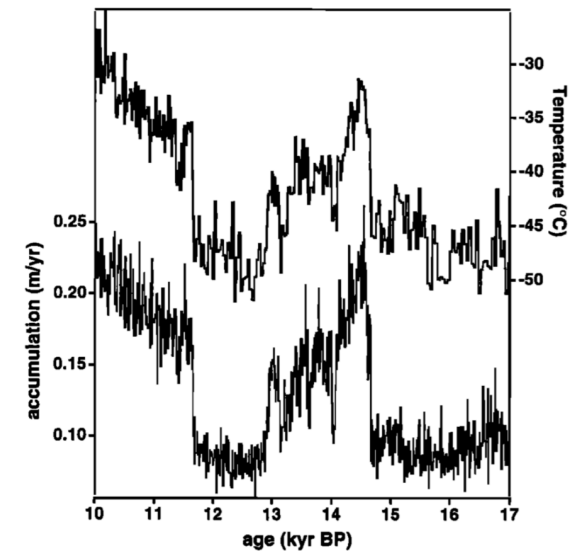


Evaluating Arctic responses to past warming using a new seasonally resolved ice core record

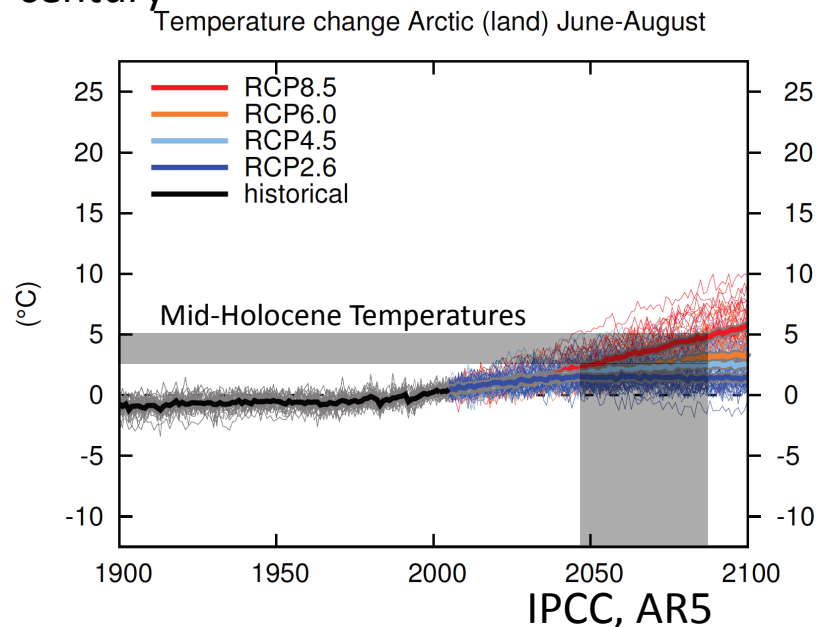
Very rapid warming of as much as 10°C within decades occurred at the end of the Younger Dryas in Greenland

The Arctic experienced sustained warming of $3^{\circ}\text{-}5^{\circ}$ greater than present day during the mid-Holocene

These events are useful analogs for the rate and magnitude of warming occurring in the mid-to-late 21st century

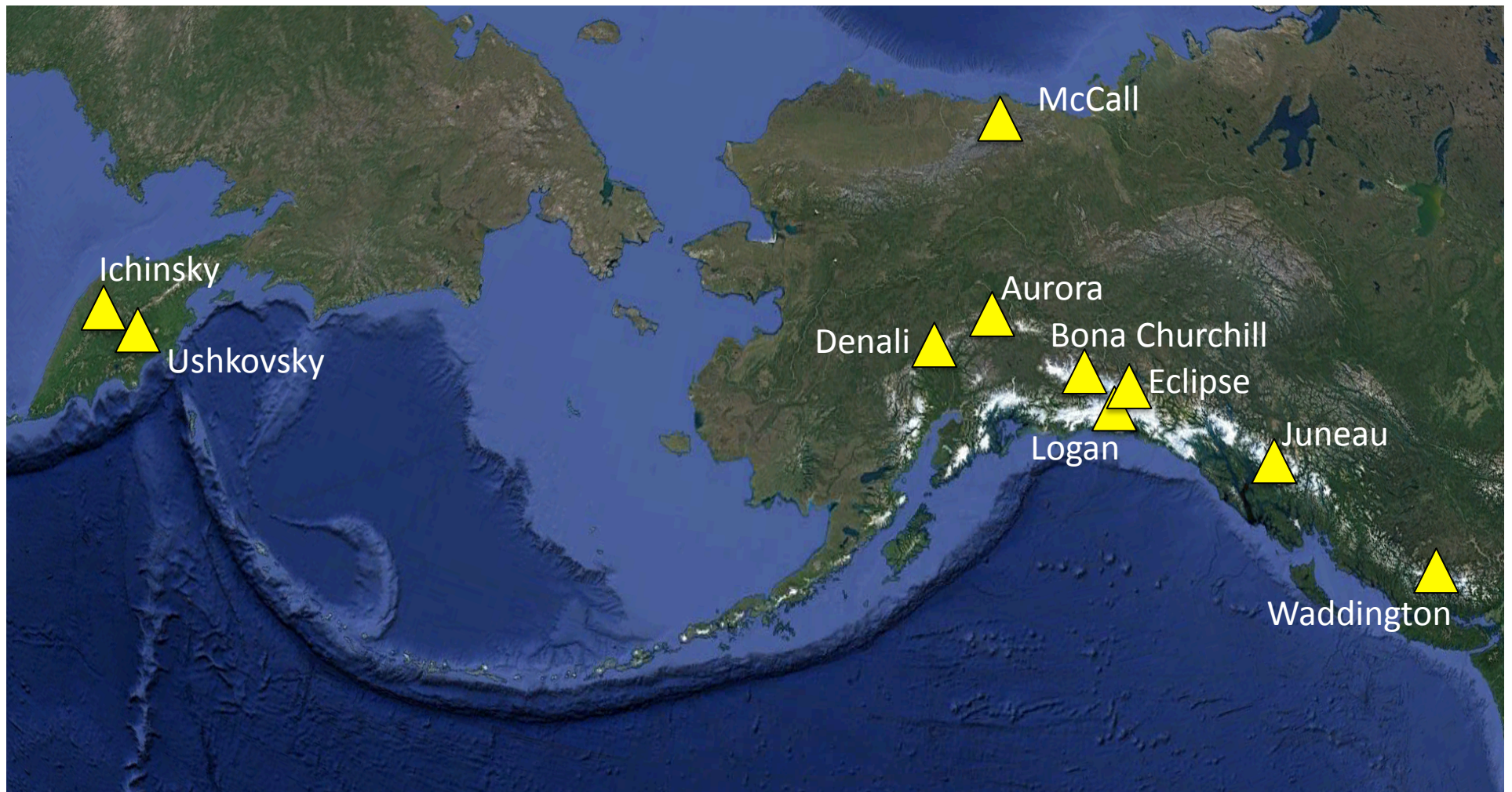


Jouzel et al. 1997

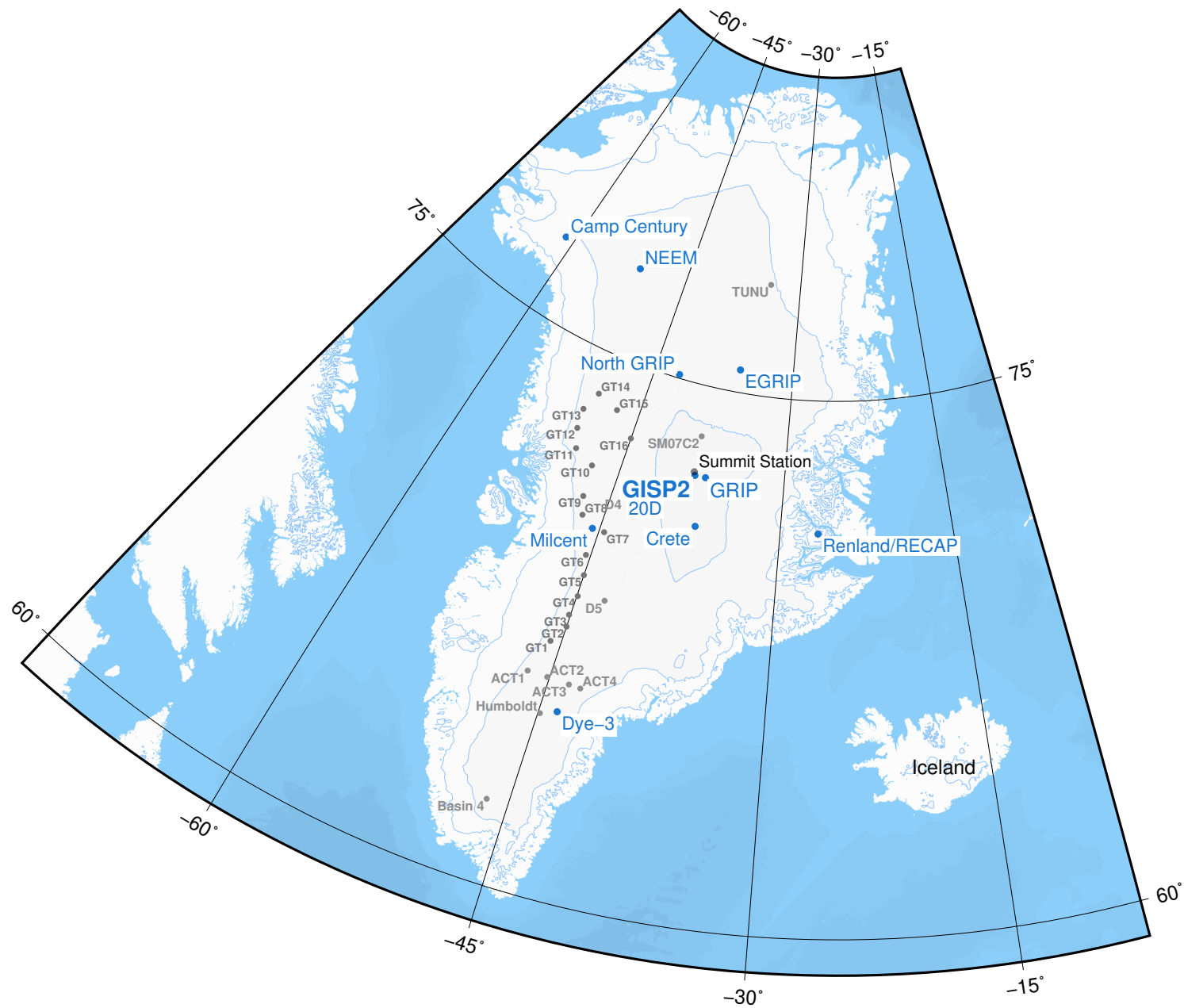


Our goal is to understand how the Arctic climate system has responded to these warming events using seasonally to annually resolved ice core paleoclimate proxies

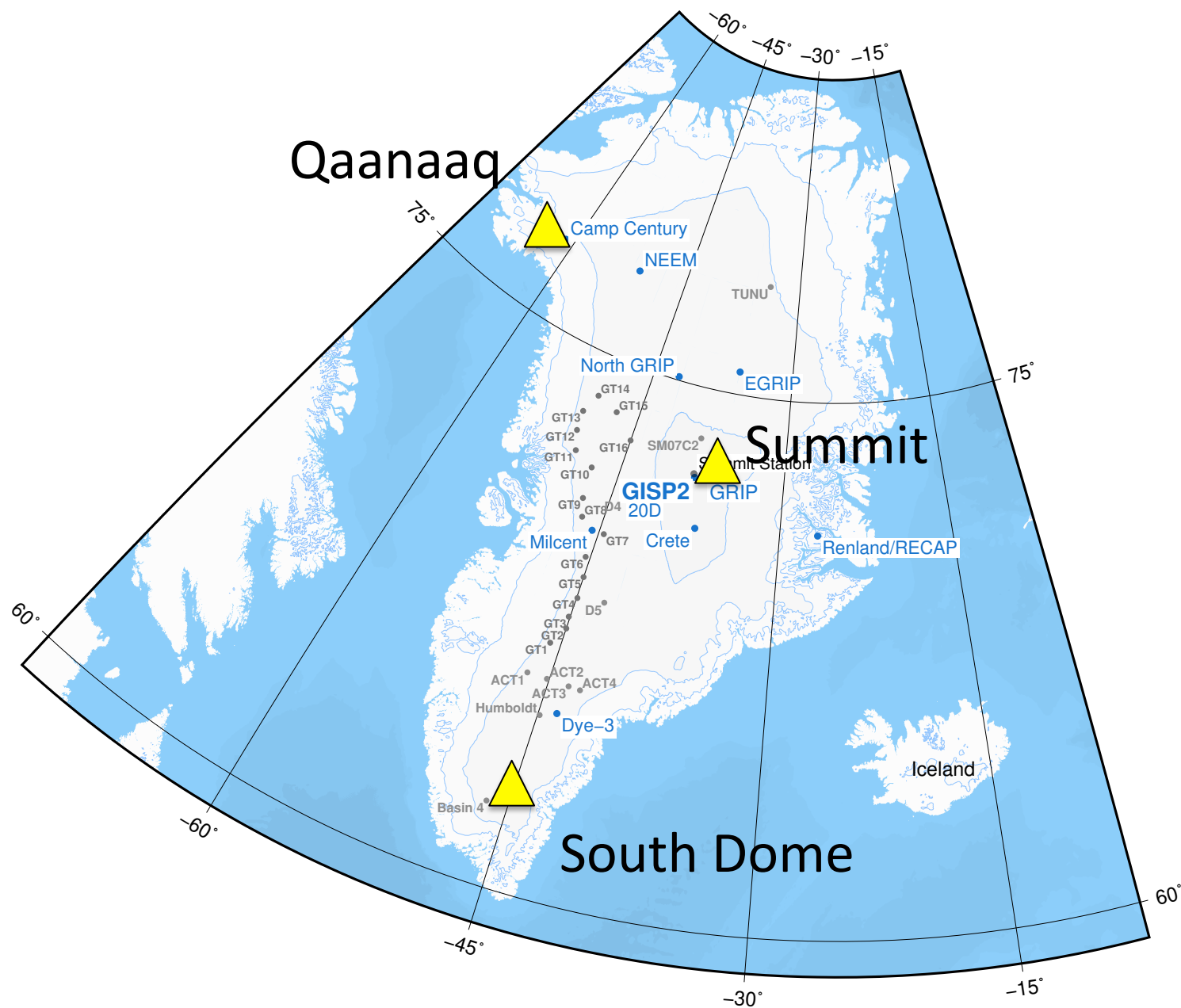
North Pacific Ice Coring Sites



Greenland Ice Coring Sites



Greenland Ice Coring Sites



Current Management Team

- Mary Albert
- Ed Brook
- Zoe Courville
- Karl Kreutz
- Andrei Kurbatov
- Paul Mayewski
- Kimberley Miner
- Erich Osterberg
- Eric Saltzman
- Joe Souney
- Dom Winski

Summary of Community Priorities for Greenland Ice

Investigators	Institution	Measurements	Science Interests
Albert, Courville, Keegan	Dartmouth College	Firn microstructure and properties	Effects of firn properties on gas transport as a function of climate
Alexander	University of Washington	Nitrate isotopes	NOx and ozone chemistry during the glacial/interglacial transition
Arienzo, Chellman, McConnell	Desert Research Institute	Black carbon, particles, trace metals	Holocene biomass burning, Iron Age pollution, paleovolcanism
Baker	Dartmouth College	Grain orientation and impurities	Ice flow behavior, microstructural evolution, impurity location
Brook	Oregon State University	Methane, platinum group elements	Paleo-greenhouse gases and temperature, testing meteorite YD hypothesis
Buizert	Oregon State University	Shallow core firn properties	Gas transport and signal preservation in firn
Cole-Dai	South Dakota State University	Major ions and perchlorate	Volcanic synchronization and climate forcing
D'Andrilli	Montana State University	Microbial diversity and assemblage	Feedbacks from release of organic matter from ice sheets
Fegyveresi, Alley, Voight, Fitzpatrick	Boston University, Penn State University	Visual stratigraphy and physical properties (including field measurements)	Ice microstructure and paleotemperature
Foreman	Montana State University	Bulk organic matter and microbial assemblage	Microbial amount and diversity with respect to climate patterns
Gabrielli, Olesik	Ohio State University	Single particle mineralogy	Atmospheric chemistry and paleoclimate reconstructions during Holocene
Jones, Vaughan, White, Markle	University of Washington, University of Colorado at Boulder	Stable water isotopes	Paleotemperature and precipitation, multi-annual and decadal scale climate change, isotope diffusion
Kreutz, Osterberg, Winski	University of Maine, Dartmouth College	Major ion and trace metal chemistry, dust	Seasonal changes in atmospheric circulation during the Holocene and during warm periods
Kurbatov	University of Maine	Tephra, trace metals	Volcanic and pollution history
Mayewski	University of Maine	High resolution trace metals near YD, soluble ions and water isotopes for shallow cores	Calibration to reanalysis datasets, precursors to abrupt change, Younger Dryas transition
Miner	University of Maine	PAHs, organic pollutants	Public health impacts of pollutants release
Rogers	Bowling Green State University	Microbial diversity and concentrations	Effects of meteorite impacts and early human activity on microbial populations
Saltzman, Aydin, Nicewonger, Patterson	University of California at Irvine	Trace gases and aromatic acids	Wildfire history and relation to human activities
Severinghaus	Scripps Institution of Oceanography	15N and 40Ar	Paleotemperature, temperature change at the YD termination
Welten and Caffee	University of California at Berkeley, Purdue University	10Be cosmogenic dating	Timing of rapid climate change and synchronization with tree ring records