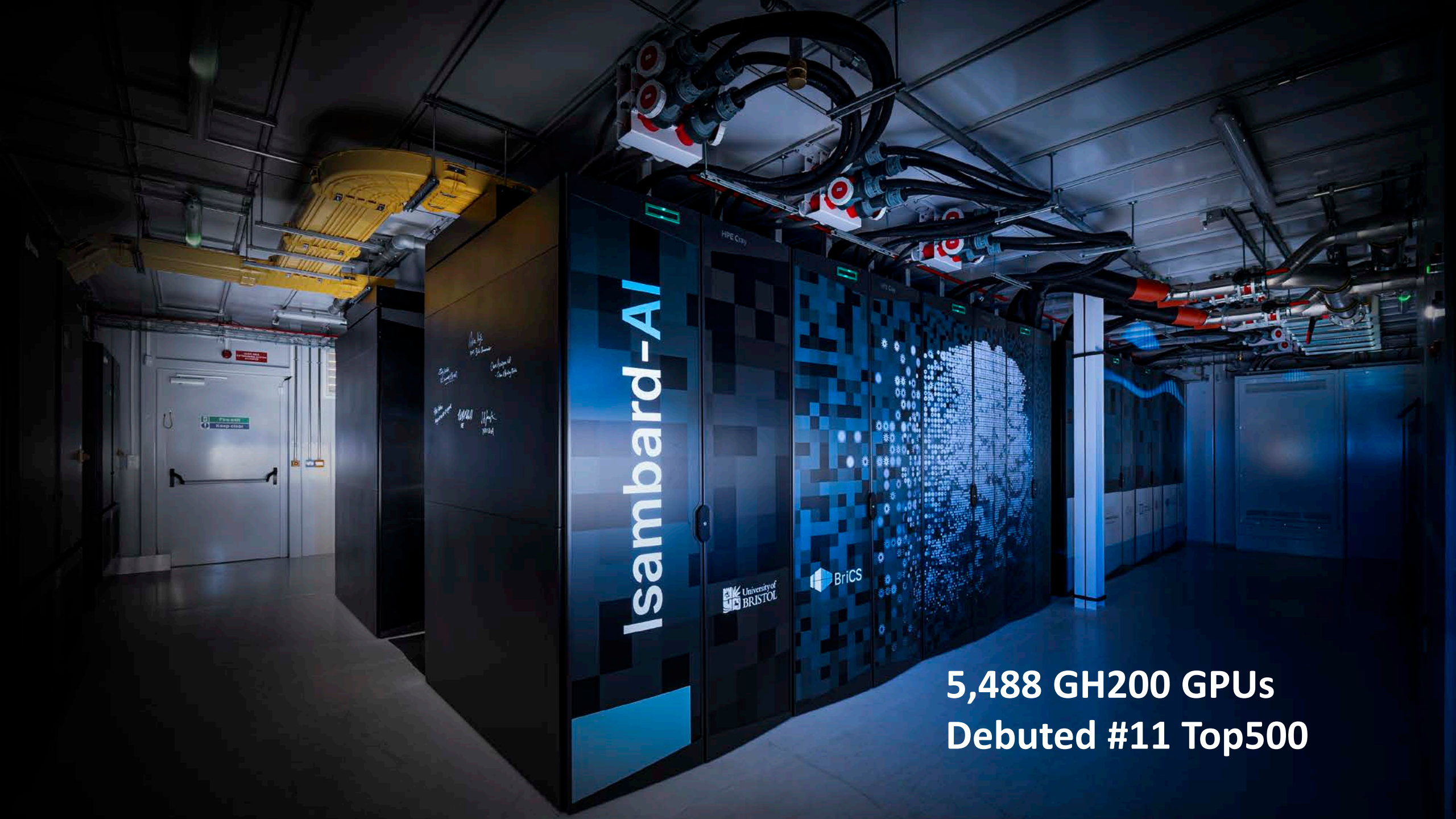


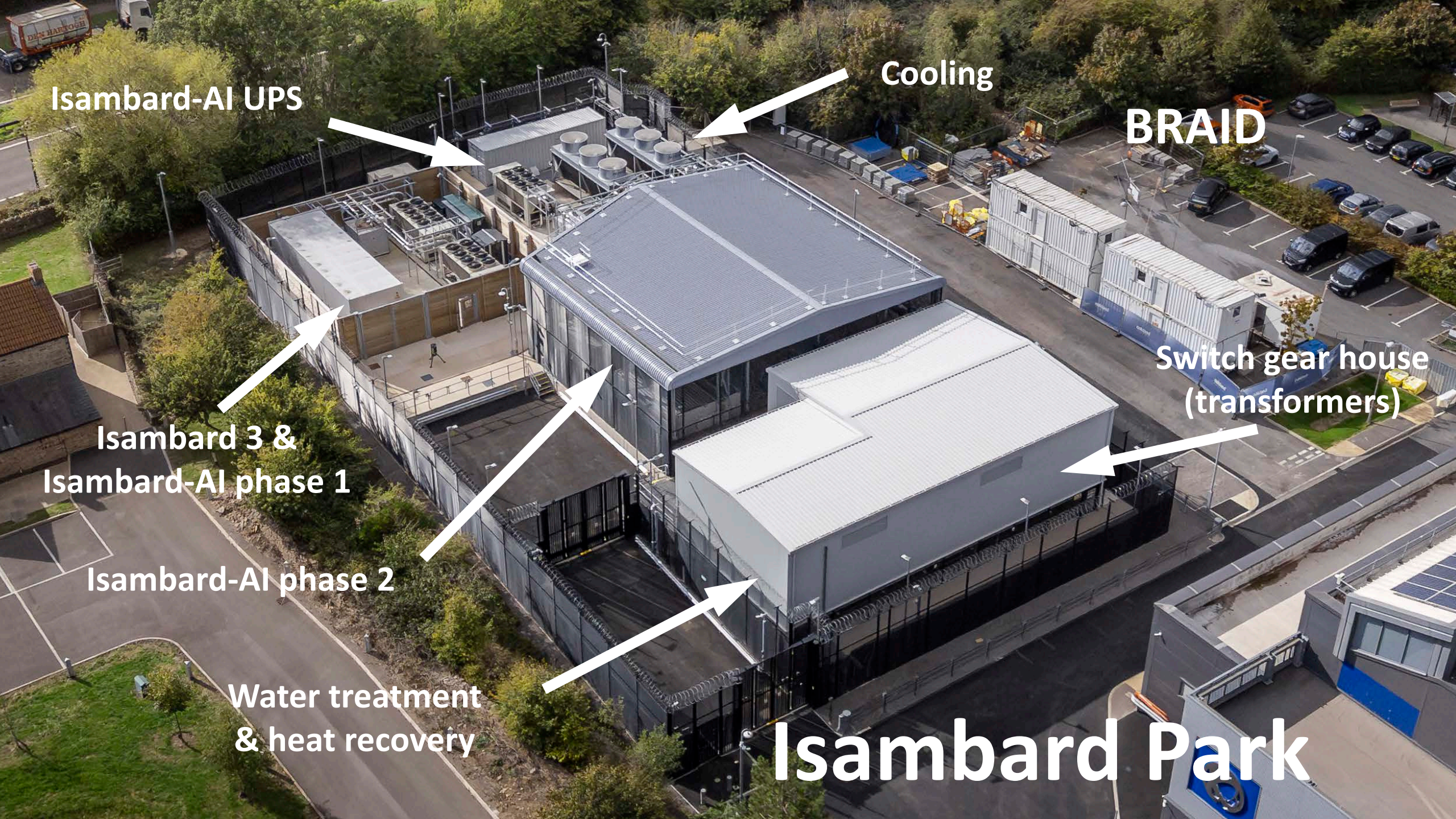


Paths of convergence and divergence for AI, QC and HPC in the UK's weather and climate ecosystem

Prof. Simon McIntosh-Smith, Founder and Director



**5,488 GH200 GPUs
Debuted #11 Top500**



Isambard-AI UPS

Cooling

BRAID

Switch gear house
(transformers)

Isambard 3 &
Isambard-AI phase 1

Isambard-AI phase 2

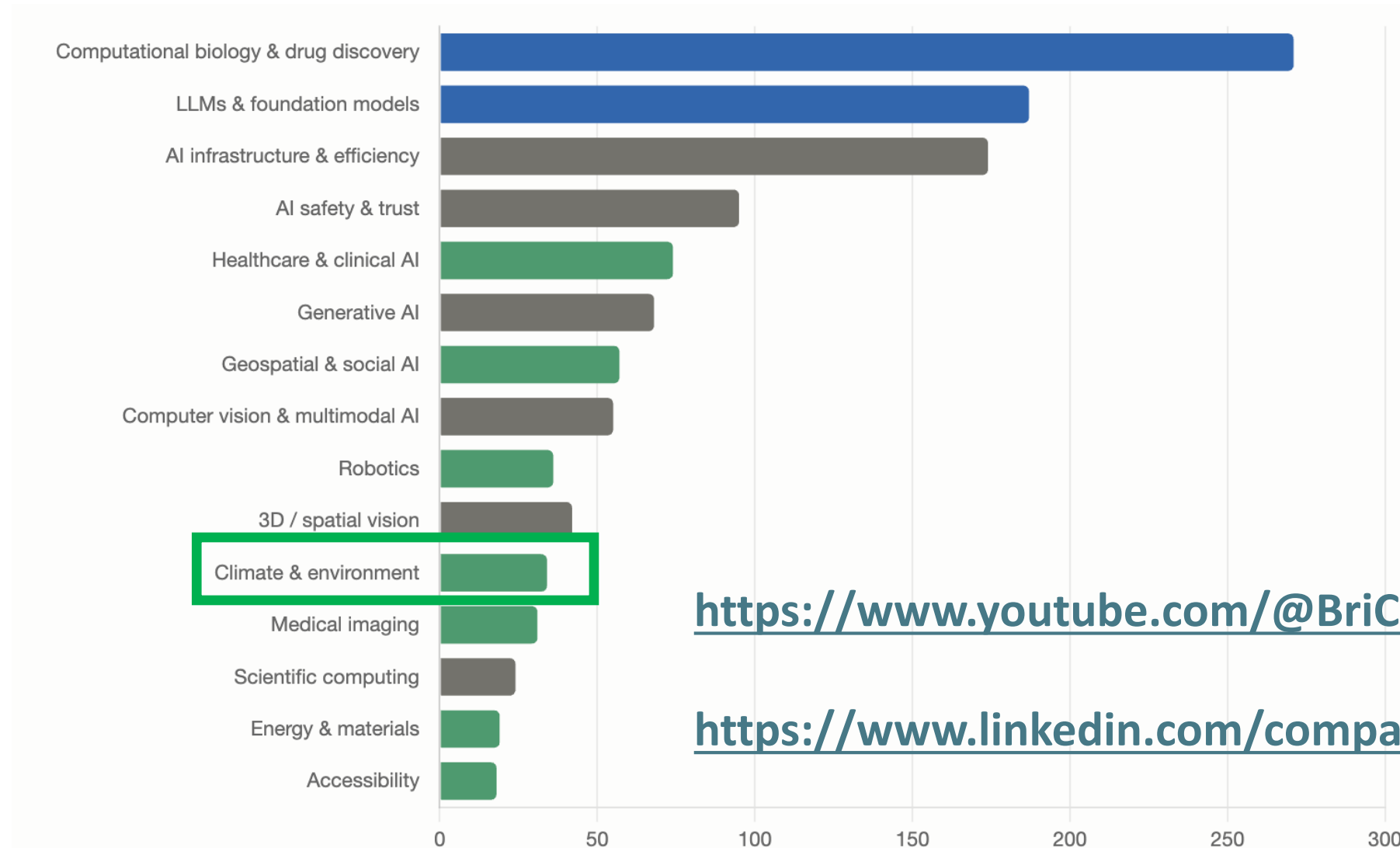
Water treatment
& heat recovery

Isambard Park

Isambard Park 2: 4.5 acres, 50+MW



Broad range of AI for science running on Isambard-AI



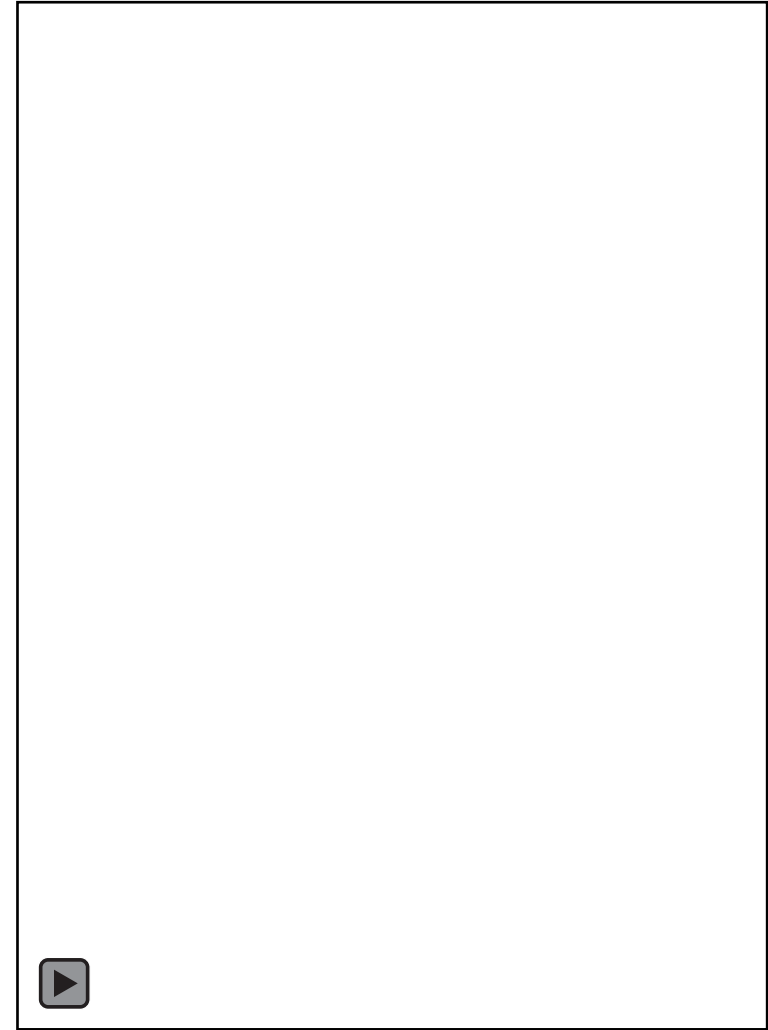
<https://www.youtube.com/@BriCS-UoB>

<https://www.linkedin.com/company/brics-uob/>

~4,000 users and ~1,000 projects

PolluGen: AI-based pollution forecasting

- A new high-resolution pollution dispersion model developed by the University of Manchester, using NVIDIA CorrDiff and Earth-2 Studio
- A pre-trained **generative model** is conditioned with low-resolution simulation data to infer a high-resolution output



AI/ML/QC weather and climate research in the UK

- In the UK AI/ML/QC is blending into existing approaches, ***not*** replacing them.
- The UK Met Office describes five ways ML and physics can combine, from hybrid models to post-processing to pure ML. Physics models still generate the data ML learns from.
- Quantum is a research horizon: some operational centres are still waiting for the use case, and quantum sensing for observations may matter before quantum compute.

[https://www.metoffice.gov.uk/blog/2025/
what-does-a-blend-of-ai-and-physics-mean-for-weather-and-climate-modelling](https://www.metoffice.gov.uk/blog/2025/what-does-a-blend-of-ai-and-physics-mean-for-weather-and-climate-modelling)

AI/ML/QC weather and climate research in the UK

FIVE WAYS TO BLEND ML + PHYSICS (Met Office)

1. **Independent-physics:** traditional models; trusted, costly; also generate ML training data
2. **Hybrid-integrated:** ML replaces or enhances a component inside a physics model
3. **Hybrid-composite:** ML and physics run separately, feeding each other (e.g. global ML boundaries for a local model)
4. **Augmented:** ML post-processing, e.g. ensemble blending, downscaling
5. **Independent-ML:** ML-only; fast, scalable; needs more work on trust and generalisation

UK LANDSCAPE

- **Met Office:** “blends” most likely to go live first; ML seasonal forecasting looking promising
- **FASTNET** (Met Office + Turing): "pure" ML forecasting
- **Anemoi:** ECMWF-led ML framework; Met Office now a partner
- **NERC-funded community:** enthusiastic adopters
- **Trust:** Met Office 2026 study found UK public confidence in AI forecasts lags existing methods