



PROJECT OVERVIEW

AGFP Project Team

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Delivering the underpinning research to determine the geothermal potential of Aberdeen city and de-risk future investment to accelerate Aberdeen's transition to a sustainable energy future.

- £1 million NERC capital expenditure grant



**Natural
Environment
Research Council**

Aberdeen Geothermal Feasibility Pilot

Phase 1: Subsurface – temperature, geology, hydrology

Phase 2: Social – fuel poverty assessment, community engagement, increased understanding


Phase 3: Skills – increased awareness, accessible geothermal education, workforce upskilling/transition

Funded Phase 1 Deliverables and Capital Outputs (by end June 2026):

- Instrumented borehole (>500 m) on campus with thermal, geological, and hydrological analyses
- Cross-city 3-D subsurface model to 5 km depth
- Open-access borehole and subsurface datasets, reports, and maps
- Focal point for research, collaboration, dissemination, and de-risking future geothermal projects

Science Delivery Team


LEAD



Dave Cornwell

→


LEAD



Clare Bond

→


INVESTIGATOR



Joe Armstrong

→


INVESTIGATOR



Vahid Vaziri

→


INVESTIGATOR



John Underhill

→


TECHNICIAN



Iona Copley

→


RESEARCHER



Tristan Roberts

→


RESEARCHER



Amy Gilligan

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RESEARCHER



Bartosz Kurjanski

→


RESEARCHER



Jean-Christophe Comte

→


RESEARCHER



Jefferson Gomes

→

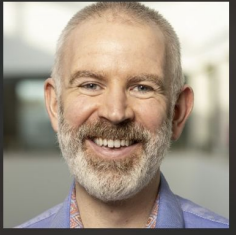
RESEARCHER



Francisca Robledo

→

RESEARCHER



Eoin McManus

→

+ University Estates Project Team

Consortium Partners and Stakeholders



University of Aberdeen (Estates & Facilities, Geosciences & Engineering Schools, Centre for Interdisciplinary Research, Just Transition Lab)

NHS Grampian (NHSG)

Aberdeen City Council (ACC)

Aberdeen Heat and Power (AHP)

Robert Gordon University (RGU)

British Geological Survey (BGS)

Geosolutions @ Univ. Leeds Aberdeen Renewable Energy Group (AREG)

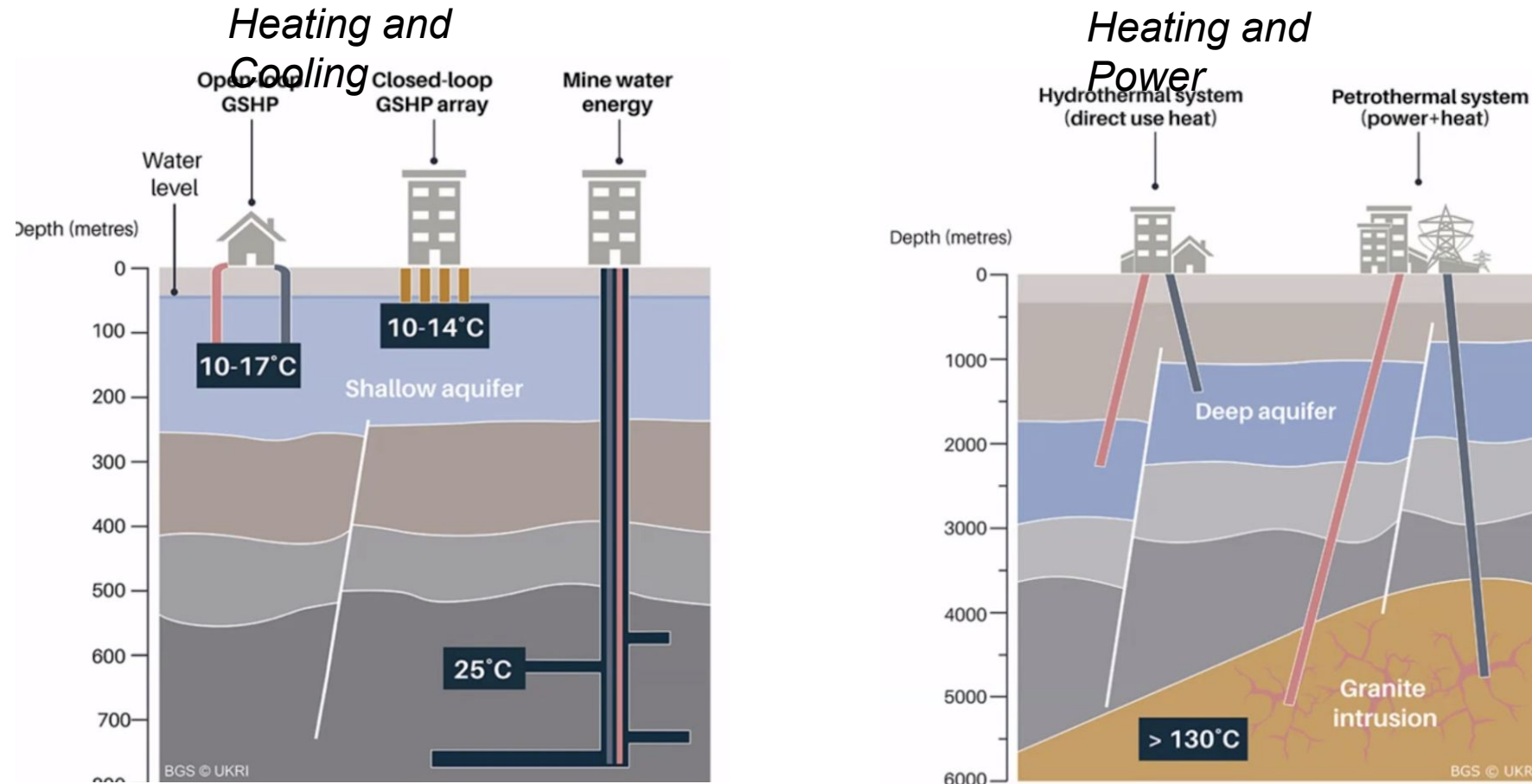
Net Zero Technology Centre (NZTC)

University of York Geothermal Project

UT Delft (Netherlands)

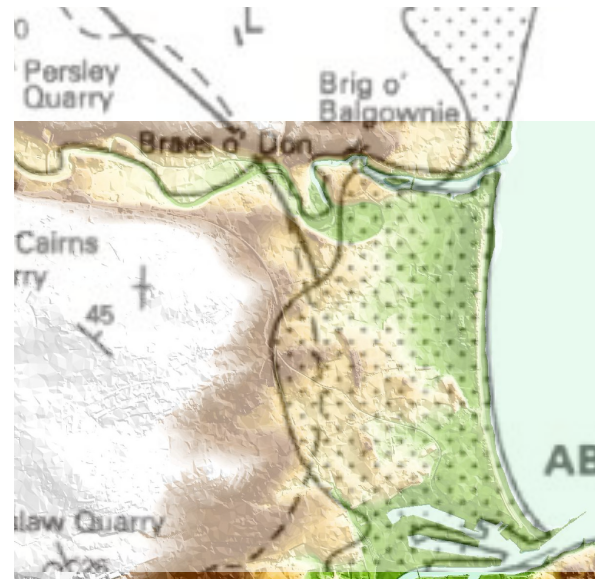
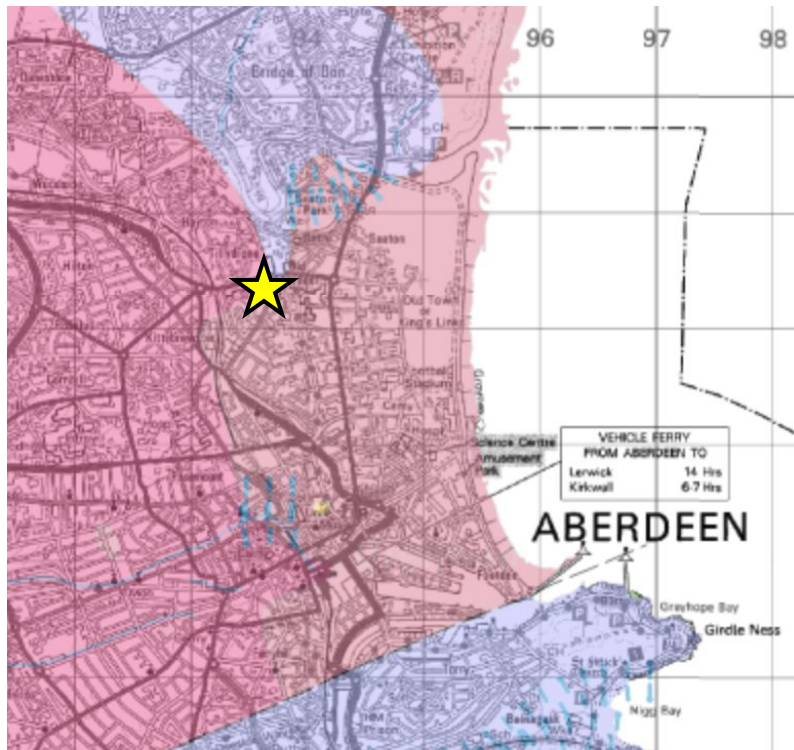
National Energy Skills Accelerator (NESAs)

Geothermal Solutions



(Graphic by the British Geological Survey)

Geothermal in the “Granite City”



(Kneller & Aftalian, 1987)

- ~470 Ma (Grampian/Caledonian) granite pluton with Dalradian and Devonian rocks.
- Geological boundaries unclear at depth.
- Glacial sediments (0-40 m).
- Modelled to be 60-65 °C at ~2 km depth at AECC/P&J Live (granite).
- Unverified ~31 °C at ~1.4 km depth in Dalradian schists.
- ~200 deep borehole into Devonian sediments – no temperature data.
- Rising fuel poverty in Aberdeen in both the civil and public sectors.
- Aberdeen’s energy transition is fair and inclusive for its workforce and communities.

Brig O' Balgownie Formation - Conglomerate And [Subequal/Subordinate] Sandstone, Interbedded (BOBC-COSD)

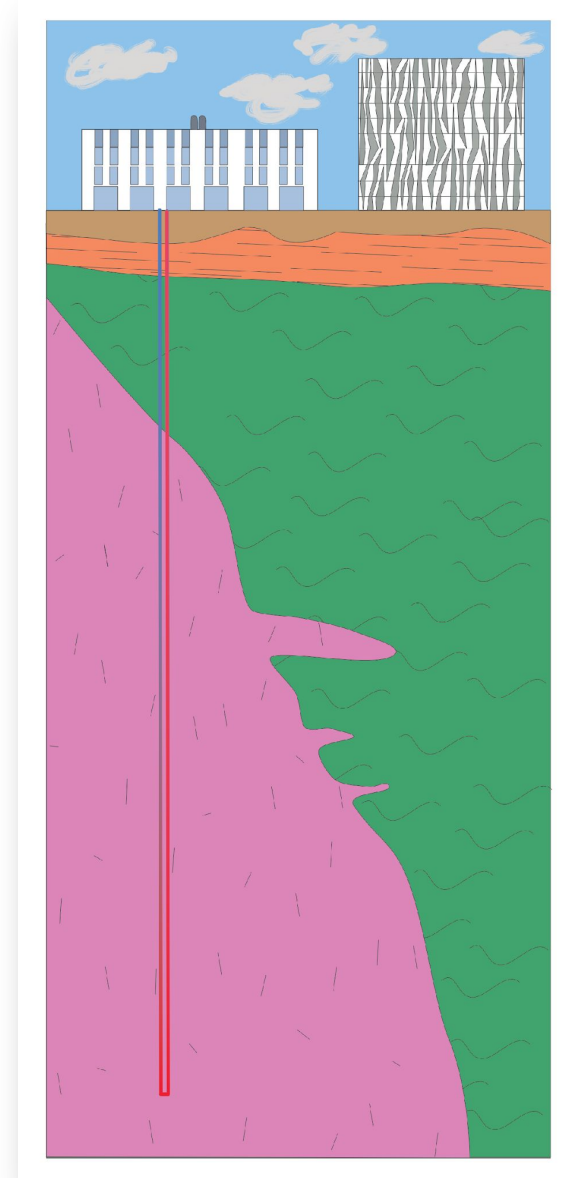
Aberdeen Pluton - Granite, Foliated (ADEEN-GNFO)

Aberdeen Formation - Psalmitic And Semipelitic (ABDN-PSSP)

(British Geological Survey)

Geothermal in Aberdeen

Heat beneath our feet ?



Geothermal in Aberdeen

Barriers:

- **Subsurface uncertainty:** Need for borehole logging, heat flow data, and 3D geological models.
- **Cost and investment risk:** High exploration costs and lack of guaranteed returns.
- **Regulatory and permitting complexity:** Complex SEPA, planning, and land access pathways.
- **Data access and integration:** Limited resolution onshore subsurface datasets.
- **Lack of demonstration projects:** Few reference projects in Scotland.
- **Public and stakeholder awareness:** Low awareness of geothermal benefits compared to other renewables.
- **Workforce and skills transition:** Upskilling from oil and gas to geothermal expertise required.
- **District heating readiness:** Infrastructure and reliance on gas.

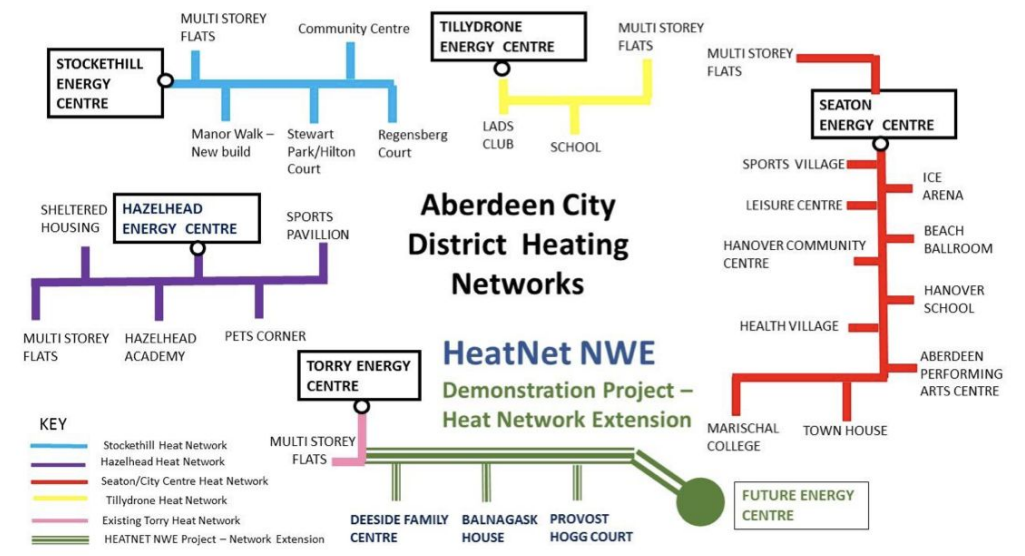
Geothermal in Aberdeen

Priority City Heat Sites and Heat Networks:

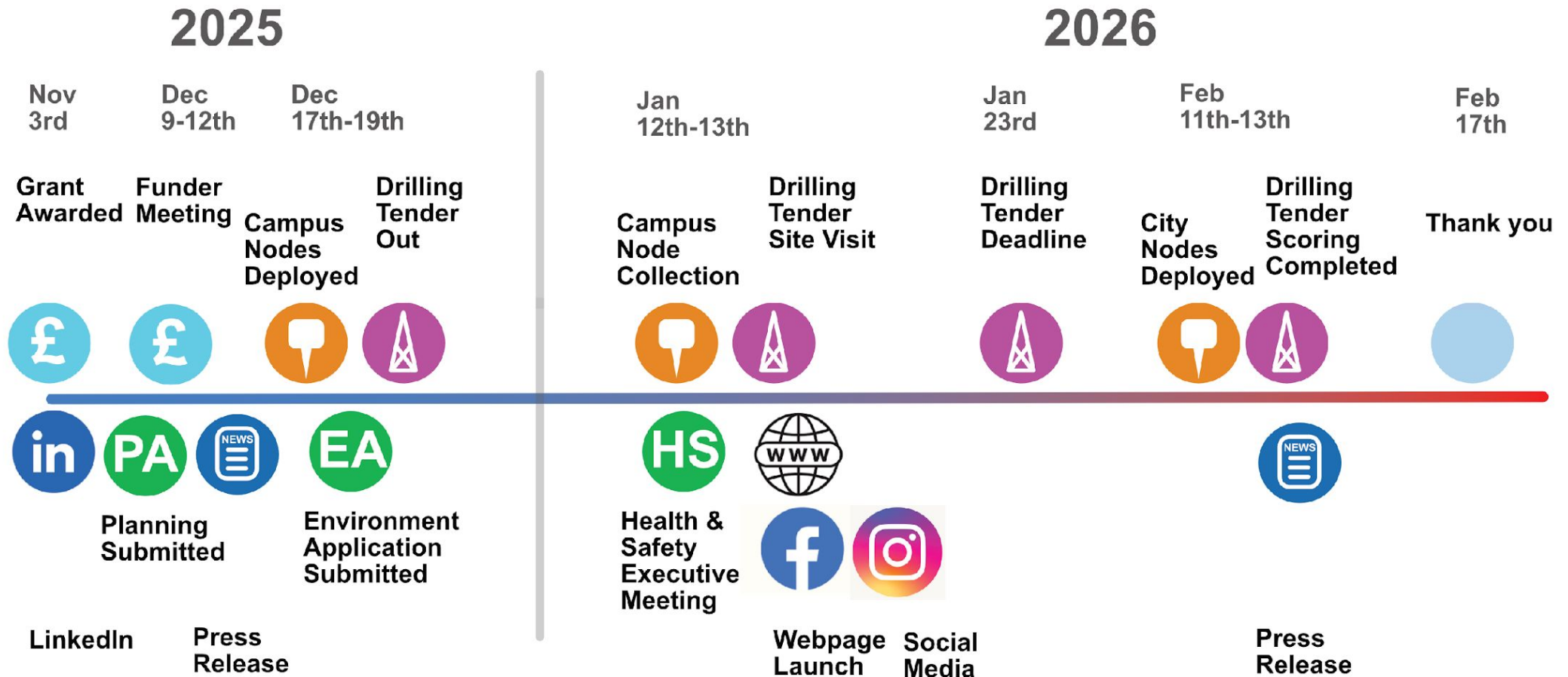
1. Foresterhill (153 GWh/yr)
2. Old Aberdeen (79 GWh/yr)
3. Woodend (25 GWh/yr)
4. Queen's Links (13 GWh/yr)
5. Bucksburn (5 GWh/yr)
6. Kincorth, Stockethill, Tillydrone, Seaton

Heat Networks in Aberdeen

1. Aberdeen Heat and Power
2. University of Aberdeen
3. NHS at Foresterhill Campus
4. AECC
5. EfW Plant



Our timeline so far



Also delivered (since November '25)

- Pre-drilling shallow geophysics – completed Dec 2025
- Procurement – 102 nodes bought & training
- Permission – UoA / Estates
- National and international communications
- Scottish Parliament motion
- >70-strong stakeholder partnership group
- Conference / seminar / city & community council invites
- Geothermal UK representation

2 x Seismic Node Deployments

1. 32 x Smartsolo 3-component seismic nodes deployed across campus for ~30 days (Dec-Jan)
2. 102* x Smartsolo 3-component seismic nodes deployed across city for 60-90 days (Feb-Mar)

* purchased through project funding

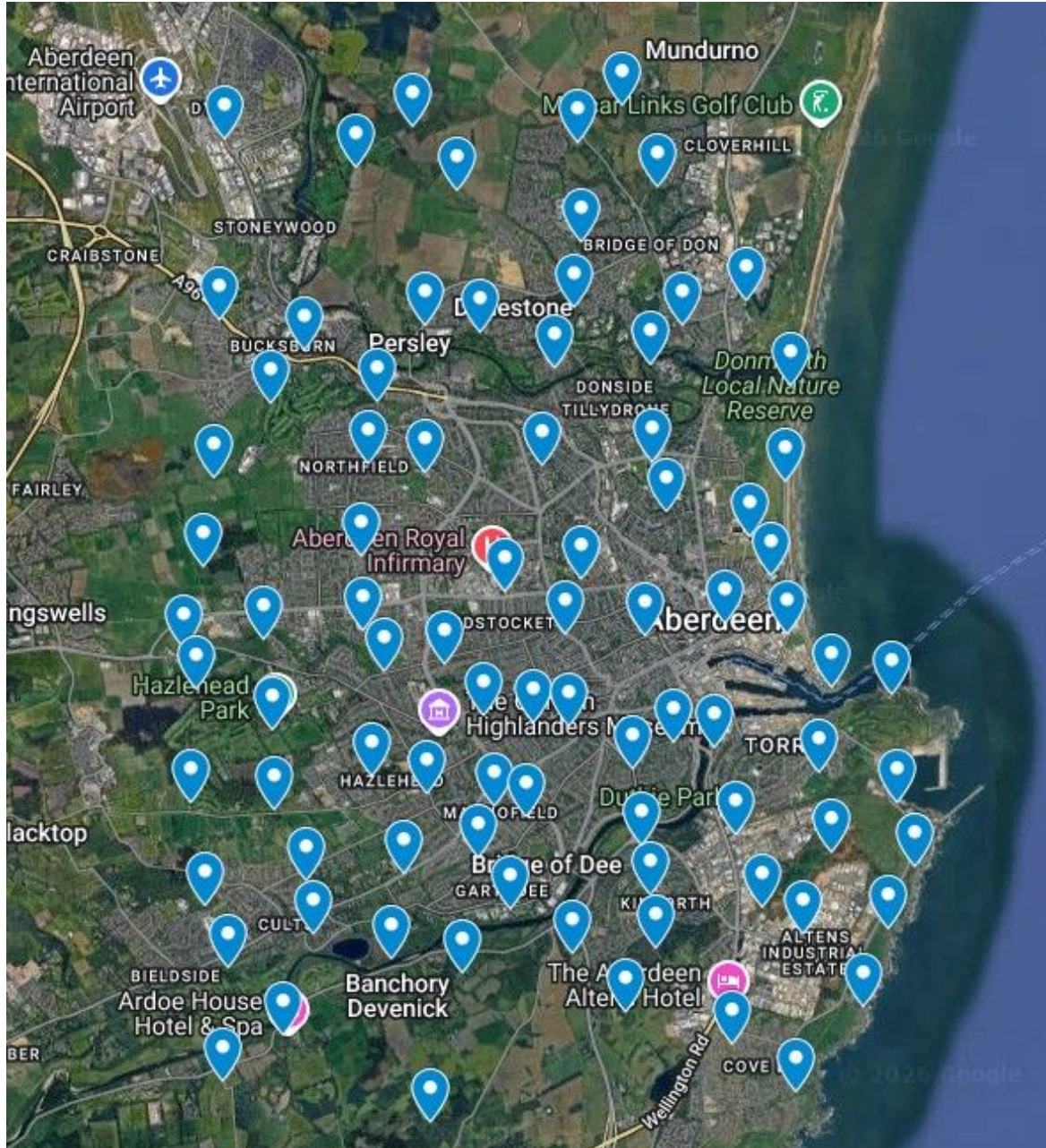


City-Wide Node Deployment

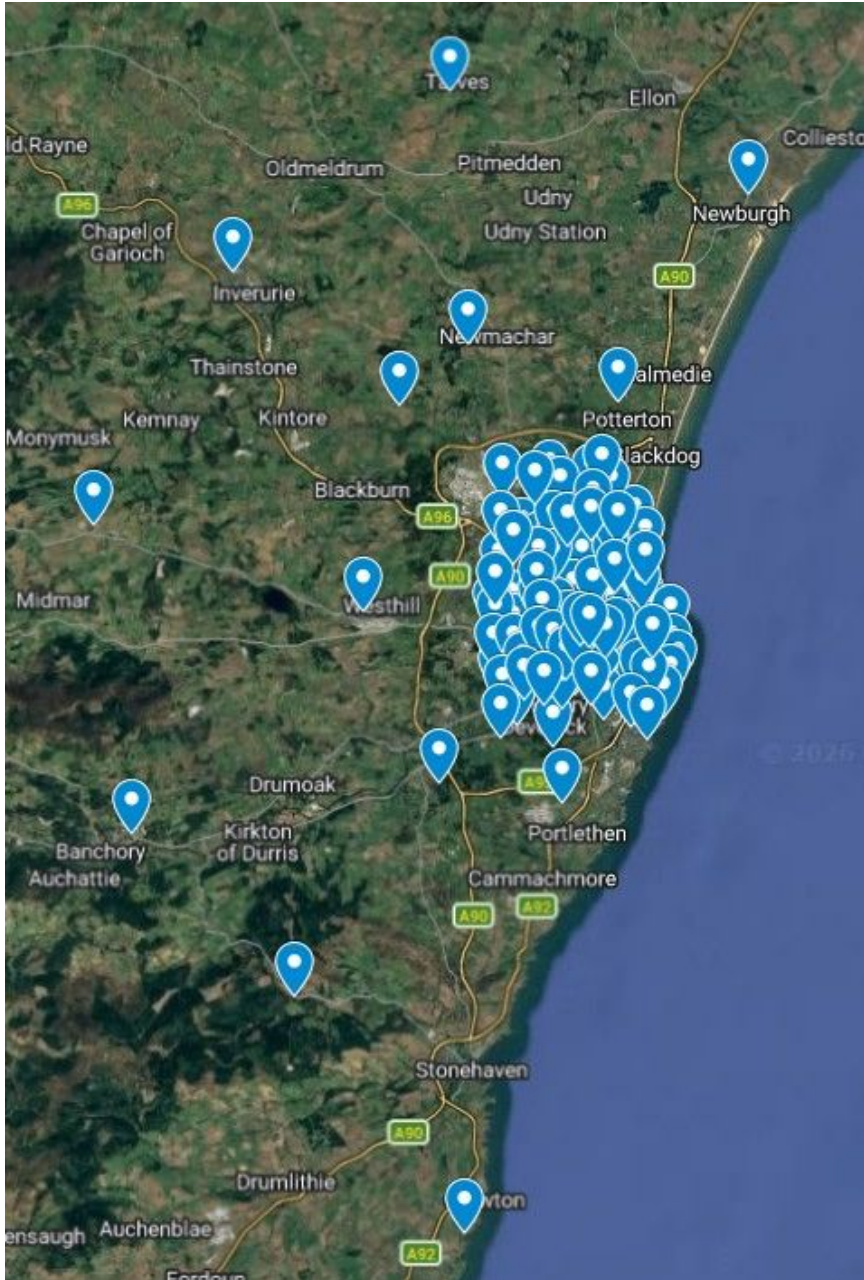
- Public call to “Adopt a node” (online form)
- NHS, universities, city council, private gardens, golf courses, park rangers, AFC, businesses, staff, students, etc.
- Main city ‘rectangle’ plus two ‘arcs’ further afield
- 88 x nodes deployed across city in 3 days (Feb 11-13)
- 5 x teams of 2-3 people, 50-60 miles driven per team
- Safety and planning meetings daily
- AGFP information sheets

Campus & City Node Deployment





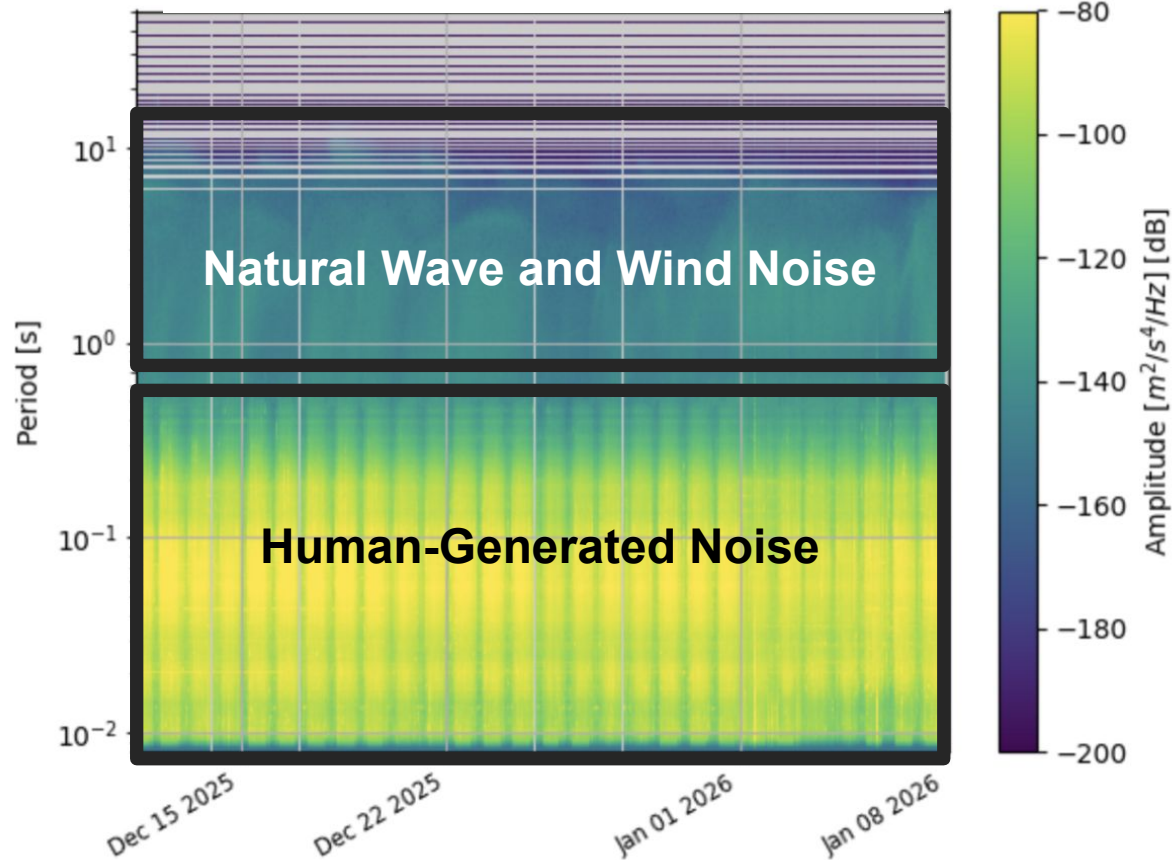
City-wide node deployment



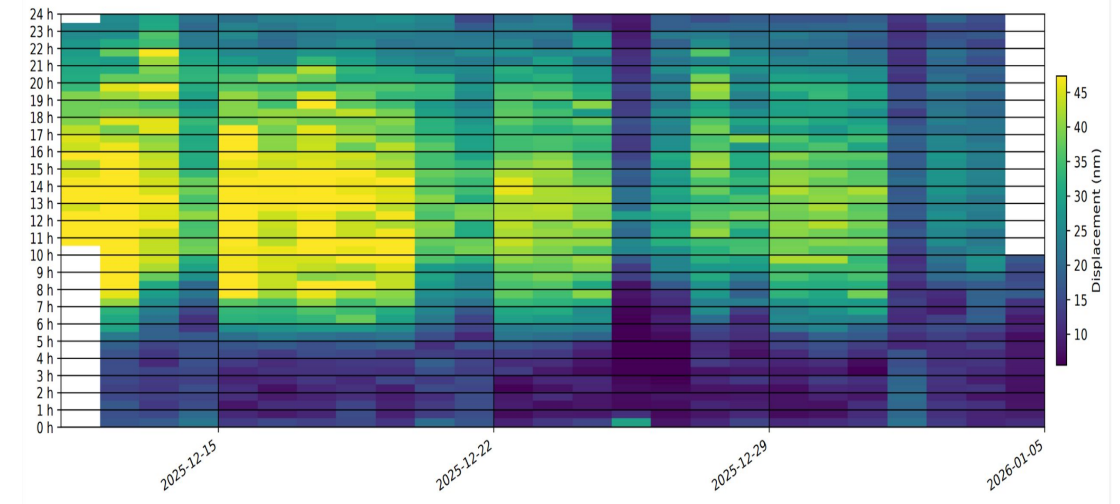
A wider array around the City

Campus Node Data

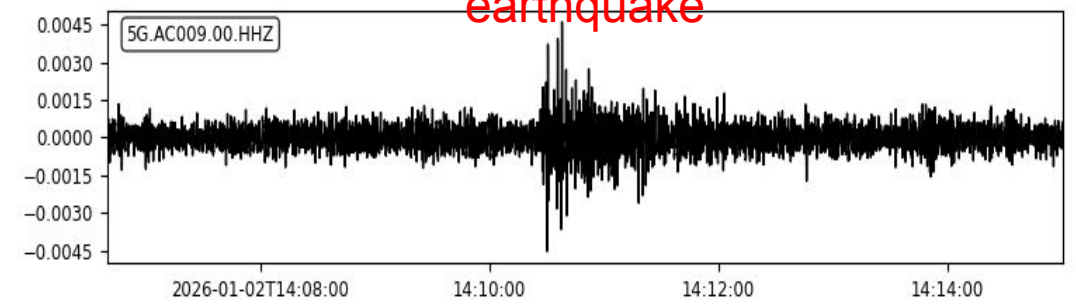
Noise period vs. date



Noise time of day vs. date

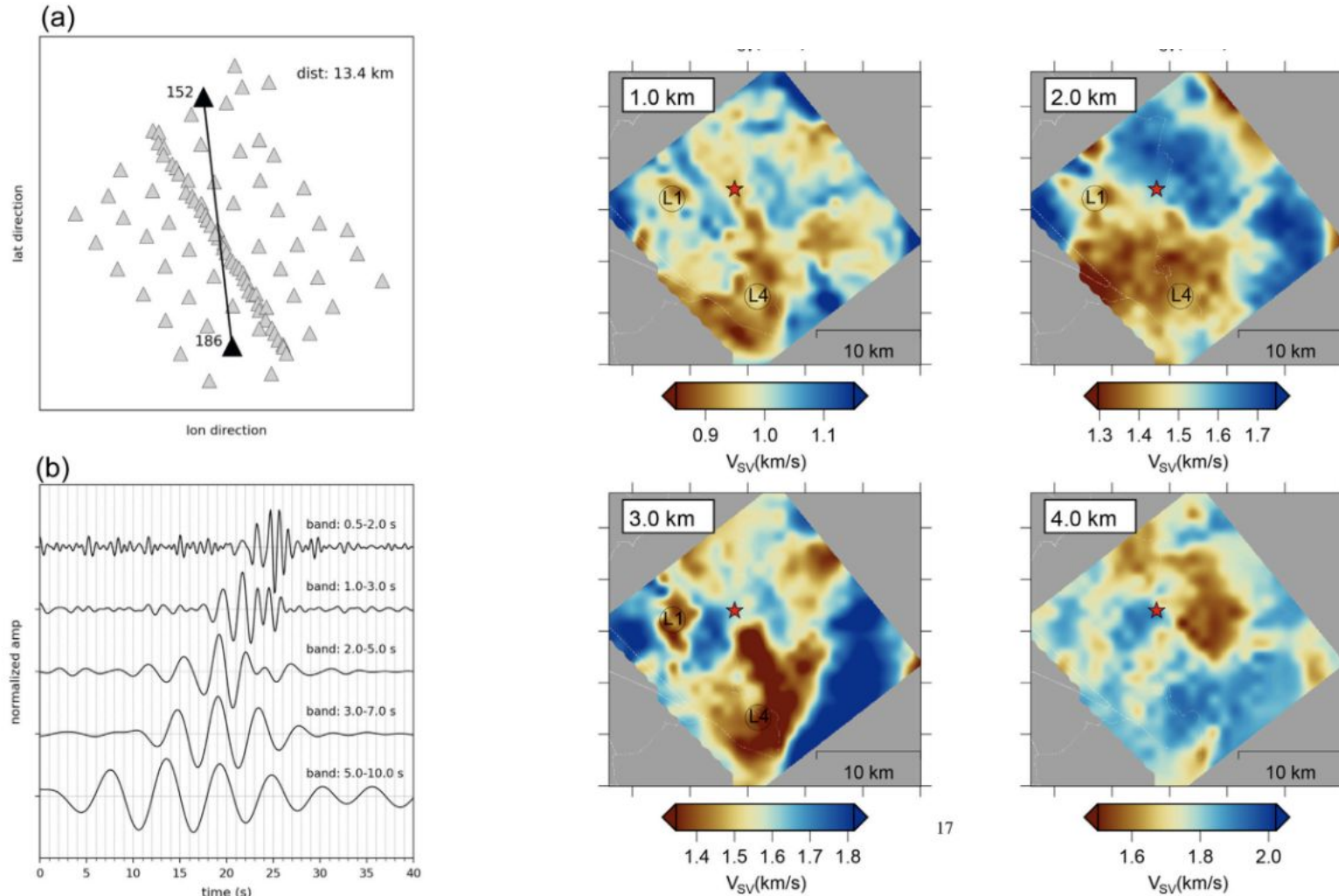


2 Jan 2026 M6.1 Mexico earthquake



From Noise to Subsurface Geology

From Noise to Subsurface Geology



Maps of velocity at different depths can be interpreted to show rock type and infer heat flow properties

Aberdeen Geothermal Feasibility Pilot

Phase 1: Subsurface – temperature, geology, hydrology

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Phase 3: Skills – increased awareness, accessible geothermal education, workforce upskilling/transition

- After the £1m pilot, the next logical step is a deep geothermal demonstration in the £25-40m range (like that recently awarded to the University of York). This would fund:
 - One deep (2-4 km) geothermal ‘proof’ well in Aberdeen.
 - Second deep well / small array of coaxial / closed-loop wells if permeability is low.
 - Heat plant and connection into an existing district heat network.

Ways To Engage

- Ideas for collaboration welcome!
- Website: <https://www.abdn.ac.uk/geothermal/>
- LinkedIn Page:
<https://www.linkedin.com/company/aberdeen-geothermal-feasibility-pilot-agfp/>
- Email ideas/meeting requests/contacts/other to geothermal@abdn.ac.uk



**THANK
YOU!**