

Dr Trevor Faulkner

Honorary Research Fellow

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About

Dr. Trevor Faulkner is a karst geomorphologist with a special interest in the speleogenesis of karst caves in sedimentary and metamorphic limestones and their relationships to Quaternary glaciations. He has pioneered a multi-disciplinary research approach involving glacial erosion, deglacial and interglacial processes, isostatic uplift, neotectonics, seismicity, and limestone dissolution at low temperature and low P_{CO_2} to explain the existence and distribution of caves formed in marble outcrops in the glaciated Caledonide terranes of the northern hemisphere.

Qualifications

- PhD University of Huddersfield
- MA Trinity College, Cambridge

Biography

Dr. Trevor Faulkner is a Fellow of the Royal Geographical Society, a Member of the Council of the British Cave Research Association (BCRA), and a Member of the Quaternary Research Association (QRA), the British Society for Geomorphology, the International Glaciological Society and the Yorkshire Geological Society. After achieving a degree in Natural Sciences at Trinity College, Cambridge in 1963, he followed a career in the British computer industry until 1996, whilst also regularly leading expeditions to Norway to find and explore karst caves. The opportunity then arose to build on this knowledge with a study of the speleogenesis of the caves formed in Caledonide marbles in central Scandinavia and elsewhere, as part of the Limestone Research Group at the University of Huddersfield. This research project was completed in 2005, with the acceptance of a thesis that derived five linked conceptual models to explain cave formation in glaciated metalimestones. Since then he has been writing and publishing papers based on that research across a range of linked multi-disciplinary subject areas. He became an Honorary Research Fellow in GEES at the University of Birmingham on 1 September 2007 and regularly attends GEES meetings whilst also making use of the University library and its online facilities.

Research

The models of cave formation in the metamorphic Caledonide terranes in the north Atlantic region explored the relationships among deglacial seismicity and fracture formation during reverse isostasy and the subsequent enlargement of the fractures into cave passages by dissolution under deglacial and interglacial conditions. The importance of the hydrology of icesheets at various stages of glaciation and deglaciation, including the role of subglacial water during periods of rapid climate change, is now becoming increasingly recognised. In some cases, as more sophisticated glacial hydrological models become available, these should be testable against the effects of subglacial and deglacial water flow on the erosion of the landscape and on the production of depositional forms. When the bedrock happens to consist of karstic rocks, some results may be locked inside the landscape as enlarged cave passages that can be studied directly.

Because of the special property of karst caves to preserve elements of palaeo-environments (from their location, morphology, dimensions, hydrology and chemical and clastic contents) we should, by working in parallel, be able to explain local speleogenesis, the evolution of the external landscape and the varying climatic regimes that the cave and their host regions have experienced. By working backwards in time and upwards in elevation, a cave history should be deduced by multidisciplinary study and related at each stage to contemporary topography and hydrological drainage. Closer to home than the Caledonides, the Yorkshire Dales comprise a karst area with many caves formed in Carboniferous sedimentary limestones that have been extensively explored and surveyed, but which await a comprehensive explanation of their genesis and development over time. This area has also been glaciated and deglaciated many times throughout the Pleistocene, but there is still little understanding about how much the Dales were deepened by each successive glaciation. The ambitious aim of the continuing research is to study both the cave development and the landscape evolution, so that both sets of problems can be resolved together.

Other activities

Dr. Trevor Faulkner is the Meetings Secretary for BCRA and has organised the six most-recent Cave Science Symposia and several Cave Science Field Meetings, many being attended by other colleagues from the University of Birmingham. He is on the Editorial Advisory Board for the journal *Cave and Karst Science*. He jointly organised a QRA / BCRA Field Meeting to the Yorkshire Dales, 21-24 June 2012, and jointly edited the 186-page Field Guide. BCRA is planning to publish a new book about the caves and limestones of the Yorkshire Dales, for which a GEES colleague will be a joint Editor, and this is being supported by reviewing several Chapters. Dr. Faulkner has also recently become the Foreign Secretary for BCRA, with the task of raising its profile overseas, and has become interested in cave archaeology. He keeps fit for cave studies by running in road, cross-country and fell races.

Publications

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