Ice Core Working Group Update to Science Advisory Board

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Happenings in the past year

• Fieldwork happened!
  • Ice coring
  • Geophysics for site selection
• COLDEX is full steam ahead
• Herc Dome has a site and schedule
• Pacific alpine coring advances
• Greenland work is happening
• Community Meeting
Benchmark records the gifts that keeps on giving
Early Pleistocene East Antarctic temperature in phase with local insolation

Yuzhen Yan, Andrei V. Kurbatov, Paul A. Mayewski, Sarah Shackleton & John A. Higgins

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Anthropogenic forcing

Underestimated Passive Volcanic Sulfur Degassing Implies Overestimated Anthropogenic Aerosol Forcing

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Excitement for new NSF Ice Core Facility

- Hyperspectral camera has arrived
- Blue ice storage
Alpine Glaciers and Ice Caps

- Mt. Logan drilling successful
- Excitement for 700 drill – Eclipse and other targets
- Thermal coring drill for Mt. Waddington – drilling this summer
- Lots of activity on Juneau Ice Field
Greenland

TUNU cores will provide great 2ka records

New summit cores coming

EastGRIP reoccupied and progress
Antarctica
First field season complete:

*Airborne Geophysics from South Pole*
*Shallow Coring in Allan Hills*
*Geophysics in Allan Hills*

Core quality issues with Foro
Herc Dome – good to drill at West Dome

Flight with COLDEX Basler

West Dome radial grid

Existing PolarGAP flights

Replicate coring potential
ICECReW 2022 synthesis papers published October 2022

- 10 articles on logistics, dating, paleoclimate, human impacts, microbiology, firn processes, sub-ice sediment and bedrock, and more
- Lots of great new figures
- Helpful resource for undergrads, early-career grad students, etc.
- Funded through IDP

SEA ICE IN THE POLAR REGIONS

EDITORS
Matthew Chadwick, Karen E. Kohfeld, Amy Leventer, Anna Pieńkowski, Heike Zimmermann and Sarah Eggleston

Early-career perspectives on ice-core science

EDITORS
Jessica Badgeley, T.J. Fudge, Bess Koffman and Summer Rupper

Early-career perspectives on ice-core science
Jessica Badgeley, T.J. Fudge, Bess Koffman and Summer Rupper

Ice cores have changed the way we understand the Earth. Ice cores drilled in the 1990s in Greenland showed definitively for the first time the abrupt nature of climate change events in the past (e.g. Dansgaard et al. 1993; Grootes et al. 1993). Ice cores from Antarctica have yielded a continuous climate history of the past 800,000 years, as well as snapshots of climate older than two million years (Jouzel et al. 2007; Yan et al. 2019, Beggan et al. 2022), providing important context for climate changes underway today. The global network of ice cores drilled in remote mountainous and polar regions must occur at every level – for instance, the International Partnerships in Ice Core Sciences (IPICS; pastglobalchanges.org/ipics) open science meetings foster international inclusion. Through both individual and institutional actions, we can create a community where all feel welcome.

In addition to building a more inclusive ice-core community, continued advances in ice-core science will be enabled through measurements of ice from new sites. Some current and future projects include multiple searches for a continuous climate record spanning 1.5 million years in East Antarctica, and projects targeting previous warm periods—such as the Last Interglacial (~130,000 years ago)—to determine the amount and rate of sea-level rise at that time. New cores from mountainous regions are filling in the global network and providing important regional perspectives. In the coming decades,
ICECReW 2023: Developing collaborations and proposal ideas

• Series of presentations and panel discussions on what makes a good proposal, how to respond to feedback, NSF and IDP resources and perspectives
• Focused introductions through “speed dating”
• Brainstorming sessions to develop proposal ideas
• Work sessions to develop “one-pagers” to send to NSF
• Paul Cutler has generously volunteered to review these with colleagues, and to meet with each team to provide feedback
• Goal is to make the proposal writing and submission process more transparent and to establish new relationships among ECRs that could lead to new proposals
• Organizers: Ursula Jongebloed, Emma Robertson, Julia Andreasen, T.J. Fudge, Bess Koffman
2ND US ICE CORE OPEN SCIENCE MEETING

May 8-10, 2023
Center for Urban Horticulture
University of Washington, Seattle, WA

• Open science meeting; seeking ongoing funding for this open model
• Significant journalism component with parallel workshop and some overlapping sessions
• Discussion periods for planning new projects and other community conversations
• Organizing committee for future meetings: Seth Campbell, TJ Fudge, Kaitlin Keegan, Bess Koffman, Peter Neff
Tentative location for next year: Portland, Maine