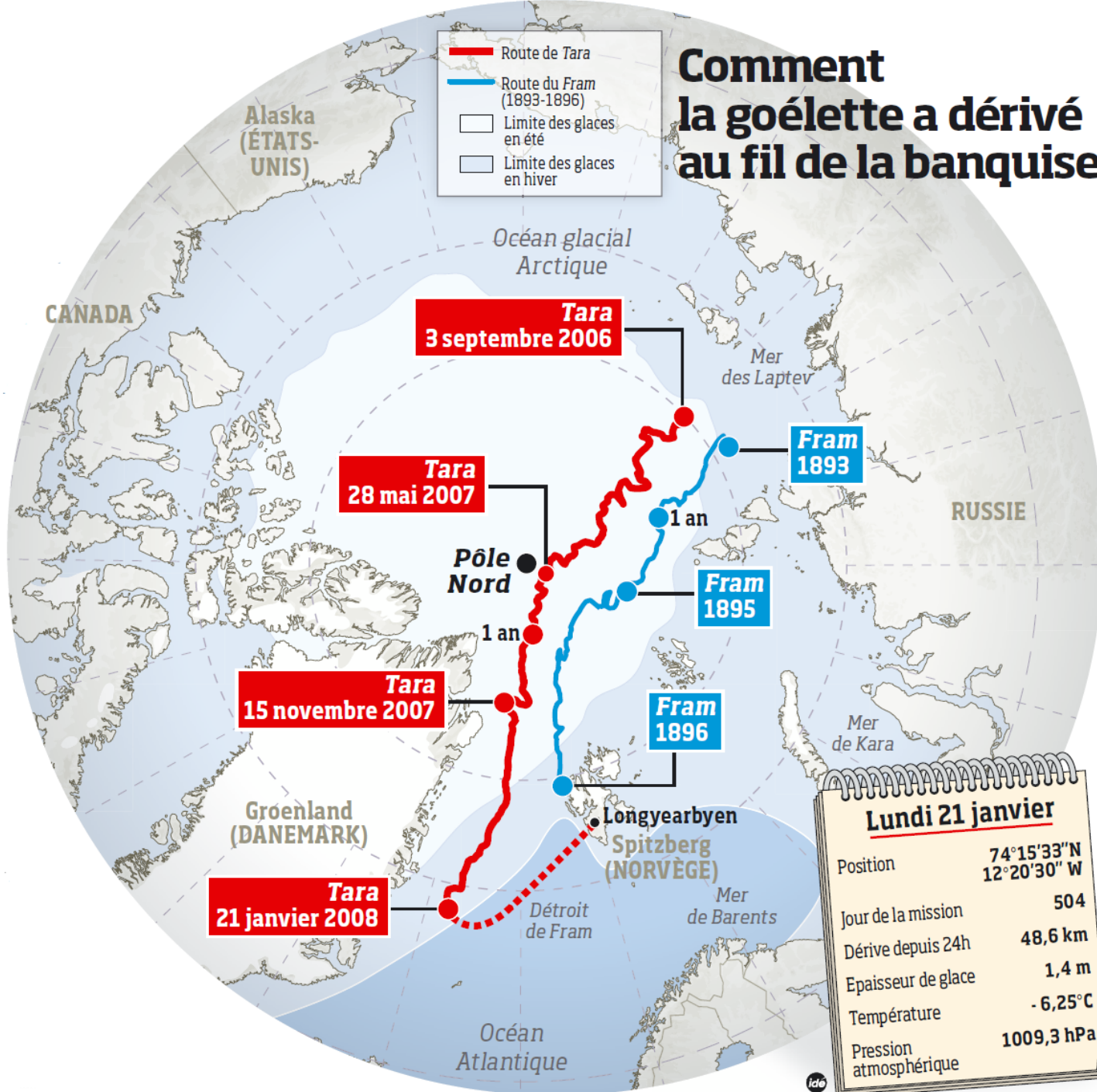


Comment la goélette a dérivé au fil de la banquise



Brussels, 2nd December 2011

UNITER

The recent decadal variability of the sea ice cover as viewed by a numerical model

F. Massonnet

and the LIM group

UCL

Université
catholique
de Louvain



*Centre de recherche sur la Terre
et le climat Georges Lemaître*

Earth and Life Institute

The passport of sea ice

Name : Sea ice

Other names: Frozen seawater, « Banquise »

Place of birth: Polar regions

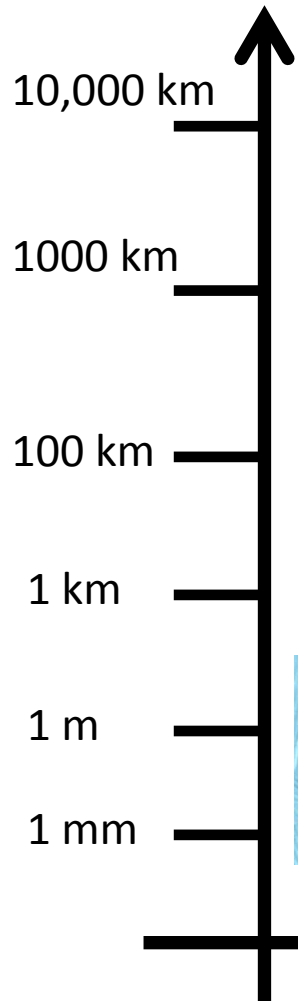
Date of birth: End of summer

Employment: Climate component



It's a complex stuff

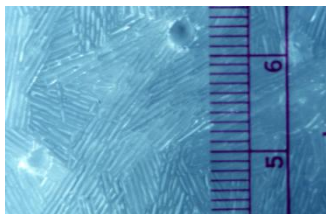
Space



Winds



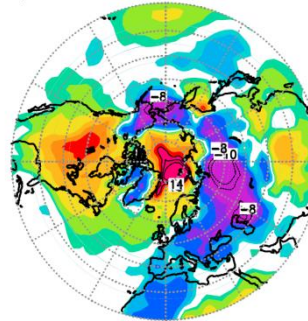
earthobservatory.nasa.gov



Wettlaufer et al, 1997

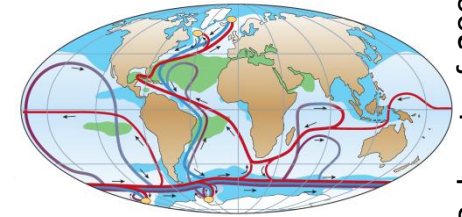
Area

a) Jan 2006 SAT anom.



Petoukhov abd Semenov, 2010

Thickness



Rahmstorf, 2002

1 day

1 month

1 year

10 year

100 year

Time

It's not next door

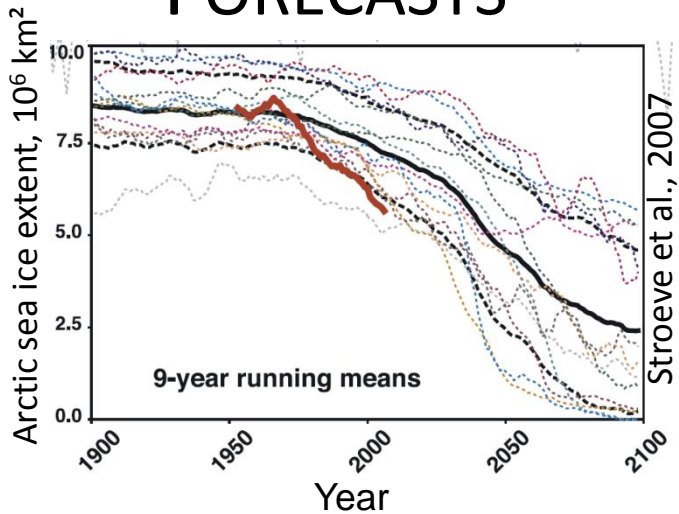
- Field expeditions: min. 2 months
- Sampling issues
- Observed variables
- Short time record (>1960s)

« Understand complex system
with limited observations »

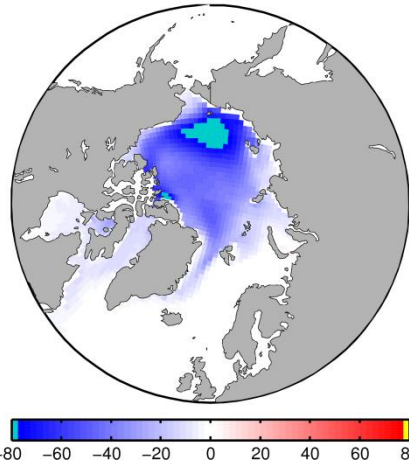
How numerical models can help

Sea ice model

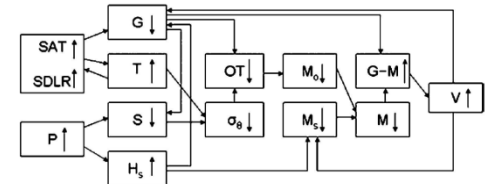
FORECASTS



HINDCASTS



PROCESSES



Zhang, 2007

✓ Continuous in time

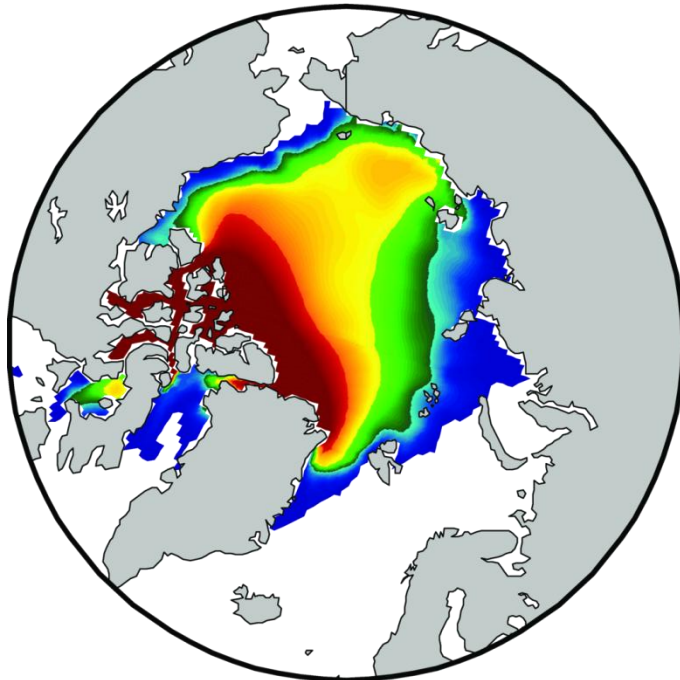
✓ Global spatial coverage

Arctic sea ice: clear changes

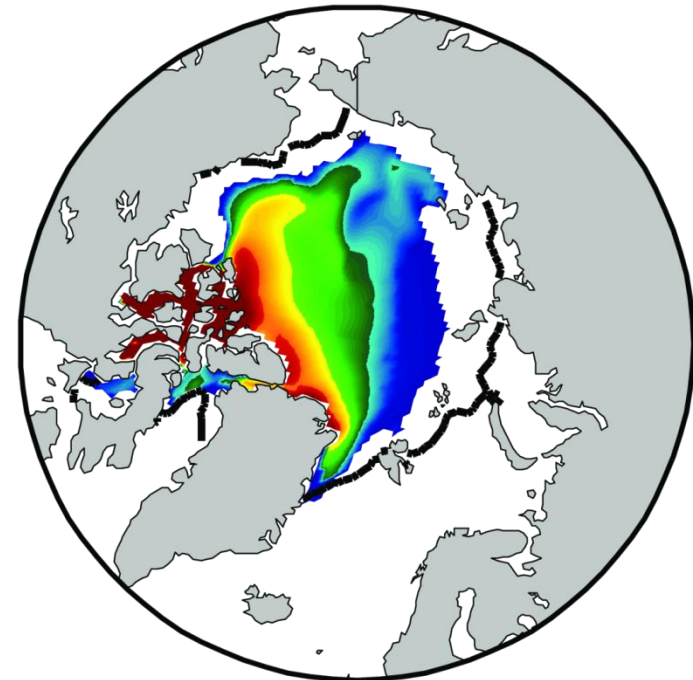
Arctic sea ice thickness
(Louvain-la-Neuve sea Ice Model)



Average September 1979-2000

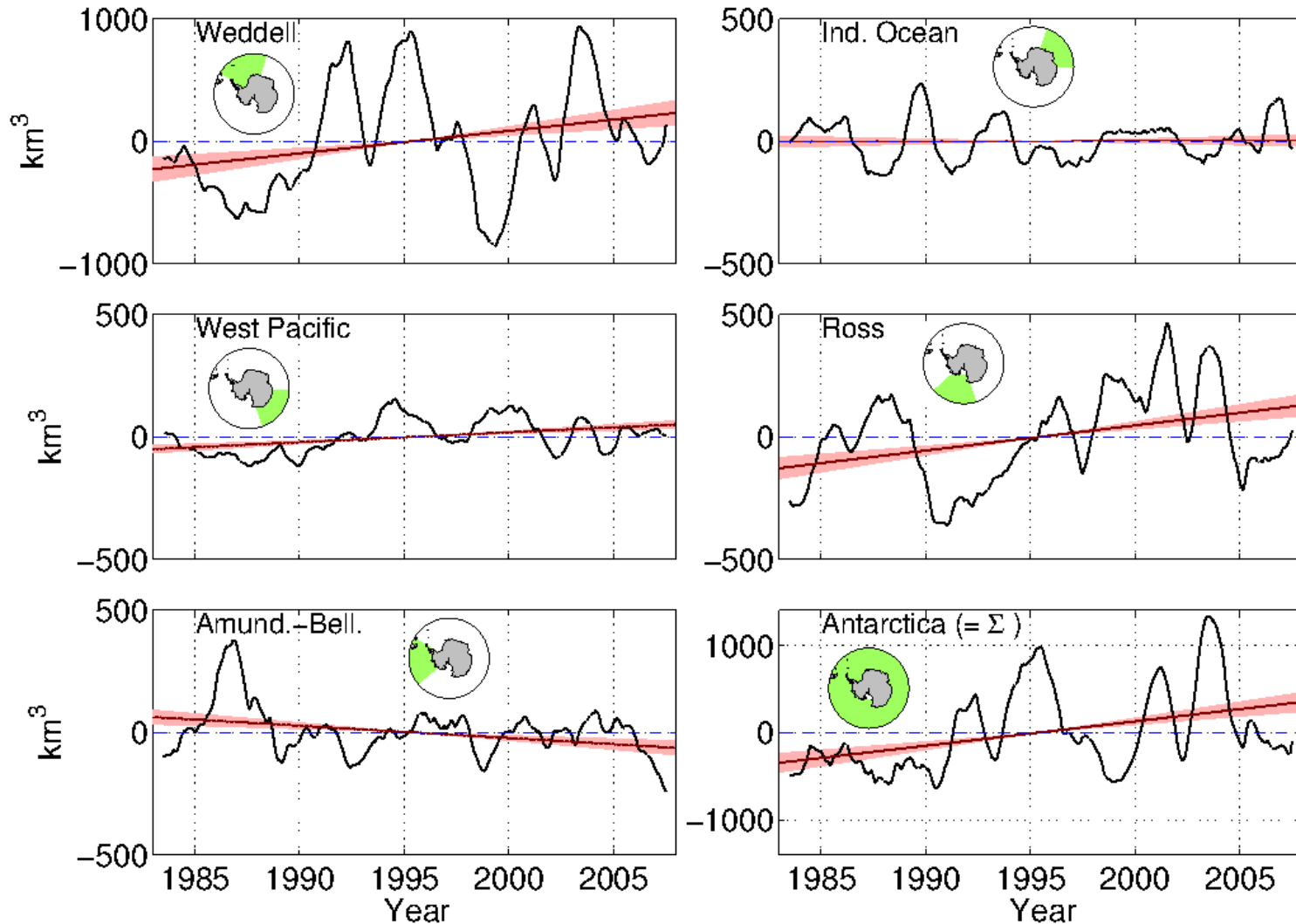


September 2011



Antarctic sea ice: complex changes

Anomalies of sea ice volume, **linear fits \pm 2 std**



Take home message

Sea ice

- is a small component that highly matters
- exhibits strong variability on various timescales
- models are valuable tools

This presentation is available on-line:

www.climate.be/u/fmasson

References

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