2024/07/31

Research Division Update

Jeter Hall
Director of Research

Project Management

New Manager of the Project Management Office

Mehwish Obiad has years of experience working at SNOLAB as a project coordinator, project manager and as the technical services manager.

Mehwish started this role in April 2024.

Welcome to Mehwish in this new role!

SNOLAB

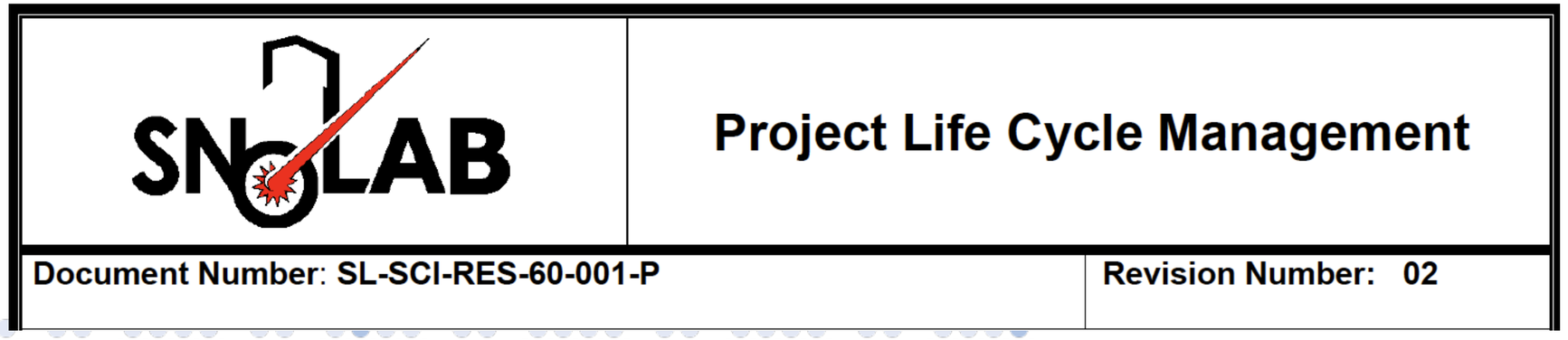
Projects Review Calendar

updated 2024-06-21

Date of Review	Original Schedule Da	Status	Experiment	Type of Review	Review External or Internal
2024		**2024**			
TBD 2024		Tentative	Information Security – Phase 1	GW1A PDR	Internal
TBD 2024		Tentative	LEGEND-1000	IPR/DOE review (External)	External
TBD 2024		Tentative	SuperCDMS	GW3 IRR# 7	External
TBD 2024		Tentative	SuperCDMS	GW3 IRR# 6	External
TBD 2024		Tentative	SuperCDMS	GW3 IRR# 5	External
TBD 2024		Tentative	SNO+ Te	ORR for SNO+ DDA Still	External
TBD 2024		Tentative	SBC		External
Week of SEPT 16 2024 Potentially Sept 17 to Sept 19		Tentative	nEXO	IPR/DOE review (All Subsystems)	External
POSTPONED SOMETIME August	May 29 June 5.	Tentative	DEAP-3600 Upgrades	GW3 ORR Phase 2 (Gas Cooling)	External
AUG 14, 2024		Upcoming	SNO+	Transfer Station IRR	External
JULY 30 - AUG 1, 2024		Upcoming	Current, Future & EOI	Experiment Advisory Committee (EAC)	
JULY 15 - 19, 2024		Upcoming	nEXO	Director's Review (All Subsystems)	External
JUNE 27 & 28, 2024		Upcoming	SNO+ Te	Director's Review	External
AWAITING RESCHEDULE	May 22, 2024	Upcoming	Argon Removal from LN2	CDR	Internal
AWAITING RESCHEDULE	May 9, 2024	Upcoming	HC Monitoring Station	ORR	External
APRIL 16 & 17, 2024		Completed	PICO-500	TDR	Internal
APRIL 10, 2024		Completed	CUTE IRR	Neutron Source System	Internal
APRIL 3, 2024		Completed	PICO-500	IV IRR	Internal
APRIL 4 & 5, 2024		Completed	OSCURA	PDR	Internal
March 22, 2024		Completed	Information Security Review	Surface Wi-Fi Upgrades TDR	External
FEB 29, 2024		Completed	SuperCDMS	GW3 IRR# 4	Internal
FEB 8 & 9, 2024		Completed	Current, Future & EOI	Experiment Advisory Committee (EAC)	

Upcoming Project Lifecycle Review

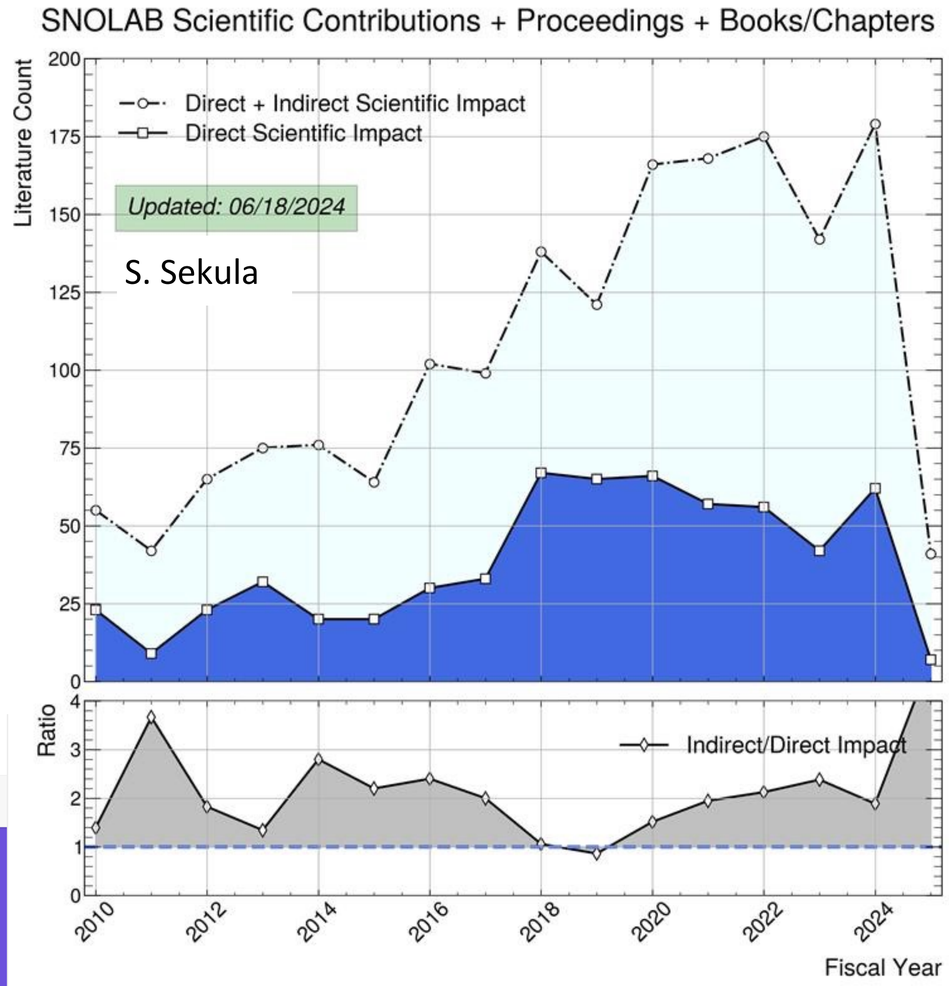
- PMO has scheduled a review of the project lifecycle process
- Goal is to streamline the process for medium to small projects
  - Ensure documents are useful to the project team
- Give any comments or suggestions for change to Mehwish

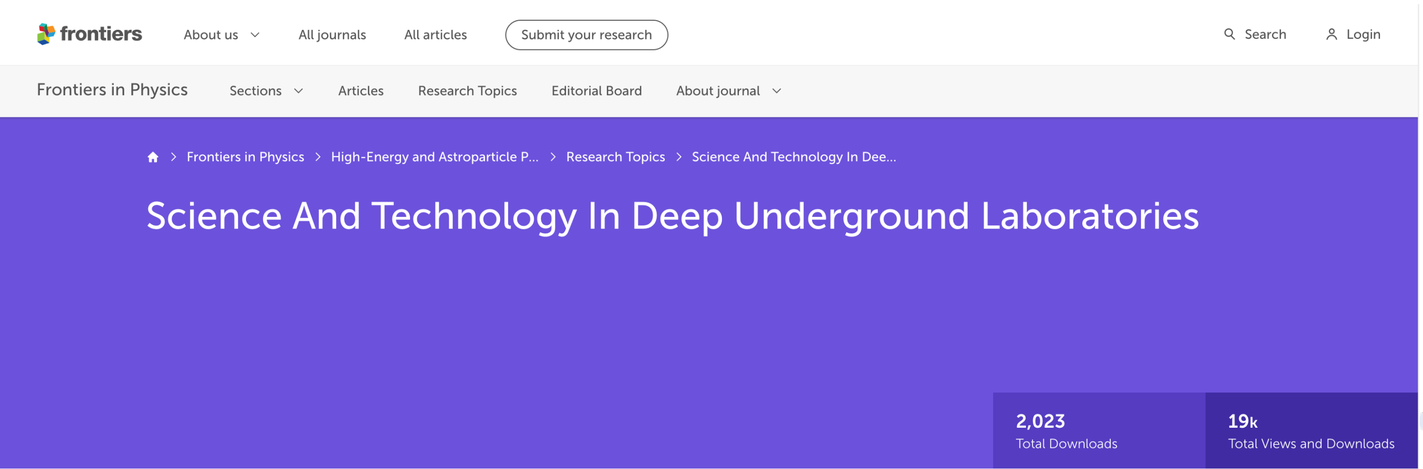


Research

The program recovered the high level of output in 2023-2024

- The scientific productivity was excellent last year
- Most experiment collaborations published data taken underground over the last year
- Thank you for your contributions to these outputs!





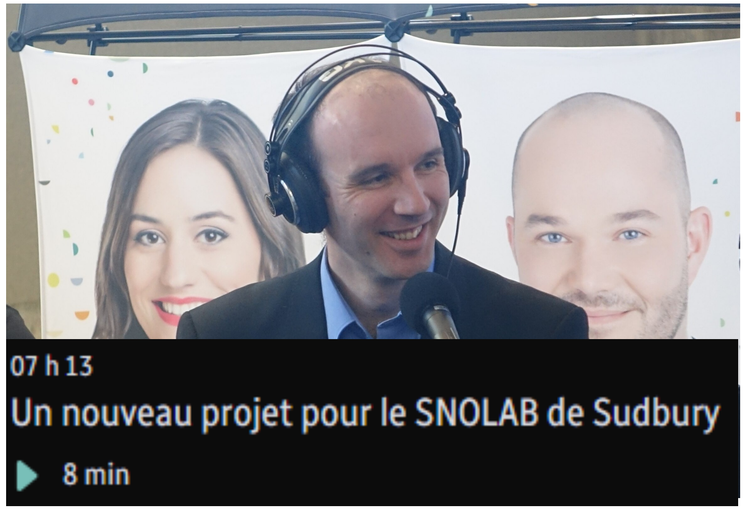
Highlight: Summer of Science

- An intense summer of community-oriented in-person programming, with the goal of improving the research environment and training the next generation of scientific leaders.
  - **SNOLAB Underground Science Institute (SuSi) Lecture Program:** 8 weeks, 3 subjects, 4 lecturers, 10 official graduate student participants. (June 24 – August 16) [https://indico.snolab.ca/events/3]
  - **SNOLAB User Meeting (June 26-27):** 41 registered participants (50+ actual), 28 presentations (new science results from SNO+ and REPAIR and talks from CFI and NSERC), input on laboratory and community issues. [https://indico.snolab.ca/events/8]
  - **TRISEP 2024 (July 8-19):** 26 students, 16 lecturers, with student projects and cultural activities. [https://indico.snolab.ca/events/2]
  - **Canadian Astroparticle Summer Student Talk (CASST) competition:** August 19-20 [https://indico.snolab.ca/event/12/]

Highlights: Research Group

Physics Excellence:
Dr. Christine Kraus Elected CAP Fellow

Spreading Knowledge:
SNOLAB Hybrid Seminar Series



Public Engagement:
Dr. Pierre Gorel on Radio Canada

PERSPECTIVE article

Front. Phys., 11 January 2024
Sec. Social Physics
Volume 11 - 2023 | https://doi.org/10.3389/fphy.2023.1340272

This article is part of the Research Topic
Science And Technology In Deep Underground Laboratories
View all 18 articles >

Enhancing equity, diversity, and inclusion in physics: perspectives from North American underground laboratories

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[1] SNOLAB, Lively, ON, Canada
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Equity, Diversity, and Inclusion (EDI) are important to drive innovation in many different fields, including particle physics. Underground labs are working on many different fronts to improve EDI in their host countries and within particle physics collaborations. Laboratories can institute policies to protect their staff and make improvements to their facilities to increase accessibility. Laboratories can encourage the scientific collaborations they host to have policies and plans for increasing EDI. SNOLAB and the Sanford Underground Research Facility (SURF) are each supporting their employees and user-bases in different ways. Some examples are targeted outreach, consultation with experimental collaborations on their own policies, EDI training, and Indigenous cultural recognition. These efforts are intended to enhance the equity and inclusion of their communities.

Enriching the Field:
SNOLAB and SURF EDI Implementation Publication

This is a small sample of the activities of the Research Group, which continues to work to facilitate and lead in the community while enabling the community to fully utilize and benefit from SNOLAB.

Scientific Support

ICP-MS

- Agilent 8900 ICP-QQQ
- SSG have developed a method for UPW samples: Analysis of ultra trace level samples acidified with only high purity grade nitric acid, produced on site using a sub-boiling acid purification unit.

- **Sample Matrix:** Aqueous samples with trace-level analytes in 2% (v/v) high-purity HNO_3

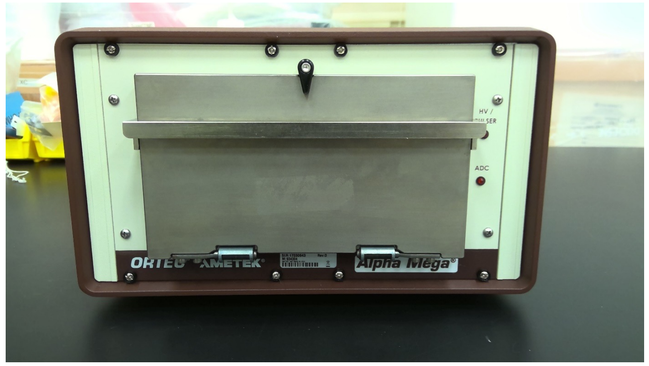
- **Analytes:** Quantifies 56 analytes; examples of detection limits for the method:
  Thorium (Th-232)1.5 ng/L
  Uranium (U-238) 0.07 ng/L
  Lead (Pb-208) 75 ng/L
  Potassium (K-39) 1750 ng/L

- Quantification method is external calibration
- Next method will quantify isotopes of interest using isotopic dilution techniques
- For sample submission and inquires using the “UPW Method” on ICP-MS please contact SSG

Low Background Counting Equipment

SNOLAB purchased 3 highly sensitive assay instruments from SMU

- RAD7 Radon Detector
- UltraLo-1800 XIA
- ORTEC Alpha Duo Spectrometer



CRMN Environmental Radiation Monitoring Station

Supported by Health Canada's Radiation Protection Bureau

Air filters, deposition, and environmental dosimeters are collected at this station and the background dose is measured in near real-time. For more information and results please scan the QR code below.

Some data are available through HC's web portal.

Sudbury	Argon-41	x	x	x	x	x	x	x	x	x	-	-	-
	Xenon-133	x	x	x	x	x	x	x	x	x	-	-	-
	Xenon-135	x	x	x	x	x	x	x	x	x	-	-	-
	Total Air KERMA	x	x	x	x	x	x	x	x	x	29065	31068	35952

https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/understanding/measurements/2023-dose-data-fixed-point-surveillance-network.html

Health Canada Santé Canada

Summary

- Fiscal year 2024 was a busy year
- Scientific support, research, and project management are continuously improving our support for the experimental program