



Modeling Future Snow and Ice Accumulation in the Rocky Mountains under climate warming

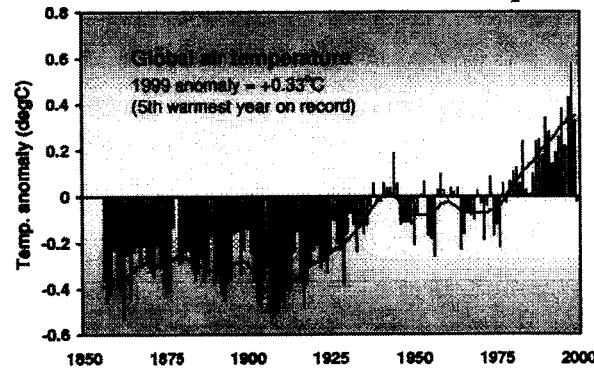
Investigators

- Dr. James Byrne, University of Lethbridge
- Dr. Stefan Kienzle, University of Lethbridge
- Dr. Aaron Berg, University of Guelph
- Suzan Lapp, University of Lethbridge
- Nicole Rabe, University of Lethbridge
- Nicole McKechnie, University of Lethbridge
- Many others

IS THE GLOBAL CLIMATE CHANGING?

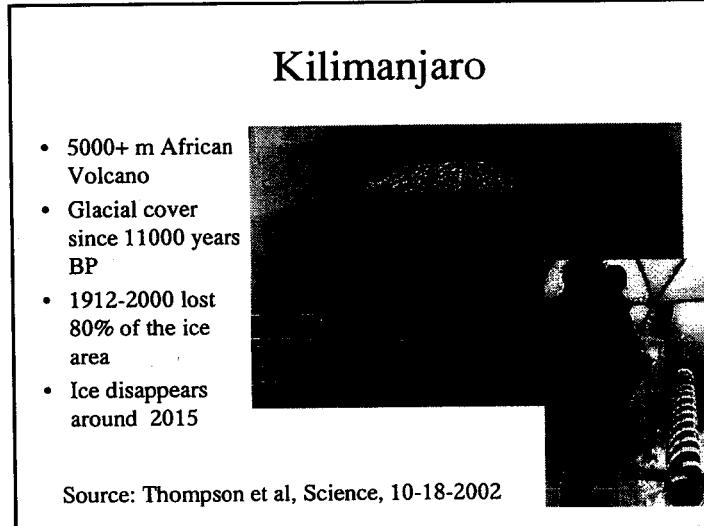
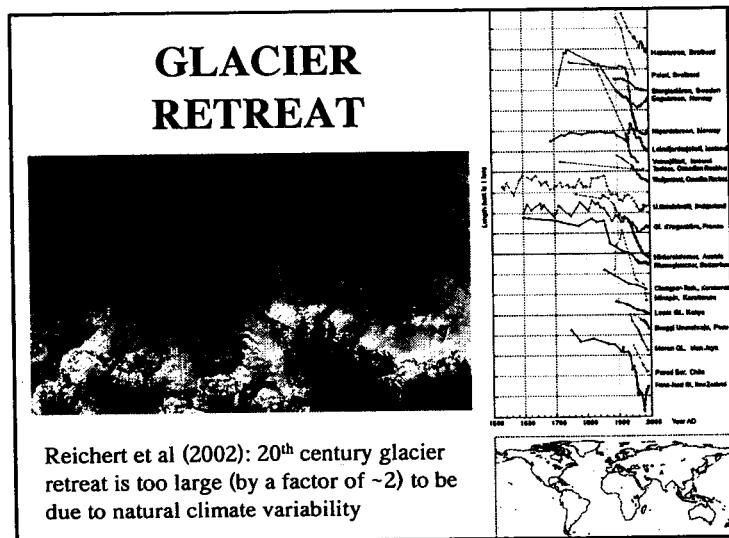
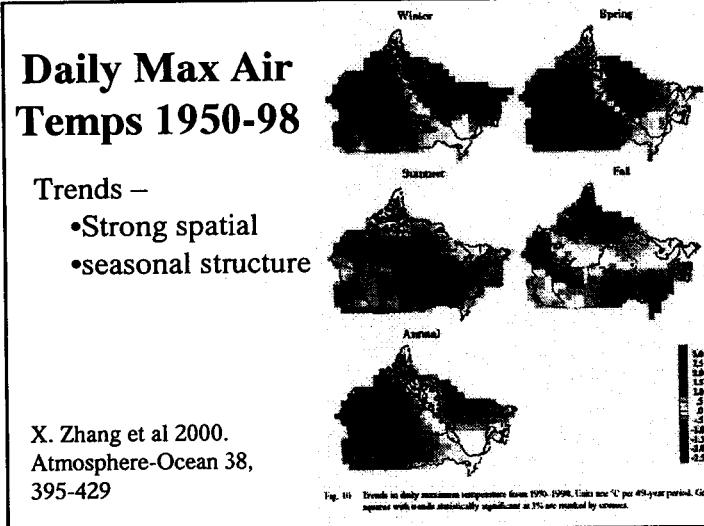
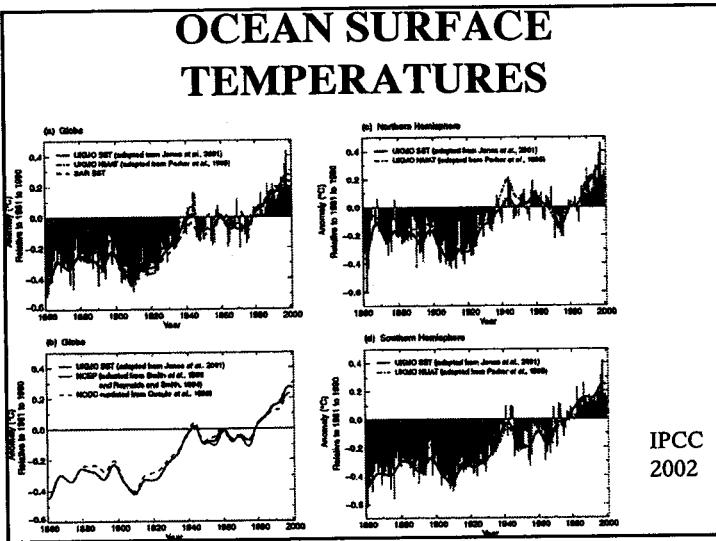
What the sceptics say:
"There is no convincing evidence..."

Global mean annual air temp



- Two step warming (1910-40 and post 1970)
- 0.8° C warming since late 19th century

Source: P D Jones, Climate Research Unit, University of East Anglia, U.K.



Glacier National Park

- 150+ glaciers in 1850s
- 37 today
- Ice mass decline > 90%
- All gone in a few decades

Source: Fagre, 2002.

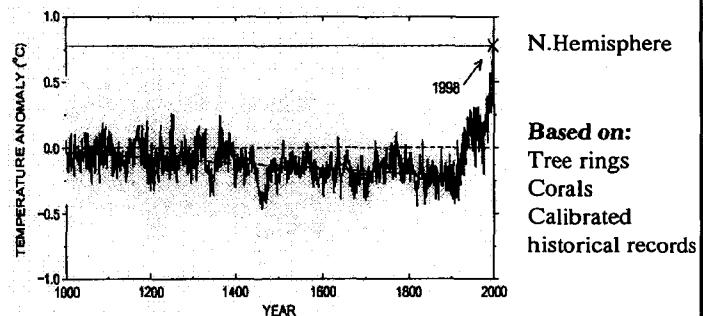
GLACIER RETREAT

Who should care?

- St. Mary Basin water users
- Milk River basin water users
- International Joint Commission

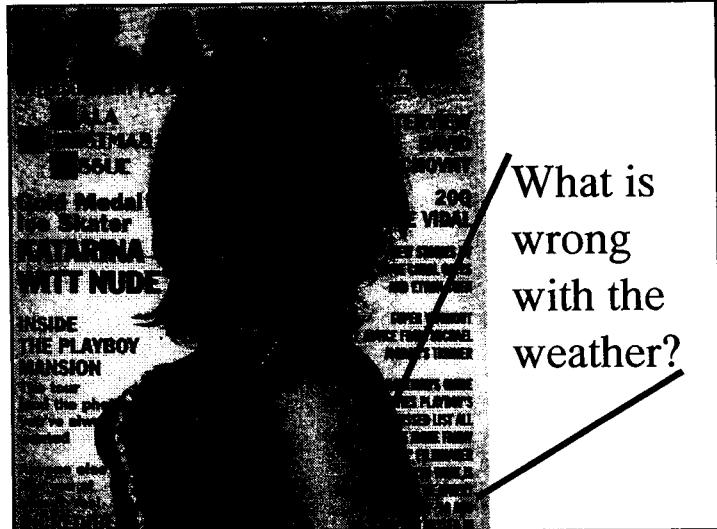
**ARE HUMAN ACTIVITIES
RESPONSIBLE FOR
CLIMATE WARMING?**

Michael Mann's Hockey Stick



M E Mann et al., 1999, Geophys. Res. Lett. 26, 759

Science nature



What is
wrong
with the
weather?

Objective
*What will be the overall
change in Oldman Basin
snow water equivalent under
climate change?*



**Global Circulation Models
say increased precipitation in
winter for our region**

**implies we have no problem
unfortunately we do**

