2025 Earth Sciences Alumni Day and Dinner

Saturday, 17 May 2025

Location - Day
The Bullard Laboratories
Madingley Rise
Madingley Road
Cambridge
CB3 0EZ

Location – Dinner
The Hall,
Downing College,
Regent Street,
Cambridge.

Parking
Day: There is parking at the Astronomy car park at Madingley Rise - available on a first come first served basis. For disability parking, please email alumni@cam.ac.uk to book a space at the Bullard.
Madingley Road Park & Ride is 0.7m away with good pathway all the way to the event. This is our recommended parking if the Astronomy car park is full. *(See map at end of programme for more information.)*

Dinner: The nearest car parks to Downing are the Queen Anne car park on East Road and Grand Arcade car park on Downing Street. There is an event at the Corn Exchange at the same time as our dinner which may impact the number of spaces available at the Grand Arcade car park. Disabled parking is available at Downing, please email alumni@cam.ac.uk to reserve a space.

Bus
The universal bus runs along Madingley Road at frequent intervals (up to every 15 mins)
https://www.whippetbus.co.uk/universal/ - Operating between the train station, the centre of Cambridge and Girton corner.

Bicycles
There is ample bicycle parking outside the entrance to the IEEF and the site is accessible by bike from Madingley Road and Huntingdon Road. *(See map at end of programme for more information.)*

Taxis*
Panther – 01223 715715 CamCab – 01223 704704 City Taxis – 01223 832832
*There are other taxi companies operating in Cambridge which you can locate via a google search.

Programme Outline

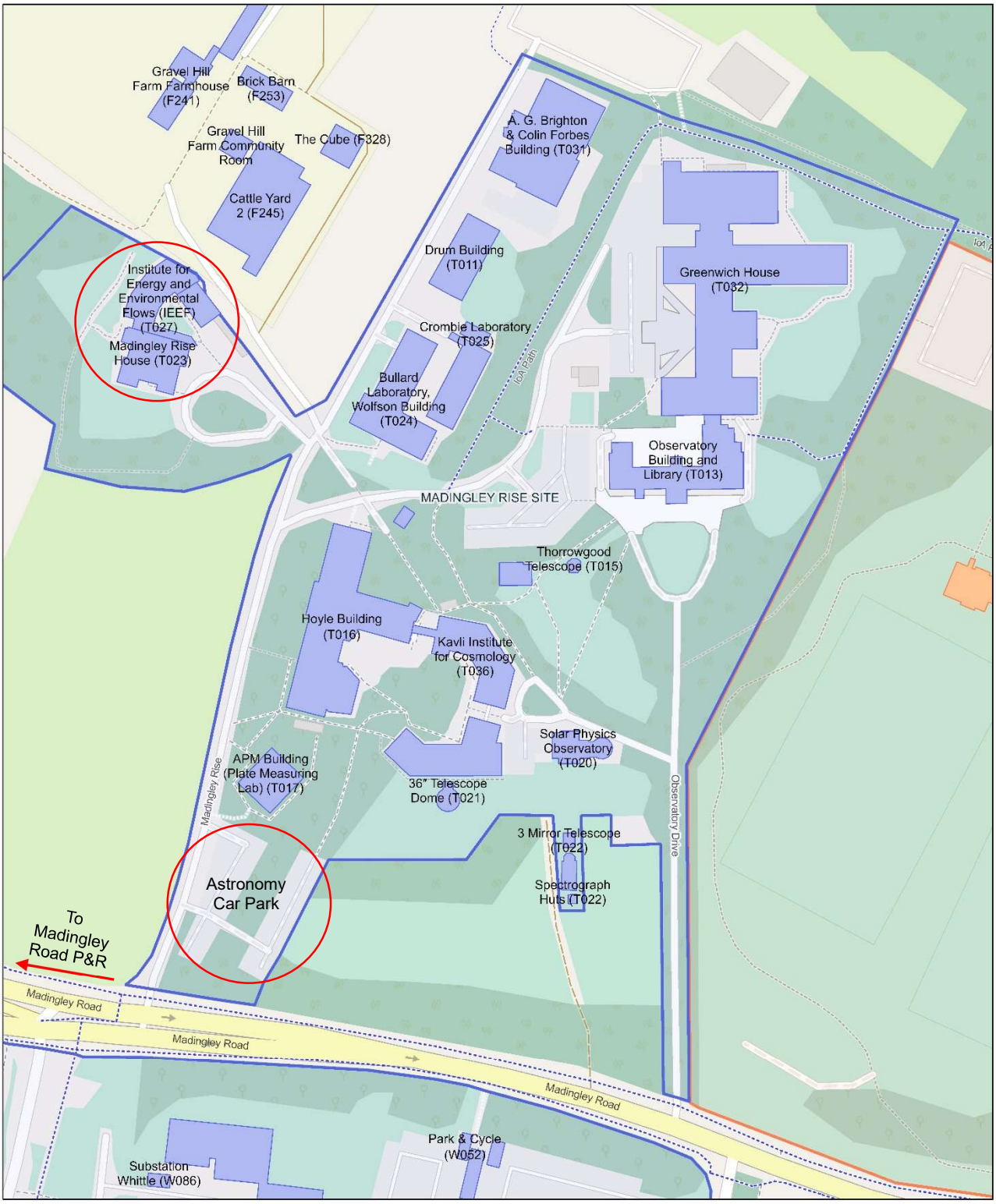
Time	Location	Event
1:30pm	Main entrance to IEEF/ Tea room, The Old House	Registration Welcome! Pick up your badge, site map and programme and make your way into the tearoom of the house for refreshments. Coat racks and bag store is available.
1:50pm	Astronomy lecture theatre	Welcome by Head of Department, Marie Edmonds. Opening Talks: **A brief history of the Bullard Labs** DAN MCKENZIE The beginnings of what became the Department of Geodesy and Geophysics (housed at Madingley Rise after 1956) go back to the Great Trigonometric Survey of India in the mid nineteenth century. Through the 1920's and 1930's the then small department grew in scope, size and discoveries. In 1960, Teddy Bullard's return as Head of the Department and in the decade that followed all parts of the Earth Sciences were profoundly affected by the discovery of plate tectonics, a discovery in which many members of the Department were centrally involved. In 1963, Fred Vine and Drum Matthews suggested a mechanism for producing the linear magnetic anomalies that had been mapped in the NE Pacific. The discovery that similar anomalies are present in most parts of the oceans has allowed their evolution to be reconstructed. In 1965, Teddy was the first Earth Scientist to use Euler's Theorem to reconstruct the position of the continents around the Atlantic before they became separated to form the North and South Atlantic. In 1967, Bob

		Parker and I combined these ideas to produce the modern version of plate tectonics. The ideas and observations that lead to the theory largely resulted from the research at three university laboratories, at Cambridge, Princeton and Lamont at Columbia. Its impact on the research in all branches of the Earth Sciences has been profound and has led to the formation of single departments of Earth Sciences in many parts of the world. **Eroding Emissions: Carbon Drawdown by Rock Weathering in a Karstic Catchment** OLIVER CROFTS Carbonate and silicate rock weathering sequester atmospheric CO2, whilst secondary carbonate precipitation acts against this, releasing CO2. An aqueous geochemistry project was conducted in Khao Sok, Thailand, with the primary aim of identifying signals of weathering and subsequent secondary precipitation. The net drawdown of CO2 was estimated by deconvolving dissolved ions into components from rainwater, carbonate weathering and silicate weathering. This drawdown was within the range of values from a previous study at coarser resolution. Secondary carbonate precipitation was further investigated by analysis of speleothems in two cave systems. **A snapshot of the work at the IEEF.** ANDY WOODS I will present some of the research of the Institute related to energy transition and geoscience including a discussion of geological carbon storage and geological energy storage, where we are involved in a series of laboratory modelling projects and also some supporting quantitative models to scale up the results to geological scale systems. Energy storage topics include interseasonal heat storage in aquifers and hydrogen storage in anticlines or salt caverns.
2:*50pm*	Explore the site Demos run at: 3:00pm 3:25pm 3:50pm	Spend some time visiting **Geological sites:** *There are a number of geological Points of Interest at the Madingley Rise site. Follow the map and find out more about the history and geology of the area. Each stop need only take 5 mins. Beware of uneven ground.* The building stone of the Observatory & Library building The Trinity Conduit Head – west fence line of the Old House lawn The Cambridge Bore Hole – outside the Wolfson building The Statuary at the Old House – alcove to rear of the Old House **Find out about the Crombie Collection* - the Crombie** *Instruments and equipment on display will include: The Cambridge Gravity 3 Pendulum Apparatus, Heat Flow, Radio Sonobuoys, Ocean Bottom Seismometers and Rock Dating. We will also be showing a film of equipment deployments from RRS Discovery during the International Indian Ocean Expedition of 1963.* **Space inside the lab is limited, we thank you for your patience if you find yourself in queue.* **The Collections Research Centre** – **Brighton and Forbes building** *Visit the Geological Store located in the Sedgwick Museum Collections Research Centre. See the newly moved specimens and the brand new store, speak to staff and discover the research possibilities housed therein.* **Enjoy the gardens and the refreshments.** *Refreshments will be available in the Tea Room throughout the afternoon. Pop in at any point to enjoy a cup of tea or coffee, a cold drink and snacks. Perhaps the call of the gardens will tempt you and your peers to catch up in the relaxing surrounds outside the Old House.* Due to room capacities, you must book to access an experiment demonstration. Please arrive on time as doors must be closed for the demos. **Explore some experiments with the IEEF team – Flavell lab** (20 mins) *Visit the IEEF Flow Labs for some laboratory experiments. These allow us to visualise and understand the fluid dynamics of geological and environmental processes through carefully designed small-scale analogues. Typical demonstrations include ocean pollution by deep-sea mining, hazardous flows such as turbidity currents and pyroclastic flows, liquid-gas flow through volcanic*

		conduits, and as part of the energy transition program, the behaviour of hydrogen bubbles produced by electrolysis. *Limited to 15 guests per tour.*
4:30pm	Astronomy Lecture Theatre	Closing talks: **Head of the Department's "State of the Nation"** MARIE EDMONDS ***Mapping the Geology across the Peel Fault, NSW Australia*** *JADE WESTFOOT* *The Peel Fault is a major crustal discontinuity in the New England Orogen of Eastern Australia. It formed in an ancient subduction zone setting and is preserved as a melange zone containing Cambro-Ordovician and Permian ophiolitic blocks. The fault zone separates Devonian-Carboniferous folded foreland basin sediments from accretionary wedge cherts. The mapping project aimed to constrain the geology and structure of a section of the fault near Barraba.* ***Volcano Seismology in Iceland: A view from below*** *NICK RAWLINSON* *In March 2021, a volcanic eruption at Fagradalsfjall on the Reykjanes Peninsula marked the beginning of a new era of eruptive activity in the most densely populated region of Iceland. To date, 10 separate eruptions have taken place, which have covered large tracts of land with extensive lava flows; this has caused widespread disruption, including the semi-permanent evacuation of the fishing town Grindavik. The last volcanic activity on the peninsula was over 800 years ago, and evidence from the geological record indicates that these eruptive episodes can last for decades or more. In this talk, I will present new results from the Cambridge Volcano Seismology Group's network of seismic instruments that has been deployed in the region since 2020, which provide fascinating insight into magma migration in the shallow crust prior to eruption. In addition, I will discuss recent results from another Icelandic volcano - Askja in the central Highlands - that switched from deflation to reinflation in 2021, and is now at greater risk of a future eruption*
5:30pm to 6:30pm	The lawn	Drinks reception in the beautiful gardens of the Old House. A relaxed opportunity to catch up with fellow alumni and enjoy what we hope will be excellent weather. A toast will be delivered by Assistant Head of Department, Jerome Neufeld. (*If weather is inclement, the drinks reception will be in the tea room and foyer of the IEEF*)
	Guests joining us for dinner are encouraged to take the time they need between the end of the programme and sitting for dinner to check in to accommodation / dress for the evening and make their way to our dining college. *Parking is available at the Grand Arcade car park or Queen Anne car park for diners. A small amount of parking is available at Downing college venue for anyone with mobility needs – please let us know in advance.*	
7:00pm	Downing College	Pre-dinner drinks
7:30pm	Downing College	Dinner 3 course meal, wine and water, tea/coffee and mints After dinner speaker – Dr Liz Hide, Director of the Sedgwick Museum
10:00pm		Carriages.




Madingley Rise site of Earth Sciences and Astronomy Buildings



2/3/2025

Buildings

University building

College building

1:2,257

0 0.01 0.03 0.06 mi

0 0.03 0.05 0.1 km

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