First workshop of the Glasgow-Edinburgh Extremes Network (GLE^{2}N)

Advances in EVT theory, methodology, and real-world impact

11 December 2025 University of Glasgow, UK

School of Mathematics & Statistics

Mathematics & Statistics Building, 32 University Place, Glasgow, G12 8QQ

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1 About the workshop

This one-day workshop marks the first in-person meeting of the Glasgow–Edinburgh Extremes Network (GLE²N), taking place in December 2025 at the University of Glasgow. Since its launch in 2024, GLE²N has established a regular programme of online seminars, creating a vibrant community around extreme value theory and statistical risk analysis. The December event celebrates the network's one-year anniversary and provides an opportunity to strengthen connections across Scotland and beyond.

The workshop will bring together a small group of around 25–30 participants, including students, early-career researchers, established academics, and colleagues from industry. It will focus on advances in extreme value theory and its applications to real-world problems, fostering collaborative discussions across disciplines and career stages.

Goals

- Facilitate dialogue on challenges and opportunities in modelling extremes.
- Encourage collaboration by bringing together researchers from academia and applied fields.
- Identify future directions for methodological and applied development and foster knowledge exchange.

We hope that this collective effort will pave the way for stronger interdisciplinary connections and more impactful applications of statistics of extremes.

2 Location

We will meet in Room 237C, located on the ground floor of the ARC Building (Google map). The building is just a 6-minute walk from Hillhead subway station.

3 Programme overview

10:00-10:20 — Opening and summary of the GEOBEx project

10:20-10:50 — 3-minute introductions from each participant

10:50-11:20 — Coffee break

11:20-12:20 — Morning Talks

- **11:20-11:35** — Marian Scott (University of Glasgow): *Environmental digital twins — challenges and opportunities*
- **11:35-11:50** — Claire Miller (University of Glasgow): *Challenges in spatiotemporal modelling of national scale river water catchments*
- **11:50-12:05** — Claire Risley (EA): *Current Challenges for the Environment Agency in Spatial Statistics*
- **12:05-12:20** — Ben Marchant (BGS): *Space-time challenges at the British Geological Survey*

12:20-13:30 — Lunch

13:30-14:30 — Afternoon Talks

- **13:30-13:45** — Israel Martínez-Hernández (Lancaster University): *Modelling large spatio-temporal data: A short, medium, and long term wind forecast*
- **13:45-14:00** — Dave Miller (BioSS): *Adding structure to regression-like ecological models*
- **14:00-14:15** — Michael Tso (UKCEH): *Adaptive sampling for high-frequency nutrient sensors*
- **14:15-14:30** — Craig Wilkie (University of Glasgow): *Data fusion approaches for environmental data*

14:30-15:00 — Coffee break

15:00-16:30 — Group discussion

17:30-19:45 — Dinner at The Bothy, 11 Ruthven Ln, Glasgow, G12 9BG (click here for directions from The Maths & Stats Building)

4 Abstracts

The grouping and sequence of talks aim to gradually build context—from general frameworks and national challenges to specific methods and applications—while maintaining variety and thematic coherence.

5 Proposed topics for discussion

Feel free to use the topics below as a guide—they're entirely optional, so you're welcome to include others or leave them out.

5.1 Theme 1: Data Complexity and Integration

Relevant talks: Marian Scott, Claire Miller, Ben Marchant, Craig Wilkie

Prompt questions:

- What are the most pressing barriers to integrating heterogeneous environmental data sources?
- How can we balance model complexity with interpretability when fusing diverse datasets?
- Are there good examples of success (or failure) in multi-source integration we can learn from?

5.2 Theme 2: Modelling Choices and Scalability

Relevant talks: Dave Miller, Israel Martínez-Hernández, Michael Tso

Prompt questions:

- What modelling approaches scale best to large or high-frequency datasets?
- How do we decide between simpler models (e.g., regression/GAMs) and complex hierarchical or functional models?
- What compromises have you made between model flexibility and computational feasibility?

5.3 Theme 3: Decision-Driven Modelling

Relevant talks: Claire Miller, Claire Risley, Michael Tso

Prompt questions:

- How do we make our models useful for decision-makers and practitioners?
- What statistical uncertainties matter most in practice, and how should we communicate them?
- How do we build adaptive systems that react to real-time information?

5.4 Theme 4: Collaboration and Co-Production

All talks are relevant here

Prompt questions:

- What has helped or hindered successful collaboration across academia, agencies, and industry?
- What would an ideal collaborative workflow look like for tackling a spatio-temporal environmental problem?
- Are there shared needs (e.g., open datasets, tools, training) that we could address together?