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MEETING ANNOUNCEMENT

Science Planning Workshop: Research with the Rapid Access Ice Drill
March 2-3, 2017
Scripps Institution of Oceanography
La Jolla, California

Conveners:
Jeff Severinghaus, Scripps Institution of Oceanography
John Goodge, University of Minnesota Duluth

We invite you to participate in a science workshop to help shape future interdisciplinary research with the Rapid Access Ice Drill (RAID). Goals and initial planning for the workshop are outlined below. Please see the RAID website to register with an expression of interest.

Goals of the workshop: RAID is in Antarctica! Now is a good time to bring together the scientific community interested in using the RAID system for deep glacial and subglacial sampling, and for the boreholes it will create, including integrated ice drilling, ice and rock coring, borehole logging, and geophysical data acquisition. This workshop will provide a venue to bring scientists together to explore new science questions or approaches; define science goals; seek synergies between different disciplines for RAID; and develop a coherent community science plan for use of this unique drilling system. The workshop will be a great opportunity to bring together researchers with scientific interests in ice-sheet dynamics, paleoclimate, borehole logging, the ice-sheet interface, exposure and uplift histories, subglacial bedrock geology, subglacial sediments, microbiology, heat flow, potential-field geophysics, seismology, geodetics, and ice-penetrating radar.

When: Thursday and Friday, March 2-3, 2017. This will be a 2-day meeting, convened from 0800-1800 each day. Participants are encouraged to arrive in San Diego on March 1 and depart either the evening of the 3rd or over the following weekend.

Where: Scripps Institution of Oceanography and University of California San Diego in La Jolla.

Who: The workshop is open to all scientists interested in using or contributing to the science enabled by RAID. Please pass this announcement on to anyone who might be interested. Please help us reach young investigators and under-represented groups by sharing this announcement and suggesting to us the names of people we can contact.

Cost: There will be no meeting registration cost. Breakfast and lunch meals will be provided. NSF is funding the workshop in order to provide partial travel to some US participants for travel and accommodation. Preference will be given to young and under-represented investigators.

Responses: Interested participants should complete an electronic reply on the RAID website (www.rapidaccessicedrill.org) to provide an ***Expression of Scientific Interest*** so that we can plan for the number of attendees and workshop agenda.

Contact information:

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What is RAID? The Rapid Access Ice Drill is a mobile system capable of rapidly drilling deep boreholes in the Antarctic ice sheets and retrieving cores of deep ice, the glacial bed, and bedrock below. It will provide a critical first look at the interface between major ice caps and subglacial features over a wide area. RAID is designed to enable interdisciplinary research, including direct observation at the base of the modern ice sheets, access to polar paleoclimate records in ice >1 Ma, and recovery of billion-year rock cores from ice-covered East Antarctica, among many other multidisciplinary topics of interest that RAID can address. Because of its traversing capability, RAID can quickly survey a large area with multiple deep boreholes that will remain open for future down-hole observation. The RAID system was designed and optimized for drilling and coring in dry, frozen-bed conditions as will be encountered in the thick East Antarctic ice sheet. The initial operating region for RAID will be in the vicinity of and radiating from South Pole station toward the ice sheet interior.

What can RAID do? With an ice-cutting rate of up to 3 m/min, RAID is capable of making rapid boreholes in thick ice followed by coring in ice, the glacial bed, and subglacial bedrock. Example drilling targets include:

- **ice borehole** — laser/optical logging to determine age of ice; temperature profile; acoustic log of deformation
- **short ice cores** — reconnaissance sampling of 'old' ice (>1 Ma)
- **glacial bed** — ice flow processes, basal material, microorganisms
- **short rock cores** — samples for age dating, composition, surface exposure ages, crustal and uplift history, validation of potential-field geophysical characteristics
- **rock borehole instrumentation** — heat flow, seismology, geodetics

RAID status: RAID is currently on the ice undergoing field trials. Recent developments include:

- design completed in late 2013
- construction and outfitting of modules began in Utah in mid-2014
- construction of cryogenic ice-drilling facility in Utah in early 2015
- North American test of key components and drilling rates completed in March 2015
- fabrication and construction of all major sub-systems in Utah in 2015
- completion of integration and validation in October 2015
- commissioned in early November 2015
- shipment to Antarctica complete in January 2016
- Antarctic Field Trials currently underway near McMurdo Station

Tentative workshop agenda

A preliminary agenda for this 2-day workshop will include:

Day 1

1. Welcome and introductions
2. Outline of workshop goals
3. Foundation and context for RAID
    a. Technical design and capability
    b. General scientific targets
    c. Logistical requirements and opportunities with RAID
4. Invited keynote talks (short topical presentations on key scientific problems)
5. Break-out group discussions on priorities (organized by disciplinary topic)
6. Group reports
7. Synthesis and summary

Day 2

1. Recap and second day goals
2. A 10-year plan for RAID
    a. Priority targets
    b. Geographic and logistical nexus
    c. Timeline
3. The RAID Charter: adoption of an organizational structure
4. Group discussion and report preparation
5. Adjournment

The principal outcome or deliverable for this workshop will be a community report addressed to the NSF that defines the long-term plan for science deployment of RAID and that systematically maps out the anticipated use of this community research facility.

DON'T FORGET TO COMPLETE AN EXPRESSION OF INTEREST!
(ONLINE FORM)

Please plan to attend the RAID science workshop this spring!
We look forward to seeing a wide range of participants.