

General comments

The authors implemented a neural network based model and simulated annual housing inventory changes. The modeling of inventory changes helps to better assess hurricane risks. The proposed methods have both academic and practical merits. The methodologies are well-documented and validated against benchmark models (a time-series and a linear regression model). The authors addressed a critical line of inquiries, particularly during the era of unpredictable climate change trends and vulnerable human society systems in response to external shocks. With these being said, a few comments below may help with the refinement of the manuscript and further progress to the next step.

Line 35: It is interesting to state the current research gaps here concisely before jumping into contributions, which can provide research the context. The gaps and difficulties in employing an updated housing inventory into current risk assessment frameworks can be discussed in more details in the literature review section.

Line 40: This second contribution appears to be a little vague to me. In its current form, this statement sounds more like a methodological summary rather than a contribution highlight.

Line 55: Please shorten the reviews of land use and change, which is less relevant to the article. Yet, you may want to expand Section 2.2, Housing economics. Various drivers of housing development should interest readers who want to learn more about forces underlying housing inventory changes.

Line 129: Why is county chosen as a unit of analysis (UOA)? How can your selection of UOA affect modeling outcomes? And is this unit applicable to other areas with different geographical and/or administrative context.

Line 142: Change the title to “model specifications”? Model types appears to be confusing.

Line 151. Maybe add an equation to define the mentioned model specifications

Line 170 through 175. Please cite references for these statements. And please use a chart or conceptual mathematical expression to illustrate how LSMT and neutral networks (in the context of housing change modeling) work. This may non-computer science experts better understand the concept.

Line 188: Please combine section 4 and 5 into a methods section. Currently, these two sections appear to be disconnected.

Line 395: Figure 5 is too small.

Figure 10: Re-arrange sub-figures to make it easier to read x and y labels.