1. What are the 3 characteristics used to compare if NSI and local structure data match?

Location, number of stories, basement presence. 170-176

2. How much of the NSI data matches fully matches the local data? How much matches with 2 key characteristics?

Only 36% of flood-exposed structures fully match across all characteristics, Most (47%), records match in location and basement presence. 218-299

3. What can cause discrepancy in mean structure value?

Looking at the table on page 9 all evaluations for the different categories of homes are similar, they're all basically the same (~$230-240K). This implies that NSI simply fails to pick up on house size and additional features increase said houses value, a systemic bias.

4. Are discrepancies in financial losses higher for NSI-Local structure data when there is a location mismatch or when there is a property mismatch (and a location match)?

Location mismatch and by quite a high degree 10% of overall discrepancy comes from just 15 NSI-only structures facing extremely high depths. 262-272

5. Look at lines 279-292 – what are the implications for assessing building data quality and model performance?

Large variability in relative damage as well as underestimation of structural value differences can produce large discrepancies. For example identifying two story homes without basements as single-story homes with basements, while this might not occur frequently it will produce discrepancies.

6. Describe the methodologies used to correct the NSI data. What are the advantages and disadvantages of this? Recall our discussion on parcels etc. at the beginning of the class.

Matching all NSI properties to Philadelphia parcel polygons/geometry, and updating all characteristics for location matches and dropping NSI structures that don match. In return this reduces the RMSE and ranking tracts for priority status more appropriately. The advantage is clear that using parcel data to correct location can improve the reliability of the data, however it comes with an improvement cost against uncertainty reduction, 417-430. The question becomes "does the remaining uncertainty after basic refinements justify additional investments".

7. What are the policy implications of having the spatial distribution of flood risk wrong?

The NSI misclassifies two (18%) of the most damaged tracts regarding priority status, 294-305. How governmental aid works only those eligible below a certain threshold receive aid, this means due to NSI misclassification many deserving communities are excluded from funding opportunities.