### 

## Overview

I uploaded exposure.zip which has the following files:

* Nsi\_depths.pqt, nsi\_fz.pqt, nsi\_ref.pqt, and nsi\_sf.gpkg

I also uploaded results.zip which includes

* Ensemble.pqt and base\_df.pqt

Below, I include data descriptions for all these (with the most detail for ensemble.pqt)

## Data Descriptions

### ensemble.pqt

A # of structures x N\_SOW length dataframe where N\_SOW is the number of samples from uncertain distributions.

#### Columns

['fd\_id', 'depth\_Base\_075', 'depth\_Base\_100', 'depth\_Base\_125',

'depth\_Base\_150', 'depth\_Base\_175', 'depth\_Base\_200', 'depth\_Base\_225',

'depth\_Base\_250', 'depth\_Base\_275', 'depth\_Base\_300', 'depth\_Base\_325',

'depth\_Base\_350', 'depth\_Base\_375', 'depth\_Base\_400', 'depth\_Levee\_075',

'depth\_Levee\_100', 'depth\_Levee\_125', 'depth\_Levee\_150',

'depth\_Levee\_175', 'depth\_Levee\_200', 'depth\_Levee\_225',

'depth\_Levee\_250', 'depth\_Levee\_275', 'depth\_Levee\_300',

'depth\_Levee\_325', 'depth\_Levee\_350', 'depth\_Levee\_375',

'depth\_Levee\_400', 'naccs\_loss\_Base\_075', 'naccs\_loss\_Base\_100',

'naccs\_loss\_Base\_125', 'naccs\_loss\_Base\_150', 'naccs\_loss\_Base\_175',

'naccs\_loss\_Base\_200', 'naccs\_loss\_Base\_225', 'naccs\_loss\_Base\_250',

'naccs\_loss\_Base\_275', 'naccs\_loss\_Base\_300', 'naccs\_loss\_Base\_325',

'naccs\_loss\_Base\_350', 'naccs\_loss\_Base\_375', 'naccs\_loss\_Base\_400',

'naccs\_loss\_Levee\_075', 'naccs\_loss\_Levee\_100', 'naccs\_loss\_Levee\_125',

'naccs\_loss\_Levee\_150', 'naccs\_loss\_Levee\_175', 'naccs\_loss\_Levee\_200',

'naccs\_loss\_Levee\_225', 'naccs\_loss\_Levee\_250', 'naccs\_loss\_Levee\_275',

'naccs\_loss\_Levee\_300', 'naccs\_loss\_Levee\_325', 'naccs\_loss\_Levee\_350',

'naccs\_loss\_Levee\_375', 'naccs\_loss\_Levee\_400', 'stories', 'fnd\_type',

'ffe', 'val\_s', 'sow\_ind', 'loss\_diff\_075', 'loss\_diff\_100',

'loss\_diff\_125', 'loss\_diff\_150', 'loss\_diff\_175', 'loss\_diff\_200',

'loss\_diff\_225', 'loss\_diff\_250', 'loss\_diff\_275', 'loss\_diff\_300',

'loss\_diff\_325', 'loss\_diff\_350', 'loss\_diff\_375', 'loss\_diff\_400',

'depth\_diff\_075', 'depth\_diff\_100', 'depth\_diff\_125', 'depth\_diff\_150',

'depth\_diff\_175', 'depth\_diff\_200', 'depth\_diff\_225', 'depth\_diff\_250',

'depth\_diff\_275', 'depth\_diff\_300', 'depth\_diff\_325', 'depth\_diff\_350',

'depth\_diff\_375', 'depth\_diff\_400'],

#### Meanings

Fd\_id: unique property id

depth\_scen\_\*: the inundation in feet at the property where ‘scen’ is Base or Levee and the numbers are directly from the PNNL files. Inundation is depth relative to grade - first floor elevation. Inundation is what you use in the depth-damage function

naccs\_loss\_scen\_\*: the damage in $ at the property where ‘scen’ is Base or Levee and the numbers are directly from the PNNL files. ‘naccs’ indicates that the NACCS DDFs were used

Stories: # stories

Fnd\_type: foundation type (limited to crawl space, basement, slab)

Ffe: first-floor elevation

Val\_s: Structure value

Sow\_ind: state of work index

loss\_diff\_\*: Levee loss - Base loss for shared surge scenarios where the wildcard ‘\*’ indicates the surge scenario

depth\_diff\_\*: same as above but for inundation in feet

#### Notes!

I struggled to get the full file on google drive, zipped or not. So, I created ensemble\_agg.pqt which has fd\_id and the loss\_diff\_\*, depth\_diff\_\*, depth\_scen\_\*, and naccs\_loss\_scen\_\* columns in it. These are the expected values for each structure across each structure’s ensemble members.

### nsi\_depths.pqt

This dataframe maps fd\_id to depths relative to grade

### nsi\_fz.pqt

This dataframe maps fd\_id to flood zone types and base flood elevations of those flood zones (if any)

### nsi\_ref.pqt

This dataframe maps fd\_id to census tract ids, census block group ids, census block ids, and zip code ids

### nsi\_sf.gpkg

This geodataframe maps fd\_id to all the variables that you “get” with the national structure inventory download. This is all single family structures w/ 1 or 2 stories, not just those at risk of flooding.

### base\_df.pqt

This dataframe links fd\_id for houses at risk with their reference ids (like census tract and block group) as well as the values from the NSI. So, unlike ensemble.pqt, the values for columns like 'occtype', 'val\_struct', 'bldgtype', 'found\_type', 'num\_story', and 'found\_ht' are deterministic. You should know what the fixed/baseline values are compared to what we get from UNSAFE. It’s confusing and I need a better naming convention, but the depths in this dataframe are depths relative to grade, not inundation.

## Notes

* Let me know if you want any .gpkg files for the flood zones, census tracts, census block groups, etc.
* Unsafe also automatically links structures to CEJST & CDC SVI census tracts if you want those