Comments_on_egusphere-2026-2156

Major comments:

The Introduction is informative but somewhat heavier than necessary. The transition toward the research gap is somewhat delayed. The manuscript would benefit from bringing forward more explicitly the limitations of existing LEWS reviews and the specific added value of adopting an EW4All-based analytical perspective. The main contribution is not the compilation of published LEWS studies, but rather their reinterpretation through operational and governance dimensions. This is an important point that deserves importance. The methodological framework based on PRISMA 2020 is appropriate and adds transparency to the review.

The Results and Discussion section contains a large amount of relevant material, but its presentation is often more descriptive. The literature is well covered, yet many findings are reported rather than interpreted. For NHESS, a stronger effort to extract meaning from the observed patterns would be expected. Implications for operational reliability, scalability, and governance could be developed more systematically.

For instance, the discussion on susceptibility mapping could be strengthened by moving beyond the simple observation of its limited use. The more interesting point is what these reveals about the persistent dominance of rainfall-threshold-based approaches compared to more spatially distributed risk modelling strategies. Similarly, the distinction between local and broader scale systems would benefit from a more explicit reflection on the trade-offs between accuracy, transferability, and operational scalability.

The section on artificial intelligence is relevant and up to date, but the framing is sometimes slightly unbalanced. While limitations are correctly identified, the discussion would be stronger if it more clearly acknowledged the parallel potential of AI-based approaches, particularly in data-scarce environments, alongside their well-known constraints in terms of interpretability.

In particular, the idea that only effective LEWS can reduce landslide impacts should be softened, as risk reduction is inherently multi-dimensional and depends on land use planning, also governance structures, exposure and vulnerability conditions.

One of the strongest contributions of the manuscript is the identification of the limited attention given to Pillars 3 and 4 of the EW4All framework. This is a particularly relevant finding and could be more strongly emphasized, as it highlights a clear structural imbalance in the current LEWS literature between technical forecasting components and communication.

The discussion on operational systems is also valuable. The observation that only a small fraction of systems described in the literature are actually operational is an important point. However, the explanation of this phenomenon would benefit from a more integrated interpretation.

The manuscript also appropriately highlights the gap between academic publications and operational reality, particularly regarding the lack of detailed implementation information in scientific articles. This is an important methodological limitation and could be further developed, as it directly affects the robustness of global comparisons.

For the conclusions section, in its current form, it would be preferable to focus more clearly on the main scientific messages, the key gaps identified, and the most relevant priorities for future LEWS development within the EW4All framework.

In summary, the manuscript has strong potential as a review article for NHESS. The literature coverage is extensive and the EW4All perspective represents a clear added value. However, the manuscript would

benefit from a more analytical structure, reduced redundancy, and a stronger effort to synthesize rather than describe.

Minor comments:

Lines 327–334: The clarification regarding the limitations of the reviewed literature is appreciated and improves the transparency of the study. However, this paragraph could be shortened slightly to avoid interrupting the transition into the Results and Discussion section.

Lines 338–344: The discussion introducing Pillar 1 is clear and well contextualized. Nevertheless, some sentences are somewhat repetitive, particularly regarding the concept of "awareness" and "knowledge" of landslide risks.

Lines 345–352: The finding that only 14 out of 61 LEWS are operational is highly relevant. It would be useful to elaborate more on the reasons preventing the transition from prototype systems to operational implementation.

Lines 366–374: The discussion on slope-specific LEWS is interesting and highlights an important operational limitation. However, the argument on cost–benefit analysis could be supported with a more critical perspective on scalability and long-term maintenance requirements.

Lines 385–406: The section discussing susceptibility maps is very informative. In particular, the explanation of how susceptibility mapping may reduce false alarms is well presented. However, some parts could be reduced in order to improve readability.

Lines 407–417: The discussion on data scarcity is highly relevant, especially for data-sparse regions. Nonetheless, similar arguments appear repeatedly throughout the manuscript.

Lines 432–439: The introduction to Pillar 2 is generally clear, although the paragraph would benefit from a more direct connection to the operational implications of monitoring strategies.

Lines 473–478: The role of additional meteorological variables is mentioned appropriately; however, the statement that these variables are "less crucial" may be simplified, particularly in complex hydro-meteorological environments.

Lines 481–497: The discussion regarding piezometers and inclinometers is valuable and technically well explained. However, some sentences are long and could be divided to improve readability.

Lines 578–600: The manuscript correctly highlights the lack of information regarding Pillars 3 and 4 in the reviewed literature. This represents one of the most important findings of the study and deserves further emphasis in the Conclusions section.