

Pat Anderson

Estella Leopold

Mary Edwards



Dec. 2015

# HIGH SCHOOL: Small town Michigan



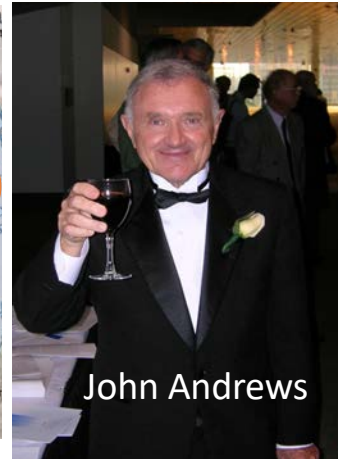
Graduating class of 85 students  
5 attended 4-year college/university  
4 attended junior college



# BSc. 1977 Albion College, MI



J Harlan Bretz

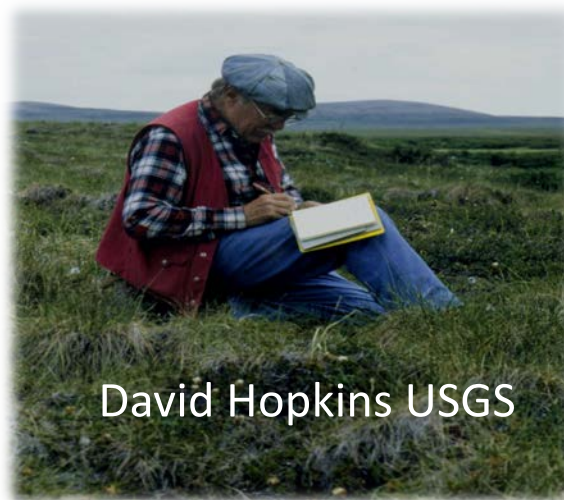


John Andrews

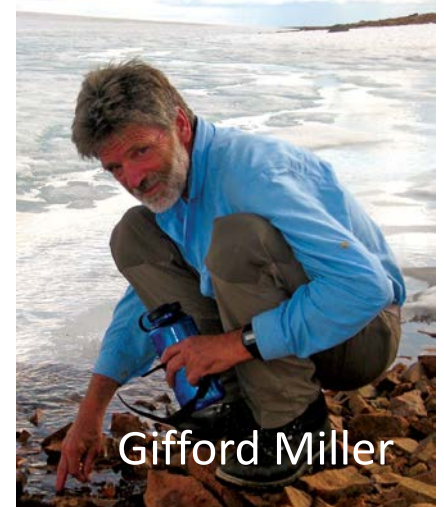
# MSc. 1980, PhD 1985, UC - Boulder



Lawrence D. Taylor

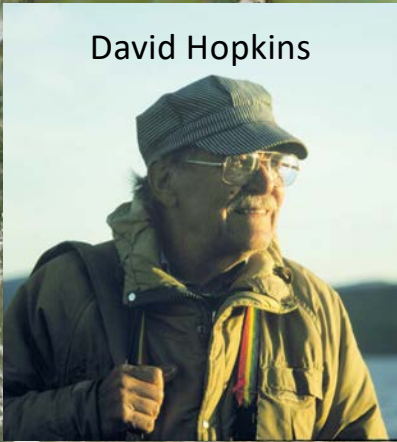


David Hopkins USGS



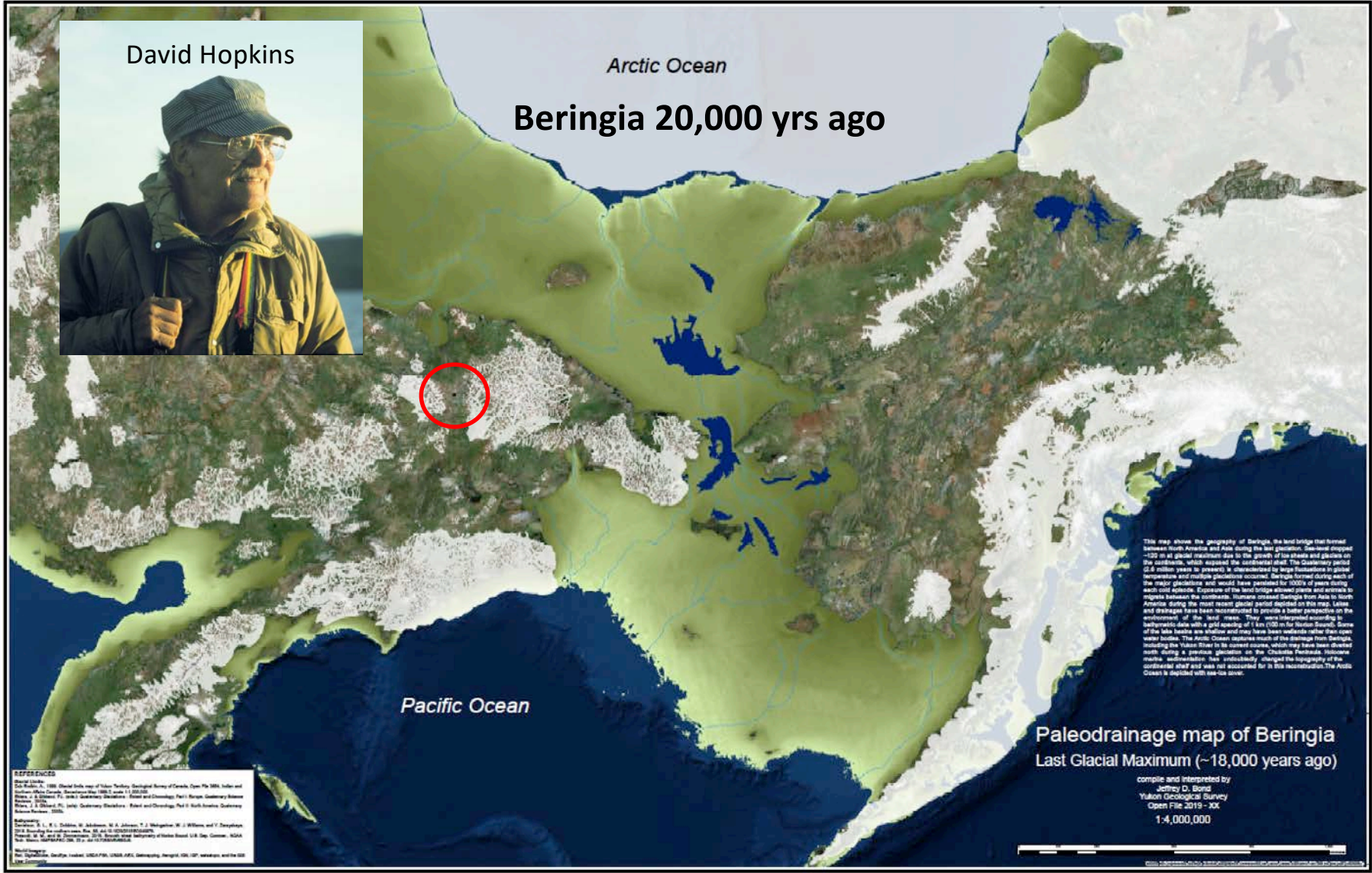
Gifford Miller

David Hopkins



Arctic Ocean

# Beringia 20,000 yrs ago



This map shows the geography of Beringia, the land bridge that formed between North America and Asia during the last glacial period, between 120 m at glacial maximum due to the growth of ice sheets and glaciers on the continents, which exposed the continental shelf. The Quaternary period (2.6 million years to present) is characterized by large fluctuations in global temperature and multiple glaciations occurred. Beringia formed during each of the major glaciations and would have persisted for 1000's of years during each cold advance. Exposure of the land bridge allowed plants and animals to migrate between the continents. Humans crossed Beringia from Asia to North America during the most recent glacial period depicted on this map. Lakes and drainages have been reconstructed to provide a better perspective on the environment of the land mass. They were determined according to bathymetric data with a grid spacing of 1 km (100 m for Hudson Strait). Some of the lake basins are shallow and may have been underlain rather than open water bodies. The Arctic Ocean captures much of the discharge from Beringia, including the Yukon River to its current course, which may have been directed north during a previous glaciation on the Chukotka Peninsula. Holocene marine incursions have subsequently changed the topography of the continental shelf and was not incorporated in this reconstruction. The Arctic Ocean is depicted with sea-ice cover.

## Paleodrainage map of Beringia Last Glacial Maximum (~18,000 years ago)

compile and interpreted by  
Jeffrey D. Bond  
Yukon Flot Survey  
Open File 2019 - 30x  
1:4,000,000



**REFERENCES**  
Bathymetry  
Canadian Hydrographic Service, 1988. Special Scale map of Yukon Territory, Geological Survey of Canada, Open File 1888, Yukon and Yukon Territory, Canada. Reproduced by 1992, scale 1:500,000.  
Blair, J. & Gilbert, F.L. (1961) Quaternary Drainages - Relief and Climatology, Part I. Marine Quaternary Advance Sheets, 1970.  
Blair, J. & Gilbert, F.L. (1962) Quaternary Drainages - Relief and Climatology, Part II. North America, Quaternary Advance Sheets, 1970.  
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Blair, J. & Gilbert, F.L. (1962) Quaternary Drainages - Relief and Climatology, Part II. North America, Quaternary Advance Sheets, 1970.

- Dr. Olga Glushkova, NEISRI, plants seed of idea 1994
- Pilot coring in 1998
- Many rejected proposals!
- Pre-site surveys in 2000 and 2003
- Funding by the ICDP of first \$1.5 M
- Finally \$10M field program



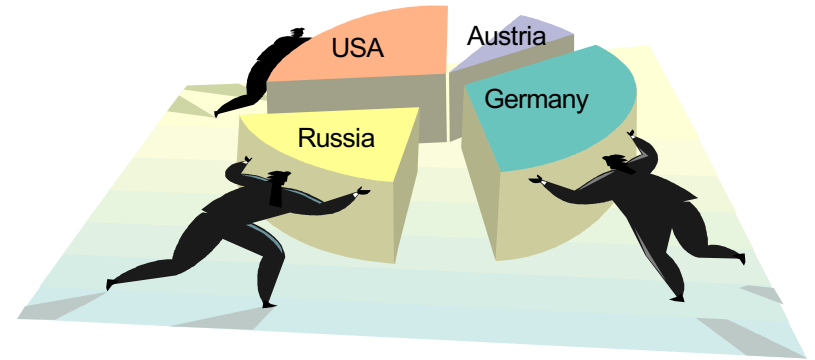
Negotiating trips to Moscow



Olga

## Two Shared Objectives:

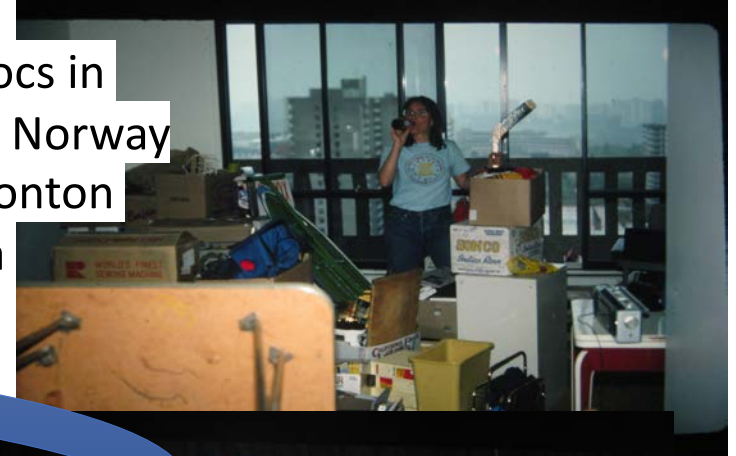
- 1) Carry out interdisciplinary science
- 2) Remain colleagues afterward



Milestone of International  
Polar Year  
2007-2009



Post-Docs in  
Bergen Norway  
& Edmonton  
Alberta

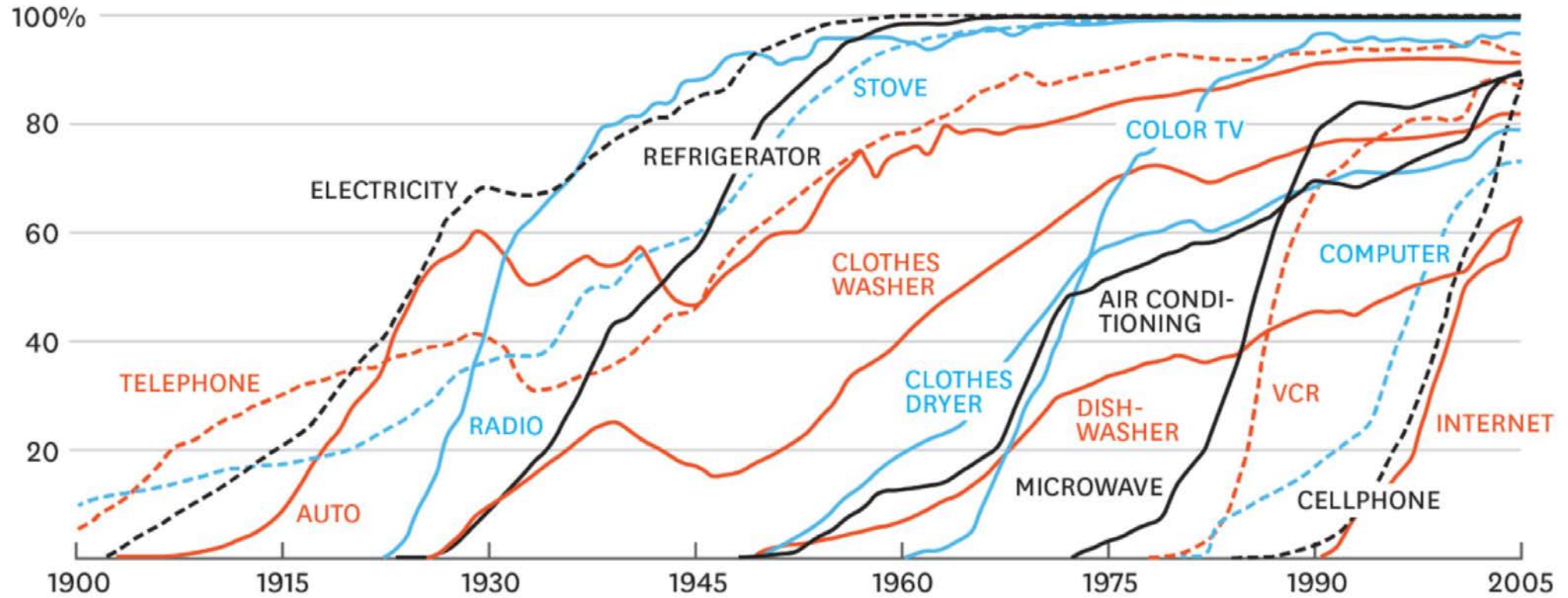


Family and  
Science career!  
35 yrs at UMass



## CONSUMPTION SPREADS FASTER TODAY

PERCENT OF U.S. HOUSEHOLDS



SOURCE NICHOLAS FELTON, THE NEW YORK TIMES

HBR.ORG

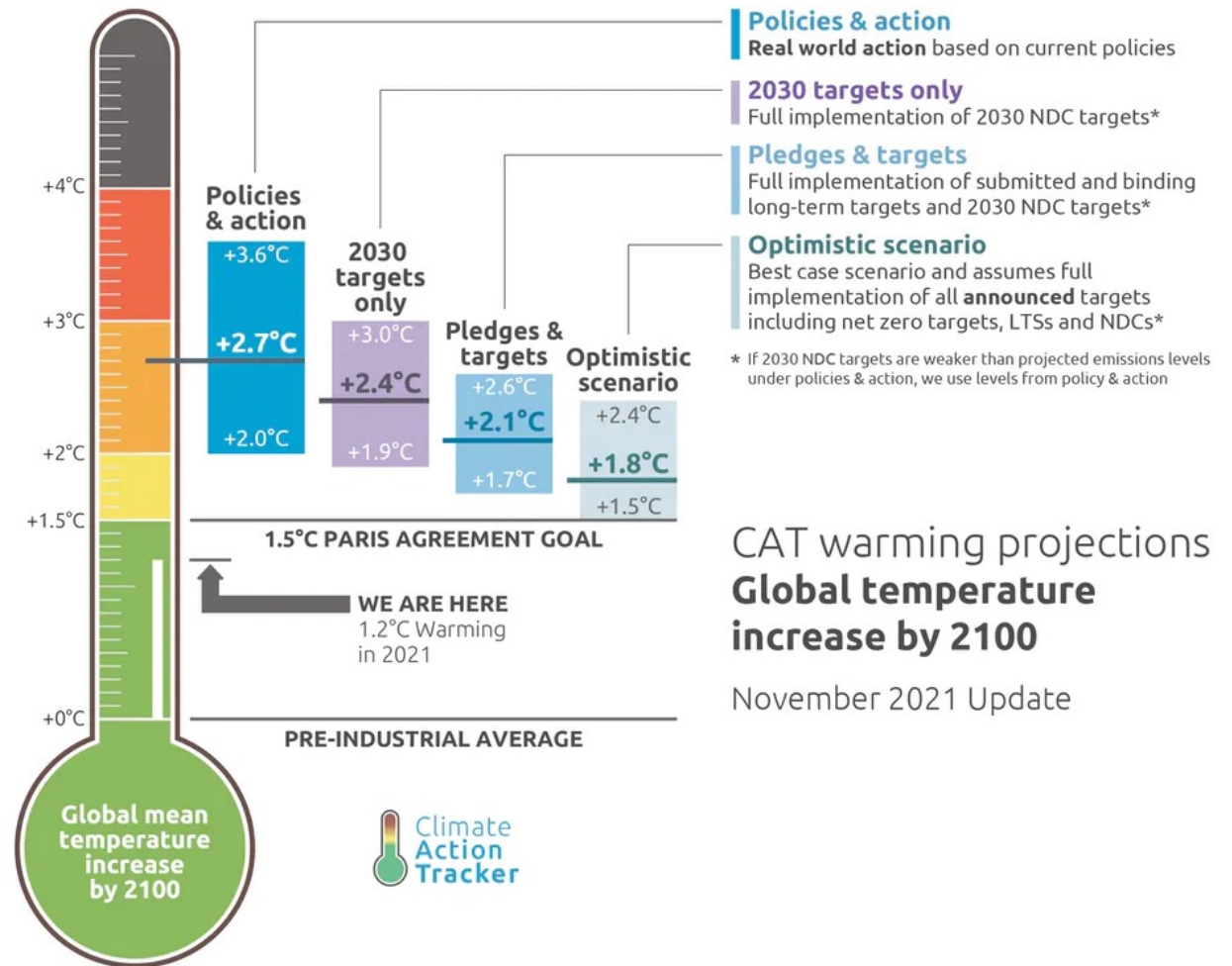
1900 1915 1930 1945 1960 1975 1990 2015



# Get informed; Let's do this!



Gazette: Amherst High School 2019



CAT warming projections  
**Global temperature increase by 2100**

November 2021 Update

Thank you!

Start by doing what's necessary;  
then do what's possible;  
and suddenly you are doing the impossible.

.....Francis of Assisi

