

Response to Reviewer Comments

OpenMesh: Wireless Signal Dataset for Opportunistic Urban Weather Sensing in New York City

ESSD manuscript ID: **essd-2025-238**

Second Revision

1 General Assessment

The authors have updated the repository based on my comments and have also revised the manuscript to solve the minor remaining problems. I only have some technical comments now that can be integrated by the authors in the next steps without a further review.

Response: We appreciate the reviewer’s positive assessment and have addressed all remaining technical comments as detailed below.

2 Manuscript Comments

Comment 1 — Line 63: Phrasing. Maybe better “Sect. 3 analyses the data quality of the OpenMesh dataset and demonstrates its usage.”

Response: Agreed. We have updated the phrasing accordingly.

Comment 2a — Line 153: “selected”. I am not sure what “Its backbone connects hubs and supernodes. . . , while select super nodes provides. . . ” should mean. In my last comment I suggested to write “selected” instead of “select” here.

Response: Corrected “select” to “selected”.

Comment 2b — Line 153: Community infrastructure. In your response you also write that you added examples of community-hosted infrastructure but I cannot find this in the track-changes document.

Response: Thank you for flagging this. The examples of community-hosted infrastructure (MeshDB, UISP dashboards, the community wiki, and Slack workspace) originally appeared later in the NYC Mesh network description but have been moved here for clarity. These changes are now visible in the track-changes document.

Comment 3 — Line 455 onwards: Track-changes rendering. From L455 onwards: Track-changes seems to not have worked correctly here. The changes described in the author response are not marked. But it seems they are present in the revised manuscript. Anyway, these were just minor changes. But it would be good if you could check what went wrong on your side to make sure that track-changes works 100% correctly next time. Reviewers want to rely on the track-changes document.

Response: We traced this to a bug in how `latexdiff` handled nested citations. The regenerated track-changes document now correctly highlights all updates in those sections.

Comment 4 — Diff file visibility in review portal. FYI, since you write that “the first major revision diff, which contains substantial changes from the original submission, is attached separately”: Please note that I just saw the “new manuscript version” the “authors response” and one “author track changes” document in the overview for reviewers. The diff file was sufficient the way it was, though.

Response: Thank you for the clarification. We did provide the files to ESSD as additional materials; they may not have been made visible to reviewers in the portal.

3 Comments Regarding the Repository

Comment 5 — `download_and_read_openmesh.ipynb` fails without CLI. I started with cloning the repo and creating the environment as described in the README. The first thing I then did was to run `download_and_read_openmesh.ipynb`. It seemed to download things correctly but then in the next cell `ds_links = load_links()` failed. I then ran the download script for all data on the command line. After that, this notebook worked as expected. I find it strange to have a notebook that, from its name, is supposed to download the OpenMesh data but then I need to run another script before. Would be good to update that.

Response: Thank you for catching this. The notebook now calls `download_openmesh()` and `extract_openmesh()` in an earlier cell, so it runs end-to-end without the CLI. Additionally, `load_links()` now auto-downloads the dataset if the file is missing.

Comment 6 — `analysis.ipynb` as the main entry point. The `analysis.ipynb` seems to also download data. Maybe it should be highlighted that just running this notebook gets you all data and some basic analysis. This is probably what most users of the repo want as a first and only step. Everything going beyond downloading and the basic analysis is probably some custom work of the user with the data. It is very clear what all the other notebooks and/or download options in the repo are for.

Response: Agreed. The README now opens with a “Recommended first run” block pointing to `analysis.ipynb` with `MODE = 'fetch'`, noting that most users only need this single step.

Comment 7 — Overwhelming README documentation. The wealth of information from all the README files in the subdirectories is well-meant but overwhelming. As a human, it takes much too long to read this. I rather just run one download script and then two notebooks to look at and understand the data instead of reading through all that text. LLM coding agents, which probably have been used to create the README files, are really good in providing structured summarising documents within seconds. But humans are still as slow as ever in reading text. My suggestion would be to summarise the crucial points in one place (at the top of the main README) and only have additional details (clearly marked) at the bottom part of the main README and additional READMEs.

Response: We agreed with this feedback. The main README now leads with environment setup and the `analysis.ipynb` entry point. All technical detail has been moved to a separate

DETAILS.md, linked from the main README for users who need it.

4 Summary of Manuscript Changes in This Revision

Changes addressing reviewer comments

1. **Line 63:** Adopted the reviewer’s suggested phrasing while keeping consistent spelling throughout the manuscript.
2. **Line 153:** Corrected “select” to “selected”. Community infrastructure examples are now clearly visible in the track-changes document.
3. **Data and Code Availability:** Fixed nested parentheses. Zenodo and GitHub references are now cleanly formatted and highlighted in the track-changes document.
4. **Track-changes PDF:** Regenerated the document with a fixed `latexdiff` pipeline to ensure all changes are accurately marked.
5. **Repository:** The notebook now runs end-to-end without requiring the CLI. The README was trimmed to feature `analysis.ipynb` as the main entry point, and additional details were moved to DETAILS.md.

Additional modifications

1. **Abstract & Introduction:** Expanded the V-band rainfall context and emphasised the novel network topology.
2. **Section 2:** Expanded on non-rain sensing challenges and clarified the differences between CML and NYC Mesh deployments. We also refined the PWS language and clarified the pipeline–MeshDB integration.
3. **Section 3:** Fixed the “mean viability” typo and refined the snowfall analysis to better distinguish between dry snow and wintry mix.
4. **Sections 4 & 7:** Added testbed framing, expanded the discussion on future work regarding MRMS, and rewrote the conclusion.
5. **Grammar & formatting:** Fixed citation parentheses, pluralization, tense, missing articles, and unit spacing throughout the text.
6. **Bibliography:** Fixed organizational author citations, an unescaped underscore, and a broken Unicode character.

Repository code modifications

1. **Path handling:** `openmesh.py` now shows clean relative paths.
2. **Code quality:** Improved error handling in `pipeline.py` and `openmesh.py`.
3. **Detection metrics:** Improved time alignment of PWS and ASOS rain data in `analysis_functions.py`.
4. **Notebooks:** Outputs refreshed, cells reorganised, `download_and_read_openmesh.ipynb` now self-contained.

5. **Documentation:** Updated `README.md` and `src/fetch_data/README.md` instructions, added analysis pipeline description.
6. **Python version:** Added 3.11/3.12 recommendation to `README.md` and `requirements.txt`.

All reviewer comments have been addressed. We thank the reviewer for their thorough and constructive feedback.