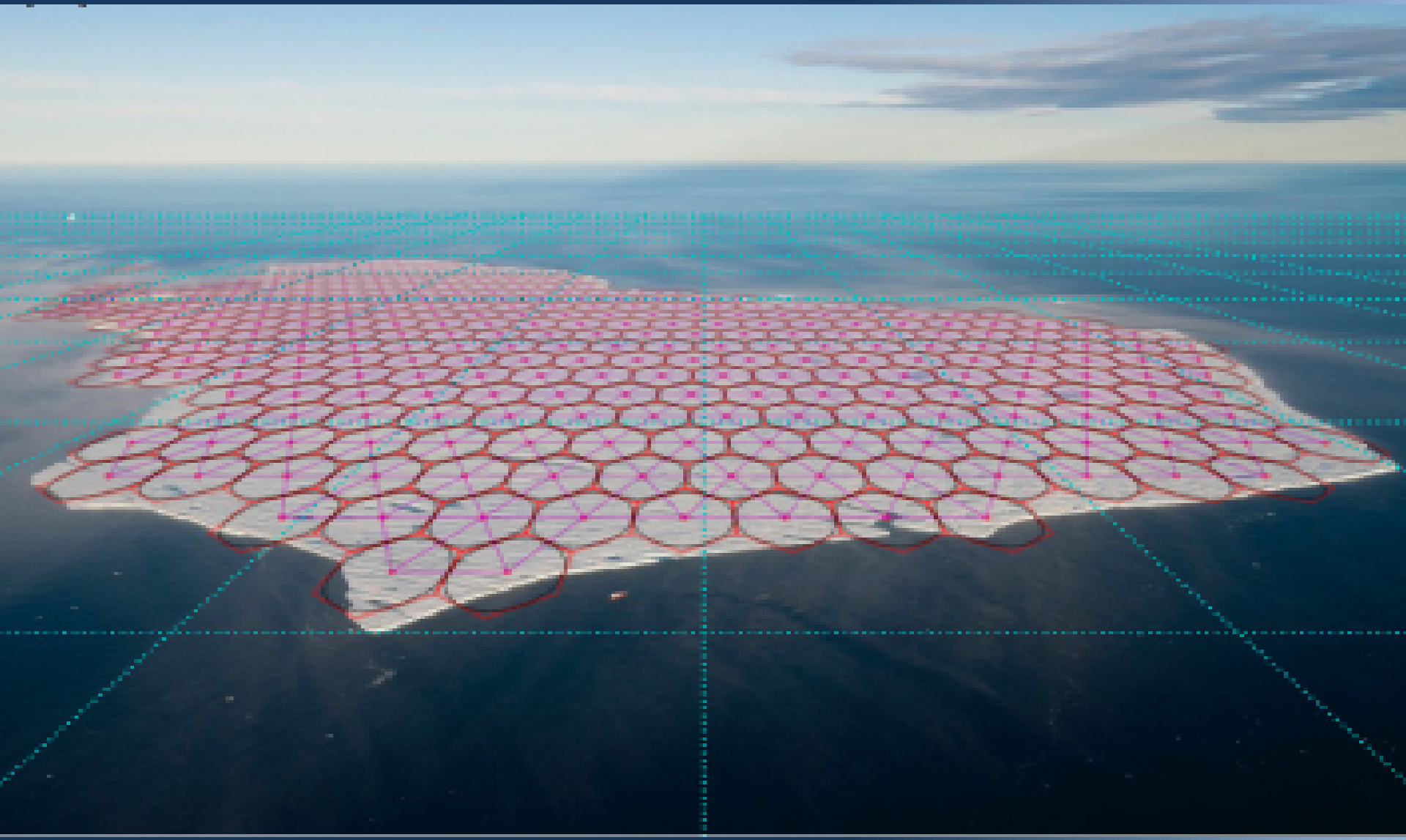


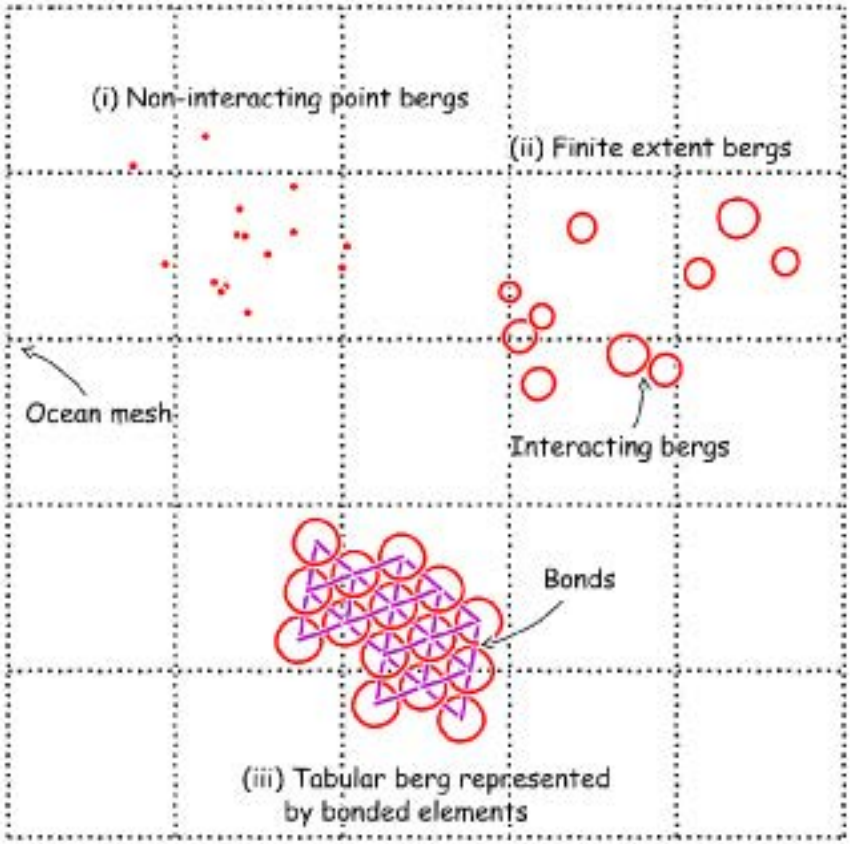
Stern *et* al. (2016)

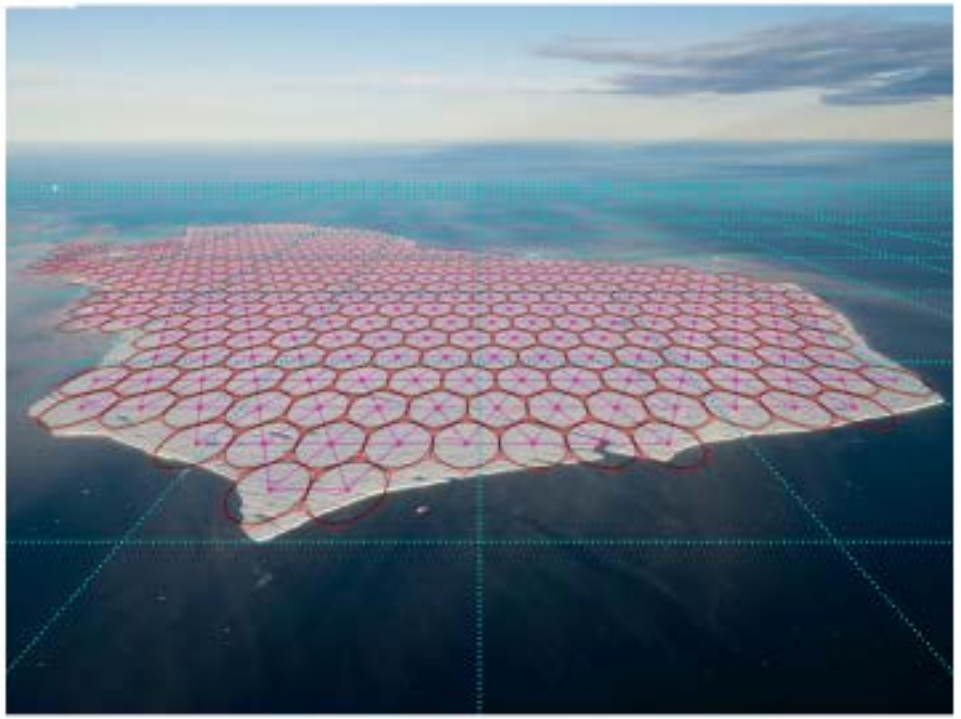
Giant tabular icebergs



Representing giant icebergs in a climate model

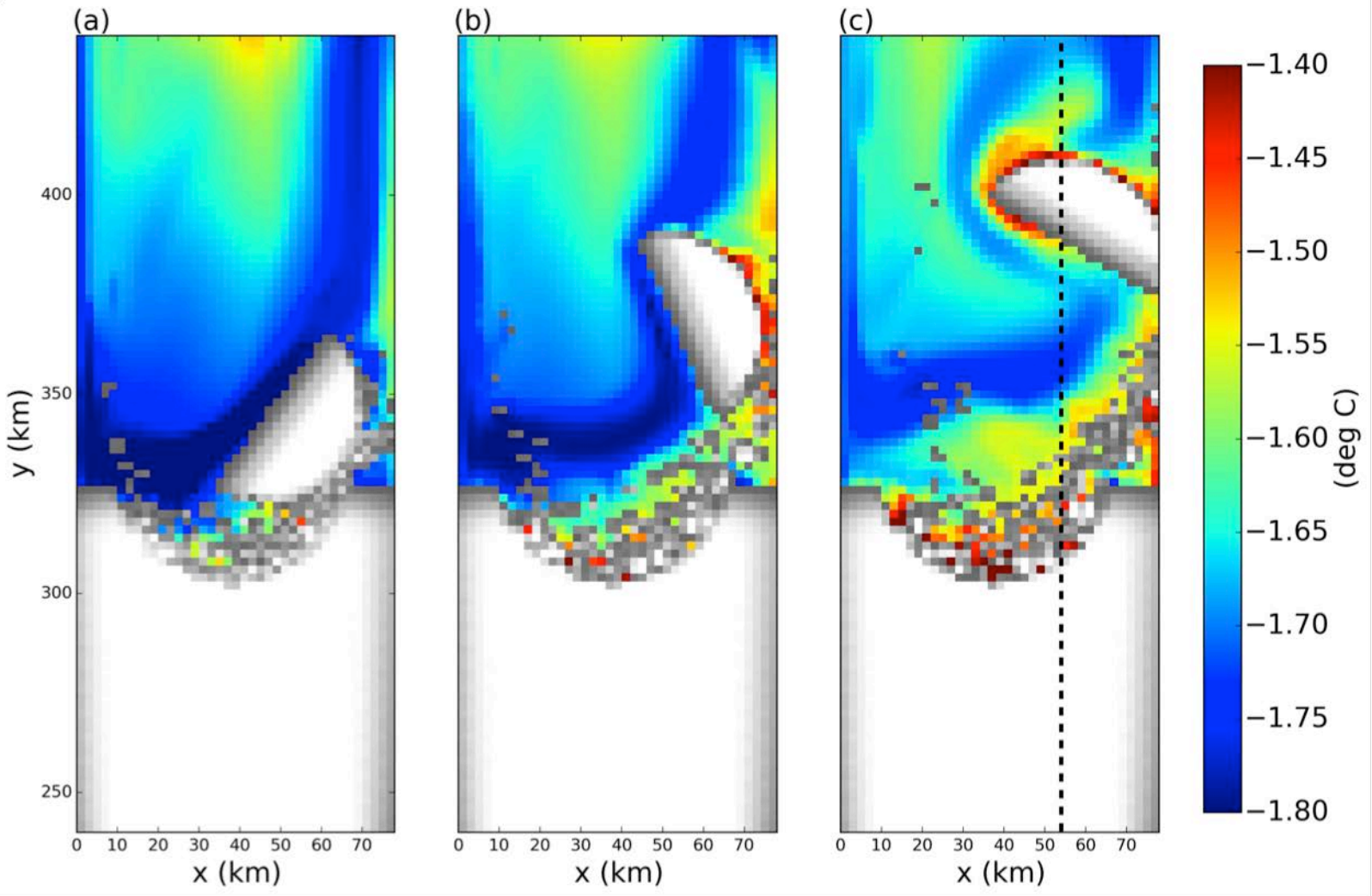






Stern et al. (2017)

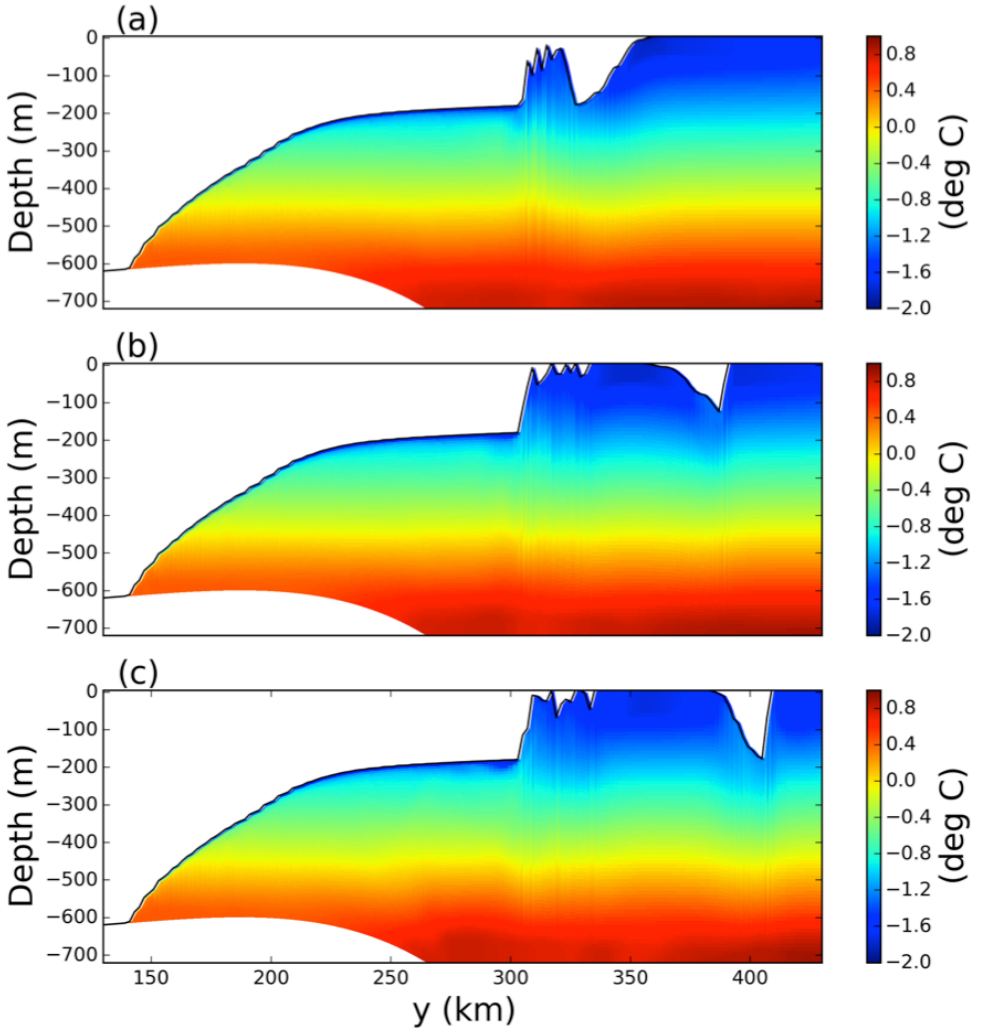
Iceberg calving and breaking



Sea Surface Temperature (°C)

Stern et al. (2017)

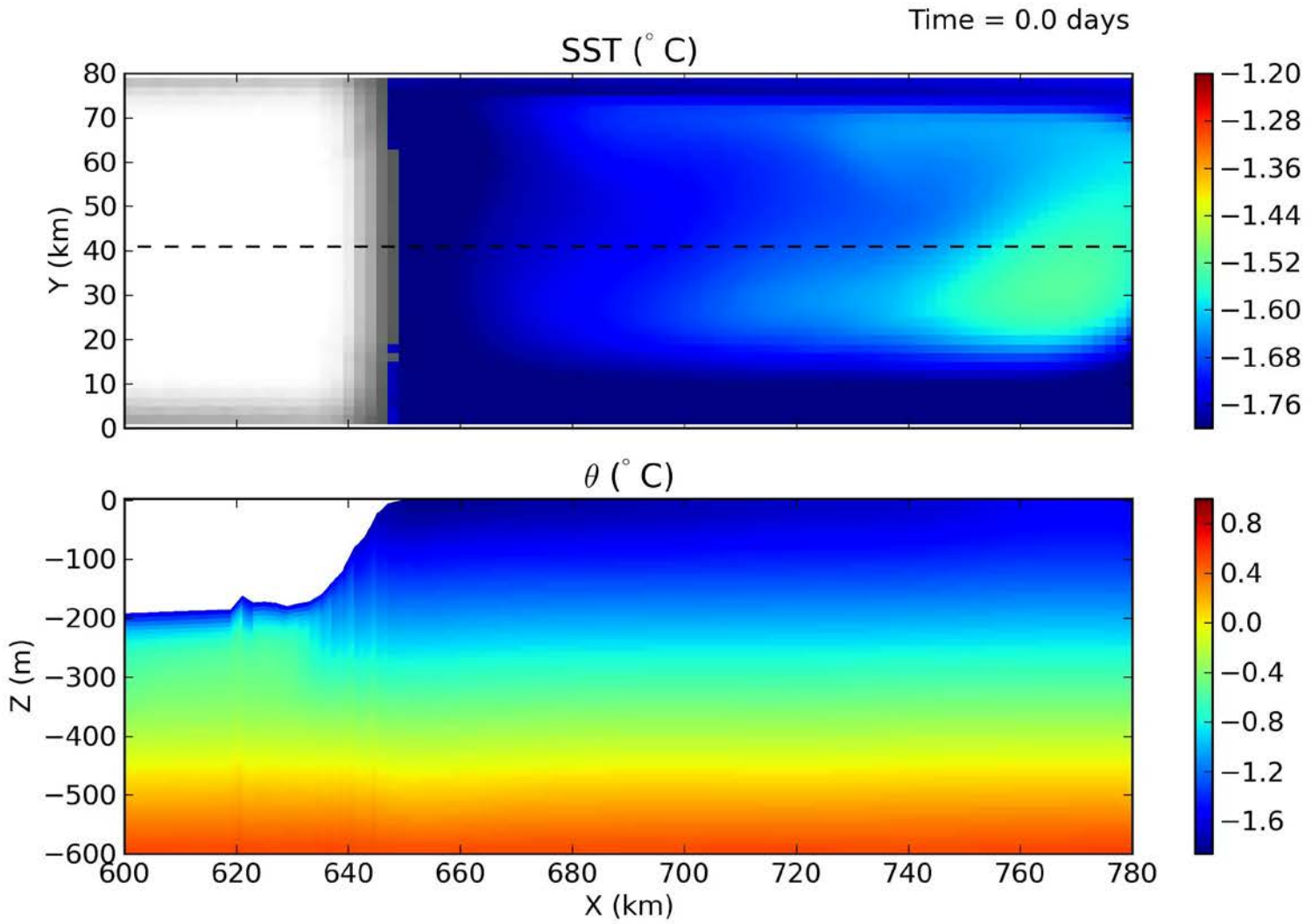
Iceberg calving and breaking



Sea Surface Temperature (°C)

Stern et al. (2017)

Iceberg calving and breaking



Summary

- Icebergs have local, regional and global effects on the state of the ocean.
- Large tabular icebergs are represented as collection of elements connected by bonds
- Breaking bonds allows to simulate calving and iceberg break-up events