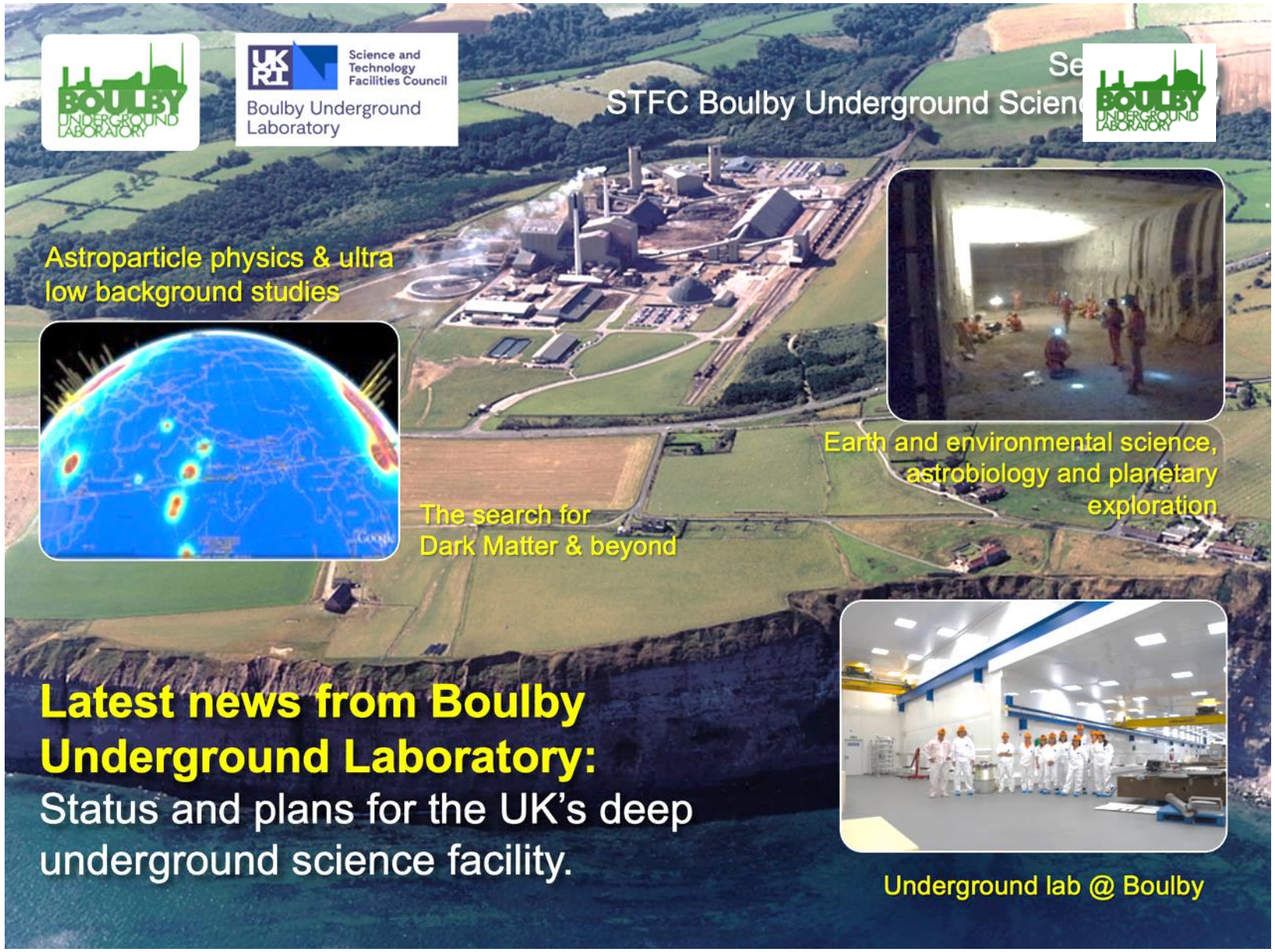
Deep Science at Boulby Underground Laboratory:

The search for Dark Matter and beyond at the UK's deep underground science facility

Sean Paling
STFC Boulby Underground Laboratory

Science and Technology Facilities Council
Boulby Underground Laboratory



Deep Science at Boulby…

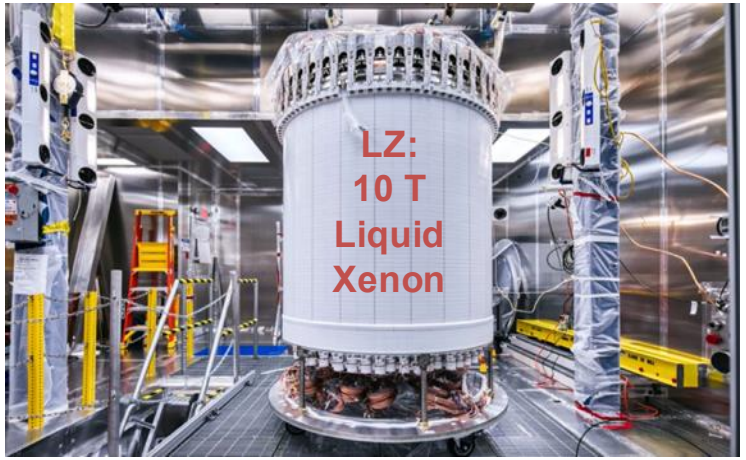
The search for….

Dark Matter

The missing mass in the universe

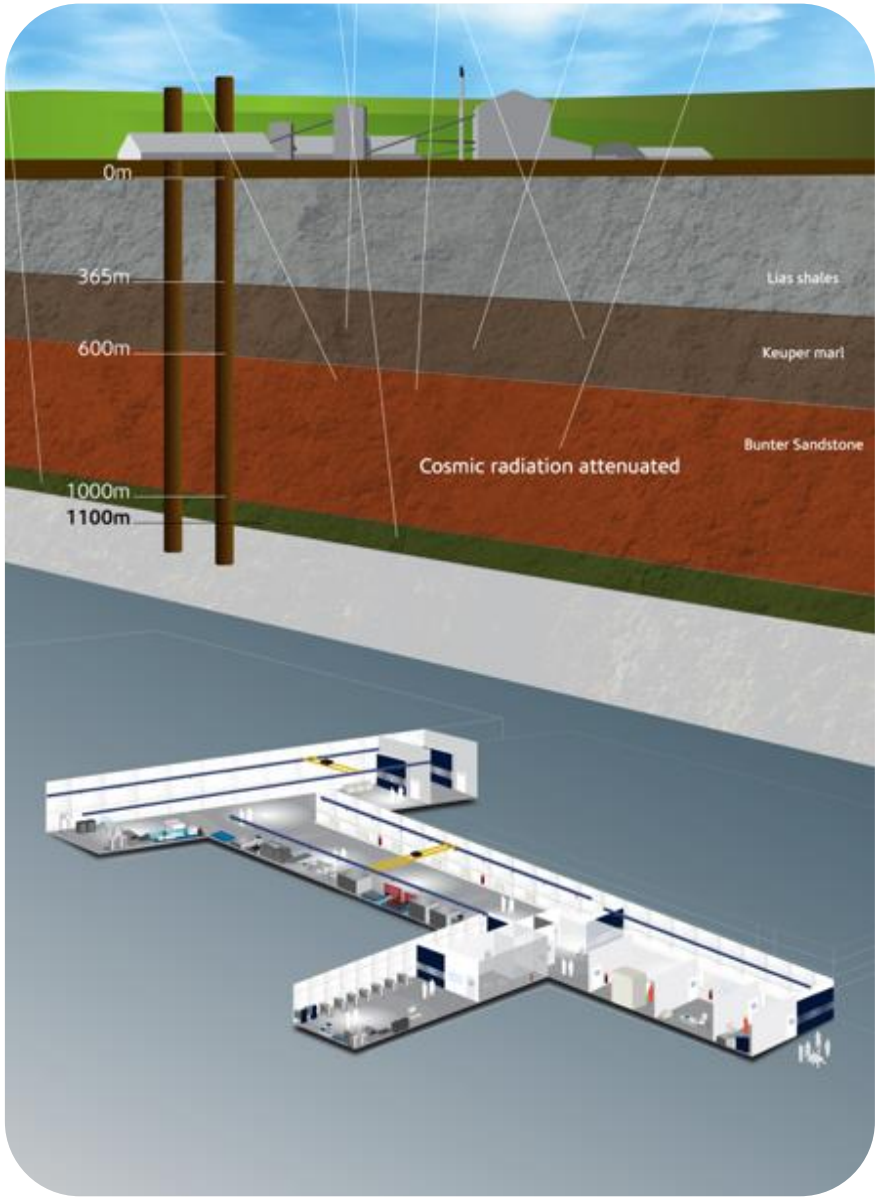


ZEPLIN 2-phase Xenon Dark Matter search programme @ Boulby, UK (2011)



LUX - ZEPLIN (LZ).

Operating @ SURF, USA. Supported by RAL and Boulby



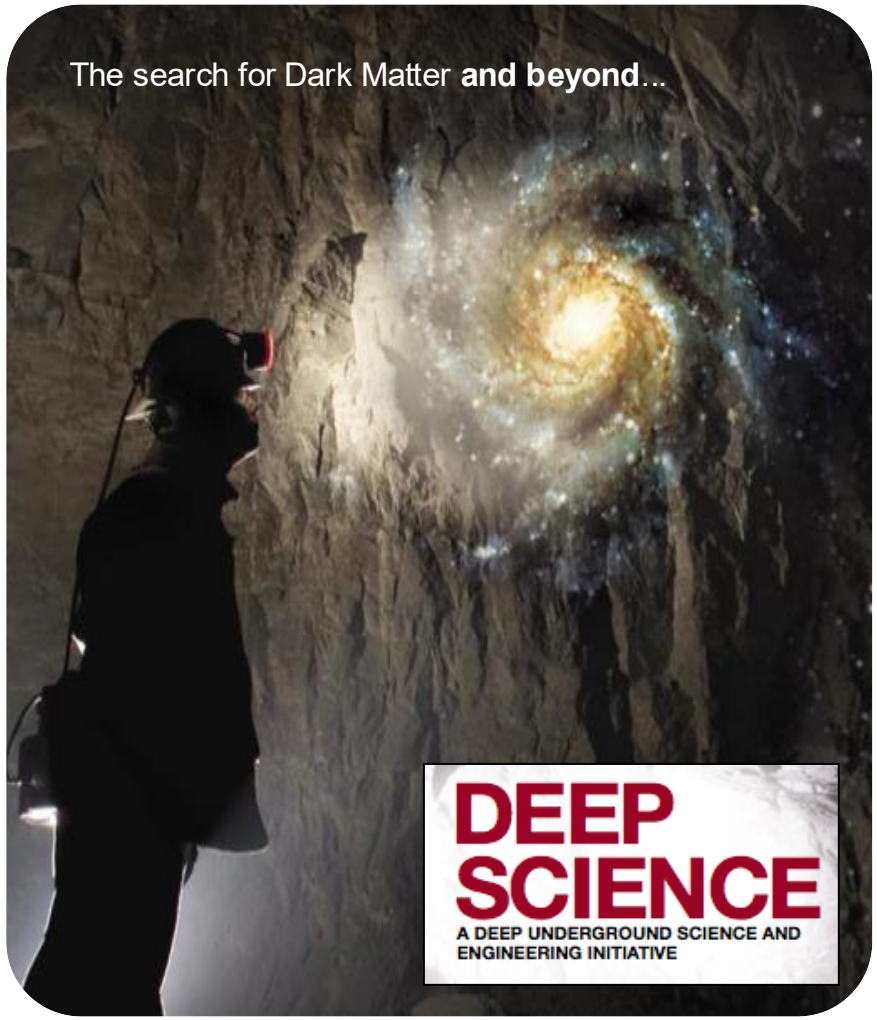
A QUIET place in the Universe

Science and Technology Facilities Council

Boulby Underground Laboratory

Deep Science at Boulby…

Wide ranging multi-disciplinary Underground science



- **Low Background Particle and Nuclear Physics**



- **Earth and Environmental Sciences**



- **Astrobiology and Planetary Exploration Technology Development**





- **Quantum Sensors and Quantum Computing**



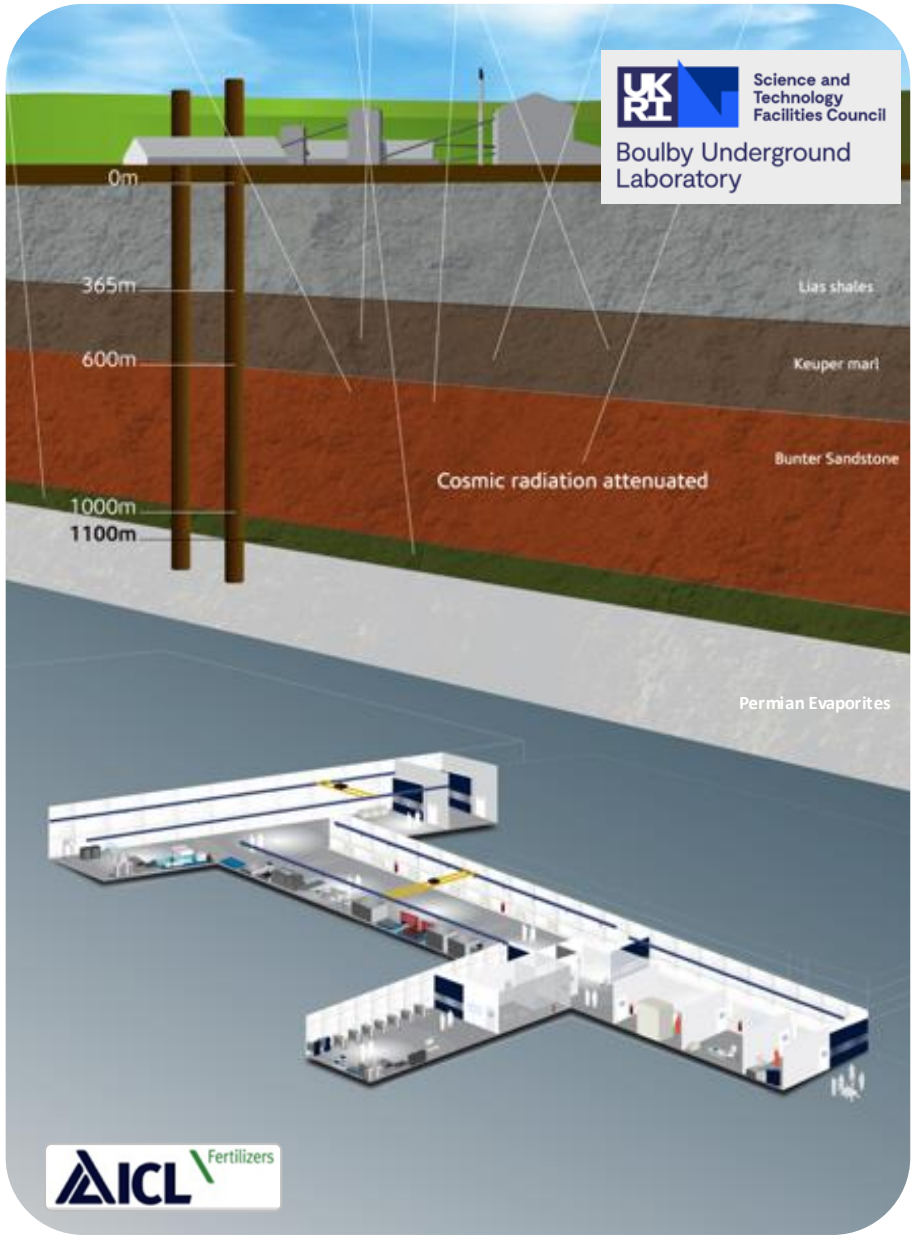
UKRI Science and Technology Facilities Council
Boulby Underground Laboratory

Deep Science at Boulby Underground Laboratory:

This Talk…

- **Boulby Mine and the Underground Laboratory** ⟶ Virtual Tour
- **Current Science Programme:**
  - Low Background Particle & Nuclear Physics
  - Earth and Environmental Science
  - Astrobiology and Planetary Exploration
  - Quantum Sensors and Computing
- **Future plans:**
  - ★ New Science and New Facilities ★

(Come and visit us!)



Boulby Mine

A working polyhalite and rock-salt mine on the North East coast of England.

Owned by Israel Chemicals Ltd. (ICL-UK). Locally operated as Cleveland Potash Ltd.

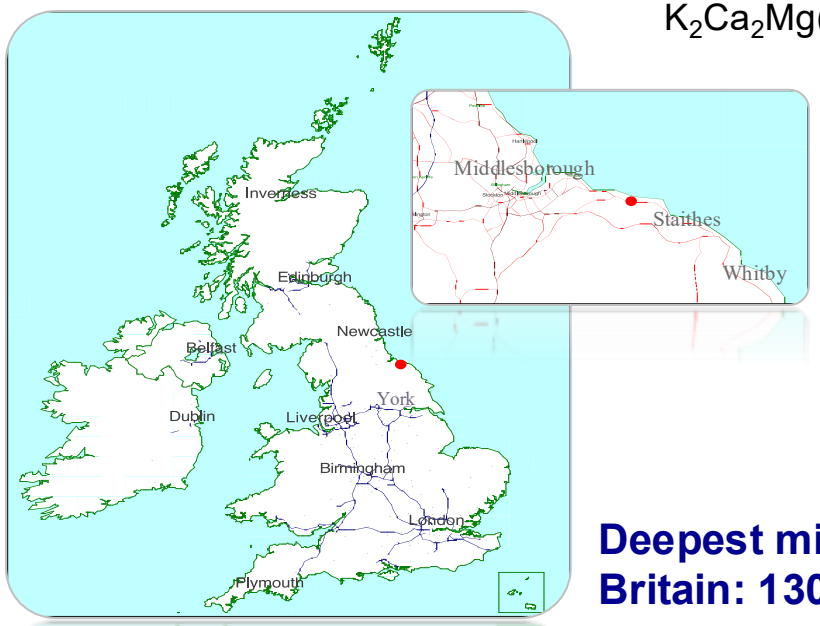
Major local employer: ~500 direct staff and 2000 indirect employment.



Polyhalite: $K_2Ca_2Mg(SO_4)$



Ships worldwide for agricultural fertiliser



Deepest mine in Britain: 1300km

The world's first polyhalite mine



12 miles North of Whitby, N. Yorks

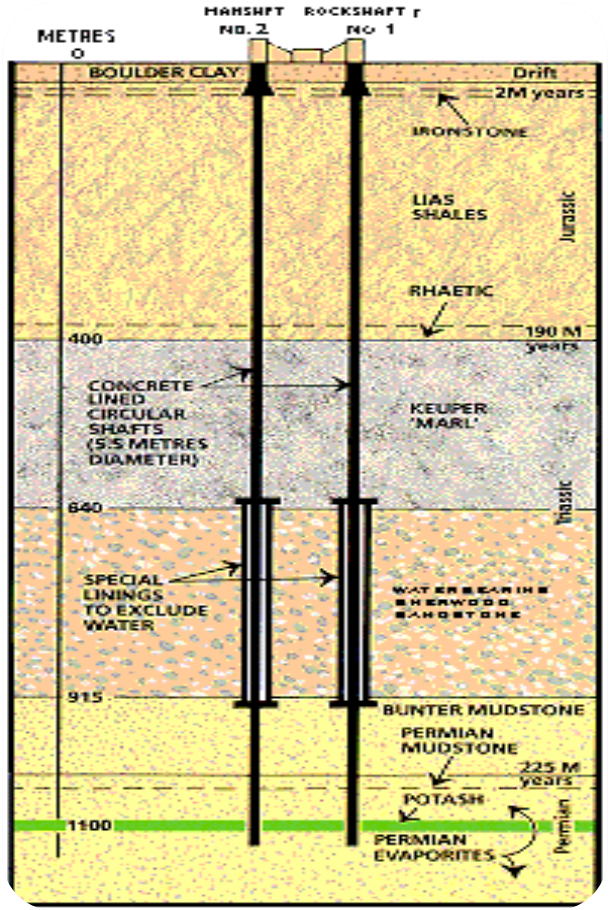


View from Staithes

Boulby Geology & Mining

Excavations are in Salt (NaCl), Potash (KCl) and Polyhalite ($K_2Ca_2Mg(SO_4)$). Permian evaporite layers left over from the Zechstein Sea (250m.yrs past).

Over 40 kms of tunnel mined each year (now >1,000kms in total), the long-lived roadways being cut in the lower NaCl layer.



Boulby Geology

Polyhalite



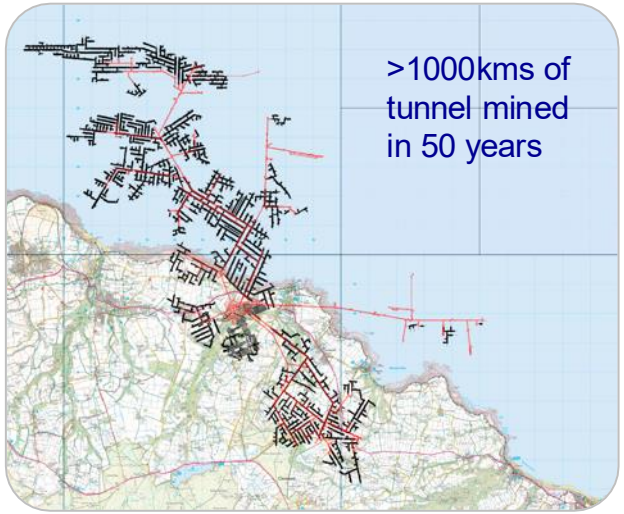
Potash



Rock-Salt



Low activity salt
U ~67 ppb,
Th ~125 ppb





Typical Boulby Salt Roadway



Zechstein Sea

Mine Shafts

Current Lab (2017)

ICL Fertilizers

UKRI Science and Technology Facilities Council

Boulby Underground Laboratory

Science and Technology Facilities Council
Boulby Underground Laboratory

Boulby Underground Laboratory

The UK's deep underground science facility operating in a working potash and salt mine.

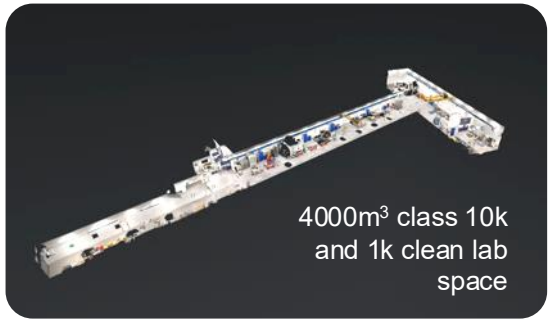
1.1km depth (2805 mwe). With low background surrounding rock-salt

Operated by the UK's Science & Technology Facilities Council (STFC) in partnership with the mine operators ICL-UK



Outside Experimentation Area (OEA)

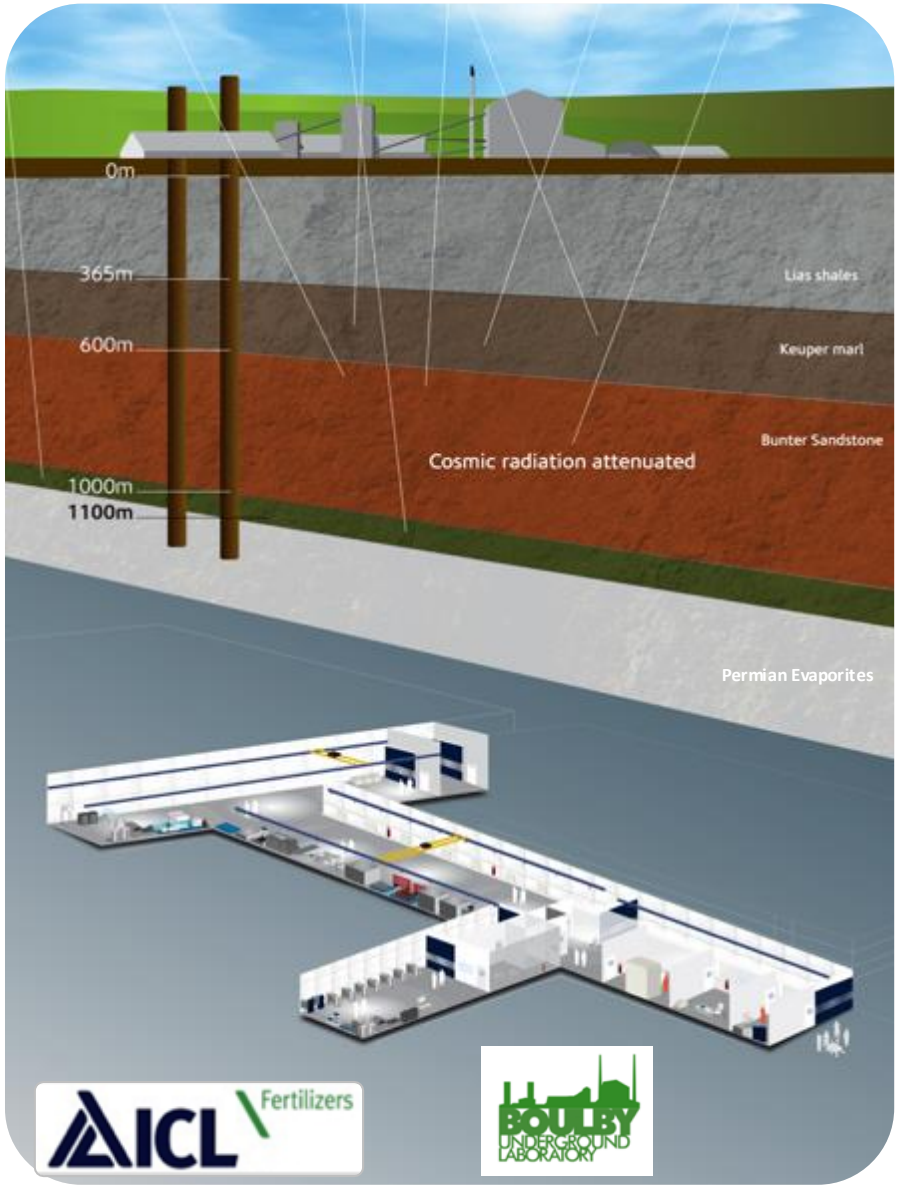






Lab entrance

Factor ~10^6 reduction in cosmic ray flux vs. surface



A QUIET place in the Universe



Surface support and staging building

Office space, chemistry & clean prep lab, storage and staging space, IT room, conference room,

Supported access to surrounding geology & UG environs. Power, wifi/internet.

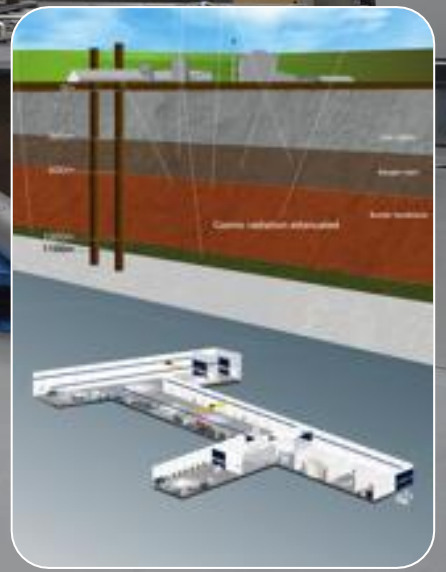


3000m^3 Outside Experimentation Area



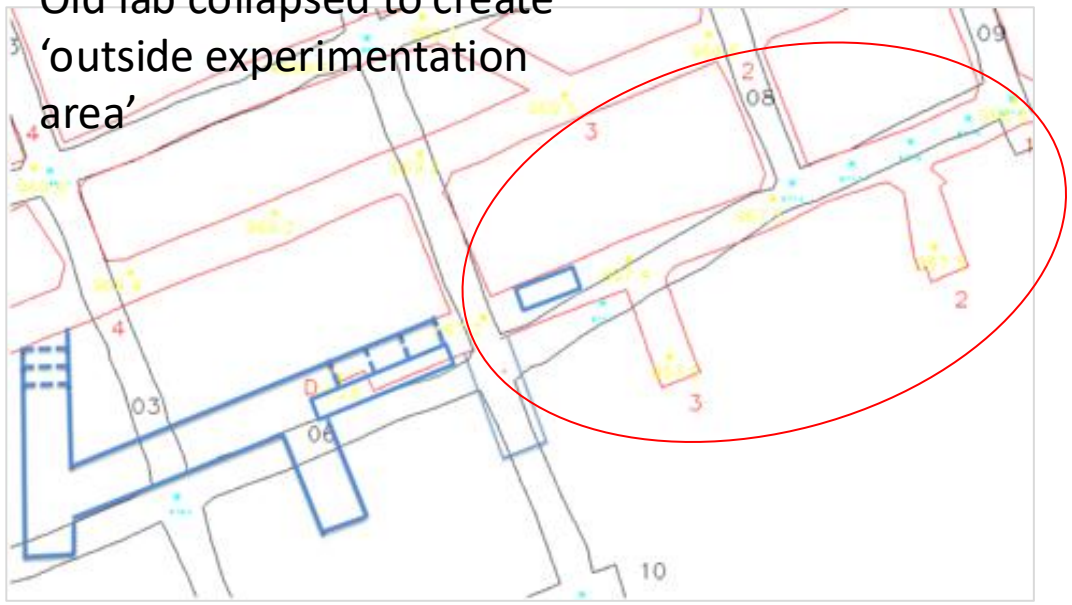
BUGS Material screening

Boulby Underground Lab Facilities 2026: >4000m^3 class 1k & 10k (ISO 6 & 7) clean room lab space. 10Gb Internet. AC, air filtration, 5T & 10T lifting, LN generation, fume hood & clean prep space. 3000m^3 Outside Experimentation Area (OEA) with power & internet. Supported access to wider mine environs.



Outside Experimentation Area (OEA)

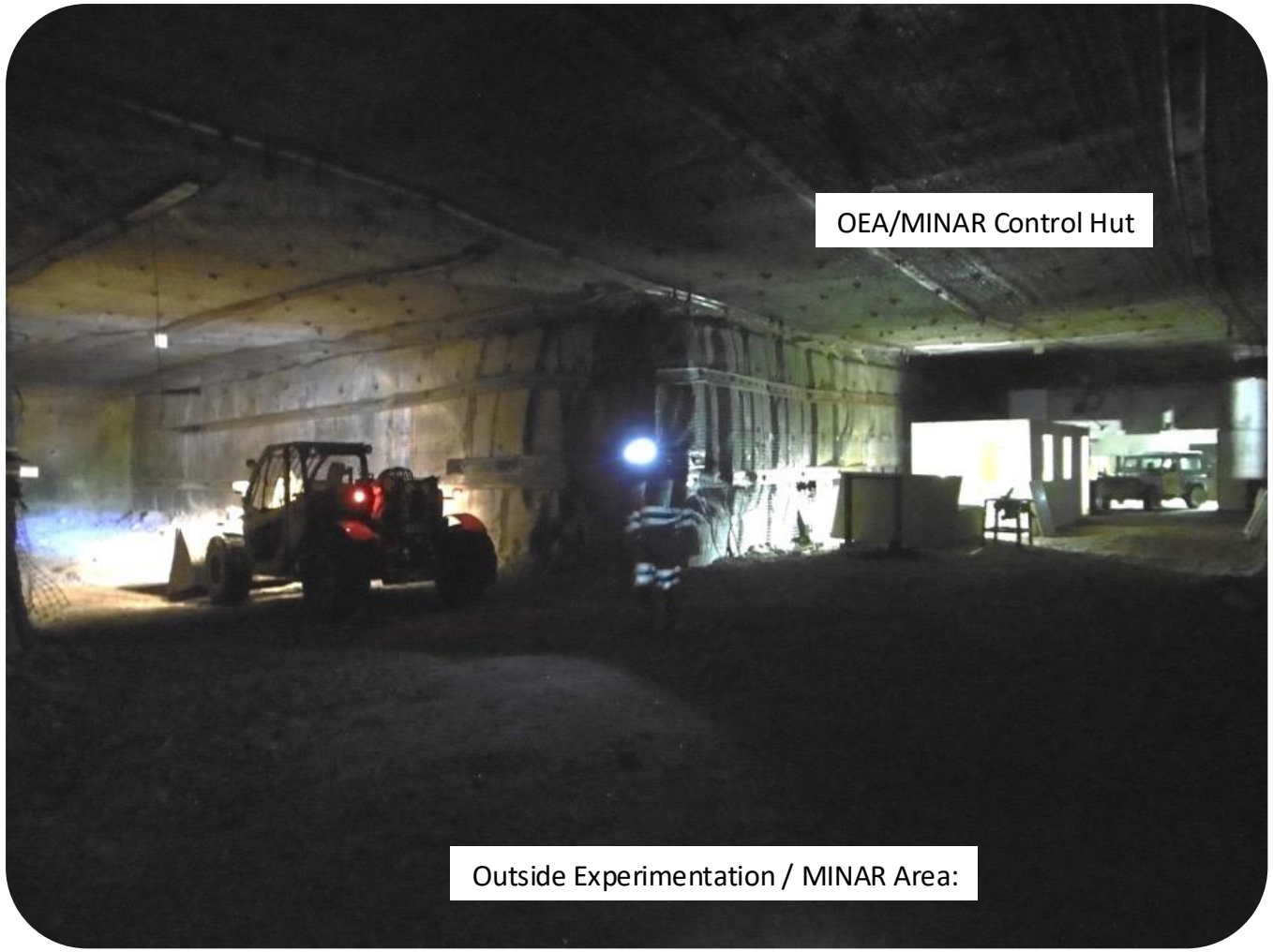
Old lab collapsed to create ‘outside experimentation area’



Lighting, 240/110V power, Internet / WIFI. Ventilation, doors, MINAR Base Station Hut

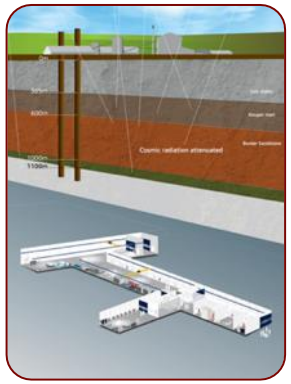
‘**Outside Science**’
Geology & Geophysics
Astrobiology, MINAR, Mars Analogue space





World deep underground laboratories…



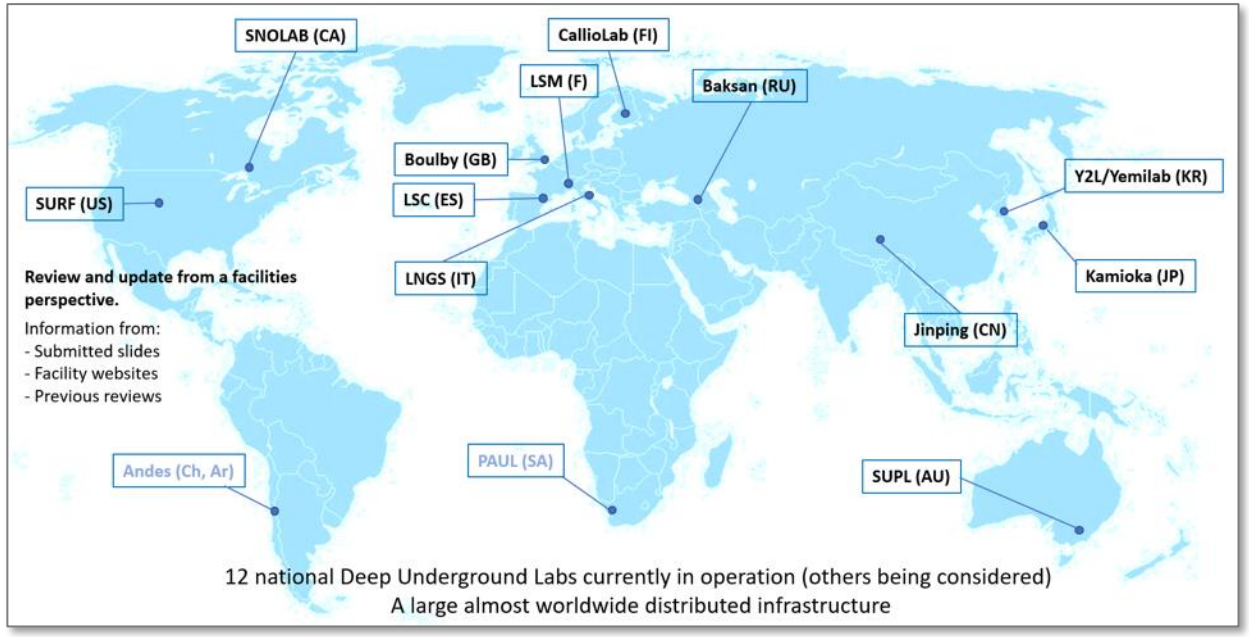


Boulby Underground Laboratory (UK)
Working Mine, 2850 mwe
Current vol: 7,200m^3
ZEPLIN+ (past), BUGS, News-G, RECON, BUTTON & more…



SNOLAB (Canada)
Active Mine, 5890 mwe
Current vol: 30,000m^3
SNO+, SuperCDMS, Deep3600, PICO, Next Gen 0vBB (to come?)

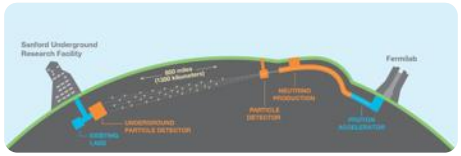
World Underground Labs





CJPL Jinping (China)
Hydro power plant, >6000 mwe
Current vol: 330,000m^3
Panda-X, CDEX, JUNA, GeoDEX, JNE and more to come





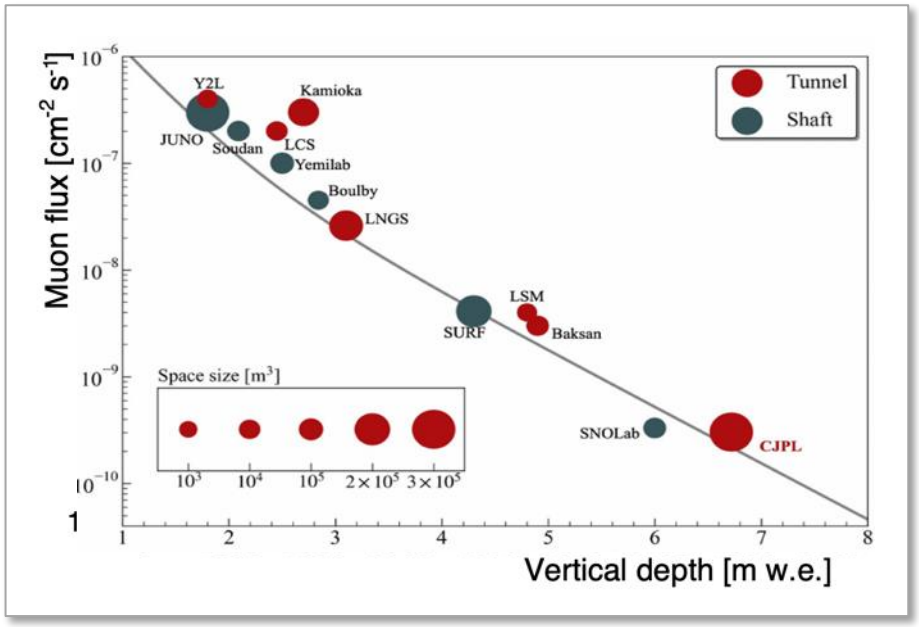
SURF Laboratory (USA)
Disused Mine, 4200 mwe
Current vol: 7,100m^3
LZ, MJD, DUNE (to come)

Gran Sasso National Laboratory
LNGS (Italy)
Under mountain, 3800 mwe
Current vol: 180,000m^3
Xenon, Darkside, LUNA, Legend +

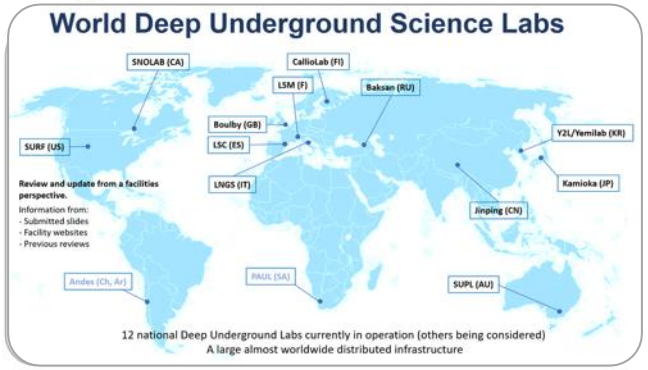


Boulby Underground Laboratory (UK)

Science and Technology Facilities Council
Boulby Underground Laboratory



Boulby Facility Details…



- The UK's deep underground science facility. One of 5 in Europe, <15 in the world.
- Supports work of >10 collaborative projects (astrophysics to climate, geology, environment etc), >60 institutions, >250 scientists & students.
- Facility funded and operated by the Science & Technology Facilities Council (STFC).
- Operations, H&S & science programme managed by 23 onsite staff and supported by Rutherford Appleton Lab (PPD).
- Mine operators ICL-UK provide wide-ranging operational & high level support.

How does Boulby Compare?
- Low Radon levels (3 Bq/m^3)
- Diverse science programme.
- Science and Industry partnership



Science and Technology Facilities Council

ICL Fertilizers

Lawrence Livermore National Laboratory · The University Of Sheffield. · Durham University · Department of Energy & Climate Change · AWE · NPL National Physical Laboratory · THE CROWN ESTATE · NASA · THE UNIVERSITY of EDINBURGH · FAIR-SPACE · And more…

Science Programme Status and Plans.

- Low background Particle and Nuclear Physics
- Earth & Environmental Science
- Astrobiology & Planetary Exploration Studies
- Quantum Sensors and Computing (new)
- Outreach & Education

@BoulbyLab
www.stfc.ac.uk/boulby

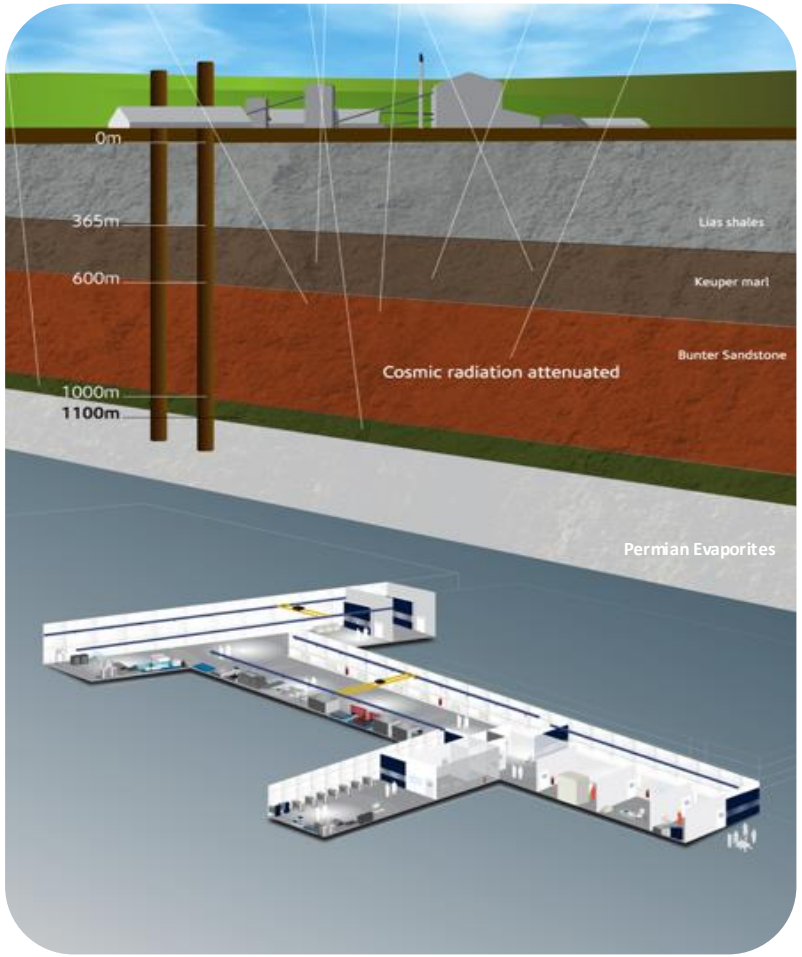
Boulby Underground Laboratory

Science and Technology Facilities Council

Boulby Underground Laboratory

Going Underground









Science and Technology Facilities Council
Boulby Underground Laboratory

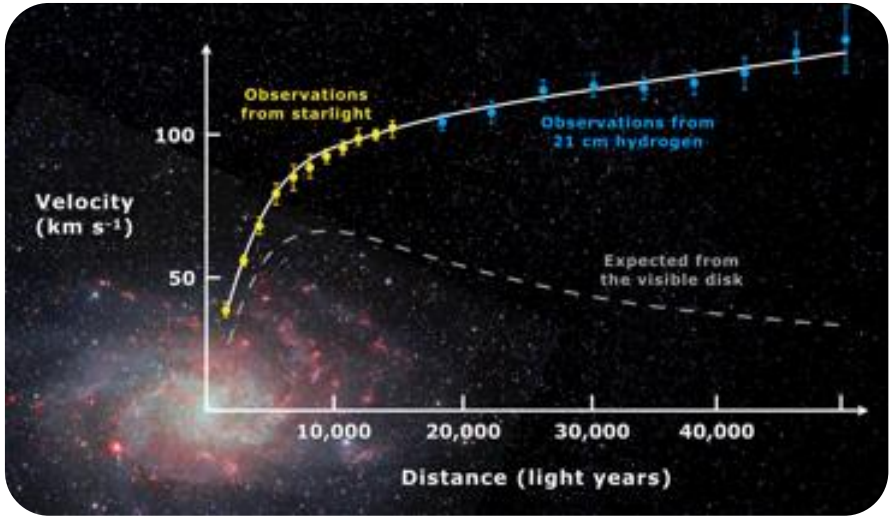
Science Programme Status and Plans.

- Low Background Particle and Nuclear Physics
- Earth & Environmental Science
- Astrobiology & Planetary Exploration Studies
- Quantum Sensors and Computing
- Outreach & Education

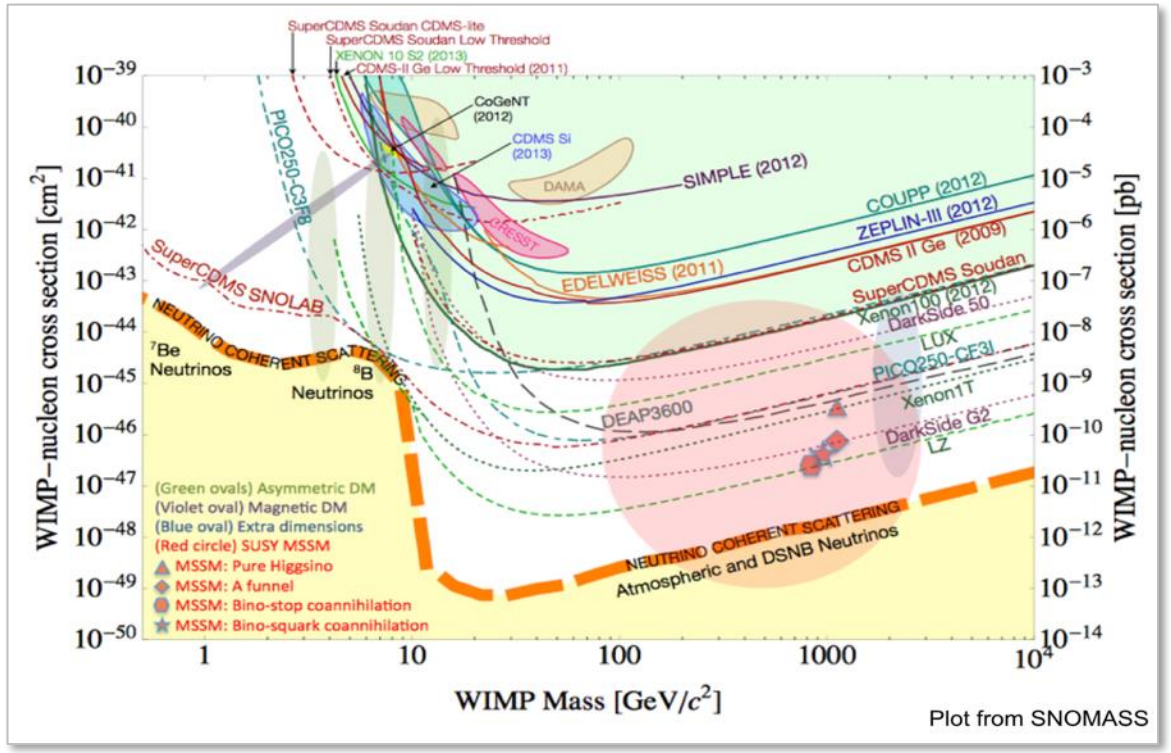
Boulby Dark Matter Studies…

Boulby has hosted **Dark Matter search** studies for over two decades. Including the **NAIAD, DRIFT & ZEPLIN** experiment programmes.

Boulby now hosts CYGNUS directional DM programme, NEWS-G / Dark-Sphere R&D and providing ULB material screening for other studies, inc **LUX-ZEPLIN (LZ)**



Galactic rotation curves



World DM particle search limits and future projections



ZEPLIN-II & III: *The world's first 2-phase Xenon dark matter detectors (Finished 2011)*



ZEPLIN-III @ Boulby

Spherical Proportional Counters (SPC) at Boulby

NEWS-G DarkSPHERE

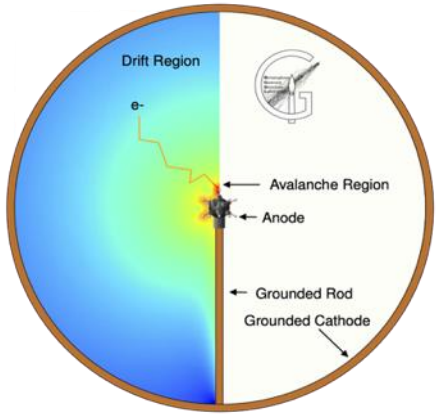
K. Nikolopoulos, P. Knights, L. Millins, G. Rogers, D. Spathara, P. Walters
University of Birmingham
and international NEWS-G Collaboration (France, Canada, Greece, USA)

UNIVERSITY OF BIRMINGHAM



NEWS-G Activities at Boulby

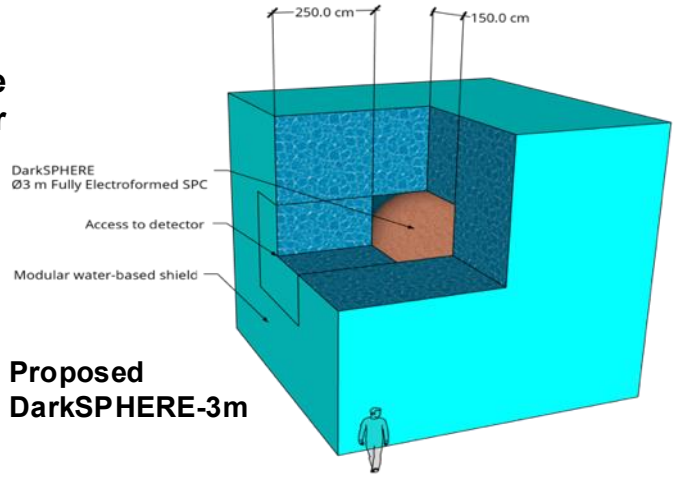
- Instrumentation developments
  - Multi-anode sensor
  - Gas filtration
  - Rate effect studies
- Neutron spectroscopy (with N_2 gas)
  - Neutron background surveys
  - Industrial applications
- High-purity copper electroformation
- **Towards scaled-up, electroformed, detector at Boulby, 3m diam. 5 bar $He:CH_4H_{10}$ *DarkSPHERE***



SPC concept: Variable target Low E_{th}, Low mass sensitivity



11-anode sensor

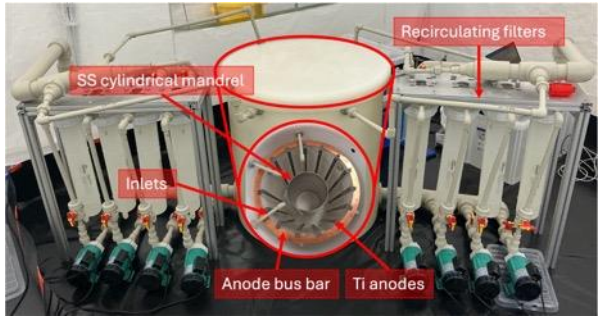


Proposed DarkSPHERE-3m

Selected as top in STFC's Medium Scale Dark Matter Fund bid (2025)

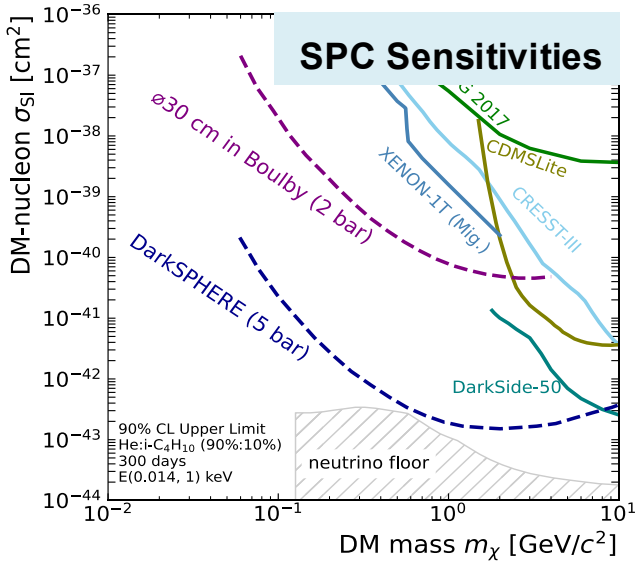


Al-S30 R&D Detector



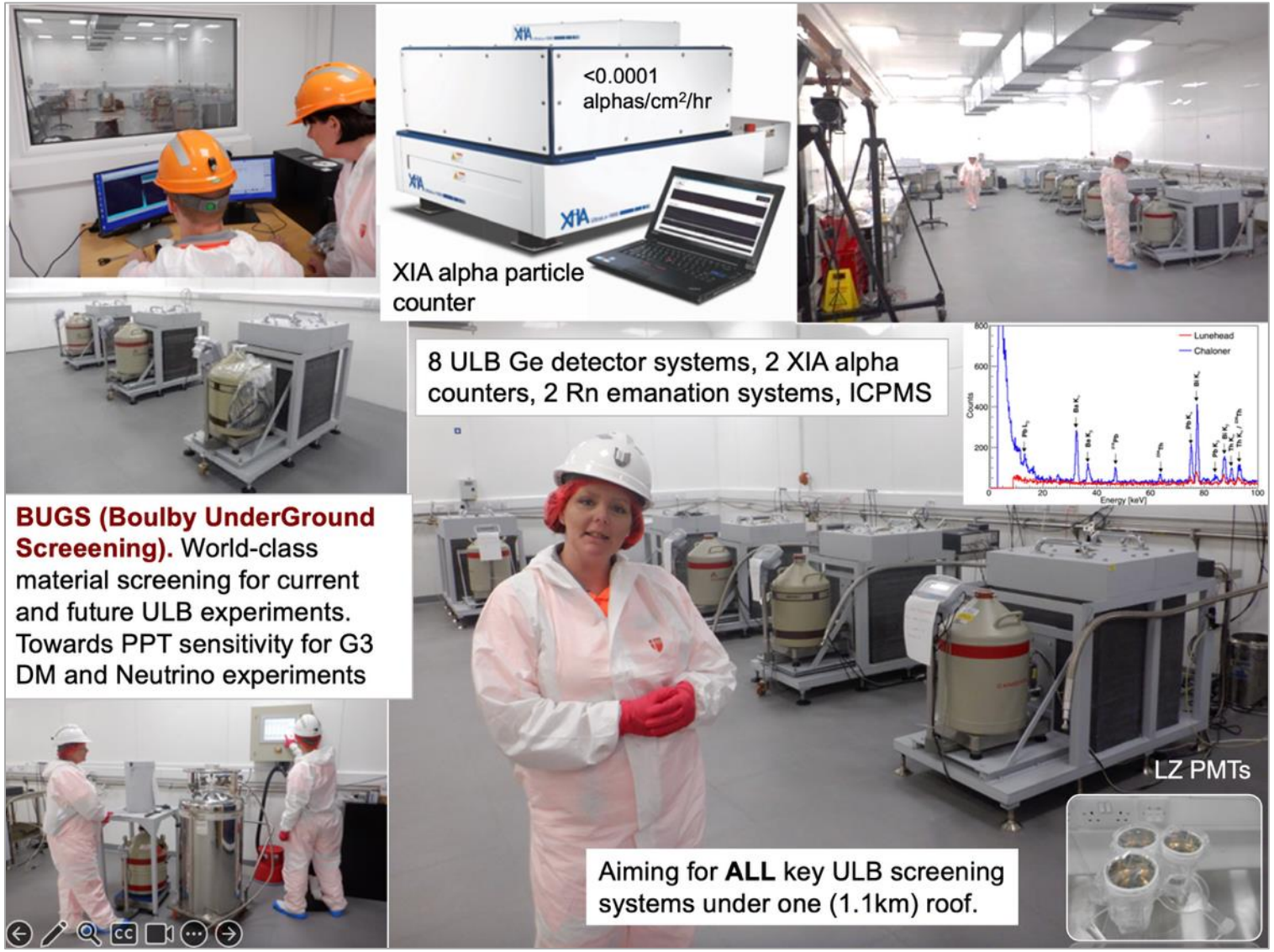


Copper electroforming at Boulby



Science and Technology Facilities Council
Boulby Underground Laboratory

Ultra Low Background Material Screening @ Boulby (BUGS)





BUGS (UG): A range of HPGe detectors and *alpha particle detectors* for intrinsic and surface radioactivity measurements.



ICP-MS (Surface): Newly installed system for trace element analysis and isotopic ratio measurements.

BUGS Facility: (Boulby Under-Ground Screening)

- ULB Germanium (8)
- XIA: Surface alphas (2)
- Radon Emanation (2)
- ICPMS-QQQ * All now in operation

Multidisciplinary Science

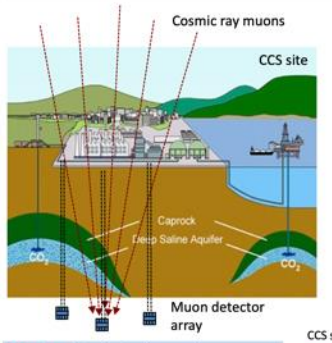
Applied low background particle physics, Earth and Environmental science, Astrobiology & Planetary Exploration Technology Development.

Deep CARBON: Muon Tomog R&D for CCS & more

Muon Tomography / Geo-survey

Development of a Muon Tomography techniques for deep 3D geological surveying - inc **Carbon Capture @ Storage (CCS)**

STFC-Boulby, Durham, Sheffield, Bath, NASA

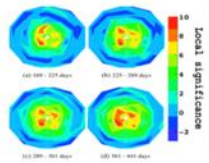


Potential for cheap, reliable, practical, real-time long-term monitoring of deep structures. Potential applications:
- Deep geological repository monitoring.
- Monitoring in Carbon Capture & Storage (CCS)


Muon-tides detector development


Bore hole detector installation

CCS site simulation



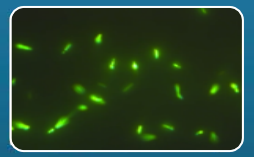
Status: Project phase 1 complete. Spin-out company for Muon Tomog applications created (Sheffield, Durham).
Next: UK-Japan proposed study of Muon Tomography for Tsunami early warning (2020)

Deep-Carbon Project: £1.4M funding from UK Dept of Energy & Climate change (DECC) & Premier Oil:
- Bore-hole detector development & testing
- Muon-Tides technology demonstrator
- Simulations of technique performance in CCS

MINAR: Astrobiology and planetary exploration technology development

MINAR Programme 2018 - present


NASA-JPL
Signatures of life studies







Remote³
Public Engagement

Lulea University
KORE rover 3D area mapping




Birmingham University
BIOSPHERE Human Habitability Studies



Edinburgh University
MUFFHINS water activity monitoring payload





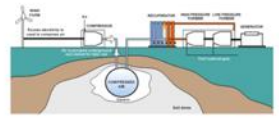


RESOURCE: Compressed gas energy storage R&D

Renewable Energy StOrage in UndeRground CavErns (*RESOURCE*)

RESOURCE Collaboration:
British Geological Survey
Boulby Underground Lab
University of Cardiff

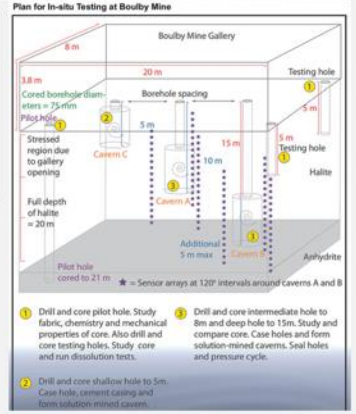
Low Carbon Technologies

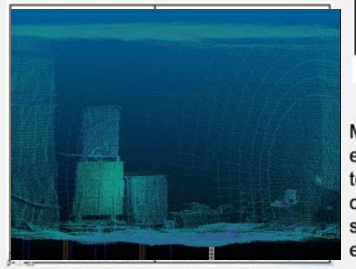


- Engineering solutions have been devised to store energy whilst production is high and feed it into the grid when production is low (e.g. CAES, hydrogen storage)
- Helps to regulate the production of renewable energy









Mid-scale rock engineering tests of gas containment in salt cavities for energy storage

Project RECON – CTBT Verification.

Enhancing the capability to monitor for signs of nuclear testing

Science and Technology Facilities Council

NUCLEAR SECURITY TECHNOLOGIES

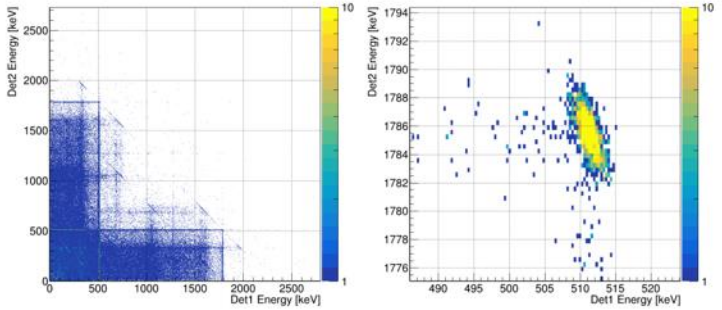


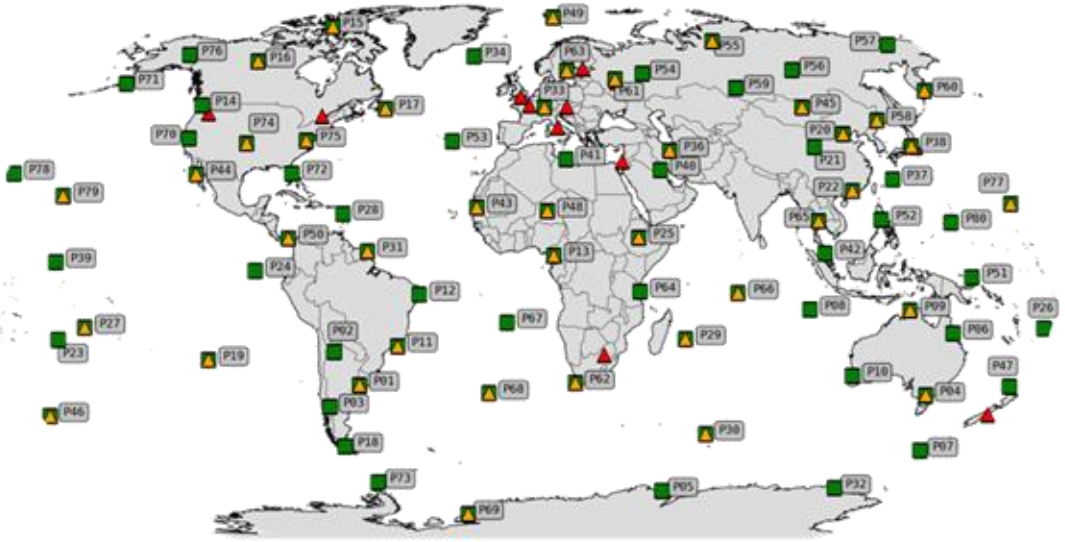
AWE Advanced Coincidence Detector System at Boulby



AWE Chief Scientist Visit to Boulby (2025)

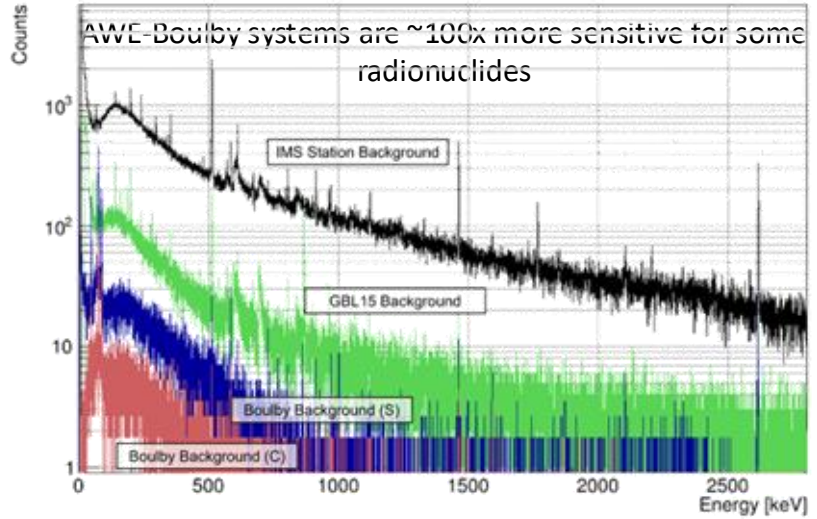
AWE and STFC Boulby have recently established a collaboration framework





The International Monitoring System (IMS) Radionuclide Network

AWE have been collaborating with STFC Boulby for ~ 8 years to develop an advanced coincidence detector system capable of improving measurement sensitivity for radionuclide samples used for verification of the Comprehensive Nuclear-Test-Ban Treaty (CTBT).



Figures from Goodwin *et al.*, (2025) In draft

BUTTON: a technology testbed for future (anti)neutrino detection



World antineutrino flux levels

~50 members across 16 institutions in the UK and U.S.

Lawrence Livermore National Laboratory · AWE · BERKELEY LAB · Brookhaven National Laboratory · THE UNIVERSITY of EDINBURGH · Science and Technology Facilities Council · Boulby Underground Laboratory · University of Sheffield · UF UNIVERSITY of FLORIDA · UNIVERSITY OF LIVERPOOL · Pacific Northwest NATIONAL LABORATORY · University of Glasgow · Penn · THE UNIVERSITY OF WARWICK

Funded in the UK by STFC from the UKRI Fund for International Collaboration & the MoD, & in the U.S. by NNSA (National Nuclear Security Administration).

US-UK technology development and proof of concept for nuclear non-proliferation

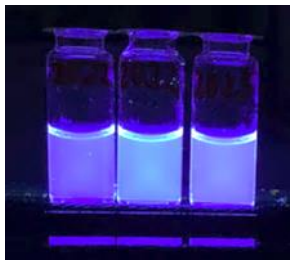
BUTTON-30 is a proof of concept for a future 1-kT detector providing 100-tonne fiducial volume

Part of a worldwide effort to develop WbLS detector technology. Other experiments include EOS at LBNL and the Brookhaven 30-ton at BNL.



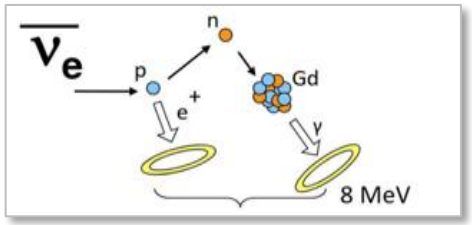
Jan 2025.
BUTTON-30 now assembled and preparing for liquid fill

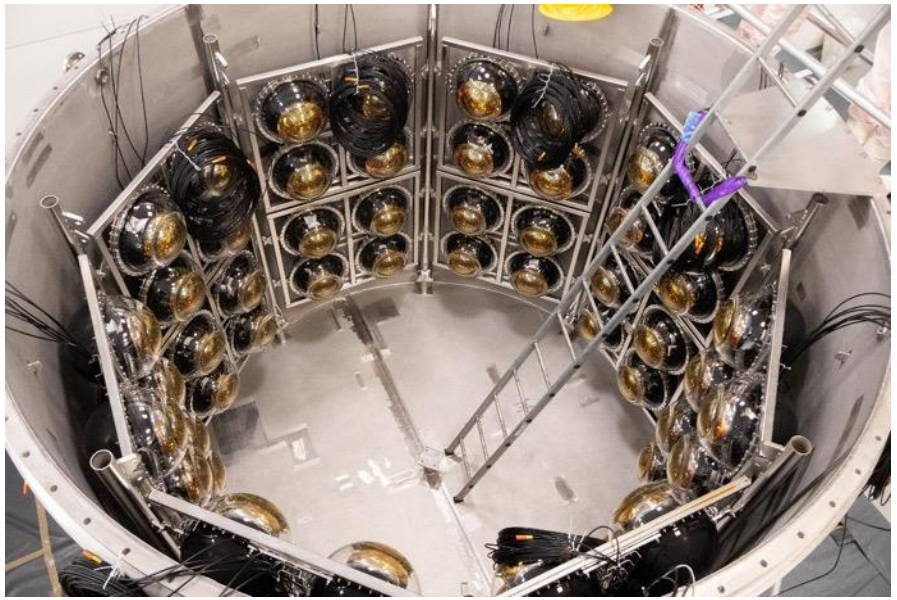
30T Liquid Filled (Gd+H_20, Water Based Liquid Scintillator (WBLS) and Gd-WbLS) prototype detector.



Water Based Liquid Scintillator (WbLS)

Anti-neutrino discrimination with Gd-H_20





Button @ Boulby Feb 25

BUTTON: a technology testbed for future (anti)neutrino detection



World antineutrino flux levels

~50 members across 16 institutions in the UK and U.S.

Lawrence Livermore National Laboratory · AWE · BERKELEY LAB · Brookhaven National Laboratory · THE UNIVERSITY of EDINBURGH · Science and Technology Facilities Council Boulby Underground Laboratory · University of Sheffield · UF UNIVERSITY of FLORIDA · UNIVERSITY OF LIVERPOOL · Pacific Northwest NATIONAL LABORATORY · University of Glasgow · Penn · THE UNIVERSITY OF WARWICK

Funded in the UK by STFC from the UKRI Fund for International Collaboration & the MoD, & in the U.S. by NNSA (National Nuclear Security Administration).

US-UK technology development and proof of concept for nuclear non-proliferation

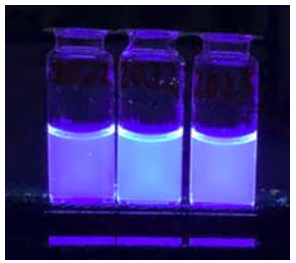
BUTTON-30 is a proof of concept for a future 1-kT detector providing 100-tonne fiducial volume

Part of a worldwide effort to develop WbLS detector technology. Other experiments include EOS at LBNL and the Brookhaven 30-ton at BNL.



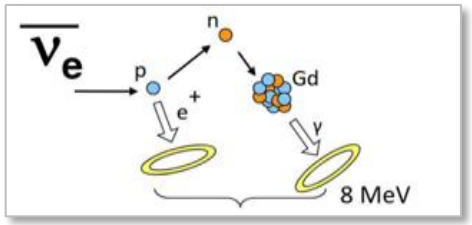
Jan 2026.
BUTTON-30 now assembled and preparing for liquid fill

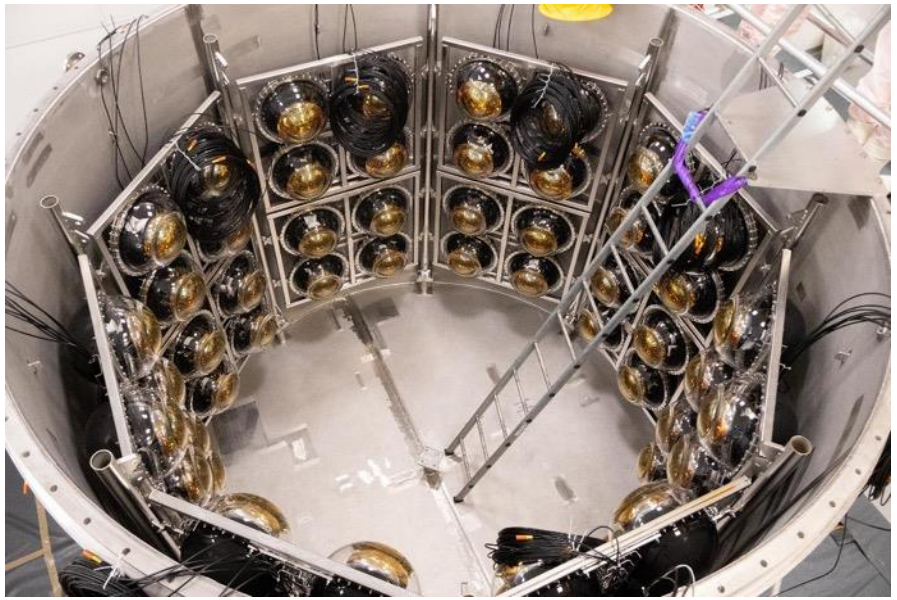
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Water Based Liquid Scintillator (WbLS)

Anti-neutrino discrimination with Gd-H_20





Button @ Boulby Feb 25

Farm Urban: Exploring logistics, limits and economics of Vertical Farming

THE TIMES

UK underground laboratory host world's deepest farming study

The Guardian



20 July 2026

Researchers have begun growing crops 1.1km below ground at the Boulby Underground Laboratory, operated by the Science and Technology Facilities Council (STFC).

The 12-month study will gather the first real-world evidence on whether underground farming can be run at commercial scale, using a facility built largely for particle physics rather than agriculture.

The study is supported by a UK Research and Innovation Biotechnology and Biological Sciences Research Council (BBSRC) STFC Facility Access Fund award for bioscience partnerships.

The scheme is designed to open STFC's national facilities to research beyond their original scientific remit.

A new use for a unique facility

The Boulby Underground Laboratory is best known as the UK's deep underground science facility, where researchers shielded from cosmic radiation search for dark matter and study neutrinos.

It also supports a wider programme of pure and applied research that draws on the site's ultra-low background radiation environment.

Its enables access to the unique and scientifically important subterranean geology, and the existing science-supporting infrastructure.

Those same conditions are now being tested for a very different purpose: growing food.

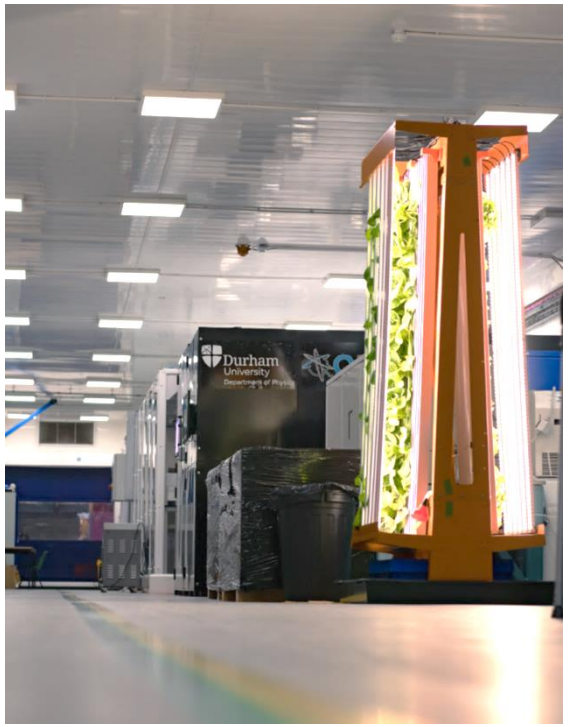








IAN FORSYTH FOR THE TIMES



Boulby Science Activities Now and Potential Future

Now

	Current Projects	Status
Particle Physics & Low Background	CYGNUS - DM R&D	E/P
	News-G - DM R&D	A
	BUGS: Ge, XIA, RnEm - Material Screening	A
	RECON - Nuclear Security R&D	A
	BUTTON – Nuclear security R&D	A
Earth & Environmental	Muon Tomog – CCS & undersea Geoimaging R&D	A
	RESOURCE – Energy store R&D	A
	Seismology/AION R&D	A
Astrobiology & Planetary Exploration	BISAL – Biology/Astrobiology	A
	MINAR – Planetary Exploration Tech development	A
	Misc. Other. SELLR, C14, BIO-SPHERE…	A/I
	Outreach/ Education - Misc events, progs, Remote3…	A

Status: A = Active, P = Paused, E = End,
I = Interest confirmed

2023-2030

Medium Term (Current Lab + mods)	Status
BUGS: Ge, XIA, RnEm, ICPMS - Material Screening	A
BUTTON-30 – Nuclear security R&D	A
RECON+ - Nuclear Security R&D	A/I
DarkSPHERE, SDMS, SOLAIRE, UltraDark, MechQSDM – DM Search	I
DATUM – Neutrino Tech R&D	I
SoLAr – Neutrino R&D	I
Seismology Array – Geosurvey R&D	I
RESOURCE+ – Energy store R&D	A/I
Muon Tomog – CCS & undersea Geoimaging R&D	A/I
BISAL+ – Biology/Astrobiology	A/I
MINAR+ – Planetary Exploration Tech development	A/I
Misc. Other. AION R&D – Atomic Interferometry Quantum Computing Tech R&D?	A I
Outreach/ Education: General Public, Schools +	A

2030-2040+

Long Term (Current lab plus major new lab)

Particle Physics and Low Background Science:

Dark Matter: Major Next Gen Experiments:

- Xenon (XLZD)
- Argon (SOLAIRE+)
- Gas (DarkSPHERE+)
- ULT technologies for DM
- Quantum Technologies for DM

Target projects for **a major new UK underground facility** / campus

Neutrinos:

- BUTTON-100+
- DATUM (LEGEND Support),
- SoLAR +….

Mat screening & LB Techniques: A world's best facility:

- Ge, XIA, RnEm, ICPMS, Cleanliness & Engineering R&D
- RECON+ - Nuclear Security Gamma spec

Earth & Environmental Science:

- Sustainable Energy R&D (Gas Storage, Geotherm, CCS)
- Local/Global Seismology Observatory
- Geological Repositories R&D
- Misc geology / Geophysics R&D

Astrobiology & Planetary Exploration:

- Extremophile R&D
- Astrobiology / life beyond Earth R&D
- Human habitation R&D
- Planetary exploration technology development
- Mining and industry application development.

Quantum Sensors and Computing:

- AION-20/100/100 – Atomic Interferometry
- Quantum Sensor and Computing Technology R&D

Outreach and Education:

- A National Centre for Science and technology outreach and education.

Boulby Future Earth and Environmental Science

Developing program of Earth science research at Boulby by a consortium of UK universities and industry.

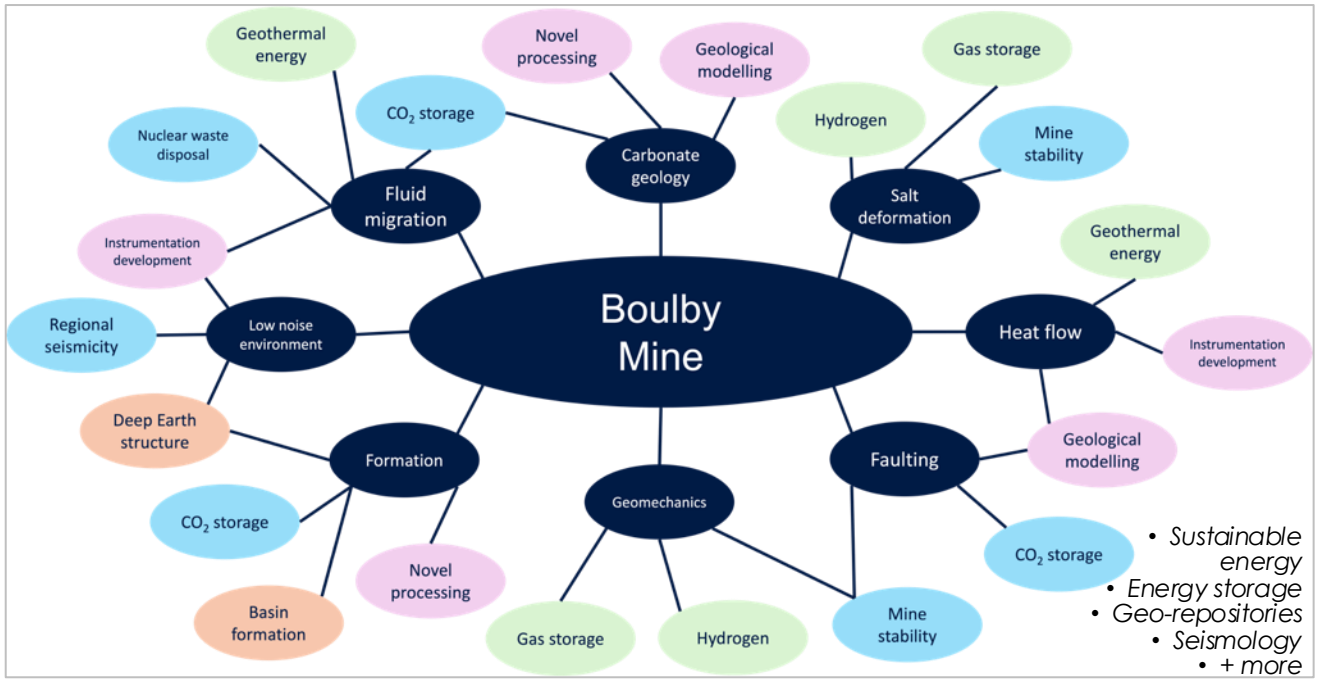
Earth science at Boulby workshop August 2024



Workshop of 17 universities and 4 companies has led to a proposal of an integrated program of Earth science research, currently being considered by NERC.

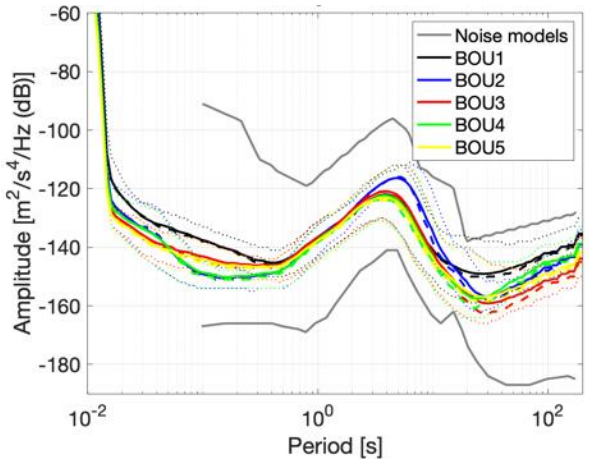
NERC scoping study proposal

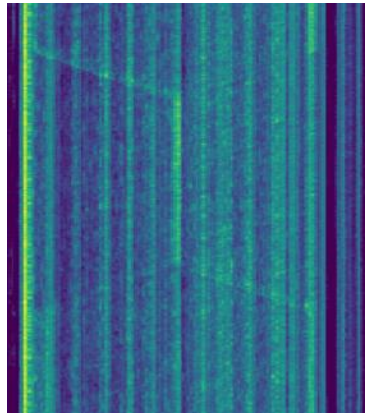
Research themes of the Boulby programme



Developing a community coordinated programme of Earth Science @ Boulby



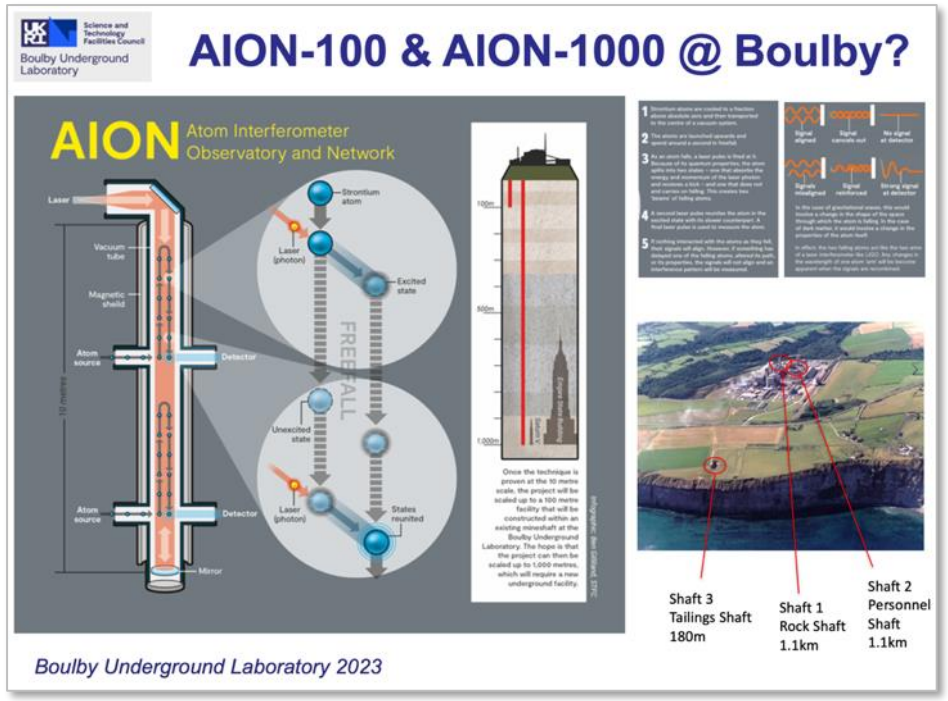




Seismometers and fibre optic acoustic sensors deployed to baseline vibration levels for AION experiment and North Sea regional earthquake monitoring.

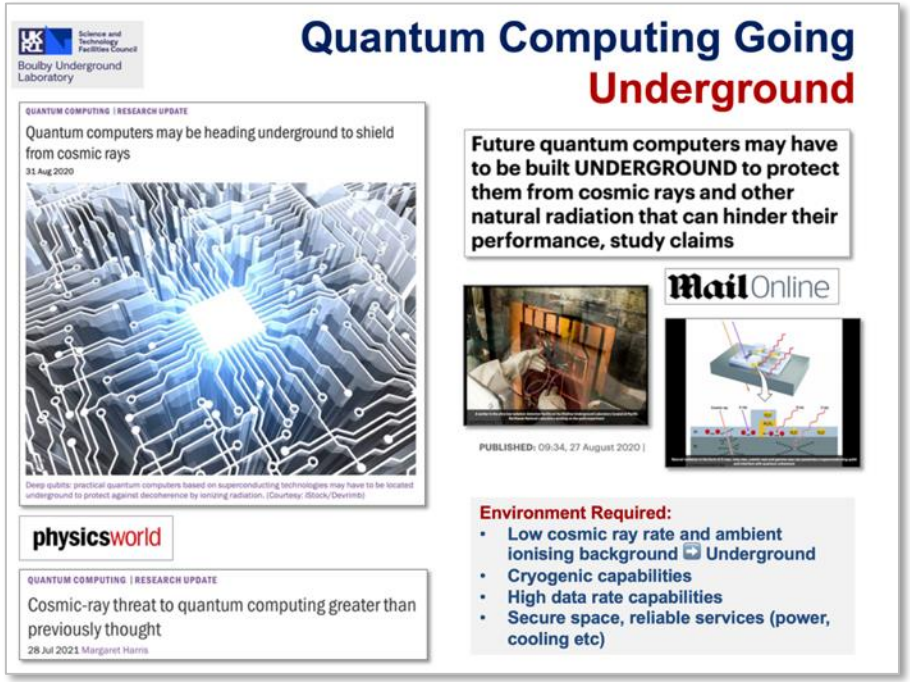
Science and Technology Facilities Council
Boulby Underground Laboratory

Quantum Sensors and Computing @ Boulby…

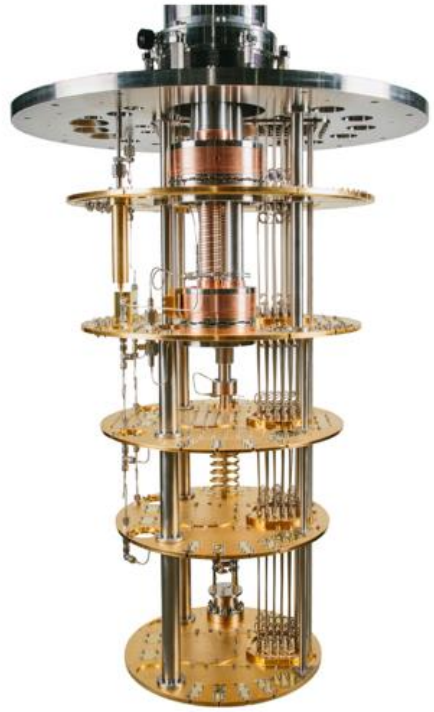


AION-20, 100 & 1000: Atomic interformetry for GW and light DM studies

Quantum Computing in Ultralow background environment?



Coming to Boulby v.soon!
Oxford Instruments
Proteox MX Dilution Fridge



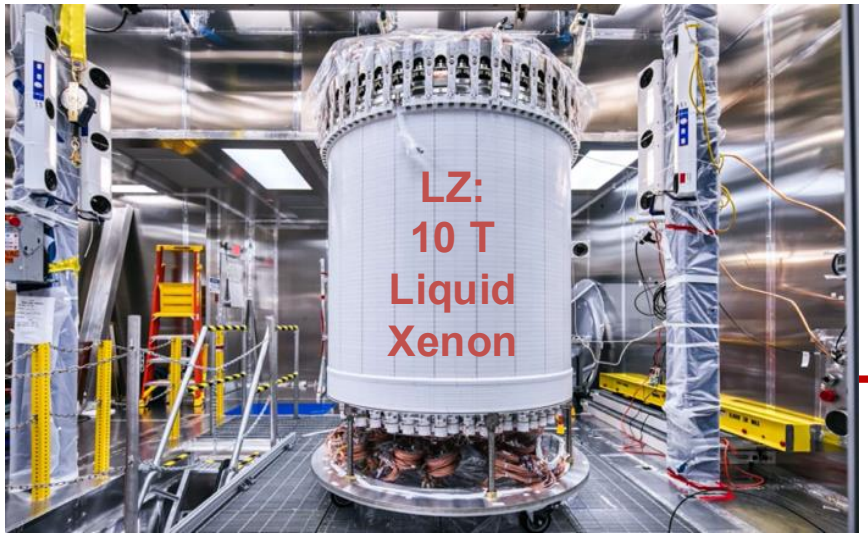
A growing Quantum @ Boulby community:

- Planning future quantum sensors and computing R&D and operation
- Helping to specify technical infrastructure needs for a future hosting facility
- Community meetings held Sept 24, October 25
- **Durham laser cold atom project (QuASAR) being installed @ Boulby (3/26).**

In collaboration with **National Quantum Computing Centre (NQCC).**
Will be available for use by wider community.

Next Generation Xe Dark Matter(+) Detector (XLZD)

Lux-ZEPLIN (LZ). SURF, S. Dakota, USA





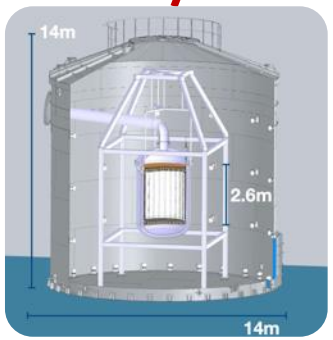
LZ: 10T 2-phase Drk Matter detector operating in SURF lab, USA. Early 2-phase Xe technology developed in the UK. STFC/UK investment continues.



Xenon-nT
LNGS, Italy

XLZD
2021 merging of LZ, Xenon and DARWIN teams

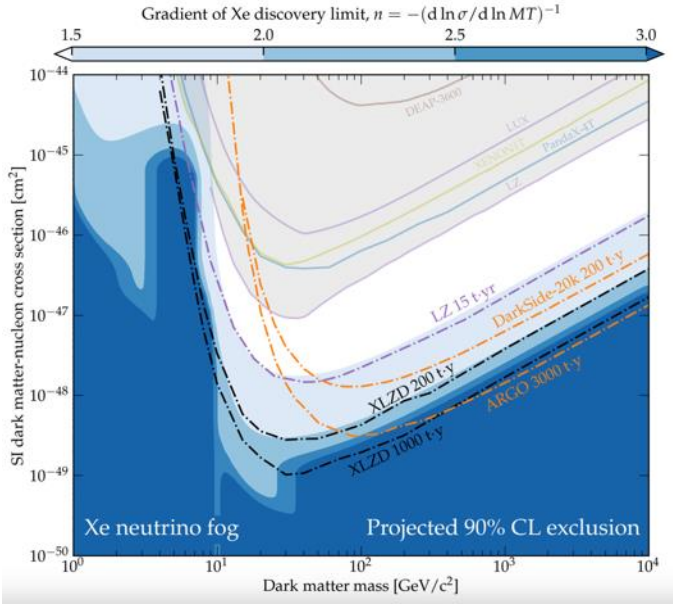
DARWIN
(Proposed)



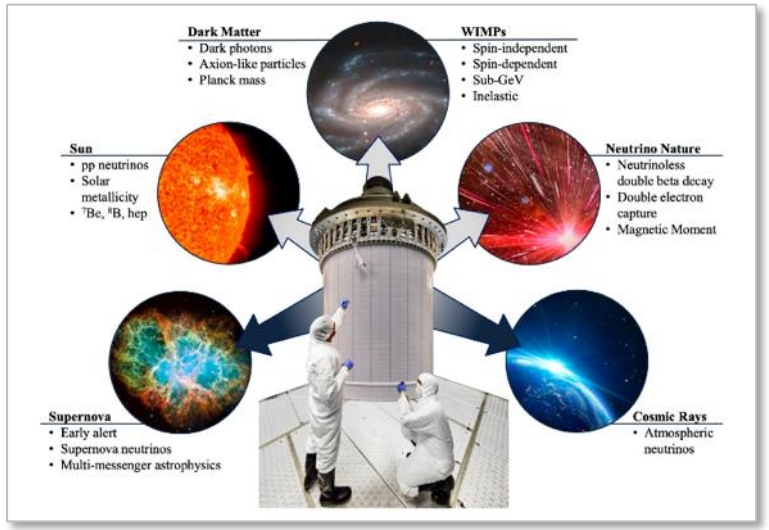
XLZD
50-100T LXe
Operation 2032+
Site evaluation underway

Could XLZD be constructed and operated at Boulby 2030+?

Projected sensitivity (Akerib P5 town hall mtg 2023)

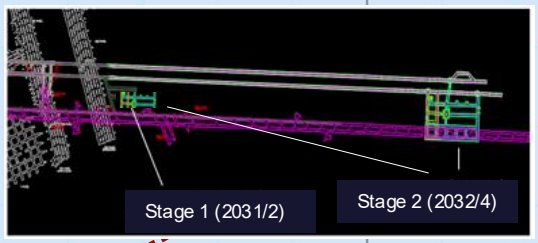


Next generation **world's best** Dark Matter (+) detector. **Expected 2030+**



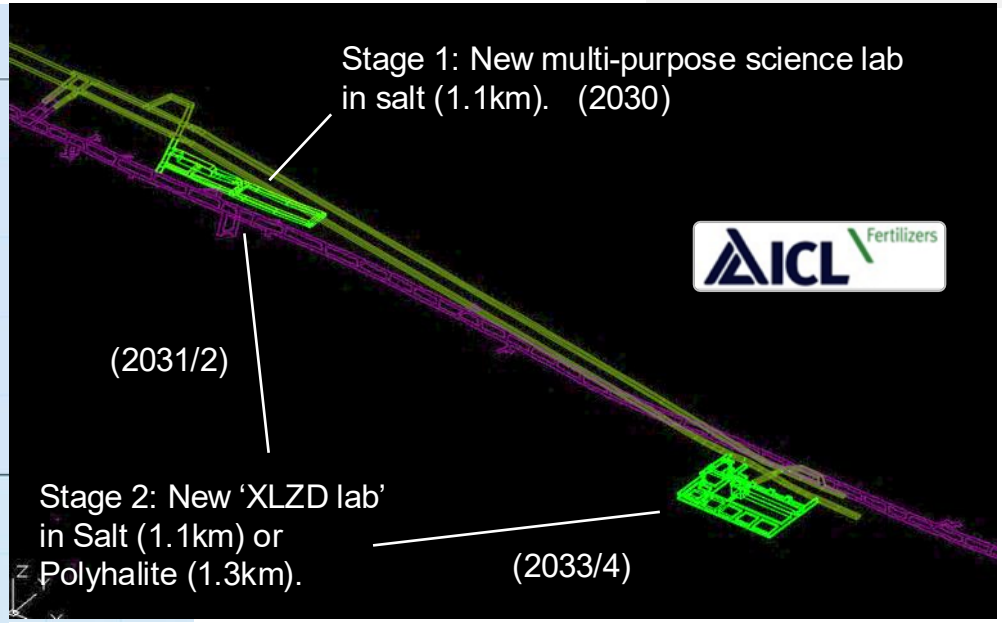
Boulby Development Project
Task 1: Site and design Development.

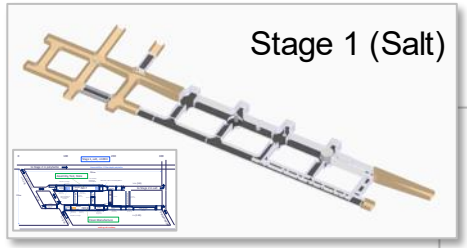
Science and Technology Facilities Council
Boulby Underground Laboratory



A new lab @ Boulby

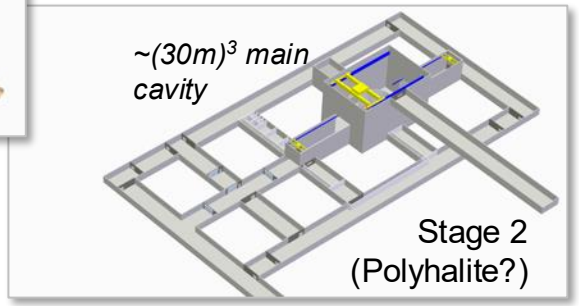






Total volume (Stage 1 + stage 2) ~120,000m³

DRAFT: 2-stage design



Excavations for stage 1 of expansion by ICL-UK began in mid-2024.

Stage 1: A new world-class multi-disciplinary deep underground science facility.

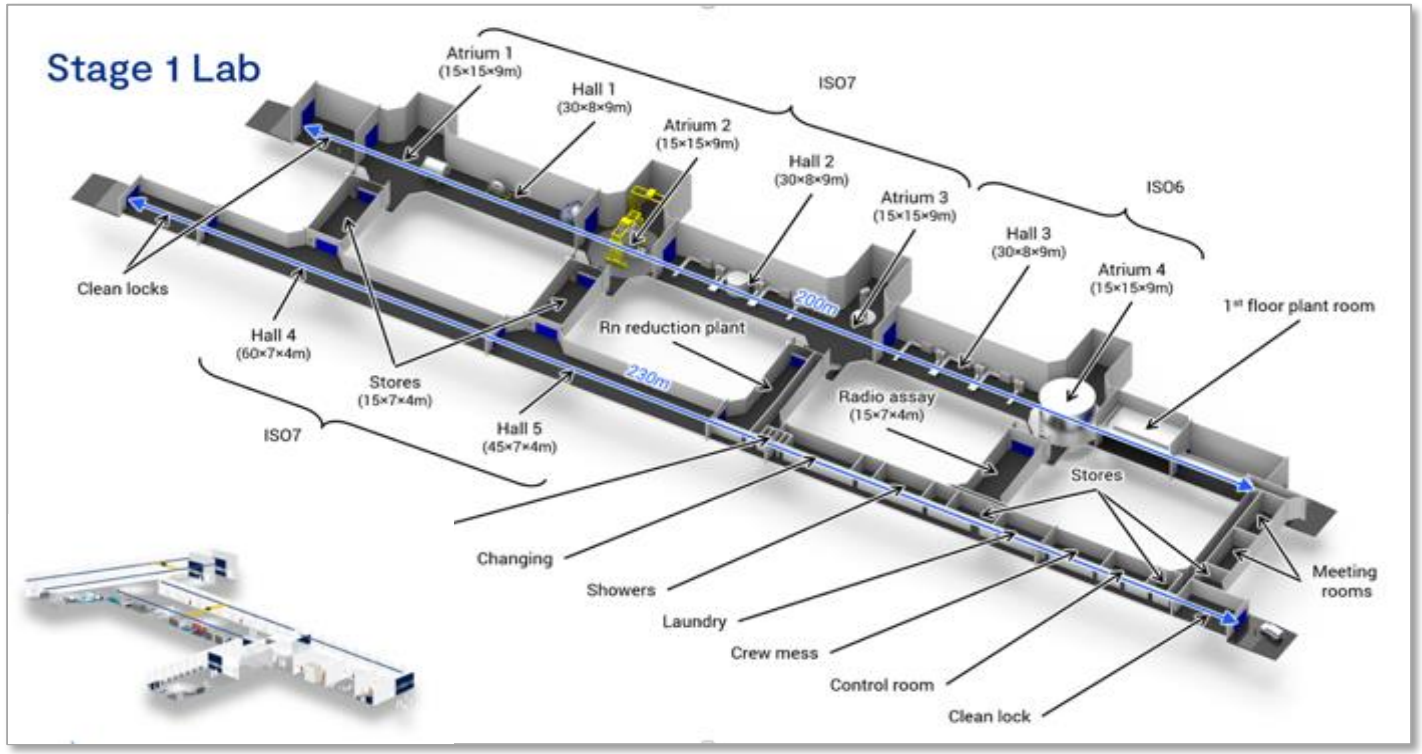


Image Credit: A Ball, J Elmer, C Kinahan, J Hill et al.



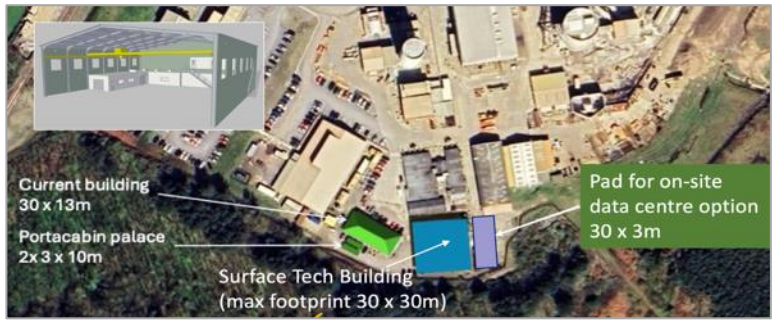


EXCAVATION NOW COMPLETE.

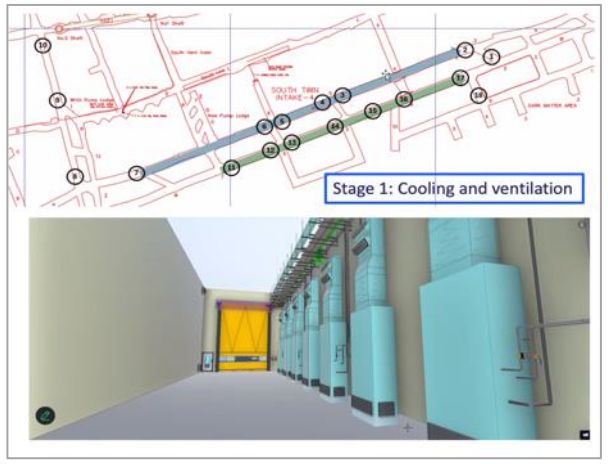
Planning for laboratory outfitting now underway

Stage 1 Outfitting

A new, world-class multidisciplinary science facility, complementing and succeeding the current Boulby laboratory



Surface Building Development



Stage 1 Ventilation

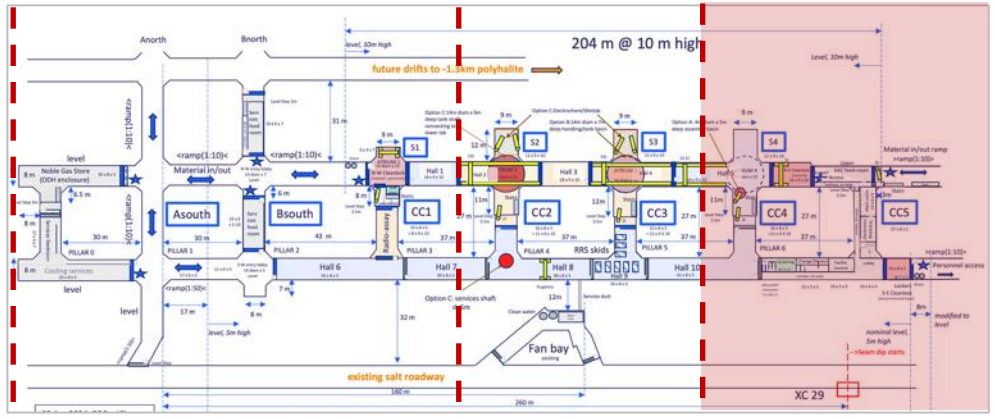


Stage 1 Lining Options

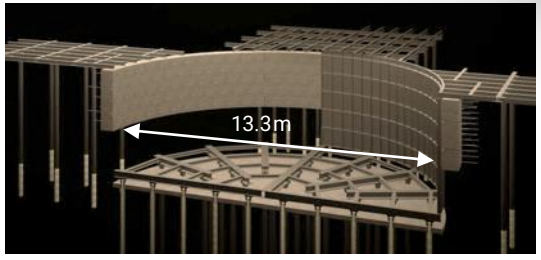
Costs and schedule:
Partial outfit (SOP 1): 4 yrs min (~£25m)
Full outfit (SOP 1+2+3): 5 yrs min (£100m)

Possibility for single shot or phased outfitting

Staged Outfit Phase 1 (SOP1)



SOP3 SOP2 SOP1



North Gallery Basins

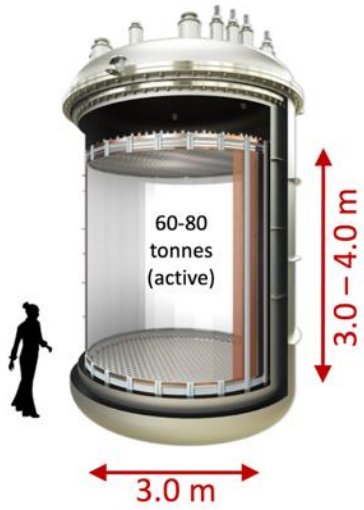
What about XLZD ???

The international XLZD collaboration are looking at 4 potential Underground Labs to host the project:

- SURF (USA)
- SNOLAB (Canada)
- LNGS (Italy)
- **Boulby (UK)**

Decision factors:

- Physical/practical suitability ✔
- National science capability ✔
- Local political & financial support ?

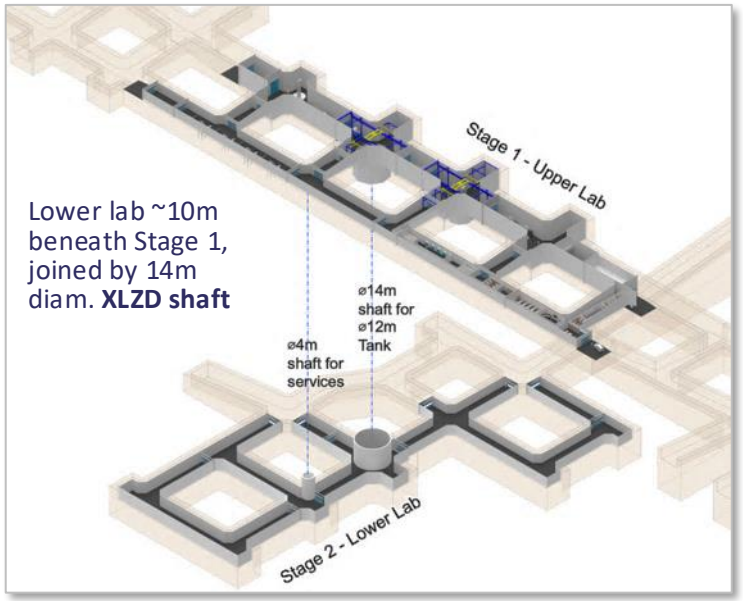


XLZD @ Boulby

Host site Decision… 2027+(?)

Latest news from XLZD-UK:

- New simulations show 1.1km depth is fine for XLZD science ambitions
- **Stage 2 in SALT is now Boulby Plan A.**
- **QUICKER** and **CHEAPER** to deliver and operate
- Cost: ~£75m*
- Schedule: 2032**



Stage 2 & Stage 1 in Salt

UKRI Science and Technology Facilities Council
Boulby Underground Laboratory

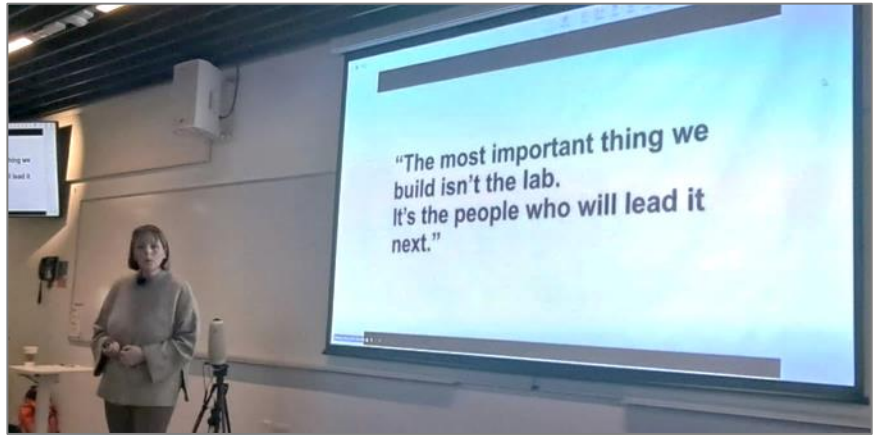
Could the world's most sensitive next-generation Dark Matter & Rare Event detector come to the UK?



* Additional to stage 1 lab costs
** Assuming stage 2 funding start ~2028

Boulby People, Teamwork, Outreach and skills…







NETA Training Provider – promoting apprenticeships @ BUL



Remote[3] programme – partnership with the University of Edinburgh & RAL

Boulby engagement 2025/26:

- 6196 people engaged with through PE programmes
- Across 68 events

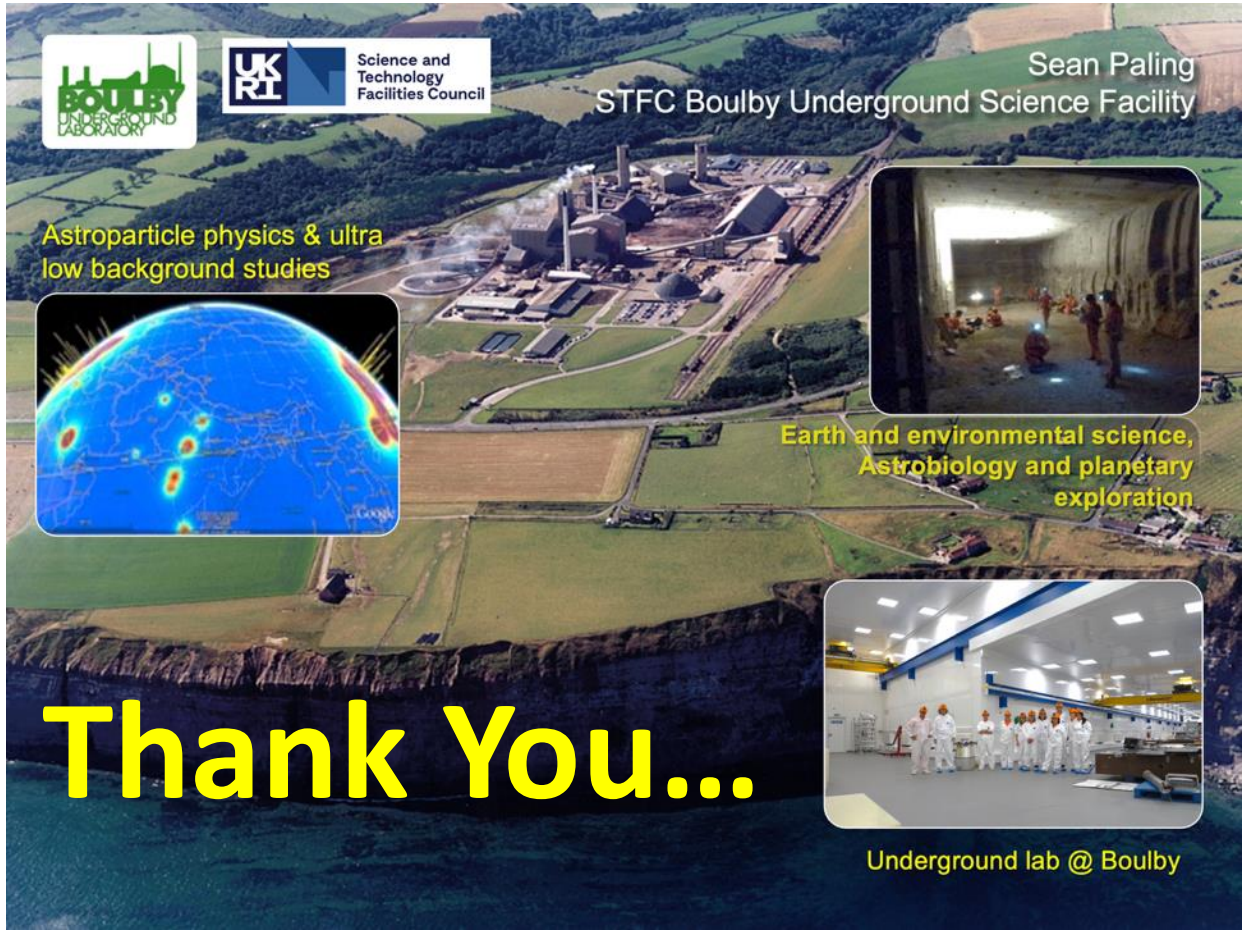
Boulby Public Engagement



BUL "live links" – versatile virtual tour format for a variety of audiences



Deep Science at Boulby Underground Laboratory:
Status & plans for the UK's Deep Underground Science Facility.



Summary…

Science and Technology Facilities Council
Boulby Underground Laboratory

Boulby Underground Lab Status:

- The UK's deep underground science facility
- Nationally and Internationally important. With a strong history in Dark Matter tech. development
- Now a rich & varied science programme in pure & applied low background science, Earth & environmental science, astrobiology & planetary exploration, quantum sensors & computing.

Future plans:

- We are expanding facilities at Boulby with a flexible outfitting strategy to accommodate future projects across all science themes, inc. the major Dark Matter(+) study XLZD.
- Delivery of Stage 1 (of a possible two-stage) facility expansion – is now underway.
- **Come and visit us!**