UKUH
Unconventional Hydrocarbons in the UK Energy System

Natural Environment Research Council

Economic and Social Research Council

UKUH Challenge 5 update: ASSIST: Attitudes to Shale Gas in Space and Time

University of Bath

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Summary

- What we aim to understand:
  - Whether public perceptions of shale gas change over time
  - Whether public perception perceptions vary across space in the UK
  - Capturing local, lived experiences in areas of shale gas projects

- What new data sets do we draw on:
  - National surveys with the same participants (April 2019, June 2020, May 2021)
  - Social media data (Twitter 2015-2020, 317 million tweets)
  - Local ethnography and surveys (Lancashire and Yorkshire case studies)

'Exploring shale gas engagement on Twitter using spatio-temporal Network Analysis'

- **Are there distinct groups of UK twitter users that engage in the UK shale gas debate?**
- **Does engagement on Twitter changes over time and in space across the UK?**
- **What type of events drive these changes?**

What is Network Analysis?

Network: Nodes or people that are connected by links

Social groups or clusters:

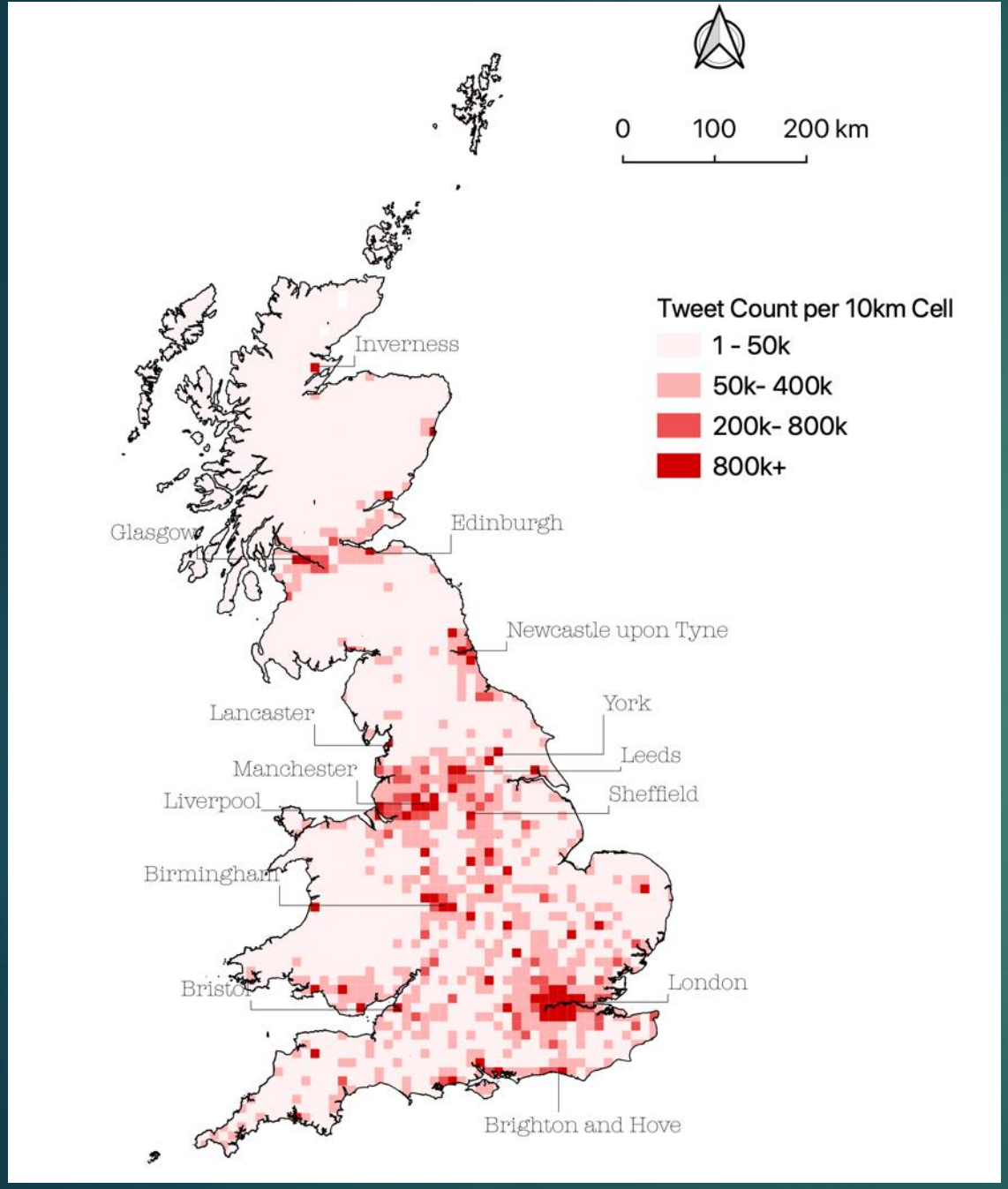
- Cultural background
- Socio-economic status
- Political leanings
- Interests

Key findings

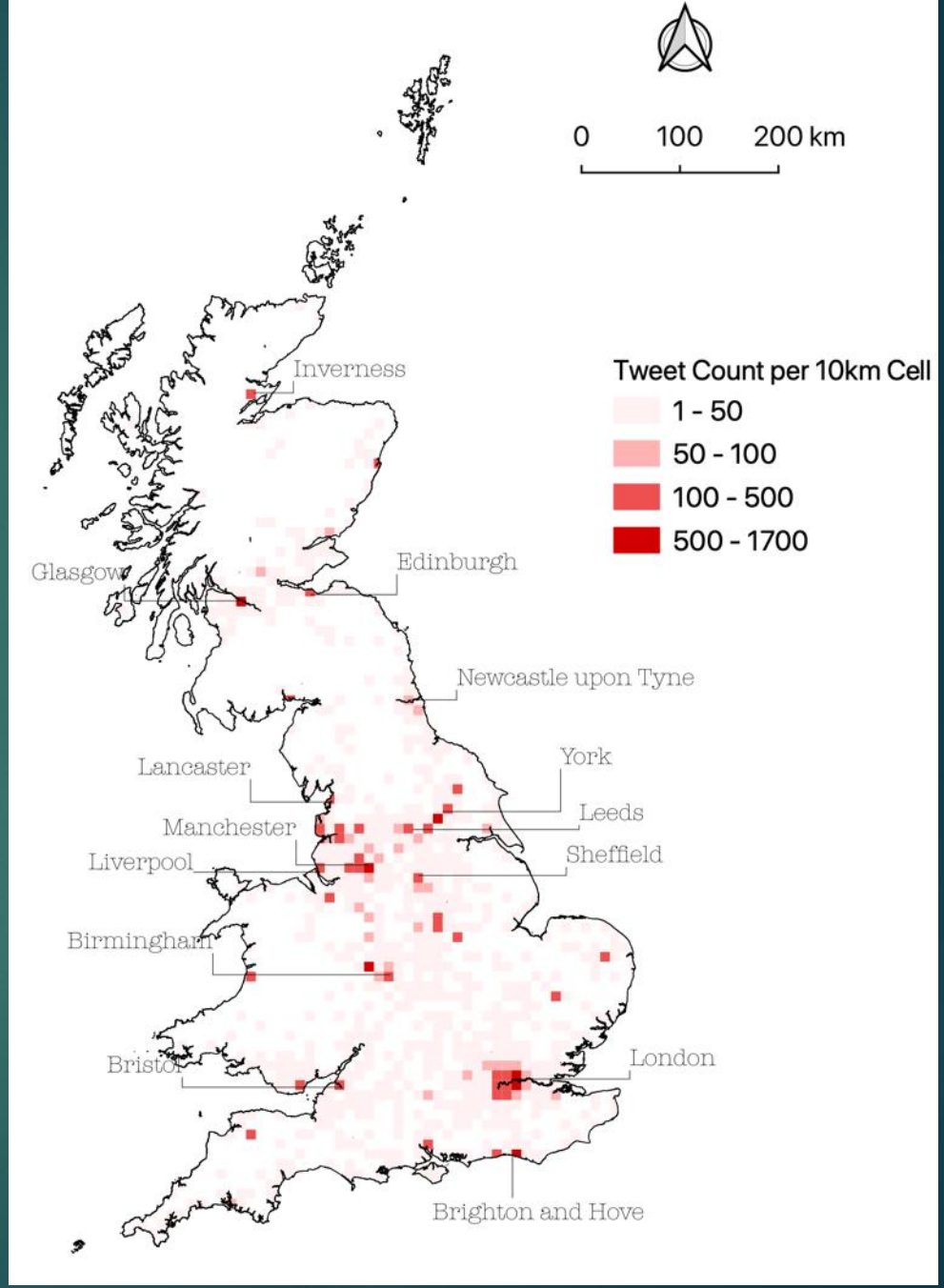
- Real-time collection of global tweets over 2019 using the key words: 'frack', 'shale gas' and 'hydraulic fract'

- Most people on Twitter are opposed to shale gas development within the UK (>90%)

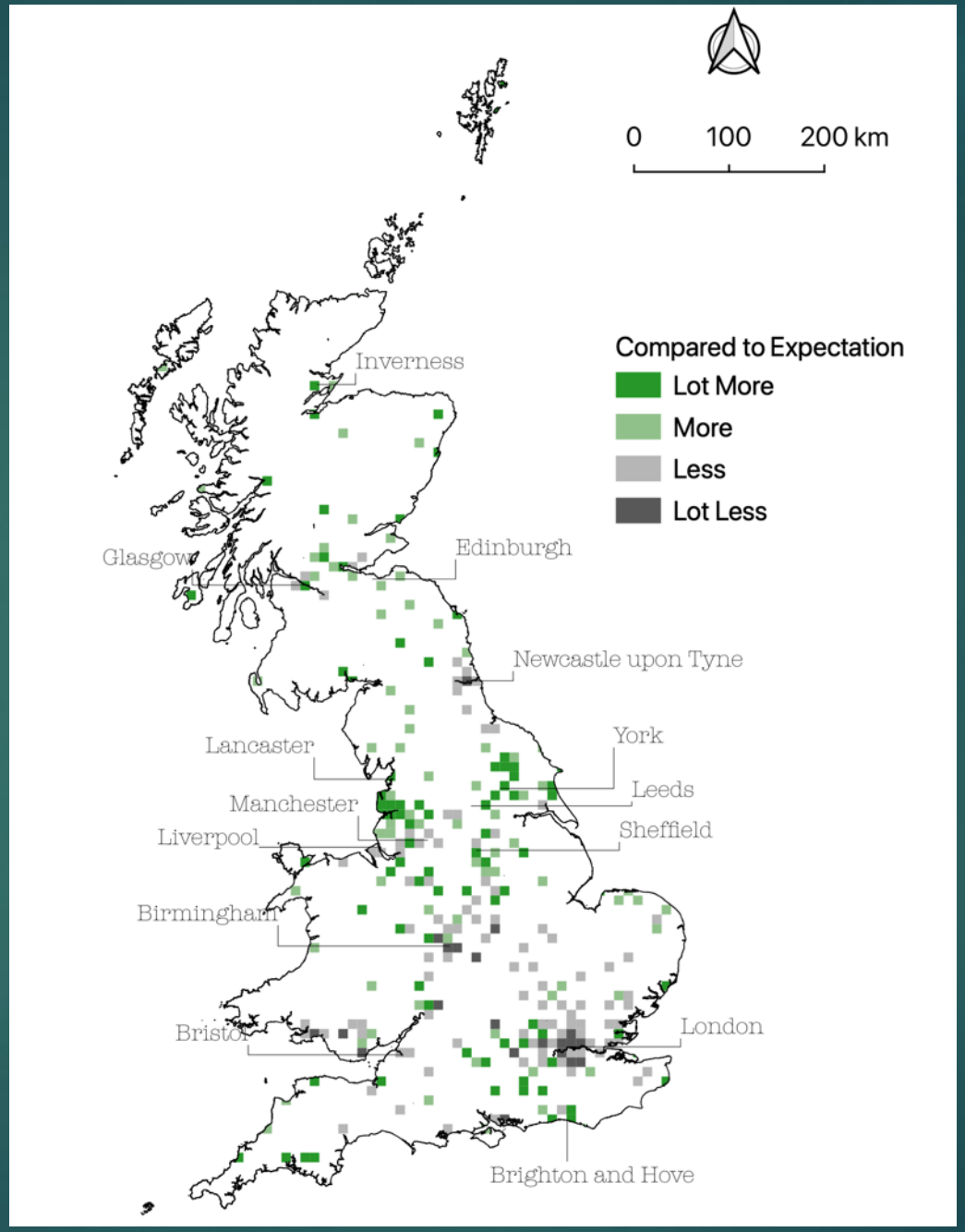
- Four key groups (provisional labels below) identified using network analysis that differ spatially across the UK
    - Left of centre - North West (around PNR) and London
    - Environmental activists - North East and Midlands (around Woodsetts) and London
    - Pro shale – South East and Midlands
    - Supporters of Scottish independence – Scotland
- Engagement changes over time driven mainly by political events
- No significant spatial-temporal response for seismic events at PNR and moratorium
- Responses between groups are similar for major shale events
- Notable changes in sentiment found around the seismic events and moratorium



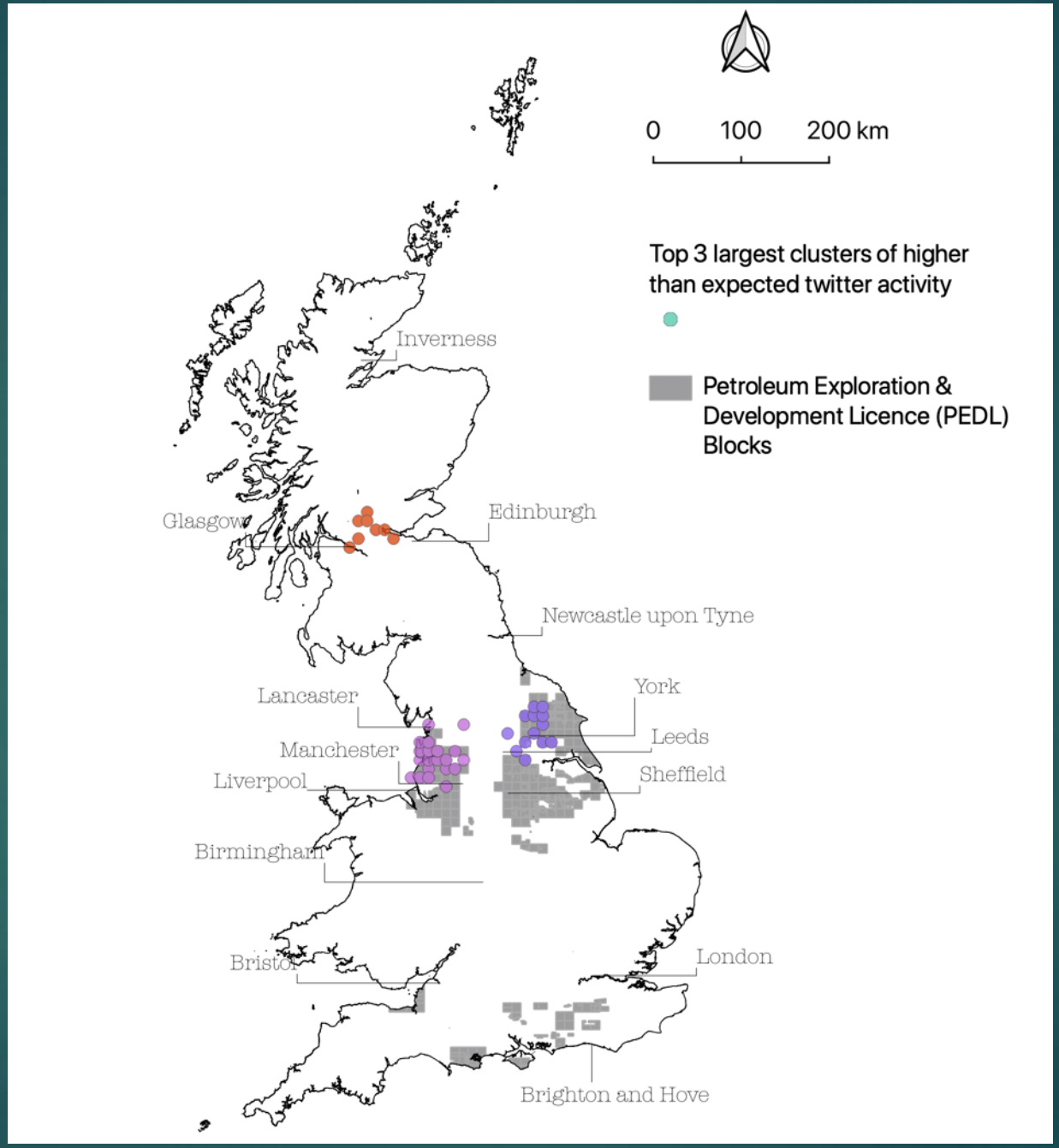
Twitter activity from 2015 to 2020 (317 million geolocated tweets)



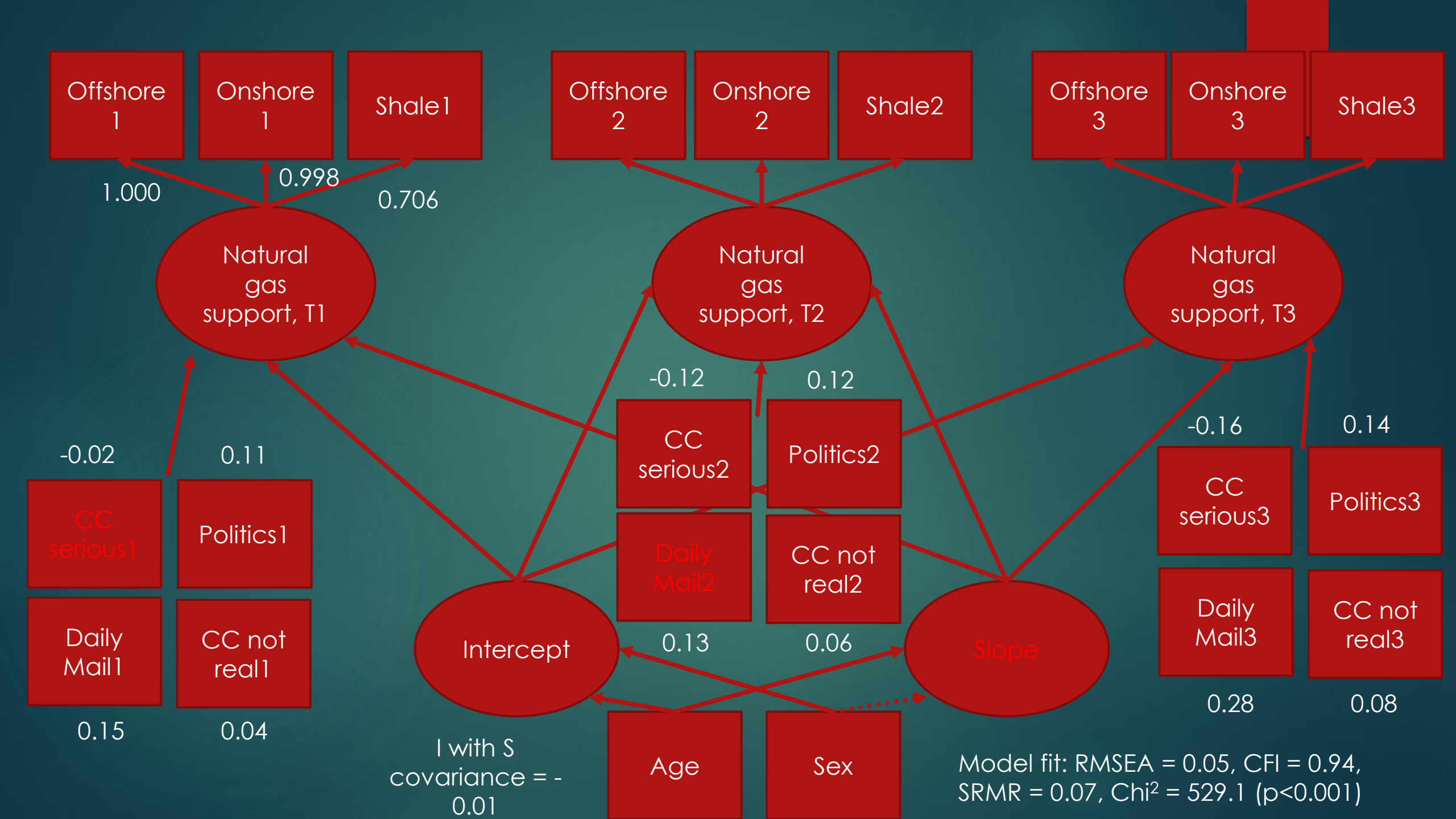
Tweet counts related to ‘fracking’ from 2015-2020



χ-squared surface expectation for fracking related tweet activity - showing regions with higher and lower than expected numbers of tweets



Licenced blocks and three largest clusters of higher than expected Twitter activity


Offshore 1
Onshore 1
Shale1
Offshore 2
Onshore 2
Shale2
Offshore 3
Onshore 3
Shale3
1.000
0.998
0.706
Natural gas support, T1
Natural gas support, T2
Natural gas support, T3
-0.12
0.12
-0.16
0.14
-0.02
0.11
CC serious2
Politics2
CC serious3
Politics3
CC serious1
Politics1
Daily Mail2
CC not real2
Daily Mail3
CC not real3
Intercept
Slope
0.13
0.06
0.28
0.08
0.15
0.04
I with S covariance = -0.01
Age
Sex
Model fit: RMSEA = 0.05, CFI = 0.94, SRMR = 0.07, Chi² = 529.1 (p<0.001)

Moratorium article

- High public awareness and support exists towards the 2019 shale gas moratorium.
- Sceptical interpretations arose from the timing, source and extent of policy change.
- Social media analysis enables insight into public responses over hours and days.
- Mixed methods provides insights into diverse publics and drivers of ideology, scale and demographics.

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Original research article

Induced seismicity or political ploy?: Using a novel mix of methods to identify multiple publics and track responses over time to shale gas policy change

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ABSTRACT

To date, little research has investigated how public perceptions of policies to ban or restrict fossil-fuel extraction change over time; yet this topic is of crucial importance as countries worldwide seek to transition towards 'net zero' economies. This study addresses this gap by focusing on public responses to the 2019 moratorium on shale gas extraction in England, using an analytical framework comprising awareness, interpretations and opinions, and a mixed-method approach combining national survey, social media and local case interviews. Findings show high levels of awareness and support for the moratorium, yet differences between coalitions of interest based on ideology, scale and demographics. Social media analyses reveal a peak in public response across several days during a general election campaign in which different parties took divergent positions on shale gas. Public support for the moratorium – and induced seismicity as the primary reason for its introduction - was evidenced by the national survey, yet coincided with scepticism about its timing, extent and motivation, as indicated by social media activity and local case interviews. For some publics, the moratorium was a ploy to ensure electoral support, embedded in public distrust. This study indicates the merits of a mixed-method approach to understand the psychological and institutional context of public responses to policy change as it unfolds over time, and discusses the longer term implications of politicised attitudes for energy transitions.

1. Introduction

volume hydraulic fracturing for the stated reason of scientific uncer-

Synthesis:

‘Understanding how ‘the public’ responds to shale gas extraction using a mixed-methods approach’

All datasets (overarching / methodological paper):

- synergy and divergence in findings across methods (what is public response to SGE?):
- strengths and weaknesses of different methods
- constructing 'the public': STS lit on imaginary publics
- using different methods (samples) to construct publics: different methods reach (construct) different 'publics' (see Figure, right)

Constructing ‘the public’ through different methods