

The propagation of seismic waves, misinformation, and disinformation

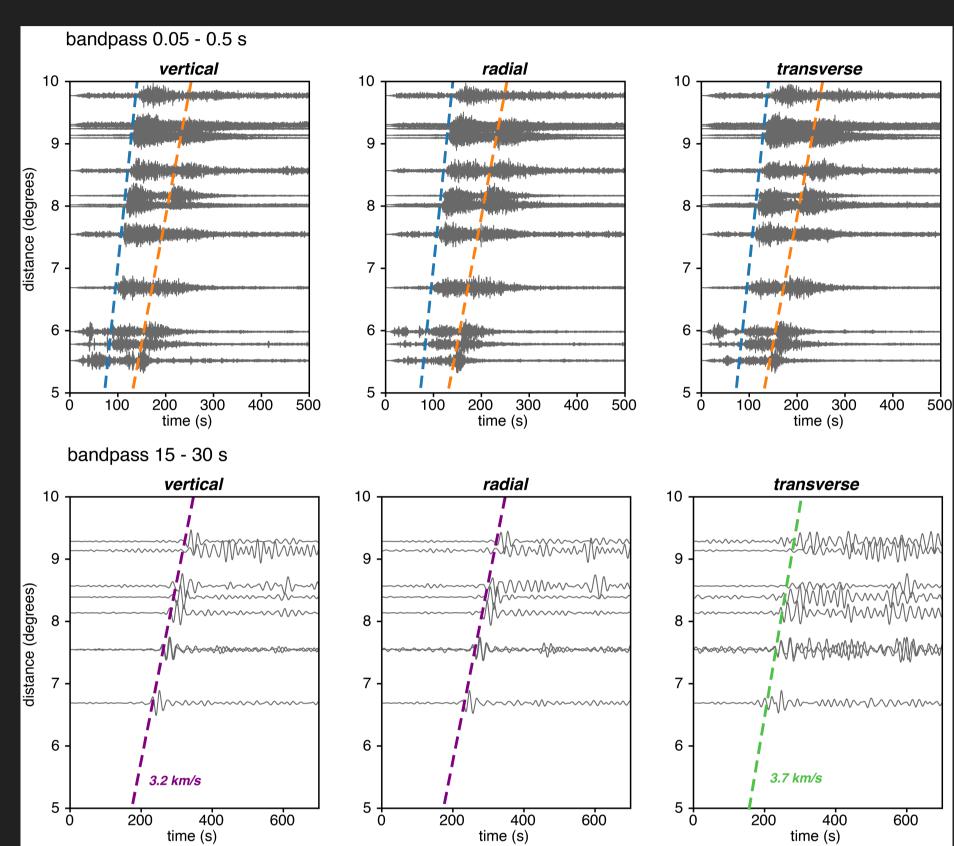
from the 2024-10-05 M 4.5 Iran earthquake



Paper: Fernando et al (2025, Seismica)

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1. SEISMIC CONTEXT



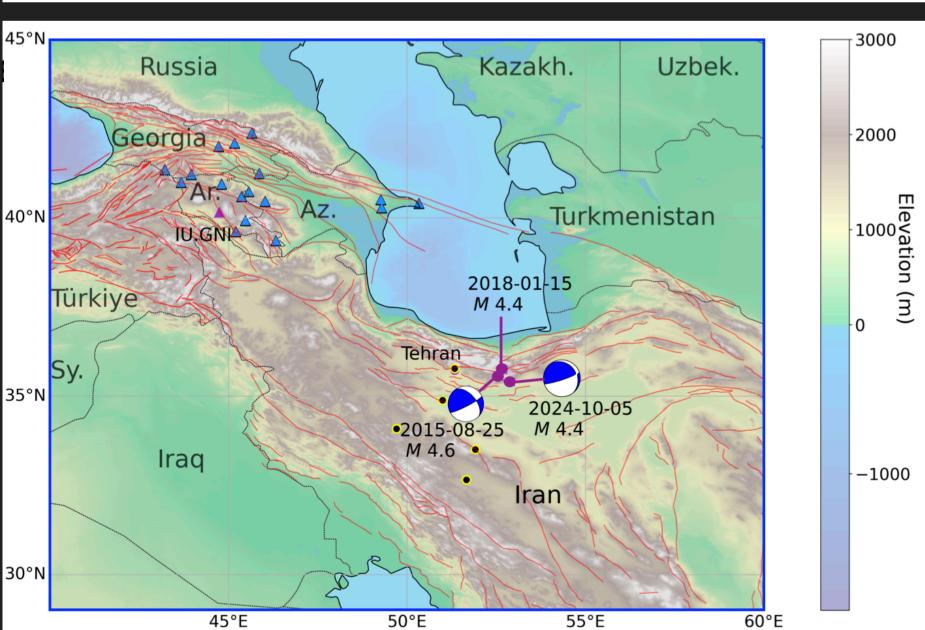


FIG 1: **Top**: seismic data, as recorded at stations across the Caucus region. **Bottom**: tectonic and geographic context, plus GCMT-inverted moment tensors for this event and a nearby and similar one in 2015.

2. SPECULATION

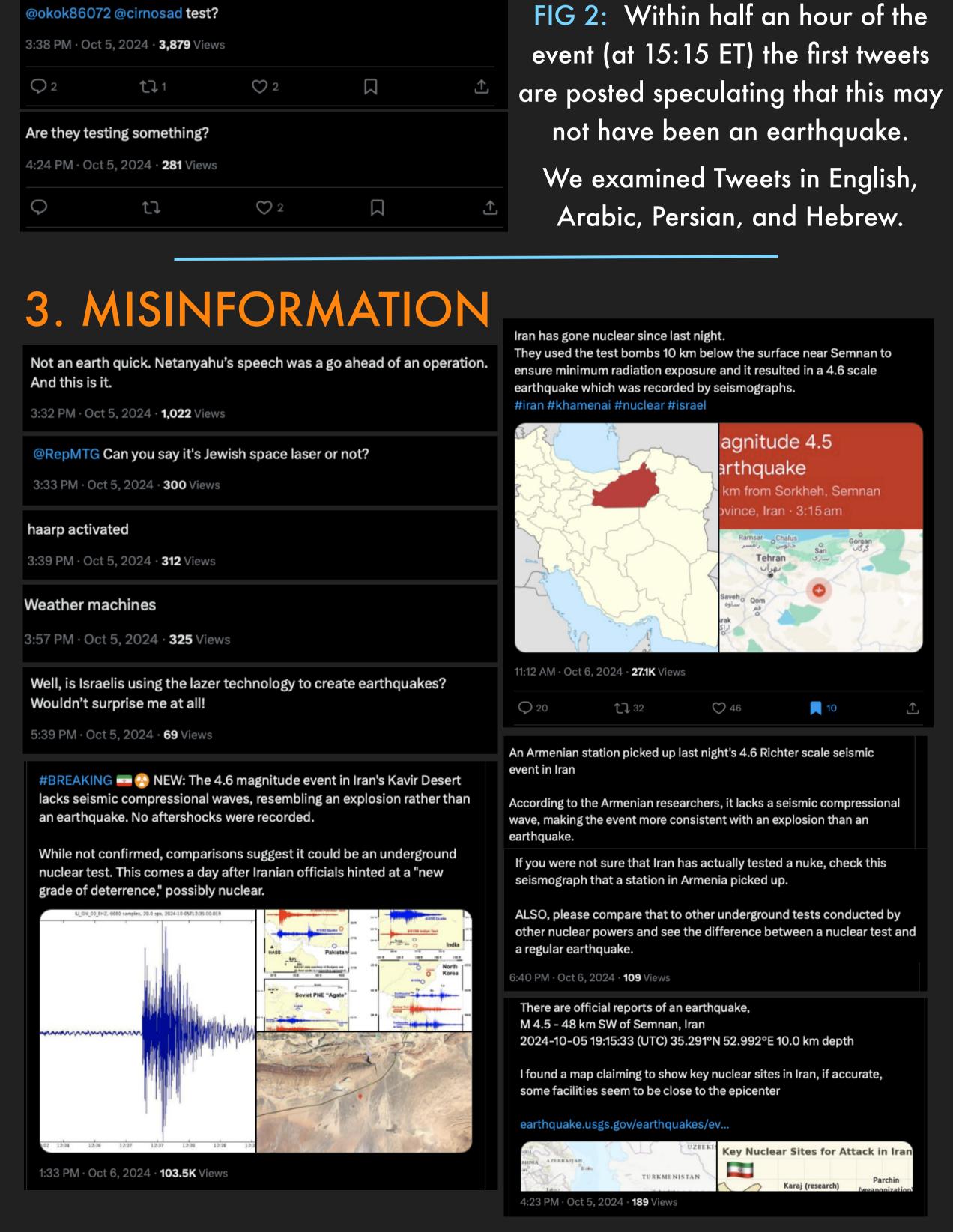


FIG 3: Tweets rapidly escalated to misinformation, referencing a range of conspiracy theories and purporting links to the war in Gaza.

4. DISINFORMATION

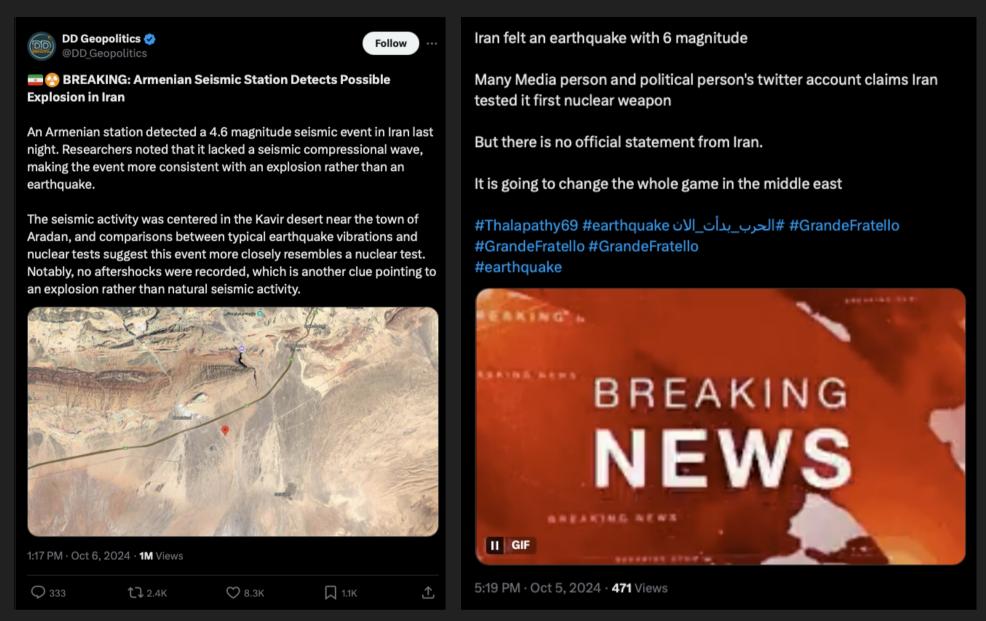


FIG 4: Disinformation accounts linked posted about this event (left) and others emulated the logos of reputable organisations (right).

5. FALSE ALERT TRIGGERING

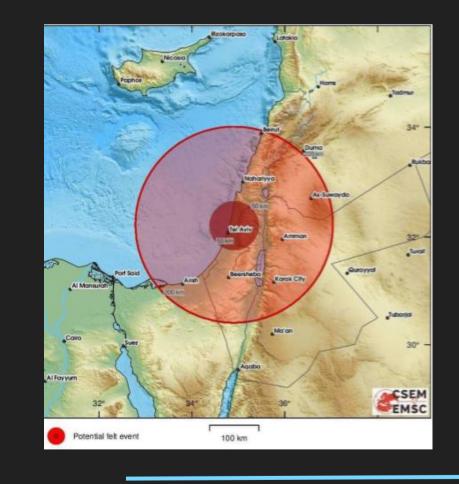


FIG 5: When news of this event broke, a spike in searches about triggered a false crowd-sourced alert for an earthquake in Israel. Although this was withdrawn 15 minutes later, by this point it had already become part of the conspiracy theory narrative.

6. RECOMMENDATIONS

- Improve reporting of unconstrained fixing depths to reduce confusion surrounding "10km" events
- Consider rapid-response moment tensor solutions for sensitive regions below current threshold magnitudes
- Explore **geo-location exclusions** for earthquake alerts generated by social media/web traffic