Science-Based Truth During Mis/Dis-Information Crises: Expanding CTBTO's Public Communication Role Post-EIF

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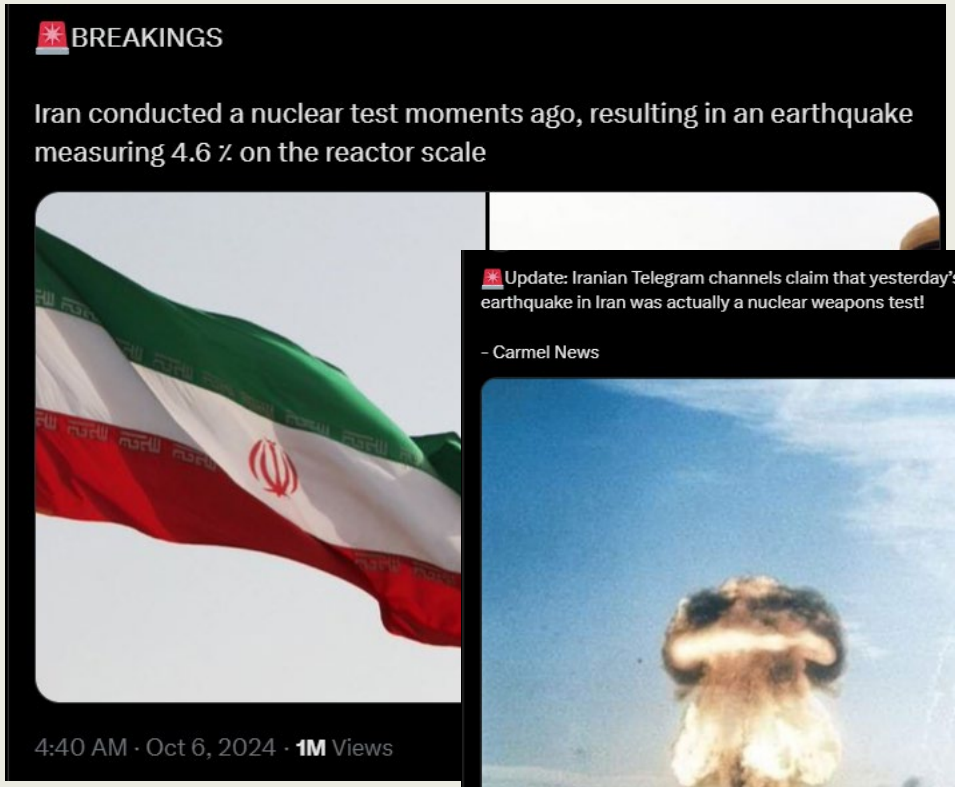
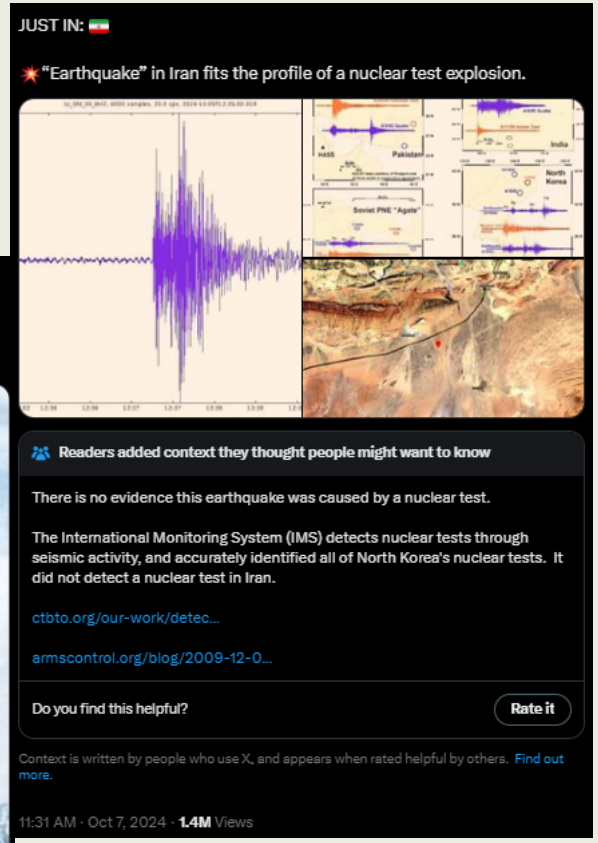
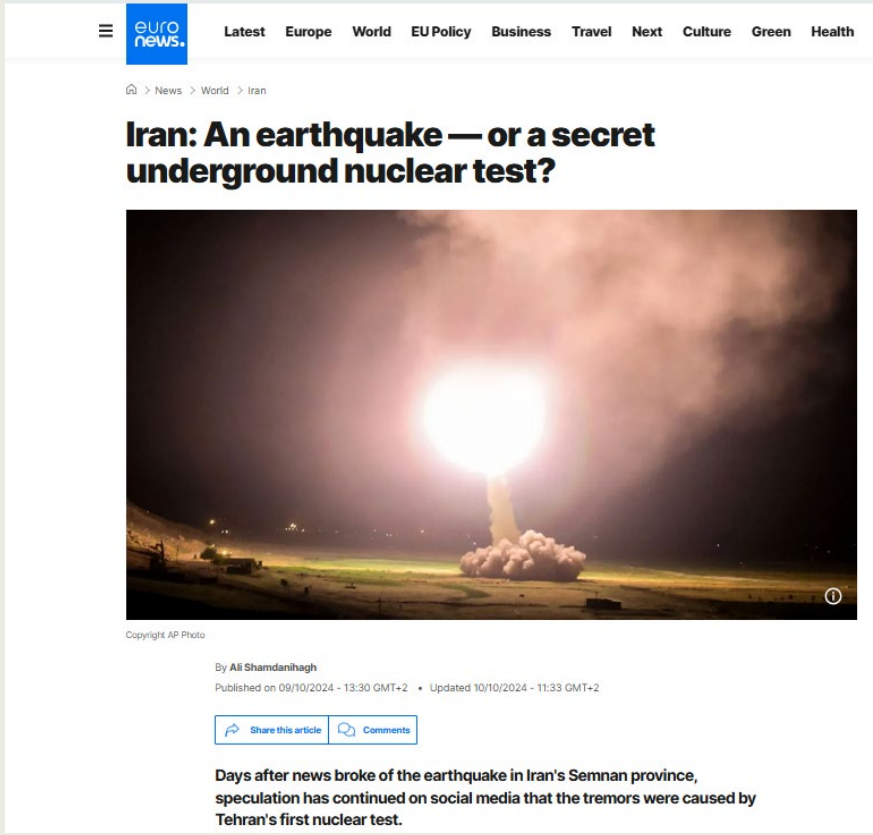
Social Media Commotion Regarding Alleged Nuclear Testing in Iran – October 5, 2024







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REPORT
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SEISMICA

The propagation of seismic waves, misinformation, and disinformation from the 2024-10-05 M 4.5 Iran earthquake

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Abstract The 2024-10-05 Iran M 4.5 earthquake took place at a time of heightened tensions in the Middle East. We perform a discrimination and moment tensor analysis and identify a shallow-dipping, reverse fault source commensurate with the compressional setting of the Iranian interior. Nonetheless, the event's aftermath saw widespread dissemination of misinformation, and potentially active disinformation, concluding that it was in fact a test of an Iranian nuclear weapon. The 'evidence' for many of these claims was based on inaccurate interpretation of seismic data. In this paper, we analyse how geophysical 'fake news' propagated through social media (mainly Twitter/X) following this event, eventually gaining traction in mainstream, earned media. This event is an illustrative warning of how seismic data can be misinterpreted and/or manipulated in public discourse.

Persian زمین لرزه ای که به بزرگی ۵.۴ در تاریخ پنجم اکتبر سال ۲۰۲۴ در ایران رخ داد، در زمان بالاگرفتن تنش ها در خاورمیانه اتفاق افتاد. ما تحلیل تانسوری گشتاور انجام داده، گسل معکوس کم عمقی را به عنوان منبع این رویداد معین کردیم که با ساختار فشاری و تراکمی داخل ایران مطابقت دارد. با این وجود، در پی این حادثه اطلاعات نادرست (غیر عامدانه) و اطلاعات غلط (عامدانه) به صورت گسترده ای پخش شد با این نتیجه گیری که این حادثه مربوط به آزمایش سلاح هسته ای در ایران است. شواهد ارایه شده در بسیاری از این ادعاها بر اساس تفسیر نادرست داده های لرزه ای مربوط به این حادثه بود. ما در این مقاله و در تحلیلهایمان نشان میدهیم که چگونه اخبار جعلی ژئوفیزیکی مربوط به این حادثه درشبکه های اجتماعی پخش شد (علی الخصوص در توییتر/اکس)، چطور مورد توجه قرار گرفت و در نهایت چطور به مطبوعات و رسانه ها رسید. این حادثه میتواند به مانند هشداری باشد که چگونه داده های لرزه ای میتواند به طور اشتباه و یا عامدانه دستکاری شده و وارد گفتمگان عمومی جامعه شود.

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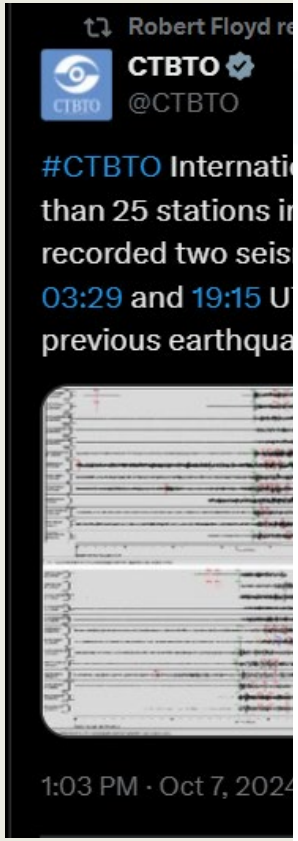
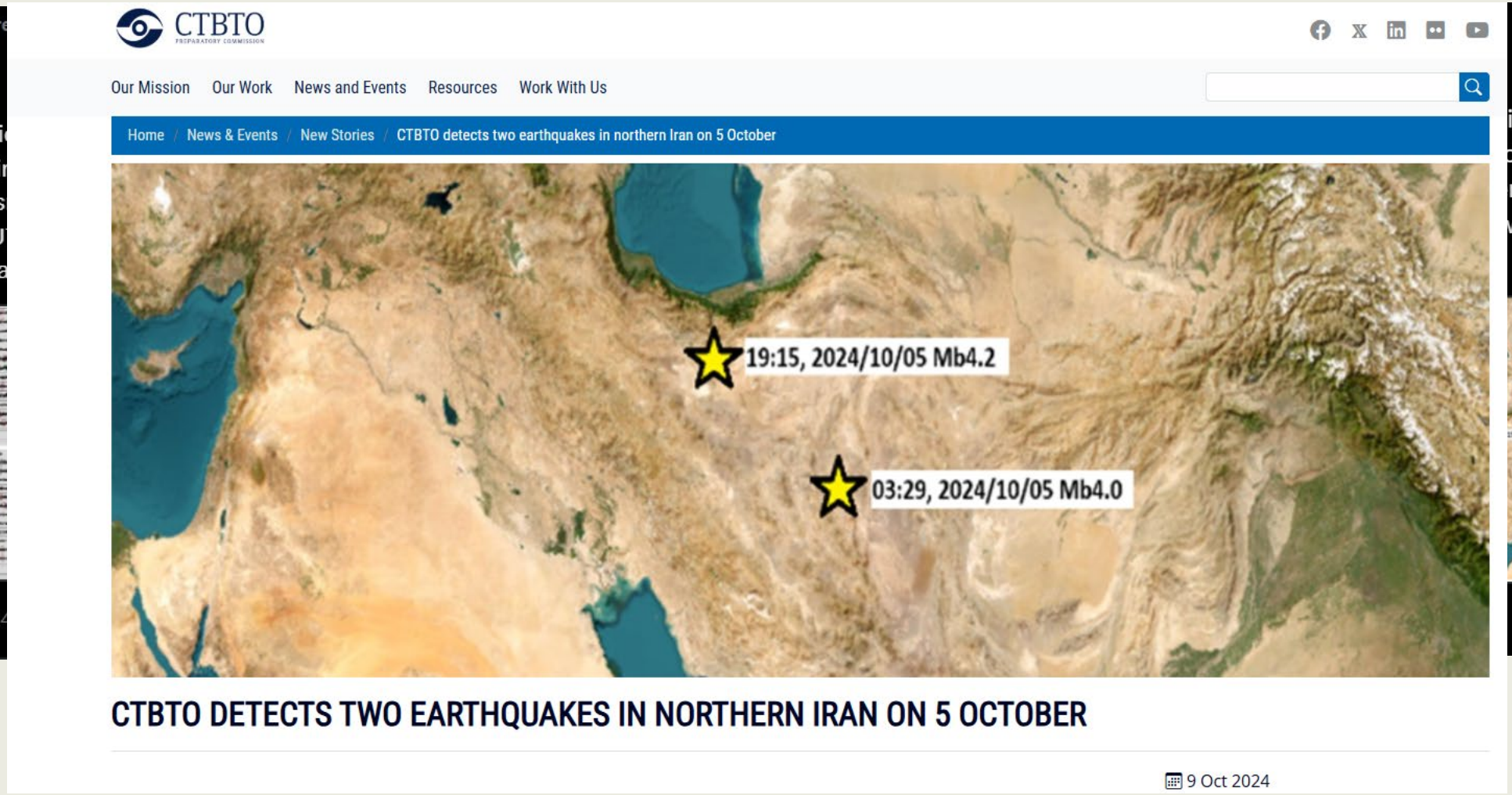
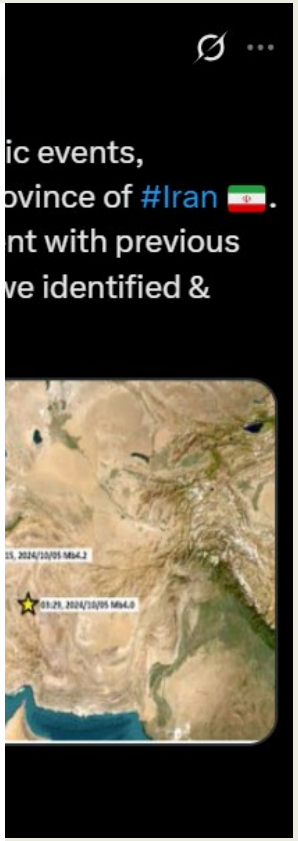
CTBTO's Response (Oct 7 & 9 – 2024)







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Building on this success story, my research asks:

(How) could the CTBTO institutionalize a stronger public-facing role in managing mis/dis-information in high-escalation-risk contexts post-EIF?

(How) could it do so while continuing to further enable public access and literacy to technical data and interpretation?

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Political & Legal Hurdles in Institutionalizing Public Communication Role post-EIF

Political

- Public commentary on specific states may be perceived as interference
- Raw data outputs risk politicization in adversarial information environments
- State Parties may resist disclosure of technical interpretations prior to domestic response

Legal

- Mandate restrictions: Article IV (Clause 14 p. 22) restricts data-sharing for *State Parties*, not the public
- Confidentiality obligations: restrictions on data release without State Party authorization
- Governance delays: consensus decision-making can slow urgent communication
- Risk of overreach: engagement on state-specific incidents could be framed as exceeding the technical remit

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(Starting) Strategies to Overcome Legal & Political Barriers





Formalize	Negotiate	Establish	Create	Conduct
science communication authority via treaty amendment; (Article VII, Clause 2, p. 42)	standing agreements with State Parties for pre-authorized release of verified data;	SOPs granting the ES fast-track authority for public emergency response;	a dedicated Disinformation Unit spanning OES, IMS, & IDC for rapid public communication;	regular scenario drills to stress-test readiness & directly involve State Party input.

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Strategies to Overcome Risk of Monopolization of Legitimate Data & Technical Interpretation

Implement Alternatives to	Increase
Reliance on public dissemination on commercial social media platforms;	Transparency by making visible how technical conclusions are reached in direct public crisis communication.

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Proposed Public Communication Flow

Immediate (minutes): Technical interpretation release based on standing agreements for crisis response via official website

Short term (hours): Live press briefings and webcasts by Disinformation Unit (publicly available) to increase literacy

Medium term (days): UN News and CTBTO Press Release

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Takeaway

Recommendation

- Institutionalize (through amendment) a science-based public outreach role in fighting mis/dis-information post-EIF via concrete communication strategies and a dedicated Unit.

Strategic Impact

- Protect verification integrity from distortion,
- Enhance crisis stability through rapid public clarification,
- Position CTBTO post-EIF as a publicly-responsive verification institution in addition to being a State-Party responsive international organization.

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