

Review - egosphere-2025-1836 (GC)

1 Summary of the manuscript

This manuscript presents a qualitative investigation into the ethical challenges associated with the use of satellite remote sensing data in geohazard research, particularly in politically complex contexts. Drawing on thirteen semi-structured interviews and three focus group discussions with UK-based remote sensing professionals, the authors adopt a grounded theory approach to explore how researchers perceive ethical responsibility, data use, collaboration, and impact.

The study identifies several key tensions: (i) between open-access data practices and the protection of vulnerable communities, (ii) between academic incentives and meaningful engagement with local stakeholders, and (iii) between the perceived ethical neutrality of remote sensing data and the broader societal implications of its interpretation and dissemination. The manuscript situates these findings within geoethical frameworks and Disaster Risk Reduction (DRR) paradigms, particularly the Sendai Framework, and proposes recommendations including targeted training and the implementation of a “light-touch” ethical review system.

Overall, the paper aims to contribute to ongoing debates on ethical AI and data-driven practices in geoscience by foregrounding the responsibilities of researchers working with increasingly powerful and accessible satellite data.

2 Major comments

2.1 Originality and relevance to Geoscience Communication

The manuscript addresses a timely and important topic at the intersection of geoscience, ethics, and communication, and I find it particularly relevant for *Geoscience Communication*. Its focus on satellite data practices in politically sensitive contexts is particularly relevant, especially given the increasing reliance on remote sensing in DRR.

The empirical grounding through interviews and focus groups is a strength, offering insight into practitioner perspectives that are often underrepresented in ethical debates. However, the manuscript’s originality could be strengthened by more explicit engagement with contemporary ethical AI frameworks (e.g., fairness, accountability, transparency, explainability). While the discussion touches on issues such as digital colonialism and inequity, these are not consistently framed within broader AI ethics discourse, which may somewhat limit the interdisciplinary reach of the paper.

2.2 Engagement with ethical AI and DRR frameworks

The manuscript demonstrates familiarity with geoethics and DRR frameworks (e.g., Sendai Framework), but its engagement with ethical AI is implicit rather than explicit. Given the centrality of data-driven decision-making in remote sensing, the paper would benefit from:

- A clearer articulation of how satellite data practices intersect with AI-related concerns such as algorithmic bias, data governance, and accountability.
- A more systematic integration of ethical principles (e.g., transparency, inclusivity, harm minimisation) into the analysis of findings.

For example, discussions of “misinterpretation of data” and “lack of feedback loops” (Discussion, Sections 4.3–4.4) could be reframed in terms of accountability and explainability in data-driven systems.

2.3 Methodological rigor and limitations

The use of grounded theory is appropriate for an exploratory study of this nature, and I find the overall design clearly explained (Section 2). However, several methodological issues warrant further clarification:

- Sample bias and scope: The exclusive focus on UK-based researchers, many of whom are affiliated with COMET, significantly constrains the generalisability of the findings. While this is acknowledged (Appendix B), the implications for the study's conclusions are not sufficiently discussed in the main text.
- Positionality and reflexivity: Although the authors note their embeddedness in the research community (Section 2), the analysis would benefit from a more critical reflection on how this may have shaped data interpretation.
- Analytical transparency: The coding process is described in general terms, but there is limited detail on how themes were derived, validated, or triangulated across interviews and focus groups.

2.4 Clarity and coherence of the argument

The manuscript contains a wealth of empirical material, but I find that the overall argument would benefit from stronger synthesis. This is especially important given the interdisciplinary scope of the journal. In particular, Section 3 (Results) is detailed but at times overly descriptive, making it difficult to identify the key analytical contributions. Moreover, the transition from empirical findings to normative recommendations in Section 5 feels somewhat abrupt; the recommendations are not always clearly grounded in the preceding analysis and could benefit from a more explicit link to the empirical findings. A more explicit structuring of the argument, e.g., through thematic subsections that link findings to specific ethical principles, would improve clarity. The recommendations would also benefit from being more explicitly grounded in specific empirical findings presented earlier in the manuscript.

2.5 Communication for interdisciplinary audiences

As a submission to an interdisciplinary journal, the manuscript would benefit from clearer signposting and conceptual framing for non-specialist readers. Some technical discussions (e.g., InSAR processing, Section 3.5) may be difficult to follow without additional explanation. Conversely, key ethical concepts (e.g., “digital colonialism”) are introduced without sufficient elaboration or citation (see also minor comments).

The manuscript would be strengthened by balancing technical detail with accessible explanations and clearer links to broader communication challenges in DRR.

2.6 Practical implications and actionable recommendations

The recommendations provided (Section 5) are relevant and potentially impactful, particularly the proposal for training and a light-touch ethical review system. However, as noted from Reviewer 1, the manuscript would benefit from more clearly identifying who is responsible for implementing these recommendations.

For instance:

- Should training be delivered by universities, professional bodies, or funders?
- Who would design and oversee the proposed ethical review system?
- How might these recommendations be operationalised in resource-constrained settings?

Clarifying these points would enhance the practical utility of the paper.

3 Minor comments

3.1 General clarity and structure

- Introduction (approx. lines 25–60): The concept of “political complexity” should be explicitly defined early on, as it is central to the framing of the study.
- Lines 50–53: I would suggest reconsidering the use of the term “conventional” to describe geohazard communication. As the manuscript itself later acknowledges, the field has undergone significant evolution. A formulation that reflects this historical development (e.g., “Historically, geohazard communication has been...”) may be more appropriate and accurate in the current context.
- Section 3 (Results): Consider adding summary tables or thematic diagrams to synthesise findings across interviews and focus groups, particularly where multiple perspectives are presented in sequence without synthesis.
- Lines 120–140: Provide a clearer justification for the sample size and its adequacy for grounded theory.
- Line 185: There appears to be a numerical inconsistency. The reported mean value (49 minutes) exceeds the stated maximum of the range (38 minutes). This may be a typographical error and should be clarified.
- Lines 230–233: The discussion of transcription as potentially “wasting time” would benefit from clearer relevance to the study’s methodological choices.
- Appendix A: The histograms presented in Figure A are currently difficult to compare across groups. For each parameter (e.g., gender, age, nationality), the three histograms representing the different groups should use identical x-axis categories and maintain the same ordering. At present, differences in category/range ordering and/or axis structure make cross-group comparison unintuitive. Standardising both the categories/ranges displayed and their order across all histograms would substantially improve readability and facilitate comparison between groups.

3.2 Results and discussion

- Section 3.1: The emphasis on privacy as the dominant ethical concern among participants is important, consider explicitly contrasting this with broader ethical dimensions earlier in the section.
- Section 3.3: The discussion on whether “data” or “interpretation” carries ethical risk is particularly insightful and could be further developed analytically.
- Section 4.2: The critique of “checklist-style” ethical review is compelling but would benefit from engagement with existing literature on research ethics governance.

3.3 Language and style

Several sentences are overly long and could be simplified for clarity (e.g., around lines 300–310).

Minor typographical issues appear throughout (e.g., repeated phrases, punctuation errors), which should be addressed in revision.

4 Recommendation

Minor revisions

Justification

The manuscript addresses an important and timely topic with clear relevance to Geoscience Communication, and it demonstrates strong potential through its empirical basis and interdisciplinary ambition. However, some revisions are required to:

- sharpen the conceptual framing of ethics,
- improve methodological transparency,

- align scope and structure more coherently, and
- strengthen the practical applicability of recommendations.

With these revisions, the paper could make a meaningful and timely contribution to ongoing discussions on ethical geoscience practice and the responsible use of emerging data technologies in DRR contexts.