

## ***Interactive comment on “Exposure of properties to the 2018 Hurricane Florence flooding: an expanding bull’s-eye perspective” by M. Tedesco et al.***

### **Anonymous Referee #1**

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Please see the following commentary:

1. General: The writing style should be more formal and should rely more on active verbs. In general, the manuscript should be edited down to simplify the sentence structure. In addition, there are many errors of punctuation and grammar that are distracting.
2. Findings: The inadequacy of FEMA flood mapping should be reinforced and contextualized. For instance, how can this method augment or support alternative determinations of spatial risk in the housing market? I would like to see some analysis of the method and findings within matters of local and federal policy. For instance, could this

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method compliment Hazus? Maybe or maybe not. At its core, this is about land use and zoning and you should be explicit about this.

3. Line 45: There is also some counter- and supporting-evidence on the horizon that is worth reading:

Gibson, M., J. Mullins, and A. Hill 2017. “Climate Change, Flood Risk, and Property Values: Evidence from New York City”. Working paper, University of Massachusetts-Amherst.

Murfin, J. and M. Spiegel 2018. “Is the Risk of Sea Level Capitalized in Residential Real Estate?” Review of Financial Studies Climate Finance Call, Conditionally Accepted.

4. Present Value: When citing valuations, it is always good practice to cite the associated dollar year.
5. Lines 58-70: This should be significantly edited-down. I think it is also useful to highlight the economic distinctions between stresses and shocks because they have different theoretical pricing elasticities.
6. Line 86: "Of particular importance to the recent market response is the fact that increased probability seems to be an important driving force." A "fact" and "seems" are contradictory language here.
7. Lines 103-108: It is critical that you use the precise language of exposure and sensitivity within the conceptual framing of vulnerability. Much of your pivot argument around urban development is fundamentally about exposure that has merit independent of climate attributed phenomena.
8. Dates: We only need years—not days and months (unless you are referencing SAR).
9. Metric System: I would recommend converting to the metric system.
10. Line 130: I would go ahead and define the "bulls-eye."

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11. Line 138, et seq.: Please define acronyms in their first usage.
12. Section 2.3: Are there other data sources from which you can triangulate and validate assessed value with market value to normalize across the distribution to account for varying appraisal methods and time limitations? I'm not sure I understand how this relates to the Zillow data that you later cite.
13. Page 14, Line 369-70: "An explosion in new properties occurred between 1950 and 2000 (Figure 370 9c), likely as a consequence of the economic stimulus following World War II." This is not a sound association over the cited length of time. Economic research would suggest that "half-back" population shifts associated with these areas being low-cost retirement areas for high-cost Northeast residents is the primary driver of coastal development patterns here.
14. Page 5, Line 125: "no study, to our knowledge, has focused on the impact of urban development on the property exposed to Hurricane Florence." I suppose this is true, but the real contribution is the time-space distribution effects on absolute exposure— independent of climate change attributed events. This exposure has happened and exists whether or not climate change impacts are measured or not.
15. Page 14: If you could find a weighted average assessment tax, it would be helpful to contextualize how important these properties are to local tax bases (county-level). The raw numbers are hard to contextualize.
16. Page 16: When you cite the increase in valuation, my first question is: so what? You really need to another metric for contextualizing exposure. Citing 1940s valuation is methodologically not particularly sound anyway. Again, I recommend looking at local tax base and operating in percentage share.
17. Overall: This paper needs to be significantly edited and simplified. The work is largely solid, but it meanders too much. The connections to climate change are somewhat disconnected as a matter of attribution. The value is the observation method

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and the context of expanding exposure. The science appears to be well-grounded (beyond my competency to full evaluate), but the economics needs some work.

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