Site Overview
MCM LTER

MIKE GOOSEFF

LTER SCIENCE COUNCIL MEETING 2017

HUBBARD BROOK, NH

Overview

Began in 1993

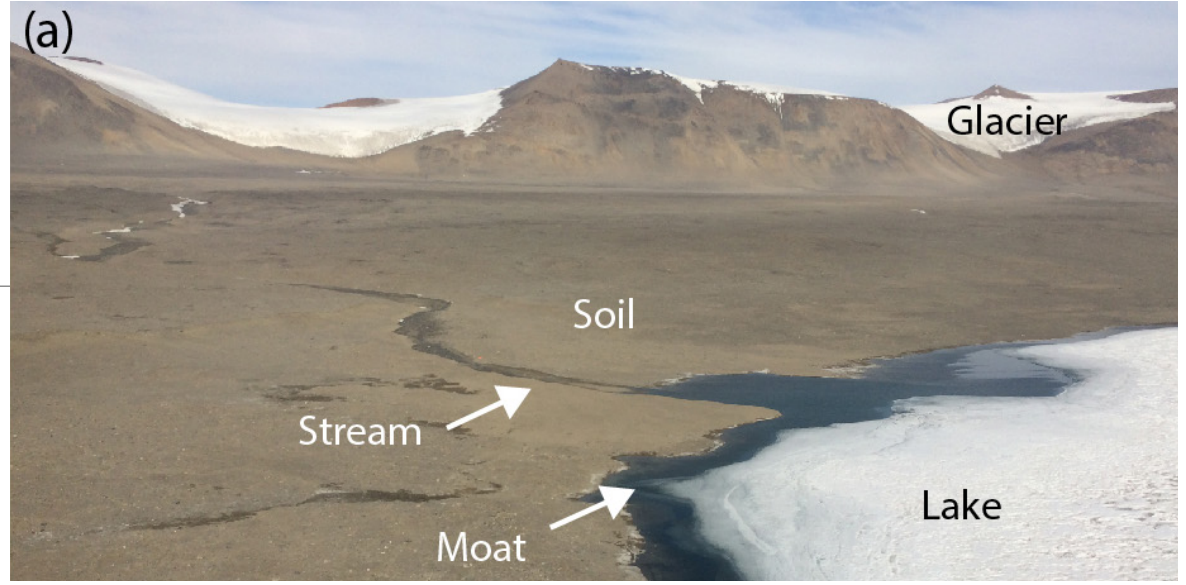
Largest ice-free area of Antarctica

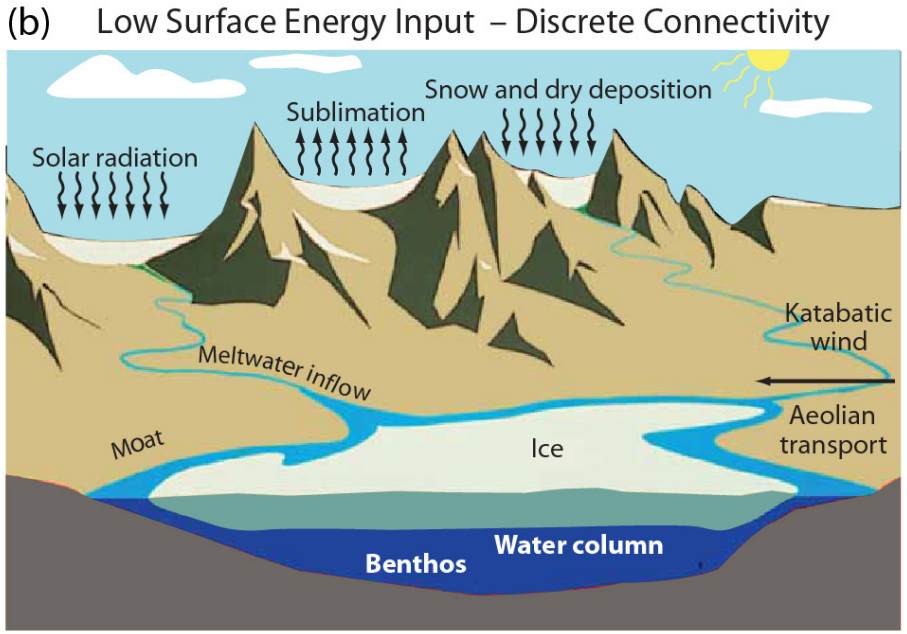
Polar Desert: -18°C mean temp, < 1 cm SWE

Soils, streams, glaciers freeze each year;
Lakes remain active year-round

<u>Primary current theme</u>: *Ecosystem responses to biological and physical connectivity driven by climate forcing*

<u>Connectivity vectors</u>: wind and water





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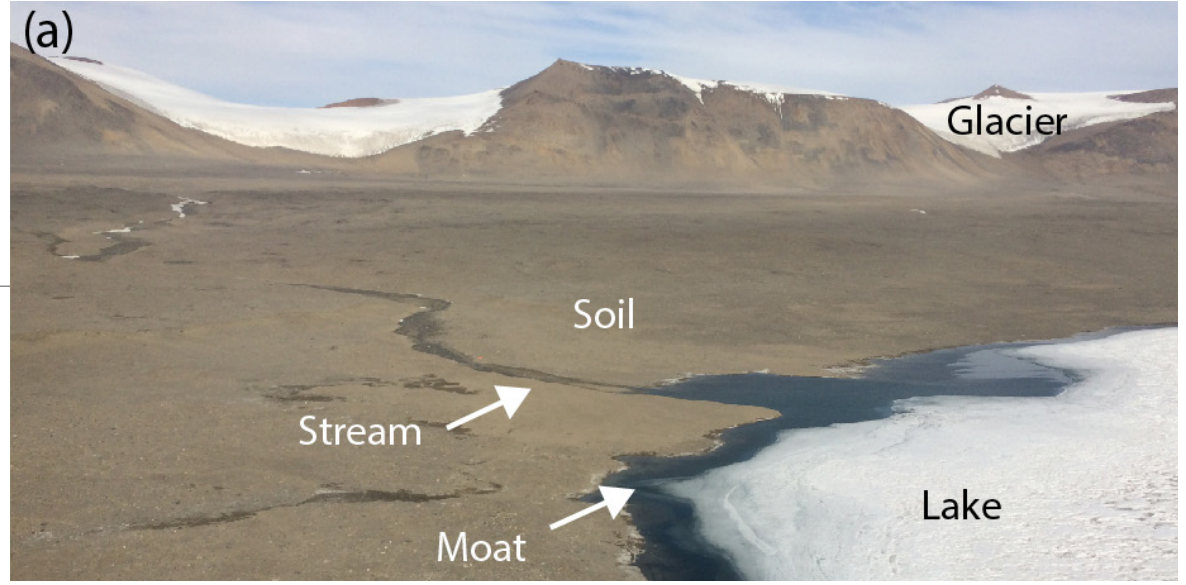
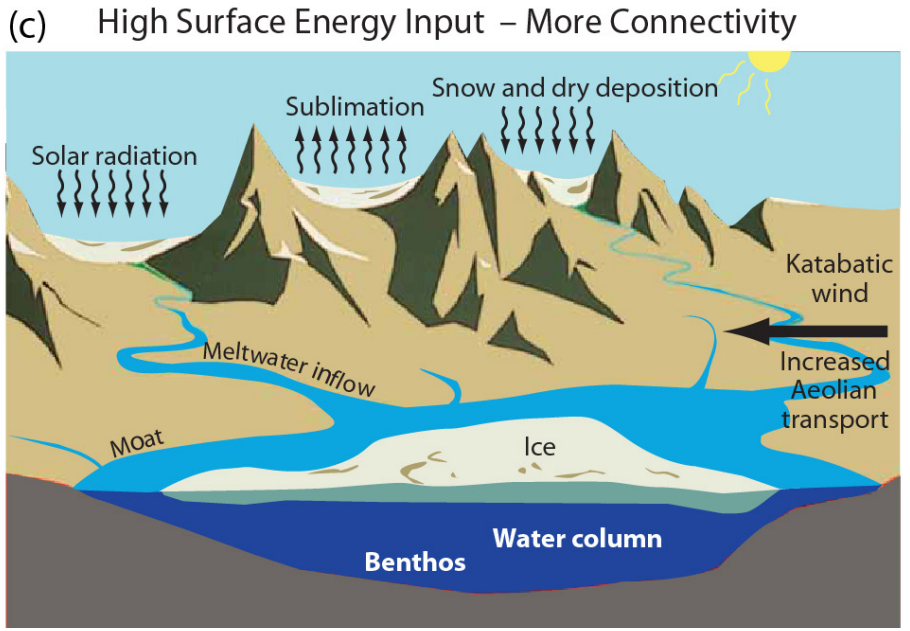
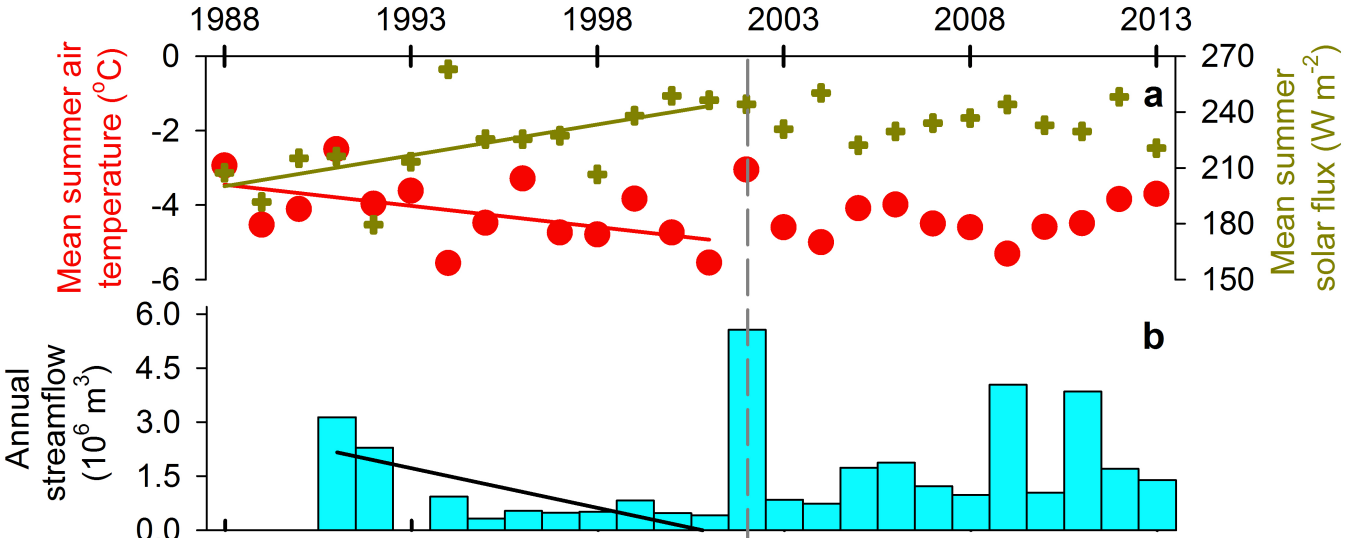




On the Theme of Disturbance



Decadal cooling ends with an abrupt "flood year"

Decadal Responses to Flood Year:

Gooseff et al., accepted, *Nature Ecol. &Evol.*

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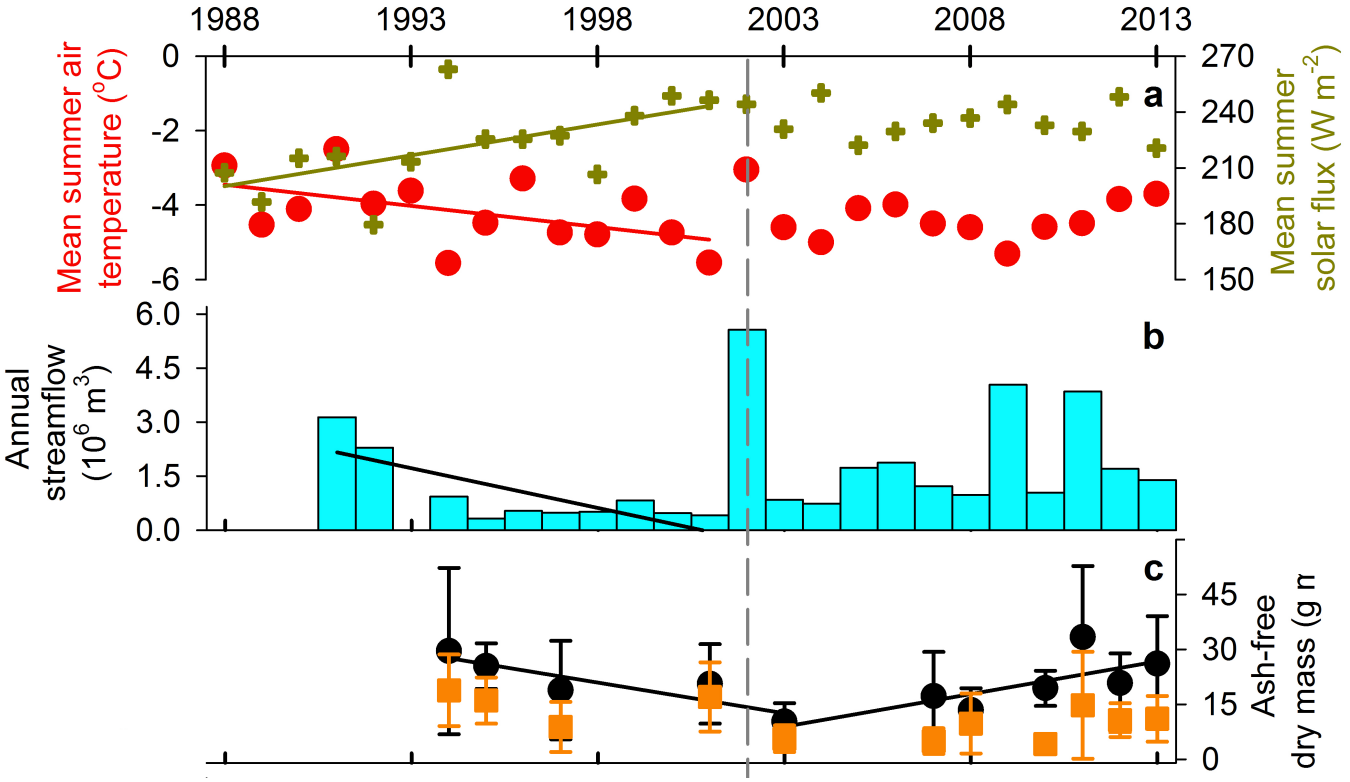

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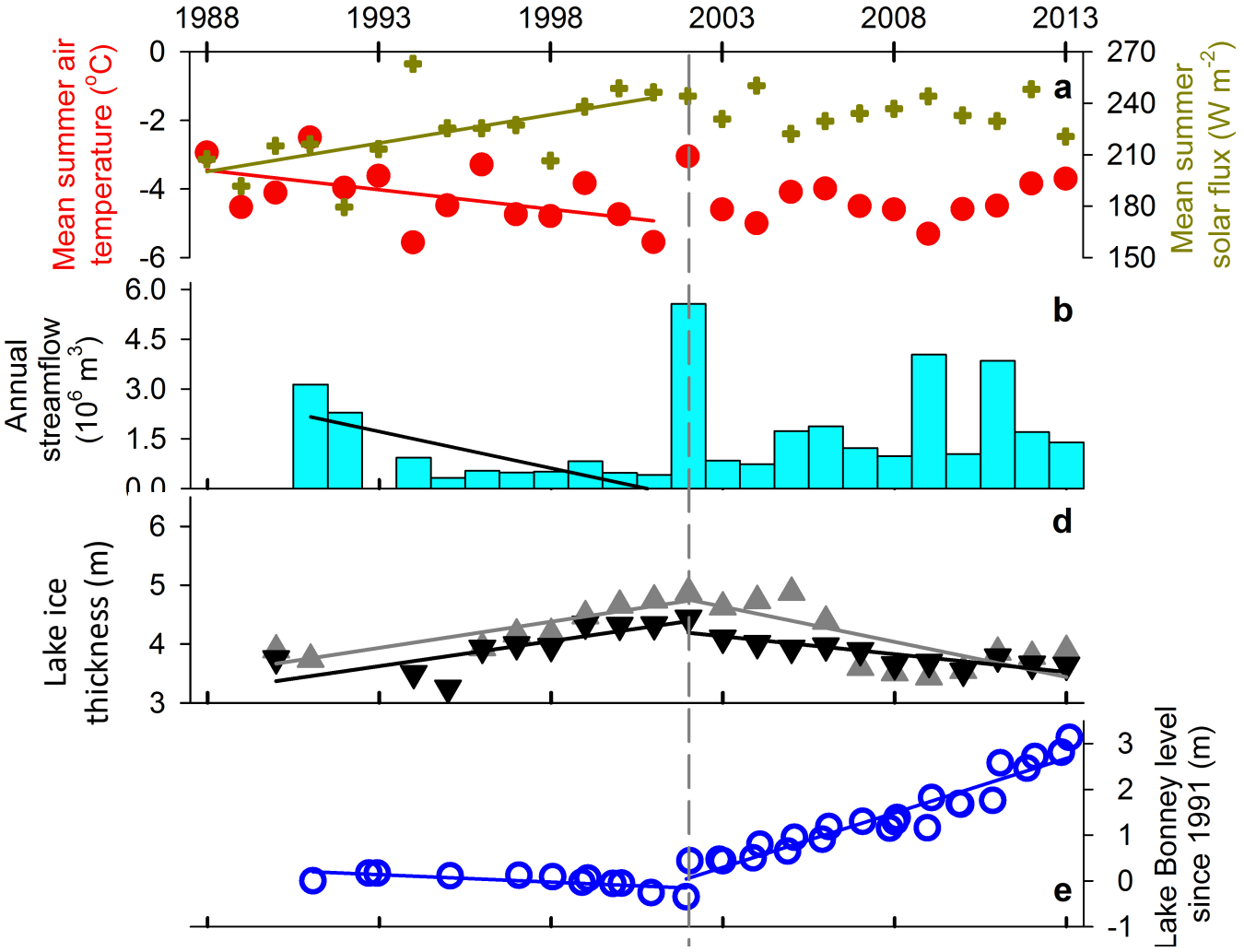

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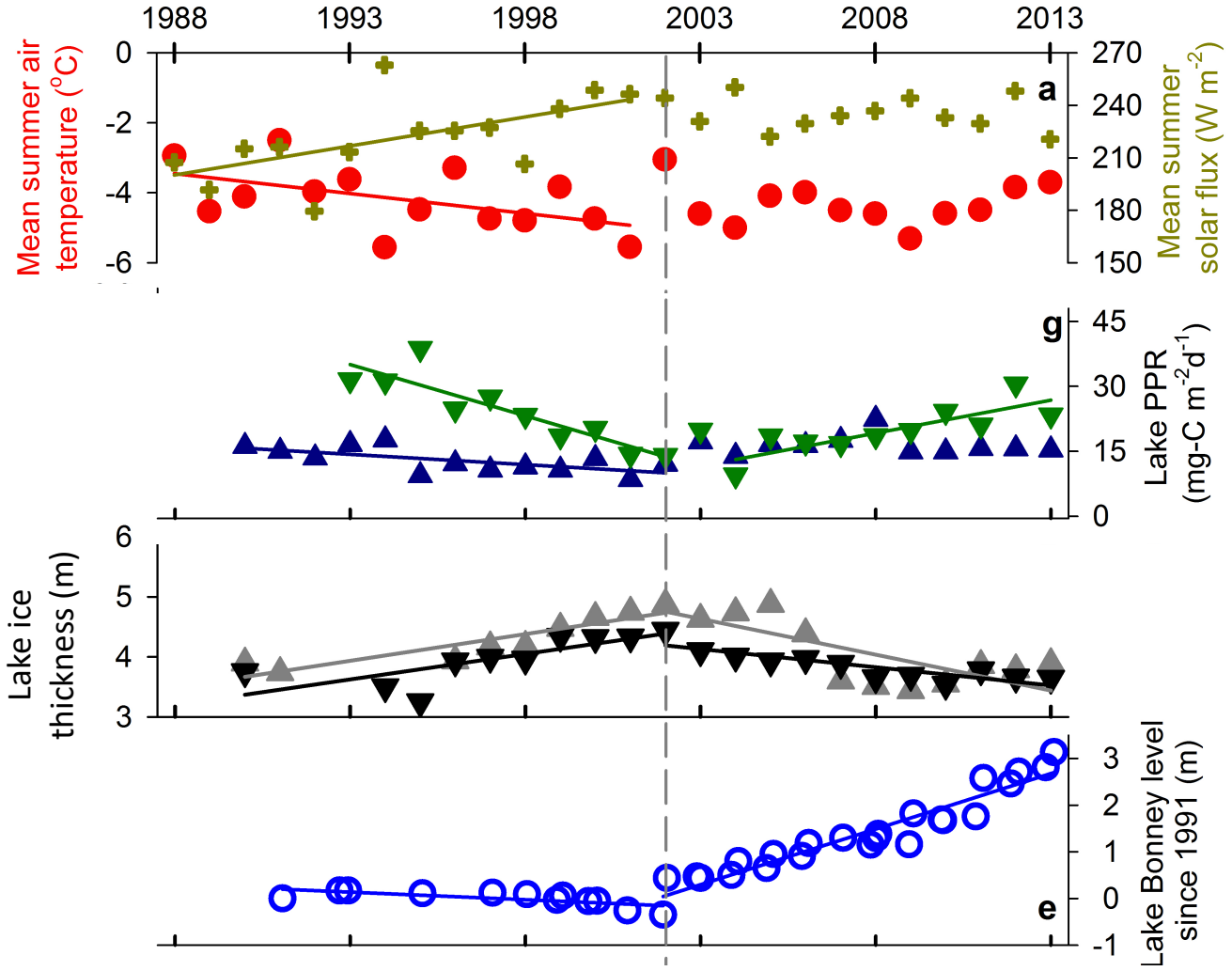

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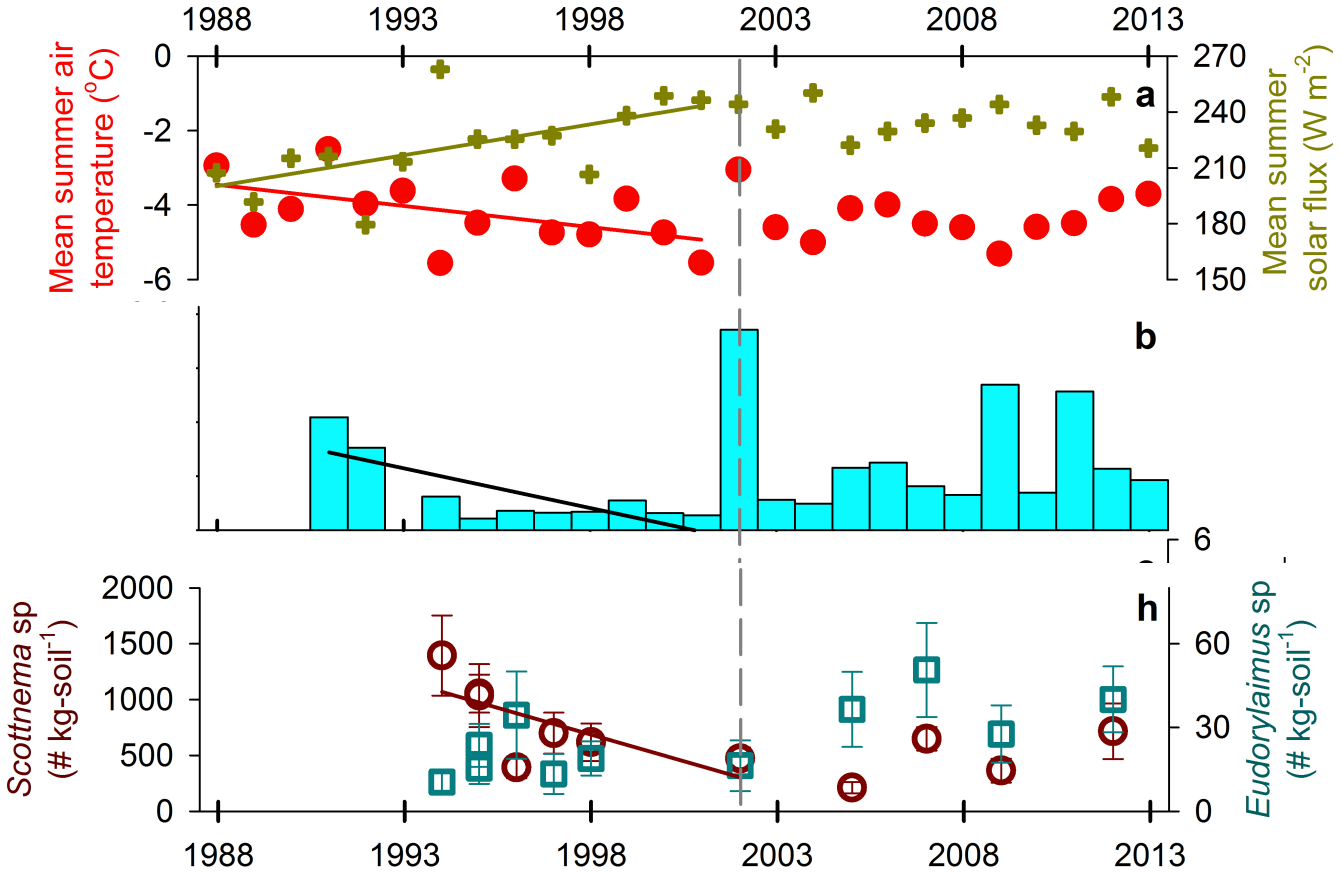

Decadal cooling ends with an abrupt "flood year"

Decadal Responses to Flood Year:

- Stream algal mats increasing
- Lake ice covers thin
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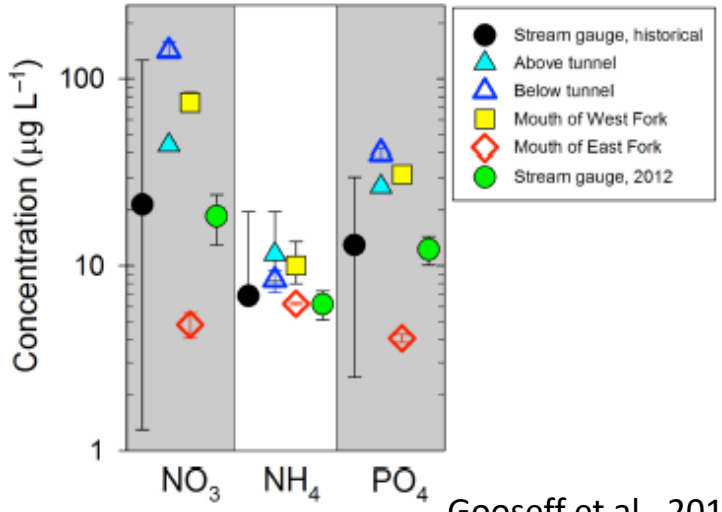
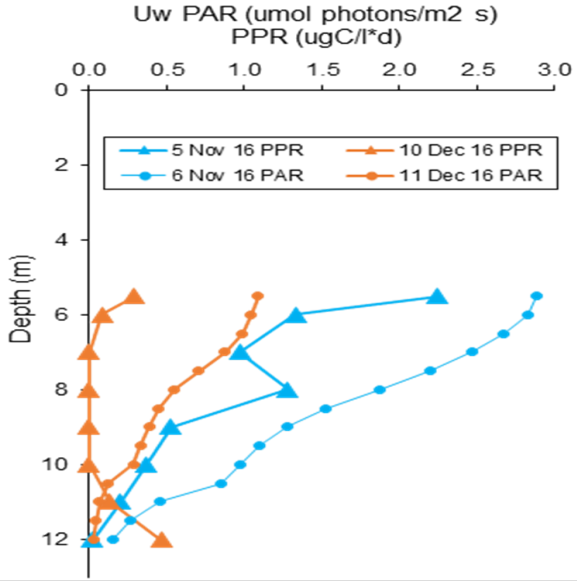
- Lake PPR increases
- Soil invertebrate populations stabilize

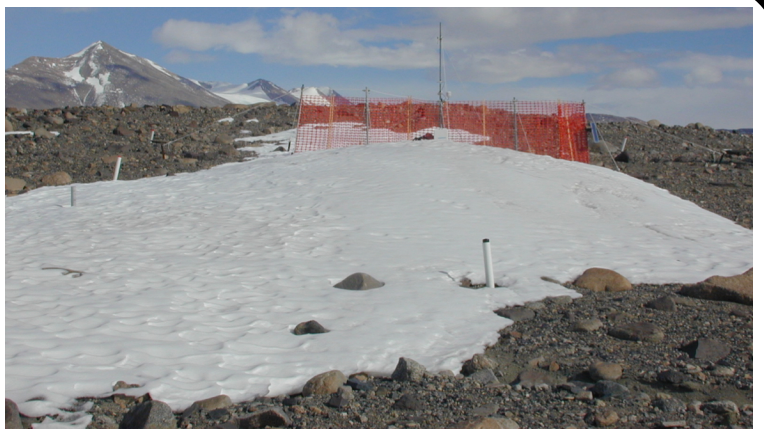
Gooseff et al., accepted, *Nature Ecol. &Evol.*

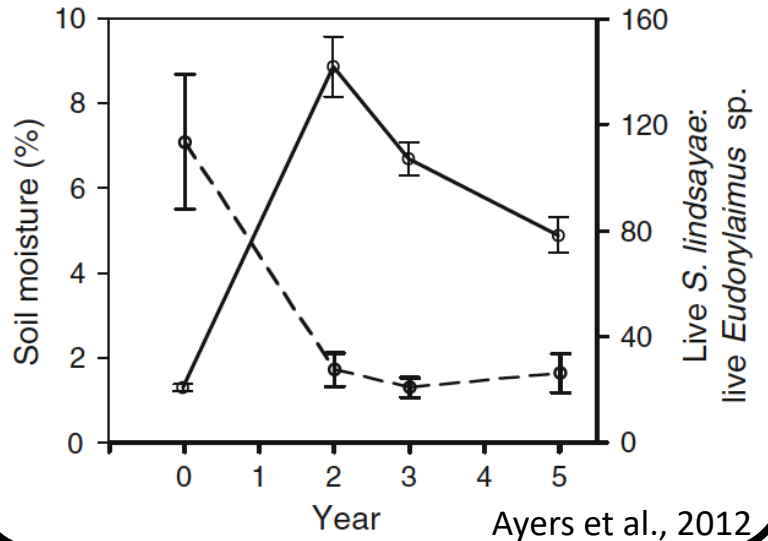
What's (disturbingly) New?



Gooseff et al., 2016







Ayers et al., 2012

Questions or Opportunities Related to Disturbance Theme

MCM5 working hypothesis: ***Disturbance increases connectivity and accelerates shifts towards homogeneity in ecosystem structure and functioning in the MDVs***

How resilient is this remote ecosystem to *human connectivity*?

Related questions of interest –

1) What are long-term responses to disturbance (i.e., biodiversity, biogeochemical cycling, etc.)?
2) When does a response result in a state change for the system? Are there good metrics?
3) How important are physical processes and states of the ecosystem in recovery period?