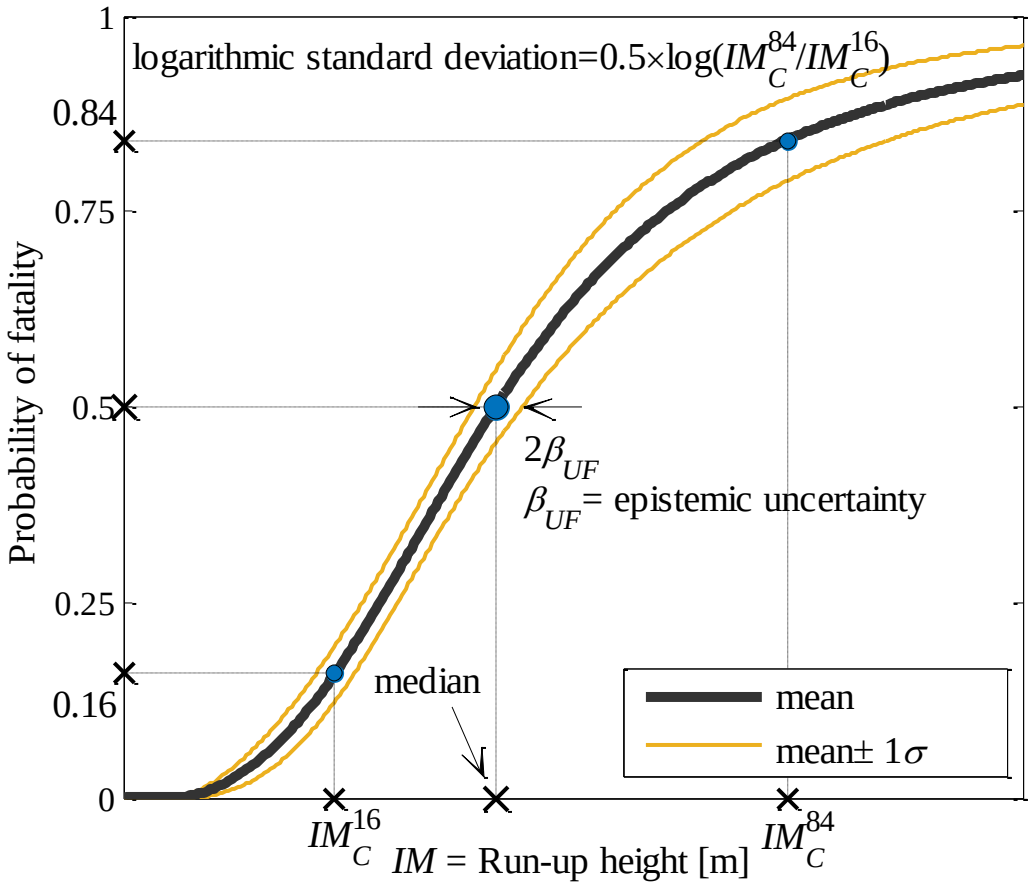
Guide to accessing the empirical Vulnerability data results

This guide explains how to access the empirical vulnerability data for the specified Tsunami event in easy-to-use csv and xlsx formats. The vulnerability data are stored in the files, where each file name is defined as follows: **Building Class_Tsunami Name_Mk**. The term Mk defines the vulnerability model, where k=1 (M1) denotes the vulnerability model using "logit" link function, k=2 (M2) defines the vulnerability model using "probit" link function, and finally k=3 (M3) is for the vulnerability model using "cloglog" link function.

For each damage level defined as Di ("i" defines the number of damage level), seven columns of data are provided, and this module will be repeated based on the number of damage levels. Each module contains the following columns, which are also shown schematically in the following figure

- Run-up [m]: the tsunami vulnerability curve employs the tsunami Run-up height in meters as the measure of intensity.
- mean-1sigma vulnerability: the expected value of the vulnerability over the vector of model parameters for a given intensity minus 1 standard deviation (the lower confidence interval of the vulnerability)
- mean vulnerability: the expected value of the vulnerability over the vector of model parameters for a given intensity
- mean+1sigma vulnerability: the expected value of the vulnerability over the vector of model parameters for a given intensity plus 1 standard deviation (the upper confidence interval of the curve)
- median: the median (50%) of the mean curve
- logarithmic standard deviation: the logarithmic standard deviation (dispersion) of the mean curve
- epistemic uncertainty: epistemic uncertainty due to the uncertainty in the model parameters on the median curve.



To rank different models based on the Bayesian Model Class selection, a csv file is provided with the name: **Bayesian Model Class Selection_ Building Class_Tsunami Name**. This file contains the posterior probability of each model M1, M2 and M3 described above.

Note: In case of the fatality curves (e.g. the 1755 Lisbon Tsunami), the vertical axis shows the probability for fatality *p* associated with each intensity level. In this way, with the *N* being the total population, the expected number of fatalities is $N \cdot p$ and the variance is $N \cdot p(1-p)$.