

Ciao Andrea,

Here it is a quick explanation of what the two user stories consist. The first is to compute the mean losses and the second is the standard deviation of this losses.

Now we are only considering a single earthquake, but the ground motion (IMLs) are still going to be represented by a set of ground motion fields. Let us assume that for this example, we have only 3 locations (A,B and C) and only 5 ground motion fields were being used:

	A	B	C
GMF 1	0.30	0.40	0.40
GMF 2	0.35	0.30	0.40
GMF 3	0.25	0.30	0.35
GMF 4	0.15	0.35	0.45
GMF 5	0.20	0.35	0.30

So the above table has some IMLs for each location per ground motion field. According to what you know already, we expect to have also five loss ratios per location right? One per ground motion field. The way we will compute this loss ratio is exactly in the same way we computed for the probabilistic event-based calculator where we always randomly sampled the loss ratio. And this sampling can be done considering perfect correlation or not. Exactly how it's done in the previously mentioned calculator.

Let us assume that we computed the loss ratios and that they are the following:

	A	B	C
GMF 1	0.20	0.15	0.15
GMF 2	0.05	0.20	0.15
GMF 3	0.10	0.20	0.10
GMF 4	0.05	0.25	0.20
GMF 5	0.10	0.25	0.15

Now we just need to multiply each loss ratio for the value of the asset to have the losses per location per ground motion field:

	A	B	C
GMF 1	200	1500	300
GMF 2	50	2000	300
GMF 3	100	2000	200
GMF 4	50	2500	400
GMF 5	100	2500	300

Sum of losses per GMF

Mean per location

Once I have these values, I can take all the final results I need. The first one is the mean per location. So using scipy, numpy or python math you just compute the mean of the losses per location. The second one, is to compute the sum of the losses per ground motion field, and then compute the mean of the sum of the losses per ground motion field. Finally, the standard deviation of both values can also be computed. Instead of using the command mean(), you can use the sdt() and that's all. I will now produce sample values on excel and then them to you.