COMET

UK CENTRE FOR THE OBSERVATION AND MODELLING
OF EARTHQUAKES, VOLCANOES AND TECTONICS

ANNUAL MEETING 2025

Day 1 – Wednesday 4th June

12.00 - 12.15	*Arrive at The Fry Building and meeting registration*
12.15 - 13.00	*Lunch*
13.00 - 13.15	**Introduction: Juliet Biggs, COMET Co-Director**
13.15 - 14.30	**Science Talks 1 (Chair: Don Grainger, COMET Deputy Director)**
14.30 - 15.00	*Tea/Coffee Break*
15.00 - 16.15	**Science Talks 2 (Chair: Luke Bateson, COMET Executive BGS Representative)**
16.15 - 18.00	**Poster Session 1 (Chair: Tim Wright, COMET Co-Director)**
19.30	*Dinner (Browns Bar & Brasserie, followed by optional karaoke)*

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ANNUAL MEETING 2025

Day 2 - Thursday 5th June

08.45 - 09.00	*Day 2 Arrival*
09.00 - 09.15	**UK Met Office:** Frances Beckett
09.15 - 10.30	**Science Talks 3 (Chair: Alex Copley, COMET Deputy Director)**
10.30 - 11.00	*Tea/Coffee Break*
11.00 - 12.00	**Breakout Session: Thematic Science Discussions**
12.00 - 13.00	*Lunch*
13.00 - 14.15	**Science Talks 4 (Chair: Susanna Ebmeier, COMET Deputy Director)**
14.15 - 16.00	**Poster Session 2 (Chair: Tim Wright, COMET Co-Director)**
16.00 - 18.00	*Social Activity (Clifton Suspension Bridge walk)*
19.00	*Dinner (Zerodegrees followed by COMET quiz)*

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ANNUAL MEETING 2025

Day 3 - Friday 6th June

08.45 - 09.00	*Day 3 Arrival*
09.00 - 10.15	**Science Talks 5 (Chair: Juliet Biggs, COMET Co-Director)**
10.15 - 10.45	*Tea/Coffee Break*
10.45 - 11.00	**COMET Organisational Update:** Charlotte Royle and Sam Wimpenny
11.00 - 11.45	**Breakout Session: COMET Vision and Mission**
11.45 - 12.45	**Parallel Meetings** • COMET Advisory Board Meeting • COMET Member Meeting - Developing collaborative science proposals • Workshop - Writing COMET Supervisor Wishlist • Workshop - Careers - Careers (fellowships, non-academic careers)
12.45 - 13.00	Feedback and Close

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ANNUAL MEETING 2025

Presentations

Science Talks 1 - Wednesday 4th June 13.15 – 14.30 (Chair: Don Grainger, COMET Deputy Director)

Rachel Abercrombie Boston University	Earthquakes and tectonic stress
Sue Loughlin British Geological Survey	Geoscience for emergencies
Megan Udy University of Leeds	Optical and radar satellite measurement of volcanic eruption impacts on vegetation
Richard Walker University of Oxford	**COMET science:** Active faulting and infrastructure development in central Asia
Matthew Gaddes University of Leeds	**COMET staff update:** Machine Learning
Milan Lazecky University of Leeds	**COMET staff update:** Updates on the COMET LICSAR system

Science Talks 2 - Wednesday 4th June 15.00 – 16.15 (Chair: Luke Bateson, COMET Executive BGS Representative)

Sandra Piazolo University of Leeds	Slow slip and the earthquake cycle - a view from the field
Yasser Maghsoudi University of Exeter	**COMET services development:** Development of an InSAR phase bias correction processor
Tim Craig University of Leeds	High-resolution relocation of intraslab earthquakes beneath South America using global seismic data
Marie Edmonds University of Cambridge	Relating magma storage depths in the crust to magma flux
Sam Wimpenny University of Bristol	**COMET science:** Volcano-tectonic interactions at Casiri, Peru
Brian Baptie British Geological Survey	Application of deep learning to seismic unrest at Santorini, February 2025

All work directly supported by COMET services, datasets or core funding is highlighted in the programme of talks.

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Presentations

Science Talks 3 - Thursday 5th June 09.15 – 10.30 (Chair: Alex Copley, COMET Deputy Director)

Ekbal Hussain British Geologocal Survey	Uncertainty estimates for seismic hazard scenario calculations
Ben Esse University of Manchester	**COMET staff update:** Insights into eruption dynamics from TROPOMI/PlumeTraj-derived SO2 emissions during the 2022 eruption of Mauna Loa, Hawai'i
Ed Rhodes University of Sheffield	Improved understanding of spatio-temporal variations in fault activity using high resolution geomorphic markers
Natalie Forrest University of Leeds	**COMET funded PhD:** Measuring slip rate variability on the Eşen Fault, SW Türkiye, with cosmogenic chlorine-36 nuclide analysis
Lin Way University of Bristol	**COMET Event Response:** Fentale, Ethiopia magma intrusions, 2024-2025
Elias Lewi Teklemariam Addis Ababa University	Tectono-volcanic seismic activity in the Fentale-Dofen area: implications and the role of remotely sensed data in risk mitigation

Science Talks 4 - Thursday 5th June 13.00 – 14.15 (Chair: Susanna Ebmeier, COMET Deputy Director)

Alex Copley University of Cambridge	Why is interseismic strain concentrated near faults?
Isabelle Taylor University of Oxford	**COMET staff update:** Eruption column ascent rates obtained using the Advanced Baseline Imager for the La Soufrière eruption in April 2021
Ake Fagereng Cardiff University	Effects of fault heterogeneity on fault slip style
Edna Dualeh University of Bristol	**COMET staff update:** Spaceborne detection of carbon emissions released by the 2024-2025 Fentale Dike intrusion
Sarah Boulton University of Plymouth	Earthquake environmental effects of the 6 February 2023 earthquakes (East Anatolian Fault Zone; Turkey)
Brendan McCormick Kilbride Unversity of Manchester	Satellite observations of SO2 emissions during recent eruptions at Sangay volcano, Ecuador

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Presentations

Science Talks 5 - Friday 6th June 09.00 – 10.15 (Chair: Juliet Biggs, COMET Co-Director)

Pui Anantrasirichai University of Bristol	Advanced deep learning for volcanic ground deformation monitoring with InSAR
Rebecca Tanner University of Exeter	Observing and estimating the intensity of volcanic wind-blown
Jin Fang University of Leeds	**COMET staff update:** Deformation, strains and velocities for the Alpine Himalayan Belt from trans-continental Sentinel-1 InSAR & GNSS
James Hickey University of Exeter	Deforming volcanoes with poroelastic magmatic systems: the influence of magma-mush heterogeneity
Nicola D'Agostino INGV	Probing the elastic properties of the crust with hydrological deformation transients

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ANNUAL MEETING 2025

Posters

Poster Session 1 - Wednesday 4th June 16.15 – 18.00 (Chair: Tim Wright, COMET Co-Director)

1.1	**Samantha Engwell** British Geological Survey	Eruption source parameters for operational response to volcanic ash hazard
1.2	**Giovanni Toffol** Cardiff University	Coseismic frictional melting at fluid-rich conditions: inferences from a pseudotachylyte-bearing fault in cherts (Inuyama, Japan)
1.3	**Gabriella Zmajkovic** University of Bristol	The surface displacement transition: diking from an inflating chamber
1.4	**Yohei Nozue** Kyoto University/University of Leeds	Joint inversion of GNSS and InSAR data to estimate a strain-rate field by introducing basis function expansion (preliminary results)
1.5	**Alyssa Heggison** University of Sheffield	Towards automating reliable sulphur dioxide camera retrievals
1.6	**Toño Bayona** University of Bristol	Quantifiyng the interplay between slow and fast earthquakes along the Mexican subduction margin
1.7	**Eliot Eaton** University of Leeds	Modelling ground deformation induced by done-feeding magma conduits
1.8	**Reza Bordbari** University of Leeds	Improved InSAR atmospheric corrections using variable tropospheric layer heights and multi-source global ionospheric maps
1.9	**Francesco Serafini** University of Bristol	Evaluation of 10 years of UCERF3-ETAS next-day forecasts
1.10	**Matthew Cleave** University of Plymouth	Mapping the past to model the future: a historical earthquake framework for InSAR and coulomb stress analysis of the East Anatolian Fault zone
1.11	**Tim Davis** University of Bristol	Seismicity shows dykes are driven laterally by a near constant source pressure
1.12	**Lin Way** University of Bristol	2024-2025 Fentale dike sequence: InSAR observations and models
1.13	**Stijn Vleugels** University of Leeds	Rapid earthquake damage assessment using Sentinel-1 coherence
1.14	**Thomas Wilkes** University of Sheffield	Investigating explosive activity at El Reventador (Ecuador) with a permanent SO_2 camera
1.15	**Manon Carpenter** University of Leeds	Controls on seismic cycle deformation: modelling a rheological weak zone beneath a strike-slip fault

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Posters continued

Poster Session 1 - Wednesday 4th June 16.15 – 18.00 (Chair: Tim Wright, COMET Co-Director)

1.16	**Tianyuan Zhu** University of Bristol	Impact of seasonal snow cover on InSAR deformation measurement of global volcanoes
1.17	**Lorenzo Mantiloni** University of Exeter	Investigating the state of stress and failure conditions of magma-mush reservoir during and after magma supply with numerical models
1.18	**John Condon** University of Leeds	Validation of seismic locations with automated InSAR source parameter estimation
1.19	**Alexandra Morand** University of Bristol	Highlighting the effect of buoyancy on surface deformation above an inflating magma chamber using analogue experiments
1.20	**Muhammet Nergizci** University of Leeds	Interseismic and postseismic deformation of 2023 Kahramanmaraş earthquakes from Subswath and Burst Overlap Interferometry (SBOI)
1.21	**Camila Pamela Novoa Lizama** University of Leeds	Modeling magma recharge dynamics during the 2016 Nevados de Chillan eruption: an interacting two chamber system evidenced by petrology and geodesy
1.22	**Alexander Harris** University of Bristol	Investigating the global variability in afterslip measurements

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Posters

Poster Session 2 - Thursday 5th June 14.15 – 16.00 (Chair: Tim Wright, COMET Co-Director)

2.1	**David Pyle** University of Oxford	New perspectives on the historical activity of the Kameni islands, Santorini
2.2	**Rami Alshembari** University of Exeter	Thermodynamic variability in magma mush reservoirs: implications for volcano deformation
2.3	**Alice Blackwell** University of Leeds	Using seismic depth phases to investigate the South American Subduction Zone
2.4	**Ben Ireland** University of Bristol	A systematic, parameterised volcano deformation catalogue for the East African Rift System from Sentinel-1 InSAR
2.5	**Weiyu Zheng** University of Bristol	Monitoring the Fentale-Dofen dyke intrusion (Ethiopia) using high-resolution geodetic datasets
2.6	**Joaquin Ignacio Julve Lillo** Cardiff University	What is the role of splay fault permeability on earthquake distribution in accretionary prisms?
2.7	**Eleonora Rivalta** GFZ Helmholtz Centre for Geosciences	The importance of stress for the evolution of magmas ascending by dyking
2.8	**Robert Gabriel Popescu** University of Bristol	Denoising unwrapped interferograms using deep learning
2.9	**Siyuan Zhao** University of Leeds	The interactions between the 2018 Lombok earthquake sequence, Indonesia and the active Rinjani-Samalas volcanic complex
2.10	**Kai Price-Goodfellow** University of Bristol	Quake-2-GLOF*: a preliminary multi-hazard workflow
2.11	**Julian Pahl** University of Cambridge	The Deadly 1868 eruption of Mauna Loa, Hawai'i: lessons we can learn from a crystal cargo
2.12	**Simon Orrego** University of Bristol	Range-parallel extension of the central Andes: the 2020 Mw 5.7 Humahuaca earthquake
2.13	**Benjamin Kettleborough** University of Leeds	Using ICA and breakpoint analysis upon InSAR timeseries to investigate volcano-tectonic interactions at Socompa volcano, Chile

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Posters continued

Poster Session 2 - Thursday 5th June 14.15 – 16.00 (Chair: Tim Wright, COMET Co-Director)

2.14	**Xuesong Zhang** University of Leeds	Evolution of deformation source locations derived from InSAR at Fernandina Volcano, Galápagos (2022–2024)
2.15	**Samuel Stockman** University of Bristol	Benchmarking neural point processes in California and China
2.16	**Josefa Sepulveda** University of Leeds	New input of magma under Askja Caldera, Iceland, between 2021 and 2024
2.17	**Rebecca Edwards** University of Bristol	Large-scale topographic changes at erupting volcanoes as measured by the TanDEM-X digital change map
2.18	**Elisha Jane M. Maglalang** Cardiff University	Subduction-related deformation of seamounts: preliminary results from seismic reflection and field observations