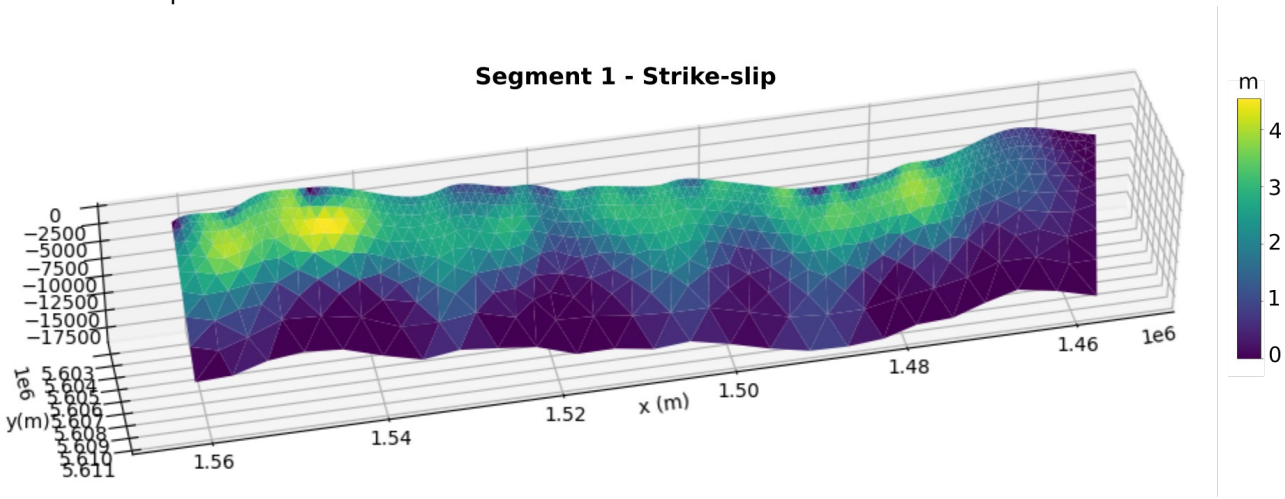
How to convert 3D slip model in 2D ASAGI file ?

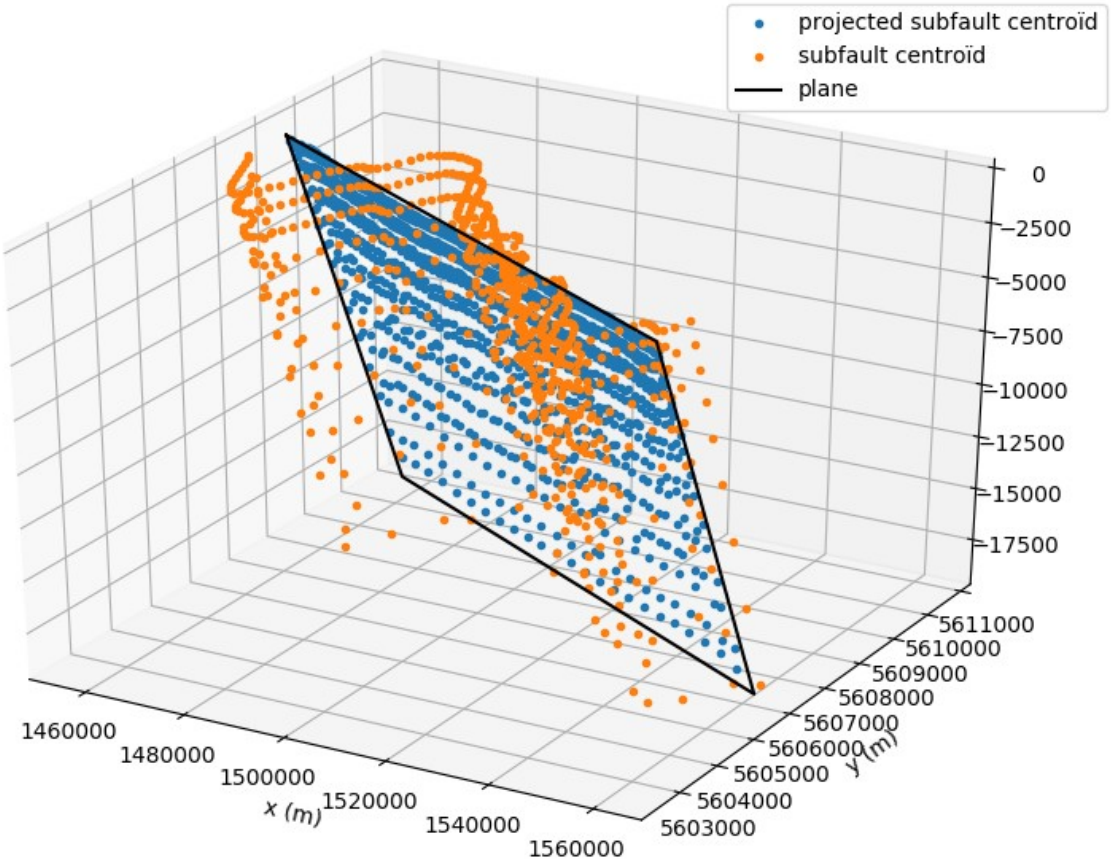
The following describes the general steps to transform a 3D slip model into a 2D ASAGI file to be used in FL33. The slip model of the Maduo earthquake is taken as an example. The script and the data necessary to run this example can be found here: https://github.com/marcmath/Slip2stress_maduo

Let's consider the first segment of the non planar fault slip model of the 2021 Mw 7.4 Maduo earthquake:

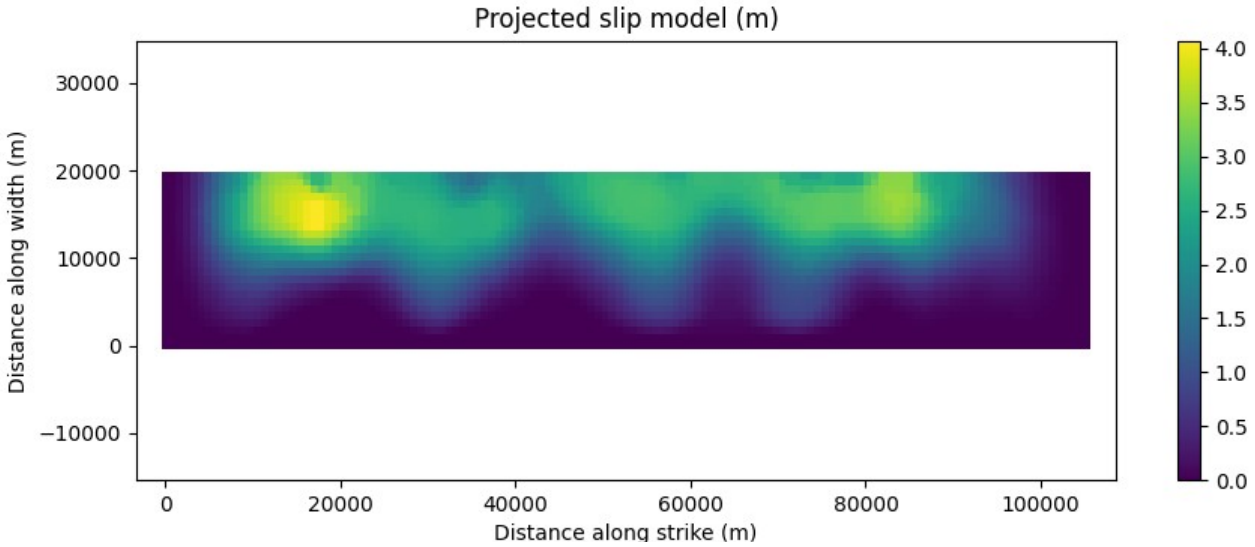


To translate the 3D slip model on a 2D plane, you can proceed as follow:

1. Given the mean strike and dip of the fault segment, build a plane that best approximates the fault segment
2. Project the subfault centroids on the plane:



3. Project the 3D points onto a 2D local coordinate system defined by the plane.
4. Discretize the plane with a regular grid and interpolate the slip model on the grid



5. Apply any filter that you think necessary on the 2D slip model (e.g. smoothing, tappering)
6. Export the 2D grid in a netcdf file readable by ASAGI.