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GLENCORE

FLEET



DREADNOUGHT
RESOURCES

Supporting All Geoscientists



NEXUS

National Exploration
Undercover School



An introduction to



NEXUS

National Exploration
Undercover School

WHAT IS A NEXUS?

- A connection or series of connections linking two or more things
- A central or focal point



Minerals
Council of
Australia



NEXUS

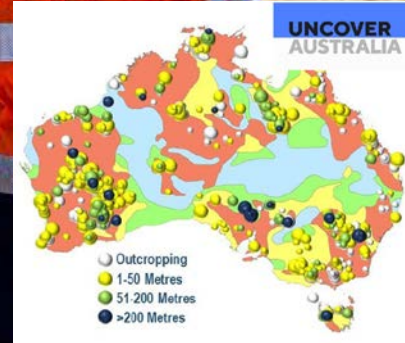
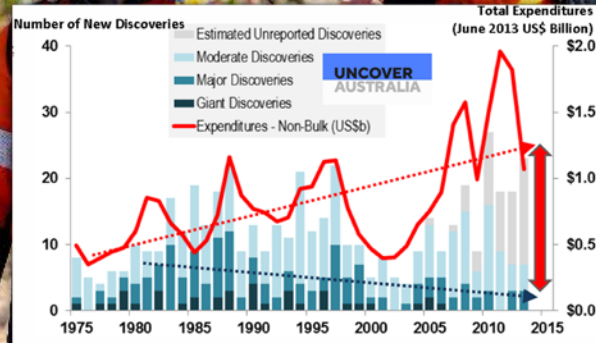
National Exploration
Undercover School



THE UNIVERSITY
of ADELAIDE



NEXUS
National Exploration
Undercover School



- Founded in 2016, NEXUS is a collaboration of Universities, Government and Industry partners to deliver a world-class program of training.
- Students from any University across Australia can apply to be part of the programs; intention is to have a group of passionate and engaged students.



NEXUS
National Exploration
Undercover School

- 267 participants 2016-2023 (+ >1000 workshop attendees)
- 18+ different Universities across Australia represented
- Geological surveys (GSSA, GA, NTGS, GSNSW and GSO) + GA
- Early career geoscientists represented (>25 companies)



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- Networking sessions
- Engagement from industry, professional societies and government

- Mix of workshops and practical instruction
- Themes based around the MCA-MTEC core skills and UNCOVER themes





Field work includes:

- nanoTEM, Loop EM, MT, Ground Mag, Sting (res), IP, gravity, seismic
- Exp Geochem, drill core



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Big thanks to Kelly Keates (Zonge)



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Field work includes:

- nanoTEM, Loop EM, MT, Ground Mag, Sting (res), IP, gravity, seismic
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Big thanks to Graham Heinson (UofA)



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Big thanks to Goren Boren (UofA)



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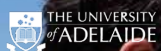
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Big thanks to Ben Kay (UofA)



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Big thanks to
Paul Soeffky and
Anton Khrapov
(Zonge)



And Extra Big thanks to Mike Hatch (UofA - Zonge)

- Inclusive and diverse cohort
- Social and professional network for life



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NEXUS in 5 words:

'Positive, generous, broad, fun, engaging'
'OUTSTANDING, PRACTICAL, EFFECTIVE, VERY FUN'
'Invigorating, educational rock nerd fiesta!'

2019 cohort

NEXUS

National Exploration Undercover School



'Literally the best, most engaging course and learning opportunity I have ever been involved with.'



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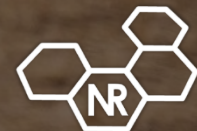
Supporting All Geoscientists

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What we do: 2023

- **NExUS summer school**
2-weeks South Australia, Nov-Dec
- **NExUS-Professional Development (NExUS-PD) workshops**
Presented online and F2F
- **NExUS-RockStars** School geoscience and STEM outreach program
- **NExUS-GEM** Undergraduate work-ready training/events
- **NExUS-RoadShow** Workshop event in major Australian centers



NExUS-RoadShow

Field Assessment of Gossans and Leached Caps

Presented by Dr. Roger Taylor and Dr. Richard Lilly

4th May, 2021
Online Workshop (Limited to 30 places)

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

Aboriginal Cultural Awareness Training

15th September 2020, Free Online Workshop (Limited to 30 places)

Delivered by Jack Buckskin

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS
CAREY

Coping with Skarns and their relationships to carbonate replacement deposits

25th-26th May, 2021
Online Workshop (limited to 30 places)

Presented by Dr. Roger Taylor and Dr. Richard Lilly

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

Sediment-Hosted Base Metal Deposits of the Mount Isa District

1st July 2021
F2F Workshop at the University of Adelaide (with drill core and hand samples, limited to 30 places)

Presented by Dr. Richard Lilly and Bradley Cave

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

Ore Textures and Breccias

17th and 24th November 2020, Online Workshop (Limited to 30 places)

Presented by Dr. Roger Taylor and Dr. Richard Lilly

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

South Australian Iron Oxide Copper-Gold (IOCG) Mineral Systems

29th - 30th September 2022, F2F Workshop, South Australian Drill Core Library, Tonsley

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

Data Science and Machine Learning Applied to Exploration

Presented by Thomas Carmichael, Solve Geosolutions, Marija Dmitriyeva, and Jack Maughan

- This one-day online course (24th June) aimed to introduce the fundamentals of machine learning workflows and their application to geoscientific problems in the exploration and mining industry
- Very positive feedback and lots of interest from industry

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

- 30 workshops during 2020-2023 • 13 geoscience and social topics
- >1000 attendees Australia and international, complimentary places for international students



Metallurgy for Geologists

27th Sept 2021
1-Day Online Workshop (limited to 30 places)

Presented by Diana Drinkwater

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

Exploration Through Cover: Fundamentals of Regolith and Exploration Geochemistry

8th-9th June 2021, Online Workshop (Limited to 30 places)

Presented by Carmen Kopf, Ignacio González-Alvarez and Richard Lilly

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

Geological Interpretation of Aeromagnetic Data – a Practical Approach

2-Day Online Workshop
1st - 2nd August 2022 (limited places)

Presented by David Isles and Leigh Rankin

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

Iron Oxide Copper-Gold (IOCG) Deposits of the Cloncurry District

2nd July 2021
F2F Workshop at the University of Adelaide (with drill core and hand samples, limited to 30 places)

Presented by Dr. Richard Lilly and Bradley Cave

NEXUS PROFESSIONAL DEVELOPMENT WORKSHOPS

- OUTREACH HAS NEVER BEEN MORE IMPORTANT
- WE ALL NEED TO BE GETTING OUT INTO THE CLASSROOMS



PRACTICAL GEOCOMMUNICATION



THE UNIVERSITY of ADELAIDE

NEXUS National Exploration Undercover School

GEOLOGIZE

The Geological Society

endorsed training event

Working closely with the Geological Society of Australia



Sustainable Minerals Institute

ELEMENTAL INSIGHT



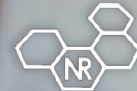
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Minerals Council of Australia



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NEXUS-RoadShow



NEXUS

RoadShow 2021
Perth 15th-19th November



NEXUS RoadShow 2022





























- Diverse cohort of 24 student WA-based and early career geoscientists representing:
 - 13 nationalities
 - 15 universities
 - 18 companies



Supported by:



- 30 attendees
- >9 nationalities
- > 21 universities
- > 21 companies

Mon 13 th Nov Exploration through cover: Regolith and landscape evolution	Tues 14 th Nov Exploration through cover: Geochemistry and Geophysics	Wed 15 th Nov MAG23 Geophysics Conference Exploration Case Studies	Thurs 16 th Nov GSWA Core Facility, Drill Core and Ore Textures	Fri 17 th Nov Structure, Strategy, and Cultural Awareness
<p>9.00 – 9.15 am Welcome to NEXUS Richard Lilly (UofA)</p> <p>9.15 – 9.45 am Cohort introductions</p> <p>9.45-10.30am: The Future of geoscience education and exploration in Australia Cam McCuaig (BHP) Richard Lilly</p> 	<p>9.00 – 10.30 am Introduction to exploration geochemistry inc. case studies Richard Lilly (UofA)</p> 	<p>9.00 am</p> <p>Attendance to MAG23 Geophysics conference at Frasier's, Kings Park, Perth</p> <p>Modern Applications of Geophysics: Mineral Case Studies</p>	<p>9am: Arrive at GSWA Core yard.</p> <p>9.15-10.30am Ore Textures mini-workshop: Richard Lilly</p> <p>Core viewing from <u>Abra</u>, Golden Grove and <u>Obilisk</u> deposits</p> 	<p>9 – 10.30am: Structural Geology Related to Ore Deposits Jun Cowan</p> 
<p>10.30 – 11.00 am Morning Tea</p> <p>11.00 – 12.30 pm: Characterising the Cover – Introduction to Regolith. Carmen Krapf (GSSA)</p> 	<p>10.30 – 11.00 am Morning Tea</p> <p>11.00-12.30pm: Exploration geochemistry case studies. Richard Lilly (UofA), Walid Salama (CSIRO)</p>  	 <p>One-day symposium covering a wide range of case studies spanning from exploration and discovery to evaluation and production of mineral deposits</p>  <p>Australian Society of Exploration Geophysicists</p>	<p>10.30– 11.00am Morning Tea</p> <p>Obelisk deposit drill core case study Paul Durring (GSWA)</p>	<p>10.30– 11.00am Morning Tea</p> <p>11 –12.30pm: An Introduction to Exploration Management. Nick Franey (AIG)</p>  <p>AUSTRALIAN INSTITUTE OF GEOSCIENTISTS</p>
<p>12.30 – 1.30pm Lunch</p> <p>1.30-3pm: Introduction to regolith mapping, regolith schemes and data sources Carmen Krapf (GSSA) (with exercises)</p> 	<p>12.30 – 1.30pm Lunch</p> <p>1.30-3pm: Intro to hard rock (litho) geochemistry, and 3D Digital Core case studies. Heidi Pass</p>  	 	<p>12.30 – 1.30pm Lunch</p> <p>Introduction to carbonatites and Lynas Rare Earths Mt. Weld deposit Ganesh Bhat (Lynas) and Mt. Weld core viewing</p>	<p>12.30 – 1.30pm Lunch</p> <p>1.30-3pm: The importance of Cultural Heritage and Respect. Foundation of Sustainable Indigenous Health (FISH)</p> 
<p>3.00 – 3.30pm Afternoon Tea</p> <p>3.30– 4.30pm: Understanding the Cover and Targeting in Deeply Weathered Landscapes Ignacio "Nacho" González-Álvarez (CSIRO)</p> 	<p>3.00 – 3.30pm Afternoon Tea</p> <p>3.30-4.30pm: An introduction to exploration geophysics David Isles, Karen Gilgallon, Anne Tomlinson (S&C)</p> 	<p>4pm Wrap-up</p>	<p>3.00 – 3.30pm Afternoon Tea</p> <p>3.30-4pm. FISH session continued</p> 	<p>3.00 – 3.30pm Afternoon Tea</p> <p>3.30-4pm. FISH session continued</p> 
<p>4.30-5pm. Refreshments</p> <p>5 – 6pm: Critical Metals in the Critical Zone "Nacho"</p> 	<p>4.30pm. End of Day 2</p> <p>5 – 7pm End of day networking session With industry guests</p>  	<p>4.30pm. End of Day 3</p> <p>5 – 7pm: End of conference networking session</p>  	<p>No activity planned</p>	<p>4-4.30pm: End of week wrap-up Richard Lilly</p> <p>From 5.30pm: NEXUS 2016-2023, Reunion, Little Creatures, <u>Free</u></p> 

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CAGE 2022



Australian Society of
Exploration Geophysicists

CAMP FOR APPLIED
GEOPHYSICS EXCELLENCE



AuScope



Image from inaugural 2022 CAGE geophysics camp, SA

Congratulations CAGE team!



 **CAGE23**
CAMP FOR APPLIED
GEOPHYSICS EXCELLENCE

In-kind support
(25 x laptops)





THANK YOU!

Over 120 professional geoscientists representing 50+ minerals-industry related companies, and 30+ organisations and research institutions have been involved in NExUS since 2016