

610 **Supplementary Material**

In the Supplementary Material we provide a .csv zipped file containing:

- in columns 1 to 3 the Longitude and Latitude (UTM Easting and Northing in m, zone 33S) and elevation (in m a.s.l.), of the grid points of our target domain for future flank opening at Etna
- column 4: the canonical model, that is the probability for future flank opening at Etna for each grid point, based on the
615 fissure data opened in the last 4000 years;
- columns 5 to 7: the probability models achieved with sensitivity tests on the canonical model based on different weighting of past fissures according to different sources of deformation, i.e. a volumetric source at depth (column 5), an Eastward flank slip (column 6), and a combination of both (column 7);
- column 8: the probability model achieved with the sensitivity test using only the last 400 years of data, that is the
620 probability for future flank opening at Etna for each grid point, based on the fissure data opened in the last 400 years only;
- columns 9 to 11: the probability models achieved with the sensitivity tests on the model in column 8 based on different weighting of past fissures according to different sources of deformation, i.e. a volumetric source at depth (column 9), an Eastward flank slip (column 10), and a combination of both (column 11).