2nd RAID Science Planning Workshop

Sept 25, 2024 ECR session at NSF-HQ, 2415 Eisenhower Avenue, Alexandria, VA
Sep 26-27, 2024 Workshop at Washington Dulles Marriott Suites, 13101 Worldgate Drive, Herndon VA, 703-709-0400

Welcome! The meeting agenda is listed below. We will emphasize whole group and breakout group discussions, brainstorming sessions, early-career participation, and participant rotation. Please contact one of the conveners if you have questions or concerns.

Conveners:
  Sarah Shackleton (Woods Hole Oceanographic Institution, Sarah.shackleton@whoi.edu)
  John Goodge (Planetary Science Institute, jgoodge@psi.edu)
  Allie Balter-Kennedy (Lamont-Doherty Earth Observatory, abalter@ldeo.columbia.edu)
  Shuai Yan (University of Texas Institute for Geophysics, shuaiy@utexas.edu)
  Jeff Severinghaus (Scripps Institution of Oceanography, jseveringhaus@ucsd.edu)

Links: Hotel/workshop wifi password: TBA
    Workshop shared Google Drive:
    https://drive.google.com/drive/folders/1wE8djrIu3BNLCliQrigxLsPwT5qJtpX5?usp=drive_link

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Pre-workshop activities (Wednesday, Sept 25) — Early Career participant session

1100-1200 Lunch at/near NSF HQ, 2415 Eisenhower Avenue, Alexandria, Virginia 22314

1200-1330 **ECR Icebreaker** (90 minutes)
  1) Introductions and discussion
      a. What is RAID, what it can do (and not do), and status of USAP field work (managing our expectations) – presentation (15 minutes)
      b. Introduce your friend prompt (30 minutes)
          i. Name / Institution / Career stage / Personal experiences
          ii. What RAID can do for you
          iii. What we can work on individually
  2) Brainstorming questions to ask of the NSF (~45 minutes)
      a. Prompts for small group discussion:
          i. Fieldwork opportunities
          ii. Non-fieldwork strategies
      b. Group discussion: list questions we want to ask NSF and senior scientists

1330-1400 Break for water/coffee and NSF Office of Polar Programs walkabout (to stretch legs)

1400-1600 **Discussion with NSF-OPP program officers** (120 minutes)
  1) Presentations / Discussion (1 hour total: short presentations by NSF with 15 min of Q&A)
      a. Prompt 1: Antarctic fieldwork/research, what it takes to propose a successful project, and prospects for shorter term non-field research.
      b. Prompt 2: What all ECRs should know about the NSF and its role / ability to support their science.
  2) Short break (10 minutes)
  3) Q&A / Panel discussion (prepared questions to NSF; 30 minutes)

1900 Evening Icebreaker (cash bar) at the Washington Dulles Marriott hotel

Day 1 (Thursday, Sept 26)

0700-0800   Breakfast (catered onsite)

Morning session — Welcome and opening remarks; invited overview/perspective talks

0800-0900   **Workshop kickoff, announcements, and overview. (Convener: Sarah Shackleton)**
   1) Welcome; workshop goals and mechanics (10 minutes)
   2) NSF welcome & comments by Mike Jackson (via Zoom, 10 minutes)
   3) Updates on RAID by John Goodge; field trials and technology upgrades; current status; complementary technologies (ASIG, IceDiver, GreenDrill, etc.) (40 minutes)

0900-0945   **Invited Keynote.** Overview / Perspective talk – Deep Ice-Sheet Exploration; **Ed Brook** (30 minutes + 15-minute discussion)

0945-1000   Coffee break

1000-1145   **Disciplinary Perspectives.** (15 minutes each + 5 minutes for discussion)
   1) Oldest ice; Jeff Severinghaus (Scripps Institution of Oceanography)
   2) Subglacial landscape history; Joerg Schaefer (Lamont-Doherty Earth Observatory)
   3) Subglacial solid-earth geology and heat flow; John Goodge (Planetary Science Institute)
   4) Airborne geophysics (ice & solid-earth); Duncan Young (University of Texas Institute for Geophysics)
   5) Borehole access & instrumentation / New technologies; TBD

1200-1300   Lunch (catered onsite)

Set up research posters

Afternoon session — What science do we want to do with RAID? (Convener: Jeff Severinghaus)

1300-1315   **Short recap** of ice-sheet research, past and future, by [TBA] (10-15 minutes)

1315-1415   **Critical science questions.** *Format: Small group discussion (5 groups of ~10 each, **self-assigned by domain**). Goal is to **articulate science questions** that RAID can address. Groups will discuss and define criteria (listed in order of priority) for drilling targets, including scientific aspirations and potential sites or regions. Each group to post critical questions on wall and/or shared document and **post to Google Doc**.* (60 minutes)
   Domains:
   1) Glaciology & ice dynamics (Leader/scribe: _____)
   2) Paleoclimate (Leader/scribe: _____)
   3) Glacial bed interface (Leader/scribe: _____)
   4) Subglacial sampling (Leader/scribe: _____)
   5) Borehole observatory access (Leader/scribe: _____)

1415-1500   **Large group discussion of science goals.** [Moderator/s TBA] ***Format:*** *Small groups report back to whole group orally and via Google shared document. Emphasis on (a) driving science questions balanced by (b) research capacity. Open discussion.* (45 minutes)

1500-1515   Coffee break

1515-1630   **Interdisciplinary & inter-career science breakouts. (Convener: Sarah Shackleton)** Reflections from established researchers on past Antarctic field experiences, research feasibility, and future logistical hurdles. Questions or prompts posed by Early Career researchers (e.g., How do large projects happen? What are challenges? How do people get involved in new projects?) ***Format:*** *Small interdisciplinary group discussion (**assigned break-out groups**). Emphasize Q&A and discussion. Goal is to facilitate knowledge transfer and engagement of young researchers in both science and practical issues.* (75 minutes)

1630-1800   Happy hour and poster discussion

| 1830-2000 | Dinner (catered off-site); Nan Thai Restaurant, ~5 minute walk from hotel |
| 2000- | Evening discussions with small posters and refreshments (cash bar) |

Day 2 (Friday, Sept 27)

| 0700-0800 | Breakfast (catered onsite) |

Morning session — Looking forward with new directions (Convener: Shuai Yan)

| 0800-0930 | **Identify drilling targets and timelines.** Goal is to define science priorities but consider logistical constraints (pure scientific goals vs logistical realism). *Format: Small interdisciplinary incubator group discussion (5 groups of ~10 each, new assigned break-out groups). Goal is to identify potential drilling targets by complementary research objective or by common geographic location that RAID can pursue. Each group will discuss and assign order of priority; each group to post recommended targets on wall and/or shared document.* (90 minutes) |

| 0930-1000 | **Large group discussion of drilling targets.** Goal is to share ideas and look for synergies among disciplines. *Format: Small interdisciplinary groups report back to whole group orally and via shared Google Doc. Emphasis on (a) driving science questions balanced by (b) logistical feasibility. Open discussion.* (30 minutes) |

| 1000-1015 | Coffee break |

| 1015-1130 | **Draft outlines of Science Drilling Implementation Plan**. **(Convener: Allie Balter-Kennedy)** Goal is to articulate science objectives within domains (listed below), suggest target sites, and define logistical support requirements. Use this time within domain groups to outline implementation plans. *Format: Small disciplinary group discussions (self-assigned break-out groups by domain as before). Each group will develop framework for written reports to be shared as Google doc.* (75 minutes) |

   1) Ice-core science (glaciology & ice dynamics)
   2) Ice-core science (paleoclimate studies)
   3) Glacial bed interface
   4) Subglacial sampling (sediment and bedrock)
   5) Borehole access and instrumentation

| 1130-1200 | **Large group discussion of drilling targets.** Goal is to share ideas and look for synergies among disciplines. *Format: Domain groups report back to whole group orally and via shared Google Doc. Identify science priorities, candidate drill sites, and outstanding logistical requirements. Open discussion.* (30 minutes) |

| 1200-1300 | Lunch (catered onsite) |

Afternoon session — Logistical innovations and community messaging (Convener: John Goodge)

| 1300-1415 | **Logistical innovations** for deep ice-sheet access in East Antarctica — getting RAID and partner technologies to the field. Logistical innovations & programmatic issues. *Format: Large group discussion. Goal is to identify key operational needs and potential mechanisms for success. What do we need to get RAID (and other platforms) to the field? Consider new technologies, new partnerships, NGO partnerships, sample requirements, passenger movements and deployments, etc.* (75 minutes) |

| 1415-1445 | **Community message** to NSF-OPP about the current research program and opportunities. What is one thing we want to convey to the NSF regarding program goals, mission, and direction? What is the effect of operational limitations on current and future polar science? On scientists? What are our concerns about the status quo? *Format: Large group discussion. Goal is to articulate concerns within the science community to the NSF. Community message encapsulation — draft statement and/or petition for circulation within community.* (30 minutes) |

1445-1500   Coffee break

Afternoon session — Writing of Science Drilling Implementation Plan (Convener: Allie Balter-Kennedy)

1500-1630   **Group writing for Science Drilling Implementation Plan** — We will break up into groups to write sections of a community drilling plan. ***Format:** Groups will self-organize **by domain** and appoint a group coordinator. Writing will be done in shared Google Docs, using format given below. List all author names.* (90 minutes)

    Domains:
    1) Ice-core science (glaciology & ice dynamics)
    2) Ice-core science (paleoclimate studies)
    3) Glacial bed interface
    4) Subglacial sampling (sediment and bedrock)
    5) Borehole access and instrumentation

    For each domain section, draft plan will include:
    1) Science goals and priorities
    2) Target site suggestions
    3) Logistical requirements

1630-1700   Wrap-up; next steps; and farewell. See you at AGU (Town Hall, RAID presentation & AGU TV)!

1700   Workshop adjourned

1800   Dinner and/or drinks at the bar