Dr Matt Rowberry FGS
PhD in Earth Sciences

Research Scientist
2010-present

Contact information
Department of Engineering Geology
Institute of Rock Structure & Mechanics
Czech Academy of Sciences
V Holešovičkách 41
Prague 8, Czech Republic

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+420 266 009 327

British citizen; Czech resident

`project management`

`effective communication`

`fracture mechanics`

`landslide dynamics`

`electromagnetic emissions`

`digital signal processing`

`time series`   `machine learning`

`ArcGIS`   `R`   `Python`

Research outputs

Impact factored manuscripts: 28
Other manuscripts: 6
Book chapters: 4
Monographs: 1
Utility models: 1
Functional specimens: 1
Prototypes: 2
Software: 2

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Main research interests

- Developing state of the art sensors for near real time fracture monitoring
- Detecting rock strain induced electromagnetic signals in field data
- Characterising the behaviour of deep seated slope deformations

Data and analytics tools

- ArcGIS used for geospatial analysis and spatial statistics
- R used for time series forecasting in the temporal and frequency domains
- Python used for digital signal processing and machine learning

Relevant grants awarded since 2015

Project title: Integrating 3D contactless positioning systems into a comprehensive geophysical monitoring network in Taiwan
Provider: Czech Academy of Sciences and Academia Sinica (Taiwan)
Period: 2025-2026. Role: Professional colleague

Project title: Developing a formal machine learning protocol to distinguish between artificial and natural electromagnetic radiation anomalies
Provider: Institute of Rock Structure and Mechanics
Period: 2024. Role: Principal Investigator

Project title: 3D contactless magnetoresistive positioning system
Provider: Technology Agency of the Czech Republic
Period: 2021-2022. Role: Professional colleague

Project title: 3D fracture behaviour monitoring presented online in real time using Spinterference
Provider: British Cave Research Association
Period: 2019. Role: Principal Investigator

Project title: The construction of a global database of giant landslides on oceanic island volcanoes
Provider: International Program on Landslides
Period: 2016-2023. Role: Principal Investigator

Project title: El Hierro megalandslide dynamics analysed using big data to predict the future behaviour of megalandslides on other volcanic islands
Provider: Grant Agency of the Czech Republic
Period: 2016-2018. Role: Professional colleague

Project title: The development and optimisation of a prototype for the automated monitoring of three dimensional fracture movements
Provider: Technology Agency of the Czech Republic
Period: 2015-2017. Role: Principal Investigator

Relevant publications since 2015

Baroň I, Melichar R, Sokol Ľ, Rowberry M, Plan L, Stemberk J, 2024. 3D active fault kinematic behaviour reveals rapidly alternating near surface stress states in the Eastern Alps. Geol Soc Spec Pub 546:119-133

Rowberry M, Klimeš J, Blahůt J, Balek J, Kusák M, 2023. A global database of giant landslides on volcanic islands. Prog Landslide Res Technolog 1:295-304

Blahůt J, Klimeš J, Meletlidis S, Balek J, Rowberry M, Baroň I, 2023. A decade of monitoring and research on the San Andrés megalandslide on El Hierro, Canary Islands, Spain. Advances in Natural Hazards and Volcanic Risks. Springer, 65-70.

Baroň I, Koktavý P, Trčka T, Rowberry M, Stemberk J, Balek J, Plan L, Melichar R, Diendorfer G, Macků R, Škarvada P, 2022. Differentiating between artificial and natural sources of electromagnetic radiation at a seismogenic fault. Eng Geol 311:106912

Postdoctoral research

2008-2009

School of Geosciences
University of the Witwatersrand
Johannesburg
South Africa

Research topic
The tectonic and geomorphological evolution of southern Africa since the Mesozoic breakup of Gondwana
Host: Professor Terence McCarthy

Doctoral research

2003-2007

Geography & Earth Sciences
University of Wales
Aberystwyth
United Kingdom

Research topic
The tectonic and geomorphological evolution of Wales since the Cenozoic opening of the north Atlantic
Supervisor: Professor Mark Macklin

Undergraduate studies

1999-2003

Department of Geography
University of Liverpool
Liverpool
United Kingdom

BSc Geology and Physical Geography
First Class Honours

Dissertation topic
The influence of climate and tectonics on badland development in southern Spain
Supervisor: Professor Adrian Harvey

Languages

English – native speaker
Czech – advanced level
French – intermediate level
Spanish – intermediate level

References

Professor John Gunn
School of Geography, Earth, and Environmental Sciences
University of Birmingham
Edgbaston
United Kingdom

Dr. Raúl Pérez López
Department of Geological Risks and Climate Change
Instituto Geológico y Minero de España
Madrid
Spain

Baroň I, Plan L, Grasemann B, Melichar R, Mitrović I, Rowberry M, Scholz D, 2022. Three large prehistoric earthquakes in the Eastern Alps evidenced by cave rupture and speleothem damage. Geomorphology 408:108242

Rowberry M, Frontera C, Baroň I, Kučera J, Křivánek L, Martí X, 2020. A novel positioning system for three dimensional fracture displacement monitoring in the British Cave Science Centre, Poole's Cavern, Buxton, Derbyshire. Cave Karst Sci 47:146-152

Blahůt J, Mitrović I, Baroň I, René M, Rowberry M, Blard P, Hartvich F, Meletlidis S, 2019. Volcanic edifice slip events recorded on the fault plane of the San Andrés Landslide, El Hierro, Canary Islands. Tectonophysics 776:228317

Blahůt J, Balek J, Klimeš J, Rowberry M, Kusák M, Kalina J, 2019. A comprehensive global database of giant landslides on volcanic islands. Landslides 16:2045-2052

Blahůt J, Baroň I, Sokol Ľ, Meletlidis S, Klimeš J, Rowberry M, Melichar R, García-Cañada L, Martí X, 2018. Large landslide stress states calculated following extreme climatic and tectonic events on El Hierro, Canary Islands. Landslides 15:1801-1814

Rinaldi-Montes N, Rowberry M, Frontera C, Garcés J, Baroň I, Blahůt J, Pérez-López R, Pennos C, Martí X, 2017. A contactless positioning system for monitoring discontinuities in three dimensions with geological and geotechnical applications. Rev Sci Instrum 88:074501

Rowberry M, Kriegner D, Holý V, Frontera C, Llull M, Olejník K, Martí X, 2016. The instrumental resolution of a moiré extensometer in light of its recent automatisation. Measurement 91:258-265

Relevant intellectual property since 2015

Rowberry M, Blahůt J, Hartvich F, Stemberk J, Fučík Z, Briestenský M, Martí X, Garcés J, 2018. Prototype for the automatic monitoring of mutual displacements and angular rotations. Utility Model No. 31 362

Conference advisory boards

Member of the Scientific Advisory Board for the 5th International Conference on Slope Tectonics, 10-14 September 2024, Křtiny, Czech Republic.

Outreach activities

Rowberry, M., 2023. Searching for muons in the British Cave Science Centre. Published online 22 Dec 2023. https://www.cave-science.org.uk/post/searching-for-muons-in-the-british-cave-science-centre-by-dr-matt-rowberry

Rowberry, M., 2022. What is the true impact of visitors on cave climate? Published online 14 Feb 2022. https://www.cave-science.org.uk/post/what-is-the-true-impact-of-visitors-on-cave-climate/

Martí, X., Jungwirth, Y., Pérez-López, R., Rowberry, M., 2018. From Nano to Geo: Scaffolds for Innovation. Meeting organised for the Spanish Embassy in Prague, 15 Nov 2018. https://www.avcr.cz/en/news-archive/from-nano-to-geo-scaffolds-for-innovation/

Membership of professional bodies

- Fellow of the Geological Society of London
- Member of the British Cave Research Association

Peer review assignments

Applied Radiation and Isotopes, Earth-Science Reviews, Engineering Geology, Environmental Earth Sciences, Environmental Science and Pollution Research, Geomorphology, Geological Magazine, Global and Planetary Change, Journal of Environmental Radioactivity, Natural Hazards, South African Journal of Geology, Surveys in Geophysics, and Tectonophysics.