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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Understanding Spatiotemporal Development of Human Settlement in Hurricane-prone Areas on U.S. Atlantic and Gulf Coasts using Nighttime Remote Sensing" *by* Xiao Huang et al.

Anonymous Referee #1

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This manuscript describes the use of the DMSP/OLS NTL data from six satellites and AVHRR and MODIS optical imagery to derive the vegetation-adjusted NTL urban index (VANUI), which was analyzed using the Mann-Kendall test and Theil-Sen test for its spatiotemporal trend from 1992 to 2013. The VANUI product was then related to four hurricane-prone zones representing different levels of hurricane proneness, which was determined based on historical North Atlantic Basin (NAB)-origin storm tracks. The manuscript is well organized and the results are very encouraging. This manuscript is worth of being published, but the following comments would be helpful for the authors to

improve the quality of the manuscript. General comments: Line 12, page 2: it would be helpful to provide some background information on how a hurricane is categorized, and explain how a category 5 hurricane looks like. Line 13, page 2: Rephrase "125 billion and 50 billion dollars of damage respectively", this is confusing. Is the total damage 125 billion dollars? Or Is 125 billion dollars a part of damage? Current expression is more like the second case. The same clarification is needed for the 50 billion statement. Line 13, page 6: How is R determined? Based on what factors? Line 24, page 6: It would be helpful to make reference to Figure 3 when mentioning the referencing area. Line 28, page 6: how many referencing lit pixels are used? Figure 3b2, page 10: this plot is very scattered as compared to the other two plots, any explanations? Figure 4c, page 12: the level of the vertical axis is not correct. Figure 5, page 13: it is helpful to label which image is for 1992, 2002 and 2013. Figure 7a, page 17: the ellipse is shown without being explained.

Grammar errors can be found at some places though they don't prevent readers to understand the science of the paper. The following editorial comments could be helpful in this regards, yet it is unlikely that they are able to address all the language issues. Editorial comments: Line 28, page 2: a better understanding Line 34, page 2: Satellite to satellite Line 5, page 3: referred as to referred to as Line 16, page 3: were to was Line 18, page 3: significant to a significant Line 10, page 5: has to have Line 18, page 5: spell out USGS Line 27, page 6: in the same to at the same Line 10, page 7: year to years Line 25, page 7: on to on the Line 27, page 7: upwards or downwards to upward or downward trend Line 3, page 10: a R2 to an R2 Line 7, page 12: year to years Line 13, page 12: decreased to decrease by Line 9, page 12: City to the city Line 17, page 12: Houston reveals dramatic o Houston has a Line 3, page 13: matches to match Line 8, page 13: affect to affects Line 1, page 15: percentage of area to percent area Line 6, page 15: Zonal statistic to Zonal statistics; in to for Line 7, page 15: Please rephrase "The net increase area calculates" Line 11, page 15: significant to a significant Line 12, page 18: Please rephrase "The three two years (2016-2018)" Line 18, page 19: Rephrase "an areal percentage of 4.22% in Zone 1 experienced significant increase in

settlement intensity", it does not make sense.

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