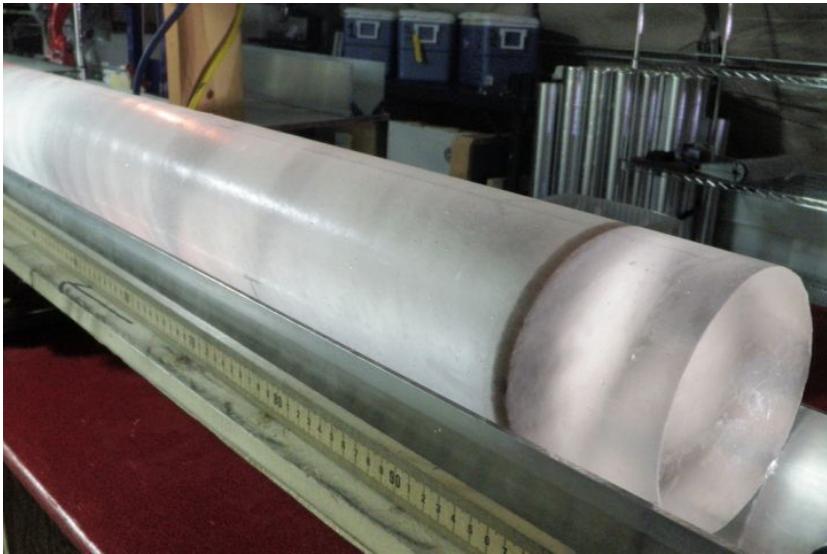
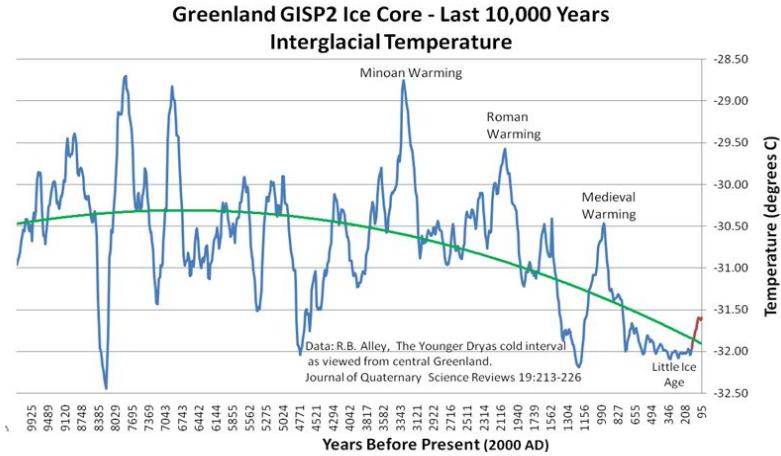


Partitioning Influences on GrIS $\delta^{18}\text{O}$



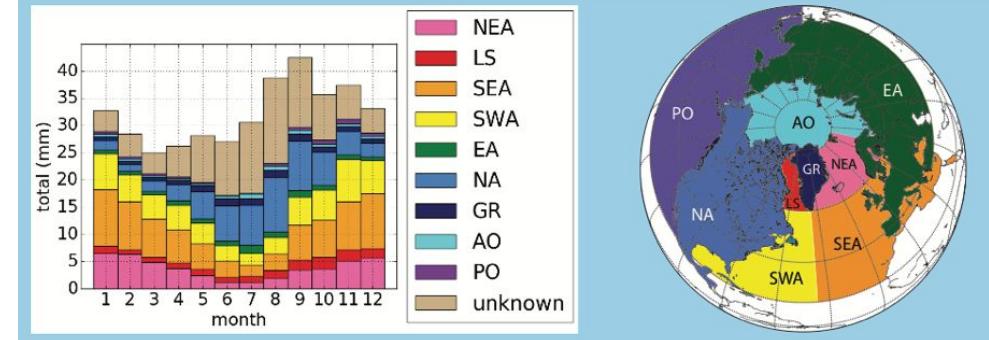
Jessica Badgeley

Leo van Kampenhout

Emily Schwans

Project Overview

Goals: Investigate...



...dependency of Greenland ice-core water-isotopes on temperature, source region, and circulation in realistic paleo modeling setups.

...effect of model resolution on tracking moisture sources and tracers.

...impact of adding diurnal cycle to prescribed SSTs on model results.

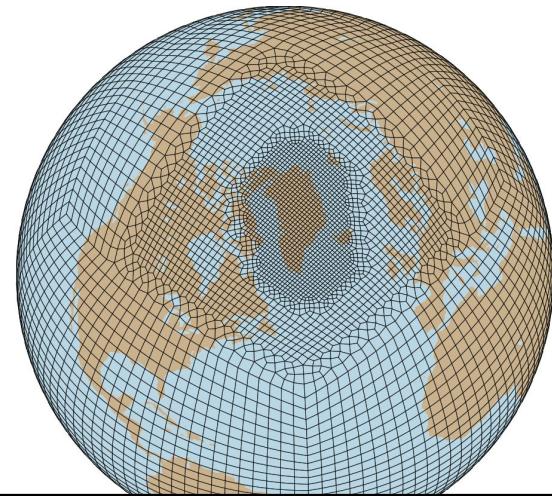
Approach: iCESM2.x, F-compset (SST & SIC prescribed), variable resolution (28 km) over GrIS; source regions tagged are **NE Atlantic**, **S Atlantic**, & **N America**

Figure courtesy of J. de Leeuw (IMAU, UU)

Experiments

Analysis:

- 1) Climatology and seasonality from monthly runs
- 2) Stacking storm tracks from 6-hourly runs
- 3) Sensitivity to spatial resolution and prescribed SST



Time Period	Alias	Spatial Resolution	SST Treatment
Last Glacial Maximum	LGM	0.25° (variable)	Prescribed
Holocene Thermal Maximum / Optimum	HTM	0.25° (variable)	Prescribed
Pre-Industrial (1850)	PI	0.25° (variable)	Prescribed
Pre-Industrial (1850)	PI1	1°	Prescribed
Pre-Industrial (1850)	PI2	0.25° (variable)	Prescribed w/ imposed diurnal cycle

Resource Requirements

Alias	Temporal Resolution	# Runs	Length	# Years	ch/my	Total Core Hours
LGM	Monthly (*6-hourly)	1	30 (*2)	30	5375	162k
HTM	Monthly (*6-hourly)	1	30 (*2)	30	5375	162k
PI	Monthly (*6-hourly)	1	30 (*2)	30	5375	162k
PI1	Monthly	1	30	30	1500	45k
PI2	Monthly	1	30	30	5200	156k
						Grand Total 687k
						Requested 720k

Variables at full temporal and spatial resolution:

- ATM: H₂¹⁸O, HD¹⁶O, Source_NEA, Source_SA, Source_NA, T, PRECL, PRECSL, SLP, U*, V*, Q*
- LND: H₂¹⁸O, HD¹⁶O, Source_NEA, Source_SA, Source_NA *saved for 6-hourly output only

Total long-term storage required: 1.09 TB

Requested : 1.2 TB